

PERSPECTIVES IN NEPALESE MANAGEMENT

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B U D D H A



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PREFACE

In today's rapidly changing and dynamic world, finance, economics, marketing and human resource management have assumed critical components of management of any successful organization. The interplay between these four fields assumed a greater significance for the smooth functioning and growth of businesses and economies. Due to high competition and political instability, many businesses are facing challenges and problems in financial, marketing, and human resource management decision making. These days, many firms are finding it difficult to manage cash flows and liquidity, especially during times of economic downturn or crisis. It has gone very hard for the firms to adapt to changing business environment. Maintaining a good financial stability has gone all the more challenging and difficult. Similarly, adapting to changing consumer behaviors and preferences, and make decisions there-of by maintaining brand reputation in a highly competitive marketplace are some of the challenges faced by the today's organization. New trends in finance, marketing, human resource management and economic environment and policy have made a drastic drift in business practices across the local and global markets.

One of the main reasons to come up with this book is to indicate the major differences in theory and practice of management in emerging market like that of Nepal. Based on our many years of teaching, learning, and research, we are of the view that theory and practice of management differ greatly in emerging markets as compared to the developed ones. In other words, we are of the view that management problems faced by emerging markets differ from that of the developed ones. The emerging markets have their own features which are all so unique. The economic, social, demographic, technological and political trends are so different that they are unique to emerging markets, especially Nepal. Due to this, theory and practice of management have also gone different. As a result, the legal provisions and institutional arrangements for achieving efficient management have also have gone different. They have also changed over a period of time. This book therefore aims at providing academicians and practitioners with a knowledge of the differences in management theories and practices in an emerging market setting.

The book has been divided into 4 parts. Part I is devoted to the studies on financial management in Nepal while Part II is devoted to studies relating to marketing management in Nepal. Similarly, Part III is concerned with studies on human resource management in Nepal while Part IV contains studies on economic environment and policy of Nepal.

In Part I, Sah and Pradhan examine the impact of financial ratios, operational efficiency and non-performing loan on the profitability of Nepalese commercial banks. It shows how leverage, liquidity ratio, net interest margin, capital adequacy ratio, non-performing loans and operating efficiency affect return on assets and return on equity. Wosti and Pradhan analyzes the effect of firm specific factors and reinsurance on the performance of Nepalese insurance companies. It offers insights into how firm size, liquidity, assets tangibility, net claim ratio, net commission ratio and ratio of ceded reinsurance affect return on assets and return on equity. Sharma analyzes the effect of collateralizable assets, growth in net assets, liquidity, leverage and profitability on dividend policy of Nepalese commercial banks. It indicates how collateralizable assets, bank size, growth in net assets, liquidity ratio, leverage ratio, and return on equity affect Dividend per share and dividend payout ratio.

Similarly, Pandey investigates the relationship between bank efficiency and non-performing financing in Nepalese commercial banks. It shows how non-performing loans, capital adequacy ratio, loan loss provision, loan to deposit ratio, assets growth and bank size affect return on assets and net interest margin. Rai examines the effect of recapitalization on the performance of Nepalese commercial banks. It offers insights into how capital adequacy ratio, bank size, liquidity, capital investment ratio and bank deposit affect return on assets and return on equity.

Moreover, Khadka and Pradhan analyzes the effect of firm specific factors and macroeconomic factors on the profitability of Nepalese insurance companies. It shows how firm size, liquidity, tangibility, dividend per share, premium growth, inflation, gross domestic product and money supply affect return on assets and return on equity. Pathak assesses the impact of corporate income tax on the performance of Nepalese commercial banks. It indicates how corporate income tax, total investment, liquidity position, firm size, firm growth and firm age affect return on asset and market price per share. Maharjan and Pradhan investigate the effect of credit portfolio diversification on the performance of Nepalese commercial banks. It offers insights into how real estate loan, term loan, overdraft loan,

deprived sector loan, capital adequacy ratio, loan to deposit ratio, and non-performing loan affect return on assets and return on equity.

Darlam examines the impact of credit risk, operational risk and liquidity risk on the profitability of Nepalese commercial banks. It indicates how capital adequacy ratio, non-performing loan, loan loss provision, cost to income ratio, leverage ratio and loan to deposit ratio affect return on assets and return on equity. Maharjan analyzes the effect of working capital management and credit management policy on the financial performance of Nepalese commercial banks. It shows how working capital, loan to deposit ratio, capital adequacy ratio, non-performing loan, cash asset ratio, operating cash flow to total asset and rate of bank's ability to return deposits affect return on assets and return on equity. Shahi investigates the effect of bank-related, industry-related and macroeconomic factors on the profitability of Nepalese commercial banks. It offers insights into how bank size, capital adequacy ratio, liquidity ratio, loan ratio, deposit ratio, concentration ratio, GDP growth rate and inflation rate affect return on assets and return on equity. Khatri examines the impact of financial ratios, operational efficiency and non-performing loans on the profitability of Nepalese commercial banks. It indicates how capital adequacy ratio, loan loss provision ratio, loan-deposit ratio, debt to equity ratio, operational efficiency and non-performing loan affect return on asset and net-interest margin. Chand analyzes the role of non-performing asset, capital adequacy and insolvency risk on the performance of Nepalese commercial banks. It shows how non-performing assets, capital adequacy ratio, credit to deposit ratio, insolvency risk and bank size affect return on assets and return on equity.

Kattel and Pradhan investigate the effect of firm specific factors affecting stock price of Nepalese insurance companies. It offers insights into how premium growth, return on assets, return on equity, dividend per share, earnings per share, price earnings ratio and company size affect stock return and market price per share. Pantha examines the effect of financial literacy on personal financial planning in Nepal. It indicates how financial knowledge, financial awareness, financial attitude, financial confidence and financial socialization affect personal financial planning. Lamichhane analyzes the association between investment behaviour and financial literacy in Kathmandu Valley. It shows how financial knowledge, financial awareness, financial experience, financial skills, financial capability and financial goals affect investment behaviour. Pathak investigates the impact of corporate income tax on the performance of Nepalese commercial banks. It offers insights into how corporate income tax, total investment, liquidity position, firm size, firm growth and firm age affect return on asset and market price per share. Similarly, Tiwari and Pradhan examine the effect of capital adequacy ratio, third party fund, loan to deposit ratio, bank size on profitability of Nepalese commercial banks. It indicates how capital adequacy ratio, third party fund, loan to deposit ratio, bank size, non-performing and number of branches affect return on assets and return on equity. Bhandari analyzes the relationship between credit growth and response with capital requirements in the context of Nepalese commercial banks. It shows how non-performing loan, Tier 1 capital ratio, capital adequacy ratio, loan loss provision, liquidity ratio, and bank size affect credit to total assets and credit to total deposits.

In Part II, Yadav examines the impact of marketing mix variables on consumer buying behavior in Kathmandu Valley. It shows how price, product, promotion, personnel, place and store atmosphere affect consumer buying behavior. Yadav analyzes the determinants of advertisement avoidance behavior of Nepalese television audience. It offers insights into how reliability, repetition, informativeness, advertising appeals and celebrity association affect advertisement avoidance. Ayer assess the impact of e-banking services on customer satisfaction in Nepalese commercial banks. It indicates how convenience, reliability, ease of use, security, time saving and perceived benefits affect customer satisfaction. Pandey investigates the impact of online banking in profitability of Nepalese commercial banks. It shows how ATM banking, point of sales banking, QR code, mobile banking, internet banking and credit card affect return of assets and return of equity. Joshi examines the impact of microfinance program on socio economic empowerment of women in Nepal. It offers insights how leadership skills, self-efficacy, entrepreneurial skills, access to resources and insurance services affect self-confidence, decision making ability, and financial independency. Pokharel investigates the purchase decisions of male consumers towards buying grooming products in Kathmandu Valley. It indicates how branding, packaging, pricing, quality, value and celebrity endorsement affect consumer buying behavior.

In Part III, Pandey examines the determinants of employee turnover intention in the context of Nepalese commercial banks. It indicates how compensation, training and development, career growth, job satisfaction, work environment and motivation affect employee turnover. Dhakal examines the effect of job environment on employee satisfaction in Nepalese commercial banks. It shows how job safety and security, incentives and recognition, training and development, supervisor's support, co-worker's relation and working hour's flexibility affect employee satisfaction. Lamsal analyzes

the factors affecting women participation in Nepalese manufacturing companies. It offers insights into how personal factors, societal factors, organizational factors, cultural factors and glass ceiling factors affect women participation. Bastola analyzes the impact of work life balance on employee job satisfaction in Nepalese insurance companies. It indicates how working hour, salary, job design, supervisory support, organizational culture, reward and recognition affect job satisfaction. Limbu investigates the factors influencing job satisfaction and its impact on job loyalty in the context of Nepalese commercial banks. It shows how rewards and recognition, training and development, workplace environment, team work, employee empowerment, employee participation and job satisfaction affect job loyalty.

Moreover, Chataut analyzes the perception of MBA students towards civil service as a career path in Nepal. It offers insights into how salary package, job security, status and prestige, family background, chances of promotion and meaningful work affect career path in civil service. Adhikari examines the impact of training and development of employees' performance in Nepalese commercial banks. It indicates how on-the-job training, off-the-job training, trainer knowledge, employee developmental program, job rotation and coaching affect employees' performance. Jaiswal analyzes the impact of human resource management practices on employee performance in the context of Nepalese commercial banks. It shows how compensation practices, training and development, performance evaluation, promotion practices and employee relation affect employee performance.

In Part IV, Pachhaldangaya and Bista analyze the impact of macro-economic factors on the credit risk of Nepalese commercial banks. It shows how gross domestic product, inflation, broad money growth, interest rate, exchange rate, and bank size affect non-performing loan and loan loss provision. Luitel examines the impact of macro-economic variables on the profitability of Nepalese commercial banks. It offers insights into how inflation, money supply, unemployment rate, gross domestic product, exchange rate and interest rate affect return on assets and return on equity. Rimal investigates the impact of bank efficiency and financial depth on the economic growth of Nepal. It indicates how return on assets, capital adequacy ratio, broad money supply, stock market capitalization, bank credit and trade openness affect gross domestic product and per capita disposable income. Ghimire and Bista analyze the relationship between sectoral allocation of banks credit and economic growth in Nepal. It shows how credit to agriculture sector, credit to manufacturing sector, credit to construction sector, credit to energy sector, credit to tourism sector and credit to deprived sector affect real GDP growth and per capita income growth. Humagain investigates the relationship between inflation and profitability of Nepalese commercial banks. It indicates how bank size, inflation rate, liquidity, leverage, capitalization and credit risk affect net interest margin and price to earnings ratio. Yadav investigates the variability of macroeconomic variables and its implications on the sustainability of profitability in Nepalese commercial banks. It offers insights into how gross domestic product, inflation, bank rate, money supply, total government expenditure and total government revenues affect return on assets and return on equity.

There exists a considerable literature on management in the context of developed countries but such literatures are scanty in an emerging country like Nepal. In this context, the present book which contains eighteen studies on financial management, six studies on marketing, eight studies on human resource management and six studies on economic environment and policy leading a total of 38 studies provides a very good literature in the context of Nepal. It also provides a good base for carrying out further studies in Nepal. Hence, these studies carry a good deal of significance. There are some studies already dealing with the themes, yet we still do not have complete knowledge. With the present study, we have now at least some new research evidences. Each study has gone through several phases of research such as the following: (1) Definition of the problem (2) Review of literature (3) Formulation of a research design and selection of a methodology (4) Data collection (5) Presentation and analysis of data, and (6) Conclusions, interpretations and inferences.

Each study has clearly defined the research objectives. A comprehensive review of literature review has also been made by each of these studies. The methodology adopted by each study is sound which also contained, among others, the use of several statistical tools and techniques. The analysis of data consists of organizing, tabulating, and performing statistical analysis. Implications are made as the final product in each of these studies. In each study, the researcher has gone from the statement of the problem to the recommendation for the solution of the problem: the complete cycle of a well-organized study.

This book would not be possible without the generous contribution of the article by the authors. Hence, we would like to express our sincere gratitude to all the authors for contributing their quality research works for the purpose of this book. They all deserve a special note of appreciation. This book can be used as a basis for class discussions

in seminars or case-oriented courses, or it can serve in lecture courses as a companion to a main text when more extensive coverage is desired.

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March 2023

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CONTENTS

Part I: Financial management

Chapter 1:	Impact of financial ratios, operational efficiency and non-performing loan on the profitability of Nepalese commercial banks - <i>-Ashish Kumar Sah and Prof. Radhe Shyam Pradhan</i>	3
Chapter 2:	Effect of firm specific factors and reinsurance on the performance of Nepalese Insurance Companies <i>-Narayan Wosti and Sumit Pradhan</i>	17
Chapter 3:	Effect of collateralizable assets, growth in net assets, liquidity, leverage and profitability on dividend policy of Nepalese commercial banks <i>-Anjali Sharma</i>	31
Chapter 4:	Bank efficiency and non-performing financing in Nepalese commercial banks <i>-Aparajita Pandey</i>	45
Chapter 5:	Effect of recapitalization on the performance of Nepalese commercial banks <i>-Rishi Rai</i>	61
Chapter 6:	Effect of firm specific and macroeconomic factors on profitability of Nepalese Insurance Companies <i>-Sujan Khadka and Sumit Pradhan</i>	75
Chapter 7:	Credit portfolio diversification and firm performance of Nepalese commercial banks <i>-Rashna Maharjan and Prof. Radhe Shyam Pradhan</i>	91
Chapter 8:	Impact of credit risk, operational risk and liquidity risk on the profitability of Nepalese commercial banks <i>-Sabitri Darlami</i>	107
Chapter 9:	Effect of working capital management and credit management policy on financial performance of commercial banks in Nepal <i>-Sweta Maharjan</i>	121
Chapter 10:	Bank-related, industry-related and macroeconomic factors affecting profitability of Nepalese commercial banks <i>-Bhumisara Shahi</i>	137
Chapter 11:	Impact of financial ratios, operational efficiency and non-performing loans on the profitability of Nepalese commercial banks <i>-Janak Khatri</i>	153
Chapter 12:	Role of non-performing asset, capital adequacy and insolvency risk on the performance of Nepalese commercial banks <i>-Jyoti Chand</i>	167

Chapter 13:	Impact of firm specific factors affecting stock price of Nepalese insurance companies – <i>Ashim Jamar Kattel and Prof. Radhe Shyam Pradhan</i>	181
Chapter 14:	Influence of financial literacy on personal financial planning in Nepal – <i>Babita Pantha</i>	197
Chapter 15:	Investment behaviour and financial literacy: A case of Kathmandu Valley – <i>Melina Lamichhane</i>	209
Chapter 16:	Impact of corporate income tax on the financial performance of Nepalese commercial banks – <i>Kalpna Pathak</i>	221
Chapter 17:	Effect of capital adequacy ratio, third-party fund, loan to deposit ratio and bank size on the profitability of Nepalese commercial banks – <i>Milan Tiwari and Prof. Radhe Shyam Pradhan</i>	235
Chapter 18:	Credit growth and response to capital requirements: Evidence from Nepalese commercial banks – <i>Nita Bhandari</i>	249

Part II: Marketing management

Chapter 19:	Impact of marketing mix variables on consumer buying behavior in Kathmandu Valley – <i>Anita Yadav</i>	265
Chapter 20:	Advertisement avoidance behavior of Nepalese television audience – <i>Samjhana Yadav</i>	277
Chapter 21:	E-Banking Services and its Impact on Customer Satisfaction in Nepalese Commercial Banks – <i>Rakesh Ayer</i>	289
Chapter 28:	Impact of online banking on the profitability of Nepalese commercial banks – <i>Survi Pandey</i>	301
Chapter 23:	Impact of microfinance program on socio economic empowerment of women in Nepal – <i>Ram Krishna Joshi</i>	315
Chapter 24:	Purchase decisions of male consumers towards buying grooming products in Kathmandu Valley – <i>Gaurav Pokharel</i>	329

Part III: Human resource management

Chapter 25:	Employee turnover intention and its determinants in Nepalese commercial banks – <i>Kusum Pandey</i>	343
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Chapter 26:	Effect of job environment on employee satisfaction in Nepalese commercial banks <i>–Ranjana Dhakal</i>	355
Chapter 27:	Factors affecting women participation in leadership position in Nepalese manufacturing companies <i>–Shreeya Lamsal</i>	369
Chapter 28:	Impact of work life balance on employee job satisfaction in Nepalese insurance companies <i>–Sital Bastola</i>	379
Chapter 29:	Factors influencing job satisfaction and its impact on job loyalty of Nepalese commercial banks <i>–Pramita Limbu</i>	391
Chapter 30:	Perception of MBA students towards civil services as a career path in Nepal <i>– Jharana Chataut</i>	405
Chapter 31:	Impact of training and development of employees' performance in Nepalese commercial banks <i>–Yubraj Adhikari</i>	417
Chapter 32:	Impact of human resource management practices on employee performance in Nepalese commercial banks <i>–Rojee Jaiswal</i>	429

Part IV: Economic environment and policy

Chapter 33:	Impact of macroeconomic factors on credit risk of Nepalese commercial banks <i>–Saroj Pachhaldangaya and Dr. Nar Bahadur Bista</i>	443
Chapter 34:	Impact of macro-economic variables on the profitability of Nepalese commercial banks <i>–Umesh Luitel</i>	457
Chapter 35:	Bank Efficiency, Financial Depth and Economic Growth: A Case of Nepal <i>–Kritima Rimal</i>	473
Chapter 36:	Sectoral allocation of banks credit and economic growth in Nepal <i>–Laxuman Ghimire and Dr. Nar Bahadur Bista</i>	487
Chapter 37:	Relationship between inflation and profitability of Nepalese commercial banks <i>–Anjila Humagain</i>	501
Chapter 38:	Variability of macroeconomic variables and its implications on the sustainability of profitability in Nepalese commercial banks <i>–Shailendra Kumar Yadav</i>	515

PART 1

Financial Management



Impact of financial ratios, operational efficiency and non-performing loan on the profitability of Nepalese commercial banks

– Ashish Kumar Sah and Prof. Radhe Shyam Pradhan*

Abstract

The study examines the impact of financial ratios, operational efficiency and non-performing loan on the profitability of Nepalese commercial banks. Return on assets and return on equity are selected as the dependent variables. The selected independent variables are leverage, liquidity ratio, net interest margin, capital adequacy ratio, non-performing loans and operating efficiency. The study is based on secondary data of 20 commercial banks with 120 observations for the period from 2015/16 to 2020/21. The data were collected from Bank Supervision Report published by Nepal Rastra Bank (NRB) and annual reports of the selected commercial banks. The correlation coefficients and regression models are estimated to test the significance and importance of financial ratios, operational efficiency and non-performing loan on the profitability of Nepalese commercial banks.

The study showed that leverage has a negative effect on return on assets. It indicates that increase in leverage ratio leads to decrease in return on assets. Similarly, liquidity ratio has a positive impact on return on assets and return on equity. It indicates that increase in liquidity ratio leads to increase in return on assets and return on equity. Likewise, net interest margin has a positive impact on return on assets and return on equity. It indicates that increase in net interest margin leads to increase in return on assets and return on equity. Furthermore, capital adequacy ratio has a positive impact on return on assets. It indicates that increase in capital adequacy ratio leads to increase in return on assets. In addition, non-performing loan has a negative impact on return on equity. It means that increase the non-performing loan leads to decrease in return on equity. Moreover, operating efficiency has a negative impact on return on assets and return on equity. It indicates that increase the operating efficiency leads to decrease in return on assets and return on equity of Nepalese commercial banks.

Key words: Return on assets, return on equity, leverage, liquidity ratio, net interest margin, capital adequacy ratio, non-performing loans and operating efficiency.

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1. Introduction

Banking sector plays a pivotal role as it ensures efficient flow of financial resources from savers to borrowers. The success and failure of a bank are measured by profitability performance. By evaluating profitability performance, it is merely easy to measure the efficiency and effectiveness of a bank's resource utilization during a specific period of time (Ngurah and Panji, 2021). The strong profitability of a bank shows a higher capacity to earn profit and a bigger contribution to the economic growth of a country (Adiatmayani and Panji, 2021). The high level of profitability describes the good performance of a company, which means that the bank has been operating effectively and efficiently (Langodai and Lutfillah, 2019). The economic problem always poses for banks in maintaining growth and ensuring sustainable stability. Liquidity is always a concern of banks in maintaining profitability. The appropriate level of liquidity will contribute to increasing the bank's profitability. Managing liquidity requires a flexible adaptation to circumstances and conditions. The poor liquidity is the main reason leading to risks and losses for the bank. Liquidity risks will affect the profitability of banks (Almazari, 2014).

In today's economy, banks play significant and irreplaceable roles in the growth of financial services, which ultimately leads to the overall success of the economy of a country. Bunyaminu *et al.* (2021) implicated the impact of financial leverage on profitability of recapitalized banks in Ghana. The results found that leverage exerts a significant negative effect on banks' profits. Similarly, Thinh and Vietnam (2022) asserted that profitability is a matter of concern for all economic organizations, including banks. The results showed that liquidity has a positive relationship with the profitability. Setiawati *et al.* (2022) showed that the capital adequacy ratio (CAR) and net interest margin (NIM) have positive and significant effect on bank profitability. Meanwhile, non-performing finance (NPF) has a negative and insignificant effect on bank profitability. Moreover, Surtikanti *et al.* (2022) implicated the influence of capital adequacy ratio and net interest margin on bank profitability (return on asset) in listed foreign exchange commercial banks in Indonesia Stock Exchange from 2011 to 2015. The study found that capital adequacy ratio significantly influences the profitability (return on asset) while net interest margin variable significantly influences bank profitability. Widyakto *et al.* (2021) revealed that NIM incorporates a critical positive impact on ROE. NPL contains a noteworthy negative impact on ROE. In addition, Susilawati and Nurulrahmatiah (2021) showed that NPL has a significant effect on ROA, while LDR does not affect ROA. Moreover, the study also revealed that NIM has a significant effect on ROA. Likewise, Lukorito *et al.* (2014) reported significant growth and improved financial performance of the financial sector in Kenya. The study found that Liquidity, has statistically significant and positive relationship with banks' profitability. Aronokhale (2022) analyzed the impact of non-performing loans on profitability of commercial banks in Nigeria. The findings showed that more non-performing loans the banks are carrying in their books, the more losses they would incur. According to Swandewi and Purnawati (2021), non-performing loan has a negative and significant relationship with return on assets. When the rate of nonperforming loans increases, the bank's ROA will decrease, meaning that the bank profitability will be lowered

Soesetio *et al.* (2022) found that liquidity and loan to deposit ratio positively affects small banks profitability in Indonesia. Meanwhile, size, deposit to asset ratio, capital adequacy ratio, and GDP growth negatively affects profitability. Abate and Mesfin (2019) explored the bank-specific, industry-specific and macro-economic factors that affect bank profitability of nine commercial banks in Ethiopia, during the period of 2007-2016. The study revealed that capital adequacy, leverage, liquidity, and ownership have statistically significant and positive relationship with banks' profitability. On the other hand, operational efficiency, GDP, inflation and interest rate have a negative and statistically

significant relationship with banks' profitability. Furthermore, Sriyono and Nabellah (2022) revealed that the level of capital adequacy has a positive effect on profitability. Likewise, Djaya and Yanuarti (2021) estimated the influence of capital adequacy ratio and non-performing loan on profitability of commercial banks. The results showed that capital adequacy ratio has positive influence on return on assets but not statistically significant. Furthermore, Islam *et al.* (2020) analyzed the main challenges faced by commercial banks in Bangladesh. The study revealed that capital adequacy ratio and leverage ratio have a significant negative impact on the performance of banks. Moreover, Collaku and Aliu (2021) analyzed the impact of nonperforming loans on Kosovo banks' profitability over a time. The results revealed that the effect of nonperforming loans on the profitability is statistically significant. Similarly, Gabriel *et al.* (2019) examined the effect of non-performing loans on the financial performance of commercial banks in Nigeria. The result showed that non-performing loans to total loans ratio (NPL/TLR) and cash reserve ratio (CRR) had statistically negative significant effect on return on asset (ROA).

Phan (2020) analyzed the factors affecting the profitability of listed commercial banks in Vietnam. The results showed that operating efficiency, loans size, retail loans ratio, state ownership, inflation rate, and GDP growth are the factors that have a positive impact on profitability. In addition, Adam *et al.* (2018) asserted the influence of company size, liquidity and operational efficiency on bank profitability with problem credit risk as a moderating variable at commercial banks. The study found that liquidity do not affect profitability, whereas operational efficiency negatively affected profitability. Similarly, Ebenezer *et al.* (2017) examined the bank-specific and macroeconomic determinants of banks profitability in Nigeria. The results showed that capital adequacy and liquidity have a positive and significant effect on bank profitability. However, efficiency ratio has a negative and significant effect on bank profitability. Likewise, Erina and Lace (2013) examined the impact of the external and internal factors of bank performance on the profitability indicators of Latvian commercial banks. The study revealed that profitability has a positive association with operational efficiency measured by ROA and ROE. Furthermore, Kingu *et al.* (2018) examined the impact of non-performing loans on banks profitability using information asymmetry theory and bad management hypothesis. The study found that occurrence of non-performing loans is negatively associated with the level of profitability in commercial banks in Tanzania. Moreover, Hasmiana and Pintor (2022) examined the effect of financial risk, capital structure, and liquidity on profitability through operational efficiency at state-owned banks and private commercial banks. The results showed that the financial risk, capital structure, liquidity, and operational efficiency have a significant effect on bank profitability.

In the context of Nepal, Gurung and Gurung (2022) observed the various aspects shaping commercial bank profitability in Nepal. The study revealed that non-performing assets weakly influence the return on assets, but it has a significant negative effect on return on equity. Niroula and Singh (2021) examined the effect of liquidity on financial performance of commercial banks in Nepal. The study found that CAR has a positive and significant effect on ROA. Similarly, Oli (2021) assessed the determinants of return on assets, net profit margin, and earnings per share in Nepalese commercial banks. The study revealed that debt to assets ratio, long term debt ratio, debt to equity ratio, interest coverage ratio, and liquidity ratio have a positive relationship with return on assets, net profit margin, and earning per share. Likewise, Bhattarai (2020) evaluated the non-performing loan (NPL) as a major problem in banking industry. The results revealed that the NPL, CAR and LIQ are significant and negatively associated with ROE. Moreover, Pradhan and Parajuli (2017) asserted the effect of capital adequacy and cost income ratio on the performance of Nepalese commercial banks. The study showed that there is negative relationship of capital adequacy, cost income ratio, equity capital to total assets ratio and liquidity ratio with return on assets. Similarly, the study observed that there

is a negative relationship of liquidity ratio with return on equity.

The above discussion shows that empirical evidences vary greatly across the studies on the impact of financial ratios, operational efficiency and non-performing loans on the profitability of commercial banks. Though there are above mentioned empirical evidences in the context of other countries and in Nepal, no such findings using more recent data exist in the context of Nepal. Therefore, in order to support one view or the other, this study has been conducted.

The main purpose of the study is to analyze the impact of financial ratios, operational efficiency and non-performing loans on the profitability of Nepalese commercial banks. Specifically, it examines the relationship of leverage, liquidity ratio, net interest margin, capital adequacy ratio, non-performing loans and operating efficiency with return on assets and return on equity of Nepalese commercial banks.

The remainder of this study is organized as follows. Section two describes the sample, data and methodology. Section three presents the empirical results and the final sections draws the conclusion.

2. Methodological aspects

The study is based on the secondary data which were gathered from 20 Nepalese commercial banks from 2015/16 to 2020/21, leading to a total of 120 observations. The main sources of data collected from the Bank Supervision Report published by Nepal Rastra Bank (NRB) and annual reports of the selected commercial banks. This study is based on descriptive as well as causal comparative research designs. Table 1 shows the list of commercial banks selected for the study along with the study period and number of observations.

Table 1: List of banks selected for the study along with the study period and number of observations

S. N.	Name of the banks	Study period	Observations
Public Banks			
1	Nepal Bank Limited	2015/16 - 2020/21	6
2	Agricultural Development Bank Limited	2015/16 - 2020/21	6
Joint Venture Banks			
3	Nabil Bank Limited	2015/16 - 2020/21	6
4	Nepal SBI Bank limited	2015/16 - 2020/21	6
5	NMB Bank Limited	2015/16 - 2020/21	6
6	Himalayan Bank Limited	2015/16 - 2020/21	6
7	Everest Bank Limited	2015/16 - 2020/21	6
Private Banks			
8	Global IME Bank Limited	2015/16 - 2020/21	6
9	Siddhartha Bank Limited	2015/16 - 2020/21	6
10	NIC Asia Bank Limited	2015/16 - 2020/21	6
11	Machhapuchchhre Bank Limited	2015/16 - 2020/21	6
12	Sanima Bank Limited	2015/16 - 2020/21	6

13	Sunrise Bank Limited	2015/16 - 2020/21	6
14	Mega Bank Nepal Limited	2015/16 - 2020/21	6
15	Nepal Investment Bank Limited	2015/16 - 2020/21	6
16	Century Commercial Bank Limited	2015/16 - 2020/21	6
17	Civil Bank Limited	2015/16 - 2020/21	6
18	Kumari Bank Limited	2015/16 - 2020/21	6
19	Prime Commercial Bank Limited	2015/16 - 2020/21	6
20	Laxmi Bank Limited	2015/16 - 2020/21	6
Total number of observations			120

Thus, the study is based on 120 observations.

The model

The model used in this study assumes that profitability depends on financial ratio, operational efficiency and non-performing loans. The dependent variables selected for the study are return on assets and return on equity. Similarly, the selected independent variables in this study are leverage, liquidity ratio, net interest margin, capital adequacy ratio, non-performing loan and operating efficiency. The following model equations are designed to test the hypothesis:

$$\text{ROA} = \beta_0 + \beta_1 \text{LEV} + \beta_2 \text{LQR} + \beta_3 \text{NIM} + \beta_4 \text{CAR} + \beta_5 \text{NPL} + \beta_6 \text{OE} + \text{eit}$$

$$\text{ROE} = \beta_0 + \beta_1 \text{LEV} + \beta_2 \text{LQR} + \beta_3 \text{NIM} + \beta_4 \text{CAR} + \beta_5 \text{NPL} + \beta_6 \text{OE} + \text{eit}$$

Where,

ROA = Return on assets as measured by the ratio of net income to total assets, in percentage.

ROE = Return on equity as measured by the ratio of net income to total equity, in percentage.

LEV = Leverage ratio as measured by the ratio of total debt to total assets, in percentage.

LQR = Liquidity as measured by the ratio of liquid assets to total assets, in percentage.

NIM = Net interest margin as measured by the ratio of net interest income to total assets, in percentage.

CAR = Capital adequacy ratio as measured by the ratio of total capital to risk weighted assets, in percentage.

NPL = Non performing loan as measured by the ratio of nonperforming loan to total loan, in percentage.

OE = Operating efficiency as measured by the ratio of operating expenses to operating income, in percentage.

The following section describes the independent variables used in this study along with hypothesis formulation.

Leverage

Leverage basically entails how much firms collateralize their assets by adopting outside funds. Bose *et al.* (2017) defined leverage ratio as the percentage of total debt divided by total assets. Athanasoglou *et al.* (2008) argued that lower leverage (higher equity) leads to greater ROA but lower ROE. Karim *et al.* (2022) revealed that leverage ratios are negatively related to profitability and market return. Similarly, Sarker and Islam (2021) found that bank's capital structure (debt ratio) is negatively associated with profitability and vice versa. Likewise, Alarussi and Alhaderi (2018) concluded that there is negative relationship between both leverage ratio and profitability. Furthermore, Bunyaminu *et al.* (2021) showed that leverage exerts a significant negative effect on banks' profits regardless of the proxy of profitability. Based on it, this study develops the following hypothesis:

H₁: There is a negative relationship between leverage and profitability.

Liquidity ratio

Liquidity is used to measure a bank's ability to meet its short-term obligations at maturity or when billed. Liquid assets are cash and assets that can be converted to cash quickly if needed to meet financial obligations. Adelopo *et al.* (2022) revealed a positive and significant association between liquidity level and bank performance. Similarly, Al Zaidanin and Al Zaidanin (2021) showed that the liquidity ratio has a very weak positive relationship with the return on assets. Likewise, Soesetio *et al.* (2022) showed that liquidity positively affects the banks profitability in Indonesia. Moreover, Almaqtari *et al.* (2019) found that liquidity ratio has a significant positive impact on ROE. Based on it, this study develops the following hypothesis:

H₂: There is a positive relationship between liquidity ratio and profitability.

Net interest margin

Net interest margin (NIM) is the ratio of net interest income to total interest-earning assets. It is measured by the difference between interest revenues received from loans and interest costs paid for deposits. Le *et al.* (2022) found that net interest margin has a positive and significant effect on profitability. Similarly, Marlina (2022) concluded that NIM has a positive and insignificant effect on ROA. Likewise, Sukmadewi (2020) stated that net interest margin has a positive and significant effect on return on assets. Furthermore, Widyakto *et al.* (2021) revealed that NIM incorporates a critical positive impact on ROE. Based on it, this study develops the following hypothesis:

H₃: There is a positive relationship between net interest margin and profitability.

Capital adequacy ratio

Capital adequacy ratio is a bank performance ratio that assesses the extent to which the capital owned by the bank is able to face the risk of credit failure faced by the bank. Hersugondo *et al.* (2021) revealed that capital adequacy has a significant negative impact on bank performance. Similarly, Dao and Nguyen (2020) found that the most controversial result comes up with the negative relationship between capital adequacy ratio and profitability. Likewise, Al-Homaidi *et al.* (2020) showed that capital adequacy ratio has a negative significant impact on ROA. Furthermore, Islam *et al.* (2020) revealed that capital adequacy ratio has a significant negative impact on the performance of banks. Based on it, this study develops the following hypothesis:

H₄: There is a negative relationship between capital adequacy ratio and profitability.

Nonperforming loan

Nonperforming loan is a comparison between the number of non-performing loans caused by the debtor and the amount of credit owned by the bank and then given to the debtor. The higher the NPL value, the worse it will be for banks. High number of non-performing loans may lead to a decrease in ROA (Laryea *et al.*, 2016). Kwashie (2022) showed that the non-performing loans have a negative impact on the measures of financial performance. Likewise, Safitri and Oktavia (2022) found that NPL has a negative and significant effect on ROA. Similarly, Bandara *et al.* (2021) showed that non-performing loans have negative and significant association with return on assets. Furthermore, Do *et al.* (2020) revealed that non-performing loans have negative impact on the bank's profitability. Based on it, this study develops the following hypothesis:

H₅: There is a negative relationship between non-performing loan and profitability.

Operating efficiency

Operating efficiency is measured by the ratio between total operating costs and total operating income of a bank (Endri, 2018). Operational efficiency illustrates the capability of management to regulate expenditures. Uddin (2022) revealed that operating efficiency has a negative and insignificant impact on profitability. Likewise, Anggraeni *et al.* (2022) implicated that operational efficiency ratio has a significant negative impact on both profitability. Similarly, Setyowati (2019) showed that operational efficiency has a negative and significant effect on the profitability of Islamic banking. Furthermore, Adam *et al.* (2018) found that operational efficiency negatively affects the bank profitability. Based on it, this study develops the following hypothesis:

H₆: There is a negative relationship between operating efficiency and profitability.

3. Results and discussion

Descriptive statistics

Table 2 presents the descriptive statistics of the selected dependent and independent variables during the period 2015/16 to 2020/21.

Table 2: Descriptive statistics

This table shows the descriptive statistics of dependent and independent variables of 20 Nepalese commercial banks for the study period from 2015/16 to 2020/21. The dependent variables are ROA (Return on assets as measured by the ratio of net profit to total asset, in percentage) and ROE (Return on equity as measured by the ratio of net income to total equity, in percentage). The independent variables are NIM (Net interest margin as measured by the ratio of net interest income to total assets, in percentage), LQR (Liquidity as measured by the ratio of liquid assets to total assets, in percentage), LEV (Leverage ratio as measured by the ratio of total debt to total assets, in percentage), CAR (Capital adequacy ratio as measured by the ratio of total capital to total risk weighted exposure, in percentage), OE (Operating efficiency as measured by the ratio of operating expenses to operating income, in percentage) and NPL (Nonperforming loan as measured by non-performing loans to total loans, in percentage).

Variables	Minimum	Maximum	Mean	Std. Deviation
ROA	0.48	3.64	1.54	0.492
ROE	4.94	22.17	13.06	3.77

LEV	80.41	93.96	88.01	2.53
LQR	5.17	21.95	12.31	3.43
NIM	1.87	5.60	3.11	0.65
CAR	10.20	20.41	13.82	2.07
NPL	0.01	4.60	1.24	1.02
OE	21.28	66.66	43.18	8.93

Source: SPSS output

Correlation analysis

Having indicated the descriptive statistics, Pearson's correlation coefficients are computed and the results are presented in Table 3.

Table 3: Pearson's correlation coefficients matrix

This table shows the bivariate Pearson's correlation coefficients of dependent and independent variables of 20 Nepalese commercial banks for the study period of 2015/16 to 2020/21. The dependent variables are ROA (Return on assets as measured by the ratio of net profit to total asset, in percentage) and ROE (Return on equity as measured by the ratio of net income to total equity, in percentage). The independent variables are NIM (Net interest margin as measured by the ratio of net interest income to total assets, in percentage), LQR (Liquidity as measured by the ratio of liquid assets to total assets, in percentage), LEV (Leverage ratio as measured by the ratio of total debt to total assets, in percentage), CAR (Capital adequacy ratio as measured by the ratio of total capital to total risk weighted exposure, in percentage), OE (Operating efficiency as measured by the ratio of operating expenses to operating income, in percentage) and NPL (Nonperforming loan as measured by non-performing loans to total loans, in percentage).

Variables	ROA	ROE	LEV	LQR	NIM	CAR	NPL	OE
ROA	1							
ROE	0.727**	1						
LEV	-0.425**	0.276**	1					
LQR	0.010	0.045	0.044	1				
NIM	0.614**	0.284**	-0.495**	0.094	1			
CAR	0.185*	-0.285**	-0.697**	0.024	0.374**	1		
NPL	0.157	-0.314**	-0.608**	0.012	0.430**	0.415**	1	
OE	-0.639**	-0.646**	0.091	0.019	-0.134	0.186*	0.151	1

Note: The asterisk signs (**) and (*) indicate that the results are significant at one percent and five percent levels respectively.

Table 3 shows that leverage is negatively correlated to return on assets. It indicates that increase in leverage ratio leads to decrease in return on assets. Similarly, liquidity ratio has a positive relationship with return on assets. It indicates that increase in liquidity ratio leads to increase in return on assets. Likewise, net interest margin has a positive relationship with return on assets. It indicates that increase in net interest margin leads to increase in return on assets. Furthermore, there is a positive relationship between capital adequacy ratio and return on assets. It indicates that increase in capital adequacy ratio leads to increase in return on assets. In addition, non-performing loan has a positive relationship with return on assets. It means that increase the non-performing loan leads to increase in return on assets. Moreover, operating efficiency has a negative relationship with return on assets. It indicates that increase the operating efficiency leads to decrease in return on assets of Nepalese

commercial banks.

Similarly, the result also shows that there is a positive relationship between leverage and return on equity. It indicates that increase the leverage leads to increase in return on equity. Similarly, liquidity ratio has a positive relationship with return on equity. It indicates that increase in liquidity ratio leads to increase in return on equity. Likewise, net interest margin has a positive relationship with return on equity. It indicates that increase in net interest margin leads to increase in return on equity. Furthermore, there is a negative relationship between capital adequacy ratio and return on equity. It indicates that increase in capital adequacy ratio leads to decrease in return on equity. In addition, non-performing loan has a negative relationship with return on equity. It means that increase the non-performing loan leads to decrease in return on equity. Moreover, operating efficiency has a negative relationship with return on equity. It indicates that increase the operating efficiency leads to decrease in return on equity of Nepalese commercial banks.

Regression analysis

Having indicated the Pearson's correlation coefficients, the regression analysis has been carried out and results are presented in Table 4. More specifically, it shows the regression results of leverage, liquidity ratio, net interest margin, capital adequacy ratio, non-performing loan and operating efficiency with return on assets of Nepalese commercial banks.

Table 4: Estimated regression results of leverage, liquidity ratio, net interest margin, capital adequacy ratio, non-performing loan and operating efficiency with return on assets.

The results are based on panel data of 20 commercial banks with 160 observations for the period of 2013/14-2020/21 by using the linear regression model and the model is $ROA = \beta_0 + \beta_1 LEV + \beta_2 LQR + \beta_3 NIM + \beta_4 CAR + \beta_5 NPL + \beta_6 OE + \epsilon$ where, the dependent variable is ROA (Return on assets as measured by the ratio of net profit to total asset, in percentage). The independent variables are NIM (Net interest margin as measured by the ratio of net interest income to total assets, in percentage), LQR (Liquidity as measured by the ratio of liquid assets to total assets, in percentage), LEV (Leverage ratio as measured by the ratio of total debt to total assets, in percentage), CAR (Capital adequacy ratio as measured by the ratio of total capital to total risk weighted exposure, in percentage), OE (Operating efficiency as measured by the ratio of operating expenses to operating income, in percentage) and NPL (Nonperforming loan as measured by non-performing loans to total loans, in percentage).

Model	Intercept	Regression coefficients of						Ad. R _{bar} ²	SEE	F-value
		LEV	LQR	NIM	CAR	NPL	OE			
1	8.847 (6.185)**	-0.053 (5.107)**						0.174	0.447	26.082
2	1.527 (9.033)**		0.001 (0.112)					0.008	0.494	0.012
3	0.087 (0.497)			0.469 (8.453)**				0.372	0.486	4.176
4	0.936 (3.105)*				0.044 (2.044)*			0.026	0.487	4.176
5	1.451 (20.525)**					0.076 (1.725)		0.016	0.488	2.975
6	3.067 (17.797)**						-0.035 (9.015)**	0.403	0.380	81.279
7	8.817 (6.131)**	-0.083 (5.098)**	0.004 (0.345)					0.168	0.449	13.003

8	9.302 (8.629)**	-0.073 (5.909)**	0.005 (0.607)				-0.033 (9.628)**	0.533	0.331	46.361
9	4.214 (3.934)**	-0.028 (2.460)*		0.358 (8.070)**			-0.031 (11.114)**	0.700	0.269	93.672
10	3.720 (2.446)*	-0.023 (1.525)		0.356 (7.970)**	0.008 (0.459)		-0.032 (10.511)**	0.698	0.270	69.828
11	8.902 (6.356)**	-0.068 (4.275)**	0.005 (0.584)			0.018 (0.450)	-0.034 (9.380)**	0.530	0.337	34.582
12	7.447 (3.594)**	-0.054 (2.511)*	0.005 (0.504)		0.021 (0.953)	0.023 (0.563)	-0.035 (9.070)**	0.530	0.331	27.825

Notes:

- i. Figures in parenthesis are t-values.
- ii. The asterisk signs (**) and (*) indicate that the results are significant at one percent and five percent level respectively.
- iii. Return on assets is the dependent variable.

Table 4 shows that the beta coefficients for liquidity ratio are positive with return on asset. It indicates that liquidity ratio has a positive impact on return on asset. This finding is similar to the findings of Thinh *et al.* (2022). Similarly, the beta coefficients for net interest margin are positive with return on asset. It indicates that net interest margin has a positive impact on return on asset. This finding is similar to the findings of Lukorito *et al.* (2014). Similarly, the beta coefficients for capital adequacy ratio are positive with return on asset. It indicates that capital adequacy ratio has a positive impact on return on asset. This finding contradicts with the findings of Hersugondo *et al.* (2021) Likewise, the beta coefficients for non-performing loan are positive with return on asset. It indicates that non-performing loan has a positive impact on return on asset. This finding is inconsistent with the findings of Kwashie (2022). On the other hand, the beta coefficients for leverage are negative with return on asset. It indicates that leverage has a negative impact on return on asset. This finding is similar to the findings of Karim *et al.* (2022). Similarly, the beta coefficients for operating efficiency are negative with return on asset. It indicates that operating efficiency has a negative impact on return on asset. This finding is consistent with the findings of Anggraeni *et al.* (2022).

Table 5 shows the estimated regression results of leverage, liquidity ratio, net interest margin, capital adequacy ratio, non-performing loans and operating efficiency with return on equity of Nepalese commercial banks.

Table 5: Estimated regression results of leverage, liquidity ratio, net interest margin, capital adequacy ratio, nonperforming loans and operating efficiency with return on equity

The results are based on panel data of 20 commercial banks with 160 observations for the period of 2013/14-2020/21 by using the linear regression model and the model is $ROE = \beta_0 + \beta_1 LEV + \beta_2 LQR + \beta_3 NIM + \beta_4 CAR + \beta_5 NPL + \beta_6 OE + \text{eit}$ where, the dependent variable is ROE (Return on equity as measured by the ratio of net income to total equity, in percentage). The independent variables are NIM (Net interest margin as measured by the ratio of net interest income to total assets, in percentage), LQR (Liquidity as measured by the ratio of liquid assets to total assets, in percentage), LEV (Leverage ratio as measured by the ratio of total debt to total assets, in percentage), CAR (Capital adequacy ratio as measured by the ratio of total capital to total risk weighted exposure, in percentage), OE (Operating efficiency as measured by the ratio of operating expenses to operating income, in percentage) and NPL (Nonperforming loan as measured by non-performing loans to total loans, in percentage).

Model	Intercept	Regression coefficients of						Ad. R_bar ²	SEE	F-value
		LEV	LQR	NIM	CAR	NPL	OE			
1	-23.239 (1.997)*	0.413 (3.122)**						0.068	3.641	9.745
2	12.455 (9.627)**		0.050 (0.492)					0.006	3.784	0.242
3	7.903 (4.822)**			1.661 (3.218)**				0.073	3.632	10.354
4	20.263 (8.996)**				-0.520 (3.230)**			0.073	3.631	10.431
5	14.520 (27.901)**					-1.167 (3.598)**		0.091	3.596	12.943
6	24.852 (18.968)**						-0.273 (9.183)**	0.412	2.893	84.322
7	-23.500 (2.009)*	0.410 (3.091)**	0.037 (0.374)					0.062	3.654	4.907
8	-45.580 (2.646)**	0.610 (3.618)**		3.307 (6.475)**	-0.386 (2.000)*			0.316	3.119	19.367
9	16.131 (6.771)**		0.015 (0.166)	2.648 (5.230)**	-0.829 (5.273)**			0.240	3.290	13.494
10	-18.892 (1.076)	0.316 (1.803)		3.671 (7.496)**	-0.404 (2.220)*	-1.349 (3.969)**		0.394	2.938	20.311
11	-50.211 (5.414)	0.746 (7.412)**		2.986 (8.645)**		-0.516 (2.088)*	-0.254 (11.479)**	0.705	2.048	72.196
12	20.814 (9.945)**		0.025 (0.381)	2.593 (6.419)**	-0.398 (3.250)*	-1.261 (4.958)**	-0.209 (8.037)**	0.598	2.390	36.477

Notes:

- i. Figures in parenthesis are t-values.
- ii. The asterisk signs (**) and (*) indicate that the results are significant at one percent and five percent level respectively.
- iii. Return on equity is the dependent variable.

Table 5 shows that the beta coefficients for leverage are positive with return on equity. It indicates that leverage has a positive impact on return on equity. This finding contradicts with the findings of Sarker and Islam (2021). Similarly, the beta coefficients for liquidity ratio are positive with return on equity. It indicates that liquidity ratio has a positive impact on return on equity. This finding is consistent with the findings of Al Zaidanin and Al Zaidanin (2021). Likewise, the beta coefficients for net interest margin are positive with return on equity. It indicates that net interest margin has a positive impact on return on equity. This finding is similar to the findings of Marlina (2022). Similarly, the beta coefficients for capital adequacy ratio are negative with return on equity. It indicates that capital adequacy ratio has a negative impact on return on equity. This finding is similar to the findings of Dao and Nguyen (2020). On the other hand, the beta coefficients for non-performing loan are negative with return on equity. It indicates that non-performing loan has a negative impact on return on equity. This finding is consistent with the findings of Safitri and Oktavia (2022). Similarly, the beta coefficients for operating efficiency are negative with return on equity. It indicates that operating efficiency has a negative impact on return on equity. This finding is consistent with the findings of Uddin (2022).

4. Summary and conclusion

Banking is considered as the important and influential sectors for the economy of the country. The growth and development of bank financial institutions in the economy is largely determined by the level of profit gained in its operational activities. Profitability is one of the significant components of the business including the banking world because it contributes to maintain destructive macroeconomic financial tremors through absorbing and contributes financially to stabilize the financial system.

This study attempts to analyze the impact of financial ratios, operational efficiency and non-performing loan on the profitability of Nepalese commercial banks. The study is based on secondary data of 20 commercial banks with 120 observations for the period from 2015/16 to 2020/21.

The study showed that leverage and operating efficiency have negative impact on return on assets. However, liquidity ratio, net interest margin, capital adequacy ratio and non-performing loans have positive impact on return on assets. Similarly, leverage, liquidity ratio and net interest margin have positive impact on return on equity. Likewise, capital adequacy ratio, non-performing loan and operating efficiency have negative impact on return on equity. The study concluded that operating efficiency followed by net interest margin is the most influencing factor that explains the changes in the return on assets of selected Nepalese commercial banks. Similarly, the study also concluded that operating efficiency followed by non-performing loan is the most influencing factor that explains the changes in the return on equity in context of selected Nepalese commercial banks.

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Effect of firm specific factors and reinsurance on the performance of Nepalese Insurance Companies

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Abstract

This study examines the effect of firm specific factors and reinsurance on the performance of Nepalese insurance companies. Return on assets (ROA) and return on equity (ROE) are the dependent variables. The selected independent variables are firm size, liquidity, assets tangibility, net claim ratio, net commission ratio and ratio of ceded reinsurance. The study is based on secondary data of 16 insurance companies with 124 observations for the study period from 2013/14 to 2020/21. The data were collected from the annual reports of the selected insurance companies and annual report published by Rastriya Beema Samiti. The regression models are estimated to test the significance and effect of firm specific factors and reinsurance on the performance of Nepalese insurance companies.

The study showed that firm size has a negative impact on return on assets and return on equity. It means that increase in firm size leads to decrease in return on assets and return on equity. Likewise, liquidity ratio has a negative impact on return on assets and return on equity. It means that increase in liquidity ratio leads to decrease in return on assets and return on equity. In contrast, assets tangibility has a positive impact on return on assets and return on equity. It shows that higher the assets tangibility, higher would be the return on assets and return on equity. However, net claim ratio has a negative impact on return on assets and return on equity. It indicates that increase in net claim ratio leads to decrease in return on assets and return on equity. In addition, net commission ratio has a negative impact on return on assets and return on equity. It indicates that increase in net commission ratio leads to decrease in return on assets and return on equity. Further, the study also showed that ratio of ceded reinsurance has a positive impact on return on assets and return on equity. It means that higher the ratio of ceded reinsurance, higher would be the return on assets and return on equity.

Key words: Firm size, liquidity, assets tangibility, net claim ratio, net commission ratio, ratio of ceded reinsurance, return on assets and return on equity.

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1. Introduction

The insurance industry is essential to the economy because it makes easier to engage in risky but lucrative business initiatives. Insurance companies spread their risks and protect themselves against extraordinary or unforeseen losses through reinsurance (Soye *et al.*, 2017). According to Owolabi *et al.* (2017), financial performance of insurance companies is very vital not only to their continuous operations but also for the economy development of the nation at large. Due to the acceptance of risks, the insurance industry is crucial for corporate improvement. Insurance companies accept risks in return for premium (Morara and Sibindi, 2021). Abass and Obalola (2018) stressed that reinsurance arrangement is fundamental to insurance companies' operations because it serves as a major risk management mechanism often used to cushion loss experience. An understanding of the reinsurance-profitability relationship assists management and risk managers to better price and determine the ratio of gross premium to be ceded to achieve target returns. Therefore, general insurance companies need to practice prudence in their operations in order to sustain their growth and improve performance (Almajali *et al.*, 2012).

Ajao and Ogricriakhil (2018) found the firm size has a negative and significant relationship with return on equity while capital structure and firm age have a positive and significant influence on the financial performance of insurance companies in Kenya. Likewise, Abubakar *et al.* (2018) revealed firm size has positive and significant relationship with performance measured in term of return on equity, while liquidity and age have significant negative impact on financial performance. Size of the insurance companies and ratio of ceded reinsurance have positive relationship with financial performance and stability of central and eastern European countries (Kramaric *et al.*, 2019). Tegegn *et al.* (2020) found premium growth rate and size, are positively related. In contrast, liquidity and age negatively but significantly related with profitability of Ethiopian insurance companies. Similarly, Eladly (2022) revealed that total assets have positive and significant relationship with return on assets. Firm size, gross domestic product, population growth rates and political stability lead to higher profitability in the Serbian insurance industry (Vojinovic *et al.*, 2022).

Bishaw *et al.* (2019) found that firm size, leverage and liquidity have positive and significant relationship with return on equity while company size has negative and significant relationship with return on assets. Similarly, Abebe and Abera (2019) revealed capital adequacy, firm size and liquidity have positive and significant relationship with both return on assets and return on equity. However, age of the company has negative and significant relationship with performance of insurance companies. Firm size, liquidity and leverage have positive and insignificant relationship with profitability of the insurance companies. Liquidity has a positive and significant relationship with performance of insurance companies and expenses ratio has negative and significant with performance. Moreover, leverage and loss ratio have negative and insignificant relationship with performance measured by return on assets (Ngunguni *et al.*, 2020). However, Bala *et al.* (2022) further revealed that liquidity and premium to assets ratio have negative and significant relationship with the performance of Nigerian insurance companies.

Derbali and Jamel (2018) found firm size has positive and significant relationship with performance measured by return on assets. In addition, assets tangibility and liquidity have positive and insignificant relationship while age of firm and premium growth rate have positive and significant relationship with performance measured by return on assets. Similarly, Balakrishnan (2019) revealed firm size, tangibility of asset, firm growth and premium growth have positive while leverage and loss ratio/risk have negative relationship with profitability. Assets tangibility, market share, net premium, insurance leverage and gross domestic products are insignificantly and negatively related to return

on assets. In addition, liquidity, underwriting risk, debt to equity, equity capital, capital surplus and inflation are positively and significantly related with return on assets (Ishtiaq and Siddiqui, 2019). Company size and the liquidity ratio are positively and insignificantly associated with profitability of Saudi insurance companies (Ben Dhiab, 2021). Likewise, Shahi and Agnihotri (2022) found assets tangibility and firm size have positive while leverage have negative relationship with profitability of insurance companies. Moreover, liquidity has negative and insignificant relationship meanwhile firm size has positive and insignificant relationship in performance.

Putra (2017) found the claim ratio has negative and significant relationship with the performance of the insurance companies measured by return on assets. Similarly, Srijanani and Rao (2019) revealed claim ratio has a negative and significant relationship while liquidity ratio has positive and significant relationship with return on equity. Similarly, gross domestic product, share capital and solvency ratio have positive but insignificant relationship with ROE while inflation has negative and insignificant relationship with firm performance. Total claim has direct and significant effect on return on asset. Likewise, expense ratio has positive with an insignificant effect on return on asset. Furthermore, claim loss ratio has an indirect with an insignificant effect on return on asset of quoted insurance firms in Nigeria (Olarinre *et al.*, 2020). Claim ratio and operating expense ratio have negative and significant effect on profitability while retention ratio has positive and not significant effect on profitability. Furthermore, claim ratio, operational expense ratio and retention ratio together have a significant effect on company profitability (Hasibuan *et al.*, 2020). Bunyaminu *et al.* (2022) found the claim ratio and retention ratio have a profound adverse impact on return on asset. Likewise, claim ratio and expense ratio negatively and significantly affect profitability in term of return on equity. In contrast, firm size has negative and insignificant relationship with both return on assets and return on equity.

Wasike and Ngoya (2016) found that claims costs, reinsurance cost, and market penetration were negatively and insignificantly related to profitability. Similarly, ratio of ceded reinsurance has positive and significant relationship while net commission ratio has positive but insignificant relationship with return on assets and return on equity. However, net claim ratio and net retention ratio both have negative and significant relationship with performance of Nigerian insurance companies (Salaudeen *et al.*, 2021). Likewise, claim settlement ratio, commission expenses ratio and operating expenses ratio have negative and significant relationship with return on equity (Thirupathi and Subhashini, 2022). Aduloju and Ajemunigbohun (2017) revealed that ratio of ceded reinsurance has positive and significant relationship with both return on assets and return on equity. Similarly, Andoh and Yamoah (2021) found ratio of ceded reinsurance has negative and insignificant relationship with profitability measured in term of return on assets. However, solvency ratio, firm size, combined ratio all have negative and significant relationship with return on assets. Likewise, Barakat *et al.* (2022) positive and statistically insignificant impact of ratio of ceded reinsurance with return on assets while ratio of ceded reinsurance has negative and insignificant relationship with return on equity.

In the context of Nepal, Jaishi (2020) found that the firm size and liquidity have negative and significant relationship with return on assets. However, total debt ratio, equity to total assets ratio, leverage, size, liquidity and tangibility are the significant factors in determining the financial performance of Nepalese insurance companies. Similarly, Risal (2020) revealed liquidity and net claim ratio have negative and insignificant relationship but leverage has negative and significant relationship with return on assets. Liquidity has positive and significant relationship with profitability of insurance companies. Moreover, firm size, firm age, total debt and leverage all have insignificant relationship with profitability of insurance companies (Hamal, 2020). Similarly, Bhattarai (2020) revealed financial leverage and size of the firm have positive and significant relationship with the performance measured in term of return on equity. Insurance premium positively and significantly affects the

return on assets (Pradhan and Dahal, 2021). Likewise, Sah and Magar (2021) found a positive and significant impact of firm size and assets tangibility on return on assets of Nepalese insurance companies. Pantha *et al.* (2022) revealed the firm size has positive and significant while leverage has negative and insignificant relationship with performance of Nepalese insurance companies measured by return on assets and return on equity.

The above discussion shows that empirical evidences vary greatly across the studies concerning examines the impact of firm specific factors and reinsurance on performance of insurance companies. Though there are above mentioned empirical evidences in the context of other countries and in Nepal, no such findings using more recent data exist in the context of Nepal. Therefore, in order to support one view or the other, this study has been conducted.

The major objective of the study is to identify the determinants of market stock price movements in Nepalese insurance companies. Specifically, it examines the relationship of firm size, liquidity, assets tangibility, net claim ratio, net commission ratio and ratio of ceded reinsurance with return on assets and return on equity of Nepalese insurance companies.

The remainder of this study is organized as follows: Section two describes the sample, data and methodology. Section three presents the empirical results and the final section draws the conclusion.

2. Methodological aspects

The study is based on the secondary data which were collected from 16 Nepalese insurance companies from 2013/14 to 2020/21, leading to a total of 124 observations. The main sources of data include annual reports of Rastriya Beema Samiti and annual reports of selected Nepalese insurance companies. This study is based on descriptive as well as causal comparative research designs. Table 1 shows the list of insurance companies selected for the study along with the study period and number of observations.

Table 1: List of insurance companies selected for the study along with study period and number of observations

S. N.	Name of the insurance companies	Study period	Observations
Life insurance companies			
1	National Life Insurance Company	2013/14 - 2019/20	7
2	Nepal Life Insurance Company	2013/14 - 2020/21	8
3	Life Insurance Corporation (Nepal)	2013/14 - 2019/20	7
4	Met Life Insurance Company	2013/14 - 2020/21	8
5	Asian Life Insurance Company	2013/14 - 2020/21	8
6	Surya Life Insurance Company	2013/14 - 2020/21	8
7	Gurans Life Insurance Company	2013/14 - 2019/20	7
8	Prime Life Insurance Company	2013/14 - 2019/20	7
Non-life insurance companies			

9	United Insurance Company	2013/14 - 2020/21	8
10	Premier Insurance Company	2013/14 - 2020/21	8
11	Neco Insurance Limited	2013/14 - 2020/21	8
12	Sagarmatha Insurance Company	2013/14 - 2020/21	8
13	Prabhu Insurance Limited	2013/14 - 2020/21	8
14	IME General Insurance Company	2013/14 - 2020/21	8
15	Prudential Insurance Limited	2013/14 - 2020/21	8
16	Lumbini General Insurance Company	2013/14 - 2020/21	8
Total number of observations			124

Thus, the study is based on the 124 observations.

The model

The model in this study assumes that the insurance companies' performance depends on different variables. The selected dependent variables are return on assets and return on equity. The selected independent variables are firm size, liquidity, assets tangibility, net claim ratio, net commission ratio and ratio of ceded reinsurance. Therefore, the model takes the following forms:

$$ROA_{it} = \beta_0 + \beta_1 FS_{it} + \beta_2 LIQ_{it} + \beta_3 AT_{it} + \beta_4 NCLM_{it} + \beta_5 NCOM_{it} + \beta_6 RCR_{it} + e_{it}$$

$$ROE_{it} = \beta_0 + \beta_1 FS_{it} + \beta_2 LIQ_{it} + \beta_3 AT_{it} + \beta_4 NCLM_{it} + \beta_5 NCOM_{it} + \beta_6 RCR_{it} + e_{it}$$

Where,

ROA = Return on assets as measured by the ratio of net income to total assets, in percentage.

ROE = Return on equity as measured by the ratio of net income to total equity, in percentage.

FS = Firm size of insurance company measured by total assets, Rs in millions.

LIQ = Liquidity ratio as measured by the ratio of current assets to current liabilities, in times.

AT = Assets tangibility ratio as measured by the total fixed assets to total assets, in percentage.

NCLM = Net claim ratio as measured by the ratio of net claim expenses to net premium earned, in percentage.

NCOM = Net commission ratio as measured by the ratio of gross commission expenses to gross premium earned, in percentage.

RCR = Ratio of ceded reinsurance as measured by the ratio of reinsurance premium paid to gross premium earned, in percentage.

The following section describes the independent variables used in this study along with the hypothesis formulation:

Firm size

The concept of firm size is defined as the quantity and collection of production capability and potential a firm possesses or the quantity and diversity of services a firm can make available to its customers (Shaheen and Malik, 2012). Size of the firm has positive relationship with return on

assets (Aryonindito *et al.*, 2020). Likewise, Eladly (2022) found the similar result where firm size has positive relationship with firm performance. Furthermore, Ahmeti and Iseni (2022) found that there is a positive and significant relationship between assets size and ROA. Based on it, this study develops the following hypothesis.

H₁: There is a positive relationship between firm size and financial performance.

Liquidity

Liquidity for insurance companies shows the ability of insurers to pay current liabilities, which have the nature of operating expenses or payment of compensation in case of damage (Kripa, 2016). Abdeljawad *et al.* (2020) revealed that liquidity has positive and significant relationship with insurance companies' profitability. Similarly, Ngunguni *et al.* (2020) found liquidity has positive and significant relationship with performance measured by return on assets. Likewise, Tsvetkova *et al.* (2021) revealed that liquidity positively affect the firm performance. Liquidity has a positive and significant relationship with return on assets (Olowokudejo and Ajijola, 2022). Based on it, this study develops the following hypothesis.

H₂: There is a positive relationship between liquidity and financial performance.

Assets tangibility

Tangibility entails fixed assets. It measures how efficiently firm is using its fixed assets to earn the profit (Ajao and Ogieriakhi, 2018). Isayas and Yitayaw (2020) found assets tangibility as positive and significant predictor of the firm performance. Similarly, Ben Dhiab (2021) determined the profitability is most significantly and positively affected by the asset's tangibility of the firm. Likewise, Lalon and Das (2022) stated tangibility of assets as most significant and positive drivers of bank profitability. There is a positive and significant relationship between tangibility of the assets and profitability measured in term of return on assets and return on equity (Shiferaw and Gujral, 2022). Based on it, this study develops the following hypothesis.

H₃: There is a positive relationship between assets tangibility and financial performance.

Net claim ratio

Azmi *et al.* (2020) found net claim ratio has negative and significant relationship with firm profitability. Similarly, Hasibuan *et al.* (2020) concluded that net claim ratio has negative and significant relationship with profitability. Moreover, Tarsono *et al.* (2020) also found a negative and significant relationship between financial performance and net claim ratio in insurance companies. Net claim ratio has negative and significant relationship with financial performance of the insurance companies (Legass *et al.*, 2021). Bunyaminu *et al.* (2022) explored that net claim ratio has negative and insignificant relationship with performance measured in term of return on assets and return on equity. Based on it, this study develops the following hypothesis.

H₄: There is a negative relationship between net claim ratio and financial performance.

Net commission ratio

Soye and Adeyemo (2017) found a negative and insignificant relationship between net commission ratio and return on assets. Similarly, Muthulakshmi (2018) found commission expenses as the negative and significant predictor of the performance of insurance companies. Commission expenses

ratio has a negative and insignificant relationship with performance measured with return on assets (Hussanie and Joo, 2019). Commission expenses ratio has negative and significant association with financial performance of insurance companies (Thirupathi and Subhashini, 2022). Based on it, this study develops the following hypothesis.

H_5 : There is a negative relationship between net commission ratio and financial performance.

Ratio of cede reinsurance

Ratio of ceded reinsurance is one of the ways in which insurance companies effectively transfer parts of their risks arising from insurance claims (Barakat *et al.*, 2022). Abass (2019) revealed that the ratio of ceded reinsurance has a positive relationship with firm performance measured in term of return on assets and return on equity. In addition, ratio of ceded reinsurance has positive and significant relationship with insurance company's financial performance (Sasidharan *et al.*, 2020). Similarly, Morara and Sibindi (2021) found the ratio of ceded reinsurance has positive and significant relationship with performance measured in term of return on equity (ROE). Likewise, Soye *et al.* (2022) found ratio of ceded reinsurance has positive and significant relationship with performance of the non-life insurance firms' profitability. Based on it, this study develops the following hypothesis.

H_6 : There is a positive relationship between ratio of ceded reinsurance and financial performance.

3. Results and discussion

Descriptive statistics

Table 3 presents the descriptive statistics of selected dependent and independent variables during the period 2013/14 to 2020/21.

Table 2: Descriptive statistics

This table shows the descriptive statistics of dependent and independent variables of 16 Nepalese insurance companies for the study period from 2013/14 to 2020/21. The dependent variables are ROA (Return on assets as measured by the ratio of net profit to total asset, in percentage) and ROE (Return on equity as measured by the ratio of net income to total equity, in percentage). The independent variables are FS (Firm size of insurance company measured by total assets, Rs in millions), LIQ (Liquidity ratio as measured by the ratio of current assets to current liabilities, in times), AT (Assets tangibility ratio as measured by the total fixed assets to total assets, in percentage), NCLM (Net claim ratio as measured by the ratio of net claim expenses to net premium earned, in percentage), NCOM (Net commission ratio as measured by the ratio of gross commission expenses to gross premium earned, in percentage) and RCR (Ratio of ceded reinsurance as measured by the ratio of reinsurance premium paid to gross premium earned, in percentage).

Variables	Minimum	Maximum	Mean	Std. Deviation
ROA	-2.83	12.05	4.98	3.40
ROE	-17.29	53.66	17.17	9.89
FS	19.97	25.57	22.34	1.26
LIQ	0.82	16.68	4.34	3.74
AT	0.14	15.99	3.01	3.01
NCLM	3.02	90.56	22.67	11.79
NCOM	1.08	20.61	7.03	4.44

RCR	0.19	74.04	27.56	25.09
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Source: SPSS output

Correlation analysis

Having indicated the descriptive statistics, Pearson's correlation coefficients are computed and the results are presented in Table 3.

Table 3: Pearson's correlation coefficients matrix

This table shows the bivariate Pearson's correlation coefficients of dependent and independent variables of 16 Nepalese insurance companies for the study period from 2013/14 to 2020/21. The dependent variables are ROA (Return on assets as measured by the ratio of net profit to total asset, in percentage) and ROE (Return on equity as measured by the ratio of net income to total equity, in percentage). The independent variables are FS (Firm size of insurance company measured by total assets, Rs in millions), LIQ (Liquidity ratio as measured by the ratio of current assets to current liabilities, in times), AT (Assets tangibility ratio as measured by the total fixed assets to total assets, in percentage), NCLM (Net claim ratio as measured by the ratio of net claim expenses to net premium earned, in percentage), NCOM (Net commission ratio as measured by the ratio of gross commission expenses to gross premium earned, in percentage) and RCR (Ratio of ceded reinsurance as measured by the ratio of reinsurance premium paid to gross premium earned, in percentage).

Variables	ROA	ROE	FS	LIQ	AT	NCLM	NCOM	RCR
ROA	1							
ROE	0.78**	1						
FS	-0.35**	-0.02	1					
LIQ	-0.21*	-0.06	0.49**	1				
AT	0.52**	0.35**	-0.41**	-0.33**	1			
NCLM	-0.28**	-0.27**	-0.01	-0.20*	0.01	1		
NCOM	-0.57**	-0.28**	0.54**	0.55**	-0.45**	-0.18*	1	
RCR	0.60**	0.27**	-0.68**	-0.60**	0.48**	-0.03	-0.85**	1

Note: The asterisk signs (**) and (*) indicate that the results are significant at one percent and five percent respectively.

Table 3 shows that firm size has a negative relationship with return on assets. It means that increase in firm size leads to decrease in return on assets. Likewise, there is a negative relationship between liquidity ratio and return on assets. It means that increase in liquidity ratio leads to decrease in return on assets. In contrast, assets tangibility has a positive relationship with return on assets. It shows that higher the assets tangibility, higher would be the return on assets. However, there is a negative relationship between net claim ratio and return on assets. It indicates that increase in net claim ratio leads to decrease in return on assets. In addition, net commission ratio has a negative relationship with return on assets. It indicates that increase in net commission ratio leads to decrease in return on assets. Further, this study shows that there is a positive relationship between ratio of ceded reinsurance and return on assets. It means that higher the ratio of ceded reinsurance, higher would be the return on assets.

Similarly, the result also shows that firm size has a negative relationship with return on equity. It means that increase in firm size leads to decrease in return on equity. Likewise, there is a negative relationship between liquidity ratio and return on equity. It means that increase in liquidity ratio leads to decrease in return on equity. In contrast, assets tangibility has a positive relationship with return

on equity. It shows that higher the assets tangibility, higher would be the return on equity. However, there is a negative relationship between net claim ratio and return on equity. It indicates that increase in net claim ratio leads to decrease in return on equity. In addition, net commission ratio has a negative relationship with return on equity. It indicates that increase in net commission ratio leads to decrease in return on equity. Further, this study shows that there is a positive relationship between ratio of ceded reinsurance and return on equity. It means that higher the ratio of ceded reinsurance, higher would be the return on equity.

Regression analysis

Having indicated the Pearson's correlation coefficients, the regression analysis has been carried out and results are presented in Table 4. More specifically, it shows the regression results of firm size, liquidity ratio, assets tangibility, net claim ratio, net commission ratio and ratio of ceded reinsurance with return on asset of Nepalese insurance companies.

Table 4: Estimated regression results of firm size, liquidity ratio, assets tangibility, net claim ratio, net commission ratio and ratio of ceded reinsurance with return on assets

The results are based on panel data of 16 insurance companies with 124 observations for the period of 2013/14-2020/21 by using the linear regression model and the model is $ROA_{it} = \beta_0 + \beta_1 FS_{it} + \beta_2 LIQ_{it} + \beta_3 AT_{it} + \beta_4 NCLM_{it} + \beta_5 NCOM_{it} + \beta_6 RCR_{it} + e_{it}$ where, the dependent variable is ROA (Return on assets as measured by the ratio of net profit to total asset, in percentage). The independent variables are FS (Firm size of insurance company measured by total assets, Rs in millions), LIQ (Liquidity ratio as measured by the ratio of current assets to current liabilities, in times), AT (Assets tangibility ratio as measured by the total fixed assets to total assets, in percentage), NCLM (Net claim ratio as measured by the ratio of net claim expenses to net premium earned, in percentage), NCOM (Net commission ratio as measured by the ratio of gross commission expenses to gross premium earned, in percentage) and RCR (Ratio of ceded reinsurance as measured by the ratio of reinsurance premium paid to gross premium earned, in percentage).

Model	Intercept	Regression coefficients of						Adj. R _{bar} ²	SEE	F-value
		FSZ	LIQ	AT	NCLIM	NCOM	RCR			
1	25.956 (5.088)**	-0.939 (4.118)**						0.115	3.198	16.955
2	5.815 (12.644)**		-0.192 (2.387)**					0.037	3.337	5.695
3	3.206 (8.671)**			0.591 (6.79)**				0.268	2,908	46.107
4	6.834 (10.693)**				-0.082 (3.263)**			0.073	3.274	10.644
5	8.074 (17.104)**					-0.439 (7.735)**		0.324	2.7963	59.827
6	2.749 (7.516)**						0.081 (8.24)**	0.352	2.737	67.891
7	24.631 (4.323)**	-0.87 (3.313)**	-0.047 (0.529)					0.110	3.208	8.567
8	15.30 (3.13)**	-0.448 (2.11)*		0.518 (5.85)**	-0.08 (3.99)**		15.30 (3.13)**	0.364	2.711	24.447
9	14.201 (2.743)**	-0.384 (1.641)	-0.049 (0.622)	0.508 (5.626)**	-0.086 (4.021)**			0.361	2.718	18.337

10	8.66 (6.38)**			0.33 (4.20)**	-0.011 (5.52)**	-0.035 (3.68)**	0.008 (0.45)	0.544	2.307	37.174
11	9.16 (12.29)**			0.34 (4.38)**	-0.11 (6.06)**	-0.389 (7.31)**		0.544	2.303	49.826

Notes:

- i. Figures in parenthesis are t-values.
- ii. The asterisk signs (**) and (*) indicate that the results are significant at one percent and five percent level respectively.
- iii. Return on assets is the dependent variable.

Table 4 shows that the beta coefficients for firm size are negative with return on assets. It indicates that firm size has a negative impact on return on assets. This finding contradicts with the findings of Ahmeti and Iseni (2022). Similarly, the beta coefficients for liquidity are negative with return on assets. It indicates that liquidity ratio has a negative impact on return on assets. This finding is inconsistent with the findings of Ngunguni *et al.* (2020). Similarly, the beta coefficients for assets tangibility are positive with return on assets. It indicates that assets tangibility has a positive impact on return on assets. This finding is similar to the findings of Shahi and Agnihotri (2022). Likewise, the beta coefficients for net claim ratio are negative with return on assets. It indicates that net claim ratio has a negative impact on return on assets. This finding is consistent with the findings of Legass *et al.* (2021). Similarly, the beta coefficients for net commission ratio are negative with return on assets. It indicates that net commission ratio has a negative impact on return on assets. This finding is consistent with the findings of Hussanie and Joo (2019). Likewise, the beta coefficients for ratio of ceded reinsurance are positive with return on assets. It indicates that ratio of ceded reinsurance has a positive impact on return on assets. This finding is similar to the findings of Soye *et al.* (2022).

Table 5 shows the estimated regression results of firm size, liquidity ratio, assets tangibility, net claim ratio, net commission ratio and ratio of ceded reinsurance with return on equity of Nepalese insurance companies.

Table 5: Estimated regression results of firm size, liquidity ratio, assets tangibility, net claim ratio, net commission ratio and ratio of ceded reinsurance with return on equity

The results are based on panel data of 16 insurance companies with 124 observations for the period of 2013/14-2020/21 by using the linear regression model and the model is $ROE_{it} = \beta_0 + \beta_1 FS_{it} + \beta_2 LIQ_{it} + \beta_3 AT_{it} + \beta_4 NCLM_{it} + \beta_5 NCOM_{it} + \beta_6 RCR_{it} + e_{it}$ where, the dependent variable is ROE (Return on equity as measured by the ratio of net profit to total equity, in percentage). The independent variables are FS (Firm size of insurance company measured by total assets, Rs in millions), LIQ (Liquidity ratio as measured by the ratio of current assets to current liabilities, in times), AT (Assets tangibility ratio as measured by the total fixed assets to total assets, in percentage), NCLM (Net claim ratio as measured by the ratio of net claim expenses to net premium earned, in percentage), NCOM (Net commission ratio as measured by the ratio of gross commission expenses to gross premium earned, in percentage) and RCR (Ratio of ceded reinsurance as measured by the ratio of reinsurance premium paid to gross premium earned, in percentage).

Model	Intercept	Regression coefficients of					Adj. R _{bar} ²	SEE	F-value	
		FSZ	LIQ	AT	NCLIM	NCOM				RCR
1	20.326 (1.283)	-0.141 (0.199)						0.008	9.933	0.040
2	17.847 (13.056)**		-0.155 (0.65)					0.005	9.918	0.423
3	13.709 (11.591)**			1.152 (4.14)**				0.116	9.302	17.118
4	22.364 (11.986)**				-0.229 (3.13)**			0.067	9.558	9.815
5	21.577 (13.404)*					-0.626 (3.231)**		0.071	9.536	10.439
6	14.235 (11.132)*						0.107 (3.10)**	0.065	9.565	9.619
7	28.88 (12.18)**				-0.028 (4.01)**	-0.76 (4.10)**		0.173	8.995	13.915
8	24.20 (8.52)**			0.83 (2.82)**	-0.26 (3.87)**	-0.50 (2.74)*		0.220	8.758	12.463
9	29.73 (5.79)**			0.90 (3.03)**	-0.30 (4.09)**	-0.89 (2.45)*	0.08 (1.29)	0.228	8.727	9.828
10	13.66 (3.06)**		-0.152 (1.821)	0.95 (3.01)**		-0.378 (1.07)	0.04 (0.62)	0.140	9.197	5.917
11	25.34 (1.64)	-0.133 (0.190)			-0.229 (3.12)**			0.059	9.604	4.894

Notes:

- i. Figures in parenthesis are t-values.
- ii. The asterisk signs (**) and (*) indicate that the results are significant at one percent and five percent level respectively.
- iii. Return on equity is the dependent variable.

Table 5 shows that the beta coefficients for firm size are negative with return on equity. It indicates that firm size has a negative impact on return on equity. This finding is similar to the findings of Ajao and Ogicriakhil (2018). Similarly, the beta coefficients for liquidity ratio are negative with return on equity. It indicates that liquidity ratio has a negative impact on return on equity. This finding is consistent with the findings of Bala *et al.* (2022). Likewise, the beta coefficients for assets tangibility are positive with return on equity. It indicates that assets tangibility has a positive impact on return on equity. This finding is similar to the findings of Shiferaw and Gujral (2022). Moreover, the beta coefficients for net claim ratio are negative with return on equity. It indicates that net claim ratio has a negative impact on return on equity. This finding is similar to the findings of Bunyaminu *et al.* (2022). Similarly, the beta coefficients for net commission ratio are negative with return on equity. It indicates that net commission ratio has a negative impact on return on equity. This finding is consistent with the findings of Thirupathi and Subhashini (2022). Likewise, the beta coefficients for ratio of ceded reinsurance are positive with return on equity. It indicates that ratio of ceded reinsurance has a positive impact on return on equity. This finding is similar to the findings of Sasidharan *et al.* (2020).

4. Summary and conclusion

Insurance companies underwrite the risk of other companies but to mitigate their own risk, these insurance companies use reinsurance. The nature and intensity of these risks are so high that the insurance companies cannot deal with them individually and they need an extra ergonomic hedging cover for the proper handling of such risks. Reinsurance can be regarded as insurance of the insurer. Insurance covers the external risk of the firms in business and therefore utilizes hedging activities like reinsurance and derivative, so that it can reduce the economical or financial risk resulting due to the imperfections of capital market.

This study attempts to analyze the impact of firm specific factors and reinsurance on the performance of Nepalese insurance companies. The study is based on secondary data of 16 insurance companies with 124 observations for the period from 2013/14 to 2020/21.

The study showed that firm size and liquidity have a negative impact on return on assets and return on equity. Similarly, the study showed that net claim ratio and net commission ratio have a negative impact on return on assets and return on equity. It means that increase in net claim ratio and net commission ratio leads to decrease in return on assets and return on equity of insurance companies in Nepal. Moreover, the study also showed that assets tangibility and ratio of ceded reinsurance have a positive impact on return on assets and return on equity. The study also concluded that ratio of ceded reinsurance followed by net commission ratio is the most influencing factor that explains the changes in the return on assets of selected Nepalese insurance companies. Similarly, the study also concluded that assets tangibility is the most influencing factor that explains the changes in the return on equity in context of selected Nepalese insurance companies.

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Effect of collateralizable assets, growth in net assets, liquidity, leverage and profitability on dividend policy of Nepalese commercial banks

– Anjali Sharma*

Abstract

The study examines the effect of collateralizable assets, growth in net assets, liquidity, leverage and profitability on dividend policy of Nepalese commercial banks. Dividend per share and dividend payout ratio are selected as the dependent variables. The selected independent variables are collateralizable assets, bank size, growth in net assets, liquidity ratio, leverage ratio, and return on equity. The study is based on secondary data of 21 commercial banks with 168 observations for the period from 2013/14 to 2020/21. The data were collected from Banking and Financial Statistics published by Nepal Rastra Bank, publications and websites of Nepal Rastra Bank (NRB) and Ministry of Finance (MoF) and annual reports of the selected commercial banks. The correlation coefficients and regression models are estimated to test the significance and importance of collateralizable assets, growth in net assets, liquidity, leverage and profitability on dividend policy of Nepalese commercial banks.

The study showed that collateralizable assets has a negative impact on dividend per share. It indicates that increase in collateralizable assets leads to decrease in dividend per share. In addition, assets growth has a positive impact on dividend payout ratio. It indicates that higher the assets growth rate, higher would be the dividend payout ratio. Similarly, leverage ratio has a negative impact on dividend per share and dividend payout ratio. It indicates that increase in leverage ratio leads to decrease in dividend per share and dividend payout ratio. Furthermore, liquidity ratio has a negative impact on dividend per share. It indicates that increase in liquidity ratio leads to decrease in dividend per share. Likewise, return on equity has a positive impact on dividend per share and dividend payout ratio. It indicates that higher the return on equity, higher would be the dividends per share and dividend payout ratio. In addition, firm size has a positive impact on dividend per share and dividend payout ratio. It indicates that larger the firm size, higher would be the dividend per share and dividend payout ratio.

Key words: Collateralizable assets, growth in net assets, liquidity, leverage, profitability and dividend policy

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1. Introduction

Dividend policy is a strategy used by a company to determine the amount and timing of dividend payments. The dividend policy framed by an organization is one of the crucial issues in corporate finance. The key objective of a firm is to determine the dividend policy that will maximize the market price of the shares of the firm. Financial management is mainly concerned with the raising of funds, minimizing the cost of capital and allocating the funds in long term investment. It involves capital budgeting decision. The next important decision is dividend decision (Kandpal and Kavidayal, 2015). Dividend policy is an important aspect of corporate finance and it has implications for many groups of company's stakeholders (investors, managers, lenders). Dividend policy is one of the major decisions in corporate finance. Firms always look for an optimal dividend policy, among others to reach equilibrium among current dividend, future growth, and maximize firm's stock price (Issa, 2015).

Payment of dividends by firms is a key indicator of financial strength, future stability and growth potential. Michaely and Roberts (2011) suggested that the scrutiny of public capital markets, ownership structure and incentives altogether play key roles in shaping firm dividend policy. According to DeAngelo *et al.* (2006), larger and old firms used to pay dividends comparing with small younger firms, which need to retain earnings for potential investment opportunities. The study argued that older firms have accrued retained profits and sufficient equity capital, and therefore have a greater tendency to pay dividends than younger firms, who need additional earnings and investment opportunities to accomplish their activities in the early stages of their ages. Fama and French (2001) found that dividend payment has centered on large and profitable firms. Similarly, Danila *et al.* (2020) found that high investment opportunities have a negative impact on dividend payment. The firms that have good potential investment opportunities pay lower or even not pay dividends to stockholders (Tahir and Mushtaq, 2016). Yusof and Ismail (2016) stated that earnings, firm size, investment opportunities, debt and largest shareholders are major factors in deciding dividend payout ratio for Malaysian companies.

Patra *et al.* (2012) examined the determinants of corporate dividend policy. The study found that the size, profitability and liquidity factors increased the probability to pay dividends. Uwuigbe *et al.* (2012) revealed that ownership structure and firm's size have a significant impact of the dividend payout of firms. Firm size tends to have a significant positive impact on firm's dividend payout ratio since larger firms have better access to the capital markets and also can easily raise funds at lower cost. Al-Malkawi (2008) examined corporate dividend decisions of publicly traded companies. The study concluded that factors such as size, profitability, and age increase the likelihood to pay dividends which shows the positive impact on dividend. Kania (2005) found that the higher the return on equity, the greater is the firm's retained earnings for reinvestment or the lower is the dividend payout. Profitable firms with more stable net earnings can afford larger free cash flows and therefore pay larger dividends. Aivazian *et al.* (2003) indicated that firms are more likely to raise their dividends if they are large and profitable. Ahmed (2015) examined the impact of liquidity and profitability on the dividend policy. The study argued that the dividend payout ratio has a significant and positive correlation with liquidity but negative and insignificant correlation with profitability. Gunawan *et al.* (2018) showed that the capital structure, dividend policy, company size, profitability and liquidity have significant positive effect on firm value. According to McCabe (2011), companies with consistent high profit levels tend to pay high dividends to the shareholders. Rizqia and Sumiati (2013) examined the effect of managerial ownership, financial leverage, profitability, firm size, and investment opportunity on dividend policy. The study showed that managerial ownership and investment opportunity have significant effect on dividend policy, while financial leverage, profitability, and firm size have no

effect on dividend policy. Casey *et al.* (1999) argued that higher the forecasted revenue growth, lower would be the dividend ratio.

Wang *et al.* (2011) assessed the dividend policies of China state owned firms of Shanghai stock market from 1998 to 2008. The study explained that dividend payment rate of these firms depends upon the earnings. Similarly, Alzomaia and Khadhiri (2013) assessed the determinants of dividend policy of Saudi Arabia firms. The study argued that profitability, firm size and last year dividend are main determinants of dividend policy of Saudi Arabia firms. Moreover, Imran *et al.* (2013) analyzed the financial record of Pakistani banks and found a positive influence of profitability, last year dividend and ownership structure on dividend policy and negative relationship is observed with liquidity. Moreover, Al-Najjar and Hussainey (2009) revealed that the profitability of the firm plays an important role in increasing the dividend paid to the shareholders. The study added that profitability is supported by signaling theory as the firm wants to enhance the reputation of its performance. However, Bradley *et al.* (1998) noted that when a company expects less cash flow in the future, managers decide to pay fewer dividends now to cope with the changes in the future. Furthermore, Wahjudi (2020) showed that collateralizable assets have a negative, but not significant, effect on dividend policy. This shows that the high collateralizable assets do not affect the policy of the dividend of manufacturing companies.

In the context of Nepal, Thapa (2021) examined the impact of net profit, cash flow, size, market to book value, and slack on the dividend payout ratio of 19 Nepalese commercial banks. The study indicated a positive effect of size on the dividend payout ratio. Dhungana and Devkota (2022) concluded that larger firms pay higher dividend and dividend history has positive relation with dividend payment. Moreover, Rana (2022) argued that firm's level of current earnings, including the pattern of past earnings and stability of earnings are important factors in determining dividend policy of banking firms in Nepal. According to Pradhan and Adhikari (2003), larger stocks have larger price earnings ratios, larger ratio of market value to book value of equity, lower liquidity, lower profitability and smaller dividends. The study showed significant relationship of market equity, market value to book value, price earnings and dividend with liquidity, leverage, profitability, and interest coverage. Similarly, Pradhan and Rajbhandari (2016) concluded that there is a positive relationship of dividend payouts with size, profitability and lagged dividends. Moreover, Shrestha (2020) examined the impact of profitability on dividend policy in Nepal. The study revealed that dividends are majorly affected by the profitability and size. The study also found that size, liquidity and profitability have positive significant impact on dividend policy. Manandhar (1998) found a positive relationship between dividends and market capitalization. Dividend per share and return on equity have positive impact on the market capitalization, while earnings per share, price earnings ratio have negative impact on dividend yield. Furthermore, Bhatt (2021) examined the impact of market power on bank dividend payment behaviors in Nepal. The study showed that bank size and leverage significantly positively whereas asset growth significantly negatively affect the dividend decision.

The above discussion shows that empirical evidences vary greatly across the studies on the effect of collateralizable assets, growth in net assets, liquidity, leverage and profitability on dividend policy. Though there are above mentioned empirical evidences in the context of other countries and in Nepal, no such findings using more recent data exist in the context of Nepal. Therefore, in order to support one view or the other, this study has been conducted.

The main purpose of the study is to analyze the effect of collateralizable assets, growth in net assets, liquidity, leverage and profitability on dividend policy of Nepalese commercial banks. Specifically, it examines the relationship of collateralizable assets, bank size, growth in net assets, liquidity ratio, leverage ratio and return on equity with dividend payout ratio and dividend per share of Nepalese commercial banks.

The remainder of this study is organized as follows. Section two describes the sample, data and methodology. Section three presents the empirical results and the final sections draws the conclusion.

2. Methodological aspects

The study is based on the secondary data which were gathered from 21 Nepalese commercial banks from 2013/14 to 2020/21, leading to a total of 168 observations. The main sources of data include publications and websites of Nepal Rastra Bank (NRB), Ministry of Finance (MoF), and annual reports of the selected commercial banks. This study is based on descriptive as well as causal comparative research designs. Table 1 shows the list of commercial banks selected for the study along with the study period and number of observations.

Table 1: List of commercial banks selected for the study along with study period and number of observations

S. N.	Name of the banks	Study period	Observations
1	Agricultural Development Bank Limited	2013/14-2020/21	8
2	Century Commercial Bank Limited	2013/14-2020/21	8
3	Civil Bank Limited	2013/14-2020/21	8
4	Everest Bank Limited	2013/14-2020/21	8
5	Global IME Bank Limited	2013/14-2020/21	8
6	Himalayan Bank Limited	2013/14-2020/21	8
7	Kumari Bank Limited	2013/14-2020/21	8
8	Laxmi Bank Limited	2013/14-2020/21	8
9	Machhapuchchhre Bank Limited	2013/14-2020/21	8
10	Mega Bank Nepal Limited	2013/14-2020/21	8
11	Nepal Bangladesh Bank Limited	2013/14-2020/21	8
12	Nepal Bank Limited	2013/14-2020/21	8
13	Nepal Credit and Commerce Bank Limited	2013/14-2020/21	8
14	Nepal Investment Bank Limited	2013/14-2020/21	8
15	Nepal SBI Bank Limited	2013/14-2020/21	8
16	NMB Bank Limited	2013/14-2020/21	8
17	Prime Commercial Bank Limited	2013/14-2020/21	8
18	Sanima Bank Limited	2013/14-2020/21	8
19	Siddhartha Bank Limited	2013/14-2020/21	8
20	Standard Chartered Bank Nepal Limited	2013/14-2020/21	8
21	Sunrise Bank Limited	2013/14-2020/21	8
Total number of observations			168

Thus, the study is based on 168 observations.

The model

The model used in this study assumes that dividend policy depends on collateralizable assets, growth in net assets, liquidity, leverage and profitability. The dependent variables selected for the study are dividend per share and dividend payout ratio. Similarly, the selected independent variables in this study are collateralizable assets, bank size, growth in net assets, liquidity ratio, leverage ratio and return on equity. The following model equations are designed to test the hypothesis:

$$DPS_{it} = \beta_0 + \beta_1 CA_{it} + \beta_2 BS_{it} + \beta_3 GNA_{it} + \beta_4 LIQ_{it} + \beta_5 LEV_{it} + \beta_6 ROE_{it} + \varepsilon$$

$$DPR_{it} = \beta_0 + \beta_1 CA_{it} + \beta_2 BS_{it} + \beta_3 GNA_{it} + \beta_4 LIQ_{it} + \beta_5 LEV_{it} + \beta_6 ROE_{it} + \varepsilon$$

Where,

DPS = Dividend per share as measured by the ratio of total dividend to number of shares outstanding, in Rs.

DPR = Dividend payout ratio as measured by the ratio of dividend per share to earnings per share, in percentage.

CA = Collateralizable assets as measured by the ratio of total fixed assets to total assets, in percentage.

BS = Bank size as measured by the total assets of a bank, Rs in billion.

GNA = Growth in net assets as measured by the change in total assets over a given period, in percentage.

LIQ = Liquidity ratio as measured by the ratio of total loans to total deposits, in percentage.

LEV = Leverage as measured by the ratio of total debts by total equity, in percentage.

ROE = Return on equity as measured by the ratio of net profit by total equity, in percentage.

The following section describes the independent variables used in this study along with hypothesis formulation.

Collateralizable assets

Collateralizable assets are the company's fixed assets that are used as collateral for loan applications to creditors (Ross *et al.*, 2015). Collateralizable assets make creditors more secure because the larger the collateralizable assets shows the greater the proportion of the company's fixed assets from the total assets owned by the company that can be used for debt collateral. Creditors do not need to limit the company's dividend policy so that the company can pay larger dividends to shareholders (Muslih and Husin, 2019). The larger the assets that are used as collateral, the less agency conflicts between shareholders and creditors so that the company can freely distribute large dividends. Generally, firms which have a greater portion of their assets in the form of tangible assets enhance their ability to raise debt finance and at cheaper cost, thereby reducing the pressure on internally generated funds (Bradley *et al.*, 1984). The study concluded that collateral capacity is expected to have a positive effect on a firm's dividend policy. Mauris and Nora (2019) determined the effect of collateralizable assets, growth in net assets, liquidity (CR), leverage (DER), and ROE on dividend policy (DPR) in non-financial service companies listed on the Indonesia Stock Exchange in 2016-2019. The results showed that simultaneous collateralizable assets (COLLAS), growth in net assets, liquidity (CR), leverage (DER), and ROE have a significant positive effect on dividend policy (DPR). Based on it, this study develops the following hypothesis:

H₁: There is a positive relationship between collateralizable assets and dividend policy.

Bank size

Large enterprises are more likely to be mature and thus have easier access to capital markets, and should be able to pay more dividends. This relationship is supported by the transaction cost explanation of dividend policy (Holder *et al.*, 1998). Mossadak (2016) showed that there is a positive relation between firm size and dividend per share. According to Al-Gharaibeh *et al.* (2013), there is a positive relation between dividend payout ratio and firm size. Maladjian and Khoury (2014) assessed the determinants of the dividend policy of the Lebanese listed banks. The study showed that the dividend payout policies are positively affected by the firm size, risk and previous year's dividends. Pattiruhu and Paais (2020) showed a positive effect of firm size on dividend policy. Based on it, this study develops the following hypothesis:

H₂: There is a positive relationship between bank size and dividend policy.

Growth in net assets

A high growth rate will be able to influence the company in distributing dividends to shareholders because companies tend to set dividends as retained earnings and are allocated for corporate financing. Coulton and Ruddock (2011) assessed the corporate payout policy in Australia. The study showed that there is a negative and significant relationship between assets growth and dividend payout ratio. Wahjudi (2020) showed that growth in net assets has a negative and significant effect on dividend policy. This shows that the higher growth in net assets will lower the dividend policy of manufacturing companies. Hussainey *et al.* (2011) examined the effect of collateralizable assets (COLLAS), growth in net assets, liquidity (CR), leverage (DER), and profitability (ROE) on dividend policy (DPR) in non-financial service companies listed on the Indonesia Stock Exchange in 2016-2019. The results showed that simultaneous collateralizable assets (COLLAS), growth in net assets, liquidity (CR), leverage (DER), and profitability (ROE) have a significant effect on dividend policy (DPR). Based on it, this study develops the following hypothesis:

H₃: There is a negative relationship between growth in net assets and dividend policy.

Liquidity ratio

Sawitri and Sulistyowati (2018) assessed the effect of stock liquidity on dividend policy. The analysis showed that stock liquidity has a negative insignificant effect on dividend policy. Sukmawardini and Ardiansari (2018) showed that liquidity as proxied by current ratio has a negative effect on dividend policy. Moreover, Nguyen (2020) investigated the impact of stock market liquidity on firms' dividend payout policy in the Australian market. The result suggested that an increase in stock liquidity leads to decrease in firm dividend. Furthermore, Zainuddin and Mananohas (2020) debt policies, managerial ownership and liquidity have negative effect on dividend policy. In addition, Utami (2022) explored the effect of profitability, liquidity, firm size, and leverage on the dividend payout ratio. The study also revealed that liquidity has negative effect on the dividend payout ratio. Based on it, the study develops the following hypothesis:

H₄: There is a negative relationship between liquidity ratio and dividend policy.

Leverage ratio

Pattiruhu and Paais (2020) examined the effect of liquidity, profitability, leverage, and firm size on dividend policy. The study showed that there is negative impact of leverage on dividend policy. Similarly, Asif *et al.* (2011) assessed the impact of financial leverage on dividend policy. The study

showed that financial leverage significantly affects the dividend policy of the Pakistani firms. According to Zurigat *et al.* (2013), there is a negative relationship between dividend payout ratio and leverage. Kouki and Guizan (2009) found a negative association between leverage and dividend policy. Asad and Yousaf (2014) revealed a significant negative impact of leverage on dividend payment behavior of Pakistani manufacturing firms. Tahir *et al.* (2016) revealed that there is a negative association between leverage and dividend per share. Based on it, the study develops the following hypothesis:

H_5 : There is a negative relationship between leverage ratio and dividend policy.

Return on equity

Vo and Nguyen (2014) found a positive relationship between dividend policy and return on equity. A higher ROE means that more profit is being made relative to the cumulative investment. The study showed that the dividend payers are affected by positive earnings i.e., high ROE (Jensen, 1986). Sutomo and Budiharjo (2019) showed a positive relationship between dividend policy and return on equity. Similarly, Nerviana (2016) assessed the effect of financial ratios and company size on dividend policy. The study showed that better financial performance of a company positively affects dividend policy. In addition, Chauhan *et al.* (2019) examined the dividend policy and its impact on the performance of Indian information technology companies. The study showed a positive relationship between dividend policy of a firm and its performance. Amidu (2007) found that there is a positive and significant relationship between dividend payout ratio and return on equity. Furthermore, Tahir *et al.* (2016) found a positive relationship between dividend per share and return on equity. Based on it, this study develops the followings hypothesis:

H_6 : There is a positive relationship between return on equity and dividend policy.

4. Results and discussion

Descriptive statistics

Table 2 presents the descriptive statistics of the selected dependent and independent variables during the period 2013/14 to 2020/21.

Table 2: Descriptive statistics

This table shows the descriptive statistics of dependent and independent variables of 21 Nepalese commercial banks for the study period from 2013/14 to 2020/21. The dependent variables are DPR (Dividend payout ratio as measured by the ratio of dividend per share to earnings per share, in percentage) and DPS (Dividend per share as measured by the ratio of total dividend to number of shares outstanding, in Rs). The independent variables are CA (Collateralizable assets as measured by the ratio of total fixed assets to total assets, in percentage), BS (Bank size as measured by the total assets of a bank, Rs in billion), GNA (Growth in net assets as measured by the change in total assets over a given period, in percentage), LIQ (Liquidity ratio as measured by the ratio of total loans to total deposits, in percentage), ROE (Return on equity as measured by the ratio of net profit by total equity, in percentage), LEV (Leverage as measured by the ratio of total debts by total equity, in percentage), and FA (Liquidity ratio as measured by the ratio of total loans to total deposits, in percentage).

Variables	Minimum	Maximum	Mean	Std. Deviation
DPS	0	110.520	21.334	16.310
DPR	0	311.410	89.656	49.578
CA	0.140	29.630	1.449	2.547

BS	20.570	345.420	100.253	55.895
GNA	-5.730	97.020	23.306	16.846
LIQ	56.470	104.750	84.829	9.177
LEV	0.400	4.110	1.198	0.720
ROE	4.030	44.050	15.060	4.800

Source: SPSS output

Correlation analysis

Having indicated the descriptive statistics, Pearson's correlation coefficients are computed and the results are presented in Table 3.

Table 3: Pearson's correlation coefficients matrix

This table shows the bivariate Pearson's correlation coefficients of dependent and independent variables of 21 Nepalese commercial banks for the study period from 2013/14 to 2020/21. The dependent variables are DPR (Dividend payout ratio as measured by the ratio of dividend per share to earnings per share, in percentage) and DPS (Dividend per share as measured by the ratio of total dividend to number of shares outstanding, in Rs). The independent variables are CA (Collateralizable assets as measured by the ratio of total fixed assets to total assets, in percentage), BS (Bank size as measured by the total assets of a bank, Rs in billion), GNA (Growth in net assets as measured by the change in total assets over a given period, in percentage), LIQ (Liquidity ratio as measured by the ratio of total loans to total deposits, in percentage), ROE (Return on equity as measured by the ratio of net profit by total equity, in percentage), LEV (Leverage as measured by the ratio of total debts by total equity, in percentage), and FA (Liquidity ratio as measured by the ratio of total loans to total deposits, in percentage).

Variables	DPS	DPR	CA	BS	GNA	LIQ	LEV	ROE
DPS	1							
DPR	0.651**	1						
CA	-0.094	0.047	1					
BS	0.017	0.013	0.033	1				
GNA	-0.150	0.055	0.075	-0.031	1			
LIQ	-0.382**	0.002	0.052	0.316**	0.145	1		
LEV	-0.211**	-0.012	-0.046	-0.692**	0.163*	-0.136	1	
ROE	0.286**	0.208**	-0.260**	-0.046	0.005	-0.392**	-0.111	1

Note: The asterisk signs (**) and (*) indicate that the results are significant at one percent and five percent levels respectively.

Table 3 shows that collateralizable assets is negatively related to dividend per share. It indicates that increase in collateralizable assets leads to decrease in dividend per share. Similarly, there is a negative relationship between assets growth and dividend per share. It indicates that higher the assets growth, lower would be the dividend per share. Similarly, there is a negative relationship between leverage ratio and dividend per share. It indicates that increase in leverage ratio leads to decrease in dividend per share. Furthermore, there is a negative relationship between liquidity ratio and dividend per share. It indicates that increase in liquidity ratio leads to decrease in dividend per share. Likewise, there is a positive relationship between return on equity and dividend per share. It indicates that higher the return on equity, higher would be the dividends per share. In addition, there is a positive relationship between firm size and dividend per share. It indicates that larger the firm size, higher would be the dividend per share.

Similarly, the result also shows that collateralizable assets is positively related to dividend payout ratio. that increase in collateralizable assets leads to increase in dividend payout ratio. In addition, there is a positive relationship between assets growth and dividend payout ratio. It indicates that higher the assets growth rate, higher would be the dividend payout ratio. However, there is a negative relationship between leverage ratio and dividend payout ratio. It indicates that increase in leverage ratio leads to decrease in dividend payout ratio. Furthermore, there is a positive relationship between liquidity ratio and dividend payout ratio. It indicates that increase in liquidity ratio leads to increase in dividend payout ratio. Moreover, there is a positive relationship between return on equity and dividend payout ratio. It indicates that higher the return on equity, higher would be the dividend payout ratio. In addition, there is a positive relationship between firm size and dividend payout ratio. It indicates that larger the firm size, higher would be the dividend payout ratio.

Regression analysis

Having indicated the Pearson's correlation coefficients, the regression analysis has been carried out and results are presented in Table 4. More specifically, it shows the regression results of collateralizable assets, bank size, growth in net assets, liquidity ratio, leverage ratio and return on equity on dividend per share of Nepalese commercial banks.

Table 4: Estimated regression results of collateralizable assets, bank size, growth in net assets, liquidity ratio, leverage ratio and return on equity on dividend per share

The results are based on panel data of 21 commercial banks with 168 observations for the period of 2013/14-2020/21 by using the linear regression model and the model is $DPS_{it} = \beta_0 + \beta_1 CA_{it} + \beta_2 BS_{it} + \beta_3 GNA_{it} + \beta_4 LIQ_{it} + \beta_5 LEV_{it} + \beta_6 ROE_{it} + \varepsilon$ where, the dependent variable is DPS (Dividend per share as measured by the ratio of total dividend to number of shares outstanding, in Rs). The independent variables are CA (Collateralizable assets as measured by the ratio of total fixed assets to total assets, in percentage), BS (Bank size as measured by the total assets of a bank, Rs in billion), GNA (Growth in net assets as measured by the change in total assets over a given period, in percentage), LIQ (Liquidity ratio as measured by the ratio of total loans to total deposits, in percentage), ROE (Return on equity as measured by the ratio of net profit by total equity, in percentage), LEV (Leverage as measured by the ratio of total debts by total equity, in percentage), and FA (Liquidity ratio as measured by the ratio of total loans to total deposits, in percentage).

Model	Intercept	Regression coefficients of						Adj. R_bar ²	SEE	F-value
		GNA	CA	ROE	LEV	BS	LIQ			
1	124.300 (1.964)*	-0.616 (1.130)						0.010	464.47	147.139
2	22.205 (15.348)**		-0.601 (1.215)					0.030	16.287	1.475
3	557.774 (5.513)**			2.335 (4.979)**				0.020	663.427	3.802
4	471.910 (0.528)				-2.050 (3.338)**			0.016	668.325	1.790
5	353.337 (3.813)**					7.273 (1.846)		0.143	608.60	29.747
6	78.974 (7.261)**						-0.679 (5.331)**	0.141	15.117	28.415
7	500.694 (9.462)**	-0.379 (0.958)	-0.548 (1.116)					0.775	317.83	233.704

8	400.954 (6.540)**	-0.999 (1.244)	-0.492 (1.003)	1.665 (2.986)**				0.788	308.77	168.045
9	-81.364 (0.915)	-1.868 (1.128)	-0.441 (1.391)	1.663 (2.986)**	-2.842 (3.171)**			0.788	308.34	126.732
10	-57.315 (0.136)	-1.518 (1.044)	-0.499 (0.929)	1.583 (2.734)**	-1.315 (3.010)**	0.452 (0.520)		0.787	309.20	100.875
11	3.529 (0.008)	-1.675 (1.594)	-0.338 (0.948)	1.693 (2.867)**	-3.689 (3.361)**	0.308 (1.551)	-0.621 (4.927)**	0.787	309.234	84.209

Notes:

- i. Figures in parenthesis are t-values.
- ii. The asterisk signs (**) and (*) indicate that the results are significant at one percent and five percent level respectively.
- iii. Dividend per share is the dependent variable.

Table 4 shows that the beta coefficients for assets growth are negative with dividend per share. It indicates that the assets growth has a negative impact on dividend per share. This finding is similar to the findings of DeAngelo *et al.* (2006). Similarly, the beta coefficients for return on equity are positive with dividend per share. It indicates that return on equity has a positive impact on dividend per share. This finding is consistent with the findings of Kania (2005). Likewise, the beta coefficients for leverage ratio are negative with dividend per share. It indicates that leverage ratio has a negative impact on dividend per share. This finding is similar to the findings of Tahir *et al.* (2016). Similarly, the beta coefficients for collateralizable assets are negative with dividend per share. It indicates that collateralizable assets has a negative impact on dividend per share. This finding is consistent with the findings of Mauris and Nora (2019). However, the beta coefficients for bank size are positive with dividend per share. It indicates that firm size has a positive impact on dividend per share. This finding is consistent with the findings of Mossadak (2016).

The regression results of collateralizable assets, bank size, growth in net assets, liquidity ratio, leverage ratio and return on equity on dividend payout ratio of Nepalese commercial banks have been presented in Table 5.

Table 5: Estimated regression results of collateralizable assets, bank size, growth in net assets, liquidity ratio, leverage ratio and return on equity on dividend payout ratio

The results are based on panel data of 21 commercial banks with 168 observations for the period of 2013/14-2020/21 by using the linear regression model and the model is $DPR_{it} = \beta_0 + \beta_1 CA_{it} + \beta_2 BS_{it} + \beta_3 GNA_{it} + \beta_4 LIQ_{it} + \beta_5 LEV_{it} + \beta_6 ROE_{it} + \varepsilon$ where, the dependent variable is DPR (Dividend payout ratio as measured by the ratio of dividend per share to earnings per share, in percentage). The independent variables are CA (Collateralizable assets as measured by the ratio of total fixed assets to total assets, in percentage), BS (Bank size as measured by the total assets of a bank, Rs in billion), GNA (Growth in net assets as measured by the change in total assets over a given period, in percentage), LIQ (Liquidity ratio as measured by the ratio of total loans to total deposits, in percentage), ROE (Return on equity as measured by the ratio of net profit by total equity, in percentage), LEV (Leverage as measured by the ratio of total debts by total equity, in percentage), and FA (Liquidity ratio as measured by the ratio of total loans to total deposits, in percentage).

Model	Intercept	Regression coefficients of						Adj. R_bar ²	SEE	F-value
		GNA	CA	ROE	LEV	BS	LIQ			
1	15.493 (2.119)*	0.202 (0.829)						0.002	53.66	0.687
2	22.026 (2.700)**		0.843 (0.901)					0.013	53.25	2.766
3	3.296 (0.404)			3.106 (3.109)**				0.019	53.55	1.229
4	23.296 (1.737)				-2.540 (1.893)*			0.011	53.09	3.583
5	5.930 (0.740)		0.923 (0.612)			0.096 (0.839)		0.003	53.69	0.547
6	14.863 (2.204)*						0.010 (0.024)	0.010	53.66	0.685
7	22.943 (2.579)**	0.068 (0.263)	0.901 (0.719)					0.006	53.43	1.408
8	15.309 (1.447)	0.097 (0.375)	0.837 (1.003)	3.127 (3.324)**				0.012	53.28	1.529
9	-118.100 (1.658)	0.134 (0.518)	0.883 (0.992)	2.127 (3.332)**	-2.086 (1.893)*			0.031	52.77	2.065
10	-113.975 (1.585)	0.194 (0.684)	0.719 (0.628)	0.113 (2.943)**	-1.305 (1.780)	0.077 (0.522)		0.035	52.92	1.697
11	-99.351 (1.351)	0.170 (0.594)	0.693 (0.559)	1.113 (2.835)**	-1.313 (1.987)*	0.075 (0.505)	0.008 (0.017)	0.018	53.10	1.418

Notes:

- i. Figures in parenthesis are t-values.
- ii. The asterisk signs (**) and (*) indicate that the results are significant at one percent and five percent level respectively.
- iii. Dividend payout ratio is the dependent variable.

Table 5 shows that the beta coefficients for assets growth are positive with dividend payout ratio. It indicates that assets growth has a positive impact on dividend payout ratio. This finding is not consistent with the findings of Wahjudi (2020). Similarly, the beta coefficients for return on equity are positive with dividend payout ratio. It indicates that return on assets has a positive impact on dividend payout ratio. This finding is consistent with the findings of Vo and Nguyen (2014). Likewise, the beta coefficients for firm size are positive with dividend payout ratio. It indicates that firm size has a positive impact on dividend payout ratio. This finding is similar to the findings of Al- Gharaibeh *et al.* (2013). However, the beta coefficients for collateralizable assets are positive with dividend payout ratio. It indicates that collateralizable assets has a positive impact on dividend payout ratio. This finding is inconsistent with the findings of Bradley *et al.* (1984). Likewise, the beta coefficients for liquidity ratio are positive with dividend payout ratio. It indicates that liquidity ratio has a positive impact on dividend payout ratio. This finding is inconsistent to the findings of Al-Malkawi (2008).

4. Summary and conclusion

Dividend policy is one of the most important functions for corporate finance and has influence with various company stakeholders. Dividend policy reflects the quality and reputation of the company, namely the company's ability to manage its business processes to generate profits well or vice versa. In practice, companies experience difficulties in determining and deciding dividend policies, namely the decision to withhold profits to be used as company operational development or to distribute dividends to shareholders to increase investor confidence in the company.

This study attempts to analyze the effect of collateralizable assets, growth in net assets, liquidity, leverage and profitability on dividend policy of Nepalese commercial banks. The study is based on secondary data of 21 commercial banks with 168 observations for the period from 2013/14 to 2020/21.

The study showed that return on equity and bank size have positive impact on dividend per share. However, collateralizable assets, growth in net assets, liquidity ratio, and leverage ratio have negative impact on dividend per share. Similarly, collateralizable assets, bank size, growth in net assets, liquidity ratio, and return on equity have positive impact on dividend payout ratio. However, leverage ratio has a negative impact on dividend payout ratio. The study concluded that bank size followed by liquidity ratio and collateralizable assets is the most influencing factor that explain the changes in the dividend policy in terms of dividend per share of Nepalese commercial banks. The study also concluded that return on equity is the most influencing factor that explain the changes in the dividend policy in terms of dividend payout ratio of Nepalese commercial banks.

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Bank efficiency and non-performing financing in Nepalese commercial banks

– Aparajita Pandey*

Abstract

The study examines the relationship between bank efficiency and non-performing financing in Nepalese commercial banks. Return on assets and net interest margin are selected as the dependent variables. The selected independent variables are non-performing loans, capital adequacy ratio, loan loss provision, loan to deposit ratio, assets growth and bank size. The study is based on secondary data of 16 commercial banks with 128 observations for the study period from 2013/14 to 2020/21. The data were collected from Banking and Financial Statistics published by Nepal Rastra Bank, publications and websites of Nepal Rastra Bank (NRB) and annual reports of the selected commercial banks. The correlation coefficients and regression models are estimated to test the relationship and significance of capital adequacy ratio, loan deposit ratio, assets growth, loan loss provision, bank size and non-performing loans on the financial performance of Nepalese commercial banks.

The study showed that capital adequacy ratio has a positive impact on return on assets and net interest margin. It indicates that higher the capital adequacy ratio, higher would be the return on assets and net interest margin of Nepalese commercial banks. Similarly, loan to deposit ratio has a positive impact on return on assets and net interest margin. It means that increase in loan to deposit ratio leads to increase in return on assets and net interest margin. However, asset growth has a negative impact on return on assets and net interest margin. It means that increase in asset of the bank leads to decrease in return on assets and net interest margin. Furthermore, non-performing loans ratio has a negative impact on return on assets. It indicates that increase in non-performing loans leads to decrease in return on assets. Moreover, loan loss provision has a negative impact on return on assets. It means that increase in loan loss provision leads to decrease in return on assets.

Key words: *Return on asset, net interest margin, capital adequacy ratio, loan to deposit ratio, assets growth, loan loss provision, bank size and non-performing loans.*

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1. Introduction

An efficient financial system is considered as a necessary and sufficient condition for rapid growth and economic development for every modern economy. Thaddeus (2015) stated that the efficiency of a financial system plays an important role in determining the rate of savings, investment decisions, technological innovations and hence the rate of economic growth. The soundness of commercial banks largely depends on the financial performance. It normally shows the weakness and strengths of commercial banks. The financial performance of a financial institution is evaluated by determining the profitability (Makkar and Singh, 2013). The stability of the banking system is a prerequisite for an effective financial system and achieving economic growth. In particular, profitability is one of the key factors to ensure the stability of the banking system. With good profitability, the bank can benefit its own shareholders and continue to be a channel of capital to support other investments of individuals and organizations, thereby promoting the development of the whole economy. In contrast, with poor financial results, banks may face bankruptcy, creating/contributing to exacerbating financial crises, thereby leading to severe consequences for the global economy (Aduda and Kalunda, 2012).

Non-performing loans are among the main causes of the problems of economic stagnation. The large amount of non-performing loans in the banking system generally results in a bank failure (Messai and Jouini, 2013). An increase in NPLs would lead to higher provisions, lower profitability, and considerable erosion in bank capital so the regulator should apply closer screening and monitoring of the risk of loan default in order to maximize profits (Vinh, 2017). Non-performing loans reduce the liquidity of the banks because increasing in credit will make the growth of the banks become slower when the bank defaults and might affect the whole economy of the country (Nyor and Mejabi, 2013). Alshebmi *et al.* (2020) investigated on the effect of credit risk on performance of five commercial banks in Nigeria of the years 2000 to 2010. The result revealed that non-performing loans and loan loss provision have statistically significant negative impact on return on assets. Furthermore, Guy and Lowe (2011) investigated the impact of non-performing loan on bank stability in Barbados. The study found that asset growth, inflation and lending rate have a significant negative impact on non-performing loans, while loan growth, loan to deposit ratio and ROA have insignificant impact on non-performing loans. Likewise, Zaman *et al.* (2011) assessed the determinants of banks profitability in Pakistan. The study concluded that higher level of total assets may not necessarily lead to higher profits due to the diseconomies of scale and higher loans contribute towards profitability but their impact is not significant.

Athanasoglou *et al.* (2008) investigated the banks from South Eastern European region over the period from 1998 to 2002. The study found that concentration is positively correlated to bank profitability and inflation has a strong effect on profitability. However, banks' profits are not significantly affected by the real GDP per capita fluctuations. In addition, Moussa (2015) determined the relationship between capital and financial performance in 19 banks in Tunisia. The study indicated that there is a positive relationship between capital and financial performance. Similarly, Ali (2016) analyzed the determinants of profitability in the case of Jordanian commercial banks. The study showed that there is a positive association between capital adequacy, leverage and banks' profitability. Likewise, Otieno *et al.* (2012) investigated the effect of credit risk on performance of five commercial banks in Nigeria of the years 2000 to 2010. The result revealed that non-performing loans and loan loss provision have a statistically significant negative impact on return on assets while loans and advances have a statistically positive impact on performance. In addition, Ongore and Kusa (2013) investigated the determinants of financial performance of the commercial banks in Kenya. The study revealed that liquidity management and external variables did not have any significant effect. Likewise, Kurawa

and Garba (2014) examined the effects of credit risk and other risk components on banks' financial performance in Nigeria. The study found a strong relationship between credit risk and banks' financial performance.

Inyiama *et al.* (2017) investigated the relationship between assets growth rate and financial performance of manufacturing firms in Nigeria. The result showed that non-current assets growth rate and net assets growth rate of manufacturing firms in Nigeria are positively and strongly related to the profitability. Ali and Puaah (2019) examined the internal determinants of bank profitability and stability in Pakistan banking sector. The results indicated that bank size, credit risk, funding risk and stability have statistically significant impacts on profitability, while liquidity risk showed the statistically insignificant impact on profitability. The results also revealed that bank size, liquidity risk, funding risk and profitability have statistically significant impacts on stability, while credit risk has an insignificant effect on stability. Moreover, Javed *et al.* (2019) examined the impact of capital structure on firm performance of Pakistani firms. The study found that there is a significant but negative impact of long-term debt to assets ratio on profitability. Soumadi and Hayajneh (2012) investigated the impact of capital structure on the profitability of 76 listed in the Amman stock market for the period 2001 to 2006. The study showed that there is a positive relationship between assets growth and profitability. Likewise, Goyal (2013) found that assets growth has a positive relationship with return on asset, return on equity and earning per share. Glancey (1998) investigated the determinants of growth and profitability in small entrepreneurial firms. The study revealed that there is a positive relationship between firm's profitability and growth. Furthermore, Mukhopadhyay and Khalkhali (2010) found that there is a positive and significant relationship between assets growth and profitability.

According to Ronoh and Ntoiti (2015), capital structure has a negative effect on the financial performance of commercial banks. The study showed that deposits and debt equity ratio are negative and significantly related to financial performance measured by return on assets of listed commercial banks in Kenya. Likewise, Gebremichael and Ababa (2016) examined the impact of capital structure on profitability of commercial bank of Ethiopia. The study argued that deposit ratio has statistically significant and positive relationship with firm profitability. Shiri *et al.* (2015) assessed the determinants of commercial bank profitability from prior-to post-hyperinflation in Zimbabwe. The study asserted that there is an inverse relationship between the ratio of loans to deposits and commercial bank profitability. Similarly, Christaria and Kurnia (2016) confirmed that loan to deposit ratio has negative significant impact on bank profitability proxies by return on assets (ROA). In additionally, Eltabakh *et al.* (2014) analyzed the profitability and its determinants between Islamic and conventional banks listed in Qatar Exchange. The results indicated that there is a statistically significant positive relationship between profitability and loan to deposit ratio.

In the context of Nepal, Maharjan (2016) asserted that return on assets, return on equity and net interest margin are positively related to capital adequacy, credit risk, and bank size. In addition, Pradhan and Parajuli (2017) found that there is a positive relationship of capital adequacy, bank size and debt to equity ratio with return on equity. This means that higher the capital adequacy, higher would be the return on equity. Likewise, Budhathoki *et al.* (2020) examined the impact of assets quality, capital adequacy ratio, assets diversification and operating efficiency on banks' profitability. The study showed that assets quality, operating efficiency, and capital adequacy ratio significantly affect bank profitability. Similarly, Neupane (2020) analyzed the determinants of the profitability of Nepalese banking sector over the time period from 2004 to 2013. The study found that asset size and deposit to asset have a significant positive effect on profitability. However, loans portfolio has a significant negative impact on profitability of bank. In addition, Dhakal (2015) found that capital

ratio has a negative and significant relation with provision for loan loss. Likewise, Khati (2020) explored the impact of liquidity on profitability of Nepalese commercial banks. The result showed that credit to deposit, assets quality and liquidity ratio have significant positive impact on net interest margin. Moreover, credit to deposit ratio has a significant positive effect on return on assets. In addition, Gyawali (2018) found that there is a negative impact of non-performing loan on return on assets in context of Nepalese government banks.

The above discussion shows that empirical evidences vary greatly across the studies on the bank efficiency and non performing financing. Though there are above mentioned empirical evidences in the context of other countries and in Nepal, no such findings using more recent data exist in the context of Nepal. Therefore, in order to support one view or the other, this study has been conducted.

The main purpose of the study is to analyze the association between bank efficiency and non-performing financing in Nepalese commercial banks. Specifically, it examines the relationship of capital adequacy ratio, loan loss provision, loan to deposit ratio, bank size, assets growth and non-performing loans with return on asset and net interest margin of Nepalese commercial banks.

The remainder of this study is organized as follows. Section two describes the sample, data and methodology. Section three presents the empirical results and the final sections draws conclusion and discusses the implications of the study findings.

2. Methodological aspects

The study is based on the secondary data which were gathered for 16 Nepalese commercial banks from 2013/14 to 2020/21, leading to a total of 128 observations. The main sources of data include publications and websites of Nepal Rastra Bank (NRB), Banking and Financial Statistics published by Nepal Rastra Bank and annual reports of the selected commercial banks. This study is based on descriptive as well as causal comparative research designs. Table 1 shows the list of commercial banks selected for the study along with the study period and number of observations.

Table 1: List of commercial banks selected for the study along with study period and number of observations

S.N.	Name of the banks	Study period	Observations
1	Agricultural Development Bank Limited	2013/14-2020/21	8
2	Citizens Bank International Limited	2013/14-2020/21	8
3	Everest Bank Limited	2013/14-2020/21	8
4	Global IME Bank Limited	2013/14-2020/21	8
5	Himalayan Bank Limited	2013/14-2020/21	8
6	Kumari Bank Limited	2013/14-2020/21	8
7	Mega Bank Nepal Limited	2013/14-2020/21	8
8	Nabil Bank Limited	2013/14-2020/21	8
9	Nepal Bank Limited	2013/14-2020/21	8
10	Nepal Investment Bank Limited	2013/14-2020/21	8
11	NIC Asia Bank Limited	2013/14-2020/21	8

12	NMB Bank Limited	2013/14-2020/21	8
13	Prime Commercial Bank Limited	2013/14-2020/21	8
14	Rastriya Banijya Bank Limited	2013/14-2020/21	8
15	Sanima Bank Limited	2013/14-2020/21	8
16	Siddhartha Bank Limited	2013/14-2020/21	8
Total number of observations			128

Thus, the study is based on the 128 observations.

The model

The models used in this study examine the bank efficiency depends on non performing financing. The dependent variables selected for the study are return on asset and net interest margin. Similarly, the selected independent variables in this study are capital adequacy ratio, loan loss provision, bank size, assets growth, non-performing loans and loan to deposit ratio. The following model equations are designed to test the hypothesis.

$$ROA_{it} = \beta_0 + \beta_1 CAR_{it} + \beta_2 AG_{it} + \beta_3 LLP_{it} + \beta_4 BS_{it} + \beta_5 NPL_{it} + \beta_6 LDR_{it} + e_{it}$$

$$NIM_{it} = \beta_0 + \beta_1 CAR_{it} + \beta_2 AG_{it} + \beta_3 LLP_{it} + \beta_4 BS_{it} + \beta_5 NPL_{it} + \beta_6 LDR_{it} + e_{it}$$

Where,

ROA = Return on assets as measured by the ratio of net income to total assets, in percentage.

NIM = Net interest margin as measured by the ratio of difference between interest revenue and interest expenses to earning assets, in percentage.

CAR = Capital adequacy ratio as measured by the ratio of total capital to total assets, in percentage.

AG = Assets growth as measured by the ratio of difference between last years and current year's total assets to last year's total assets, in percentage.

LLP = Loan loss provision as measured by the ratio of loan loss provision to total loans, in percentage.

BS = Bank size as measured by the total assets of a bank, Rs. in billion.

NPL = Nonperforming loan as measured by the ratio of non-performing loan to total loans, in percentage.

LDR = Loan to deposit ratio as measured by the ratio of total loans to total deposits, in percentage.

The following section describes the independent variables used in this study along with hypothesis formulation.

Capital adequacy ratio

Capital adequacy is the measure of financial strength of the commercial banks. It is also a measure of ability to absorb the financial risk that may be incurred in the commercial banks. Capital adequacy requirement provide a cover against losses not covered by current bank earnings and to protect depositors and other creditors against loss in the event of liquidation (Ikpefan, 2013). According to Lin *et al.* (2005), adequate capital can efficiently protect operations of the banks from failure by absorbing losses. Likewise, Ogboi and Unuafe (2013) showed that credit risk management and capital adequacy ratio have a positive impact on financial performance. Furthermore, Imani (2017) stated

that capital adequacy ratio has significant positive effect on profitability (ROA). Likewise, Moussa (2015) found that there is a positive relationship between capital ratio and financial performance. Moreover, Barus *et al.* (2017) stated that capital adequacy is positively related to performance, as measured by return on assets (ROA) and return on equity (ROE). Based on it, this study develops the following hypothesis:

H_1 : *There is a positive relationship between capital adequacy ratio and financial performance.*

Assets growth

Larger firms expected to perform better because of the advantage of economy of scale (Klapper and Love, 2004). Likewise, Short (1979) found that size has a positive influence on profitability through lowering the cost of raising capital for big banks. Similarly, Simiyu (2016) found that growth in a banks' loans portfolio negatively affects the banks financial performance in the subsequent years. Likewise, Kosmidou *et al.* (2006) found that assets size is negatively related to bank profits in the context of UK owned commercial banks' profits. In addition, Goyal (2013) found that assets growth has a negative relationship with return on asset and return on equity and earning per share. Based on it, this study develops the following hypothesis:

H_2 : *There is a negative relationship between assets growth and banks financial performance.*

Loan loss provision

Alhadab and Alсахawneh (2018) defined loan loss provision as a policy that followed by commercial banks by putting some money aside (reserves) to face any potential loans default, which in turn would help to protect banks' positions in terms of profitability and capital. Miller and Noulas (1997) stressed that decline in loan loss provisions is the primary catalyst for increases in profit margins. Similarly, loan loss provision is found to have a negative and significant relationship with profitability (Ramlall, 2009). Likewise, Tahir *et al.* (2014) showed a negative relationship between the loan loss provision (LLP) and profitability. In addition, Sufian (2011) found that loan loss provision and profitability are negatively associated. Based on it, this study develops the following hypothesis:

H_3 : *There is a negative relationship between loan loss provision and financial performance.*

Bank size

Alfadli and Rjoub (2020) investigated the impacts of bank efficiency and non performing financing variables on bank financial performance. The study found that bank size has a positive and significant relationship with return on assets and return on equity. Similarly, Domanovic *et al.* (2018) showed a positive relationship between bank size and Serbian bank profitability. Likewise, Lohano and Kashif (2019) concluded that bank size is positively related to return on assets and return on equity. Furthermore, Bogale (2019) found that bank size is significant and positively related to profitability of Ethiopian private commercial banks. Moreover, San and Heng (2013) revealed a positive relationship between bank size and profitability as measured by return on equity. Based on it, this study develops the following hypothesis;

H_4 : *There is a negative relationship between bank size and financial performance.*

Non-performing loans

Noman *et al.* (2015) investigated the effect of credit risk on the banking profitability in Bangladesh. The study confirmed a significant negative effect of credit risk on bank profitability. Likewise, Ozurumba (2016) analyzed the impact of non-performing loans on the performance of selected commercial banks in Nigeria. The study revealed that the effect of non-performing loans on commercial banks' performance is negative. In addition, Jolevski (2017) assessed non-performing loans and profitability indicators in the context of the Republic of Macedonia. The result confirmed that there is a moderately high negative correlation between the non-performing loans ratio and rates of return on equity and return on assets. Moreover, Sawitri *et al.* (2018) examined the prediction of third-party funds, interest rates, and non-performing loans toward loan to deposit ratios and its impact on return on assets on commercial banks in Indonesia. The study found that non-performing loan ratio has a negative and significant impact on return on assets and return on equity. Based on it, this study develops the following hypothesis.

H₅ : There is a negative relationship between non-performing loans and financial performance.

Loan to deposit ratio

Boda and Zimkova (2021) stated that the level of loan to deposit ratio (LDR) has significant effect on profitability (ROA). Similarly, Inggawati *et al.* (2018) asserted that there is inverse relationship between the ratio of loans to deposits and bank profitability. Likewise, Awulo *et al.* (2019) revealed that loan to deposit ratio negatively affects return on assets. Likewise, Putri and Dewi (2021) indicated that LDR does not have a positive effect on financial performance with the assumption that a low LDR will cause the company's liquidity to increase and in the end, it will also increase the quantity of idle funds which will have a direct impact on financial performance. Moreover, Vuyst and Rotsaert (2019) observed that there is a negative and statistically significant relation between ROA and LDR. In addition, Sari and Septiano (2020) showed that loan to deposit ratio has an insignificant negative effect on ROA. Based on it, this study develops the following hypothesis:

H₆ : There is a negative relationship between loan to deposit ratio and financial performance.

3. Results and discussion

Descriptive statistics

Table 2 presents the descriptive statistics of the selected dependent and independent variables during the period 2013/14 to 2020/21.

Table 2: Descriptive statistics

This table shows the descriptive statistics of dependent and independent variables of 16 Nepalese commercial banks for the study period from 2013/14 to 2020/21. The dependent variables are ROA (Return on assets as measured by the ratio of net income to total assets, in percentage) and NIM (Net interest margin as measured by the ratio of difference between interest revenue and interest expenses to earning assets, in percentage). The independent variables are CAR (Capital adequacy ratio as measured by the ratio of total capital to total assets, in percentage), LLP (Loan loss provision as measured by the ratio of loan loss provision to total loans, in percentage), LDR (Loan to deposit ratio as measured by the ratio of total loans to total deposits, in percentage), AG (Assets growth as measured by the ratio of difference between last years and current year's total assets to last year's total assets, in percentage), and NPL Nonperforming loan as measured by the ratio of non-performing loan to total loans, in percentage) and BS (Bank size as measured by the total assets of a bank, Rs. in billion).

Variables	Minimum	Maximum	Mean	S. D.
ROA	0.30	2.89	1.64	0.48
NIM	2.12	5.65	3.23	0.71
CAR	4.55	20.46	13.20	2.34
LDR	56.73	100.26	81.12	8.61
AG	-9.02	105.31	19.59	16.81
NPL	0.1	5.46	1.68	1.25
LLP	0.26	8.60	2.212	1.35
BS	4.31	80.73	8.31	11.31

Source: SPSS output

Correlation analysis

Having indicated the descriptive statistics, Pearson's correlation coefficients are computed and the results are presented in Table 3.

Table 3: Pearson's correlation coefficients matrix

This table shows the bivariate Pearson's correlation coefficients of dependent and independent variables of 16 Nepalese commercial banks for the study period from 2013/14 to 2020/21. The dependent variables are ROA (Return on assets as measured by the ratio of net income to total assets, in percentage) and NIM (Net interest margin as measured by the ratio of difference between interest revenue and interest expenses to earning assets, in percentage). The independent variables are CAR (Capital adequacy ratio as measured by the ratio of total capital to total assets, in percentage), LLP (Loan loss provision as measured by the ratio of loan loss provision to total loans, in percentage), LDR (Loan to deposit ratio as measured by the ratio of total loans to total deposits, in percentage), AG (Assets growth as measured by the ratio of difference between last years and current year's total assets to last year's total assets, in

percentage), and NPL Nonperforming loan as measured by the ratio of non-performing loan to total loans, in percentage) and BS (Bank size as measured by the total assets of a bank, Rs. in billion).

Variables	ROA	NIM	CAR	LDR	AG	NPL	LLP	BS
ROA	1							
NIM	0.121	1						
CAR	0.110	0.195*	1					
LDR	0.042	0.037	0.532**	1				
AG	-0.802	-0.213*	0.090	0.106	1			
NPL	-0.072	0.576**	-0.028	-0.141	0.61*	1		
LLP	-0.110	0.416**	0.100	-0.108	-0.201*	-0.202*	1	
BS	-0.185*	-0.133	-0.059	0.007	.0016	-0.105	-0.255*	1

Source: SPSS output

Note: The asterisk signs (**) and (*) indicate that the results are significant at one percent and five percent levels respectively.

Table 3 shows that there is a positive relationship between capital adequacy ratio and return on assets. It indicates that increase in capital adequacy ratio leads to increase in return on assets. Similarly, there is a positive relationship between loan to deposit ratio and return on assets. It indicates that increase in loan deposit ratio leads to increase in return on assets. Further, there is a negative relationship between loan loss provision and return on assets. It means that increase in loan loss provision leads to decrease in return on assets. Likewise, nonperforming loan has a negative relationship with return on assets. It means that increase in nonperforming loan leads to decrease in return on assets. Furthermore, there is a negative relationship between asset growth and return on assets. It indicates that increase in asset growth rate leads to decrease in return on assets. Moreover, bank size has a negative relationship with the return on assets. It means that increase in size of the bank leads to decrease in return on assets.

On the other hand, the result shows that there is a positive relationship between capital adequacy ratio and net interest margin. It indicates that increase in capital adequacy ratio leads to increase in net interest margin. Likewise, loan to deposit ratio has a positive relationship with net interest margin. It means that higher the loan to deposit ratio in the banks, higher would be the net interest margin. Furthermore, there is a positive relationship between loan loss provision and net interest margin. It indicates that increase in loan loss provision leads to increase in net interest margin. However, assets growth has a negative relationship with net interest margin. It means that increase in assets growth rate leads to decrease in net interest margin. In contrast, there is a positive relationship between non-performing loans and net interest margin. It indicates that increase in non-performing loans lead to increase in net interest margin. Furthermore, there is a negative relationship between bank size and net interest margin. It indicates that increase in bank size leads to decrease in net interest margin.

Regression analysis

Having indicated the Pearson's correlation coefficients, the regression analysis has been carried out and results are presented in Table 4. More specifically, it shows the regression results of capital adequacy ratio, loan to deposit ratio, assets growth, non-performing loan, loan loss provision and bank size with return on assets of Nepalese commercial banks.

Table 4: Estimated regression results of capital adequacy ratio, loan to deposit ratio, assets growth, non-performing loan, loan loss provision, bank size with return on assets

The results are based on panel data of 16 commercial banks with 128 observations for the period of 2013/14 to 2020/21 by using the linear regression model and the model is $ROA_{it} = \beta_0 + \beta_1 CAR_{it} + \beta_2 AG_{it} + \beta_3 LLP_{it} + \beta_4 BS_{it} + \beta_5 NPL_{it} + \beta_6 LDR_{it} + e_{it}$ where, the dependent variable is ROA (Return on assets as measured by the ratio of net income to total assets, in percentage). The independent variables are CAR (Capital adequacy ratio as measured by the ratio of total capital to total assets, in percentage), LLP (Loan loss provision as measured by the ratio of loan loss provision to total loans, in percentage), LDR (Loan to deposit ratio as measured by the ratio of total loans to total deposits, in percentage), AG (Assets growth as measured by the ratio of difference between last years and current year's total assets to last year's total assets, in percentage), and NPL Nonperforming loan as measured by the ratio of non-performing loan to total loans, in percentage) and BS (Bank size as measured by the total assets of a bank, Rs. in billion).

Model	Intercept	Regression coefficients of						Adj. R _{bar} ²	SEE	F-value
		CAR	LDR	AG	NPL	LLP	BS			
1	1.611 (6.524)**	0.002 (0.126)						0.008	0.491	0.016
2	1.446 (3.480)**		0.002 (0.473)					0.006	0.491	0.224
3	1.689 (25.346)**			-0.002 (0.927)				0.001	0.489	0.859
4	1.690 (23.066)**				-0.028 (0.810)			0.003	0.490	0.656
5	1.731 (20.643)**					-0.040 (1.242)		0.004	0.488	1.543
6	1.708 (32.202)**						-0.008 (2.108)*	0.260	0.482	4.443
7	1.450 (3.469)**	0.003 (0.148)	0.003 (0.478)					0.140	0.493	0.122
8	1.761 (18.123)**			-0.003 (1.114)	-0.036 (1.020)			0.001	0.489	0.950
9	1.795 (20.361)**					-0.039 (1.226)	-0.008 (2.092)*	0.030	0.482	2.981
10	1.456 (3.482)**	0.02 (0.110)	0.003 (0.544)	-0.003 (0.971)				0.014	0.493	0.396
11	1.799 (19.944)**				-0.013 (0.276)	-0.030 (0.684)	-0.008 (2.102)*	0.023	0.484	1.998
12	1.571 (3.560)**	0.001 (0.048)	0.002 (0.408)	-0.003 (1.135)	-0.34 (0.944)			0.015	0.494	0.519
13	1.622 (3.701)**	0.004 (0.172)	0.002 (0.280)	-0.003 (1.232)	0.00 (0.009)	-0.048 (1.041)		0.015	0.493	0.633
14	1.743 (4.041)**	0.001 (0.30)	0.003 (0.431)	-0.005 (1.902)	-0.024 (0.490)	-0.034 (0.757)	-0.010 (2.545)*	0.549	0.482	6.630

Notes:

- i. Figures in parenthesis are t-values.
- ii. The asterisk signs (**) and (*) indicate that the results are significant at one percent and five percent level respectively.
- iii. Return on asset is the dependent variable.

Table 4 shows that the beta coefficients for capital adequacy ratio are positive with return on assets. It indicates that the capital adequacy ratio has a positive impact on return on assets. This finding is

similar to the findings of Moussa (2015). Similarly, the beta coefficients for loan to deposit ratio are positive with return on assets. It indicates that loan to deposit ratio has positive impact on return on assets. This finding is inconsistent with finding of Zaman *et al.* (2011). Likewise, the beta coefficients for asset growth are negative with return on assets. It indicates that assets growth has a negative impact on return on assets. This finding is inconsistent with the findings of Goyal (2013). Similarly, the beta coefficients for the non-performing loans are negative with return on assets. It indicates that non-performing loan has a negative impact on return on assets. This finding is similar to the findings of Ozurumba (2016). Likewise, the beta coefficients for the loan loss provision are negative with return on assets. It indicates that loan loss provision has a negative impact on return on assets. This finding is inconsistent with the findings of Gebremichael and Ababa (2016).

The estimated regression results of capital adequacy ratio, loan to deposit ratio, assets growth non-performing loan, loan loss provision, bank size with net interest margin of Nepalese commercial banks is presented in Table 5.

Table 5: Estimated regression results of capital adequacy ratio, loan to deposit ratio, assets growth and non-performing loan, loan loss provision and bank size with net interest margin

The results are based on panel data of 16 commercial banks with 128 observations for the period of 2013/14-2020/21 by using the linear regression model and the model is $NIM_{it} = \beta_0 + \beta_1 CAR_{it} + \beta_2 AG_{it} + \beta_3 LLP_{it} + \beta_4 BS_{it} + \beta_5 NPL_{it} + \beta_6 LDR_{it} + e_{it}$ where, the dependent variable is NIM (Net interest margin as measured by the ratio of difference between interest revenue and interest expenses to earning assets, in percentage). The independent variables are CAR (Capital adequacy ratio as measured by the ratio of total capital to total assets, in percentage), LLP (Loan loss provision as measured by the ratio of loan loss provision to total loans, in percentage), LDR (Loan to deposit ratio as measured by the ratio of total loans to total deposits, in percentage), AG (Assets growth as measured by the ratio of difference between last years and current year's total assets to last year's total assets, in percentage), and NPL Nonperforming loan as measured by the ratio of non-performing loan to total loans, in percentage) and BS (Bank size as measured by the total assets of a bank, Rs. in billion).

Model	Intercept	Regression coefficients of						Adj. R _{bar} ²	SEE	F-value
		CAR	LDR	AG	NPL	LLP	BS			
1	2.4 (6.750)**	0.059 (2.237)*						0.031	0.707	5.003
2	2.932 (4.804)**		0.003 (0.414)					0.007	0.720	0.172
3	3.361 (35.054)**			-0.009 (2.447)*				0.038	0.704	5.990
4	2.621 (29.740)**				0.330 (7.914)**			0.327	0.589	62.629
5	2.687 (23.858)**					0.221 (5.137)**		0.167	0.655	26.392
6	3.2523 (41.431)**						-0.008 (1.510)	0.010	0.714	2.282
7	2.839 (4.727)**	0.074 (2.375)*	0.008 (0.094)					0.029	0.707	2.909
8	2.725 (23.368)**			-0.004 (1.357)	0.318 (7.501)**			0.331	0.587	32.444
9	2.758 (23.181)					0.223 (5.205)**	-0.009 (1.741)	0.180	0.650	14.925

10	2.861 (4.878)**	0.077 (2.534)*	0.006 (0.7431)	-0.010 (2.653)**				0.074	0.691	4.379
11	2.645 (23.981)**				0.306 (5.228)**	0.026 (0.471)	-0.005 (1.051)	0.323	0.591	21.156
12	1.780 (3.536)**	0.065 (2.569)*	0.001 (0.173)	-0.005 (1.668)	0.321 (7.716)**			0.371	0.569	19.717
13	1.797 (3.534)**	0.066 (2.564)*	0.001 (0.007)	-0.005 (1.683)	0.332 (5.861)**	0.016 (0.295)		0.366	0.572	15.674
14	1.873 (3.673)**	0.063 (2.456)*	0.002 (0.2131)	-0.006 (1.993)*	0.317 (5.501)**	0.007 (0.134)	-0.006 (1.354)	0.570	0.570	13.457

Notes:

- i. Figures in parenthesis are t-values.
- ii. The asterisk signs (**) and (*) indicate that the results are significant at one percent and five percent level respectively.
- iii. Net interest margin is the dependent variable.

Table 5 shows that the beta coefficients for capital adequacy ratio are positive with net interest margin. It indicates that capital adequacy ratio has a positive impact on net interest margin. This finding is similar to the findings of Ogboi and Unuafé (2013). Likewise, the beta coefficients for loan to deposit ratio are positive with the net interest margin. It indicates that loan to deposit ratio has a positive impact on net interest margin. This finding is inconsistent with the findings of Boda and Zimkova (2021). Similarly, the beta coefficients of assets growth are negative with net interest margin. It indicates that assets growth has a negative impact on net interest margin. This finding is similar to the findings of Kosmidou *et al.* (2006). Likewise, the beta coefficients of non-performing loan are positive with net interest margin. It indicates that the non-performing loans has a positive impact on net interest margin. This finding contradicts with the findings of Sawitri *et al.* (2018). Likewise, the beta coefficients for loan loss provision are positive with net interest margin. It indicates that loan loss provision has a positive impact on net interest margin. This finding is consistent with the findings of Jolevski (2017).

4. Summary and conclusion

Banking sector plays an effective role in the economic development in all the countries and especially commercial banks which plays a vital role in a country economic resource allocation. Bank are the financial intermediaries that plays great role in channeling the savings into productive activities for the growth of the economy. Profitability is one of the major targets of any business sector as it boosts the economic growth of the country. There are several internal and external factors that affects the profitability of commercial banks. The main success of a bank is the success in carrying out its functions and role as a financial intermediary. Bank performance is the basis for measuring whether banks have carried out management activities in accordance with sound banking rules according to applicable regulations.

This study attempts to analyze the association between bank efficiency and non performing financing of Nepalese commercial banks. The study is based on secondary data of 16 commercial banks with 128 observations for the study period from 2013/14 to 2020/21.

The study showed that loan to deposit ratio and capital adequacy ratio have a positive impact on return on assets. However, asset growth, non-performing loans, loan loss provision and bank size have a negative impact on return on assets. Similarly, capital adequacy ratio, loan to deposit ratio and non-performing loans and loan loss provision have a positive impact on net interest margin. Likewise, assets growth rate and bank size have negative impact on net interest margin. The study concluded that there is a significant association between bank efficiency and non performing financing. The study also concluded that non-performing loans followed by assets growth is the most influencing factor that explains the change in the net interest margin in the context of Nepalese commercial banks.

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Effect of recapitalization on the performance of Nepalese commercial banks

– Rishi Rai*

Abstract

This study examines the effect of recapitalization on the performance of Nepalese commercial banks. Return on assets and return on equity are selected as dependent variables. Similarly, capital adequacy ratio, bank size, liquidity, capital investment ratio and bank deposit are selected as independent variables. This study is based on secondary data of 26 commercial banks with 208 observations for the study period from 2013/14 to 2020/21. The data were collected from Banking and Financial Statistics published by Nepal Rastra Bank, annual reports of the selected commercial banks and reports published by Ministry of Finance. The correlation coefficients and regression models are estimated to test the significance and importance of recapitalization on the performance of Nepalese commercial banks.

The study showed that capital adequacy ratio has a positive impact on return on assets. It means that increase in capital adequacy ratio leads to increase in return on assets. Similarly, liquidity has a negative impact on return on assets and return on equity. It shows that increase in liquidity leads to a decrease in return on assets and return on equity. Moreover, bank size has a positive impact on return on assets and return on equity. It indicates that increase in bank size leads to increase in return on assets and return on equity. In contrast, capital investment ratio has a negative impact on return on assets and return on equity. It indicates increase in capital investment ratio leads to decrease in return on assets and return on equity. In addition, the study showed that bank deposits have a positive impact on return on assets and return on equity. It means that increase in bank deposits leads to increase in return on assets and return on equity in Nepalese commercial banks.

Key words: *Return on assets, return on equity, capital adequacy ratio, bank size, liquidity, capital investment ratio and bank deposit.*

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1. Introduction

A well-functioning financial system is crucial for the development of the economy. Imala (2005) opined that the banking system serves to promote stability and provide grounds for sustained economic growth. Government and regulatory agencies ensure proper policies that enhance optimum performance of banking activities. A banking crisis or failure can be triggered by weakness in banking system as a result of persistent illiquidity, insolvency, undercapitalization, high level of non-performing loans and weak corporate governance etc. It is essential that banks must have sufficient capital to provide adequate cushion for absorbing possible loan losses, expansion, fund internal needs and act as backup for depositors' fund (Adeyemi, 2011). A country with fragile financial system can be readily vulnerable to banking crises emanating both from within and outside the shores of the country. Such occurrences are capable of disrupting the banking habit of the populace who might lose funds from emanating crisis. In view of this, bank reform is an important exercise for the effective performance of the system. Bank consolidation is implemented to strengthen the banking system, embrace globalization, improve healthy competition, exploit economies of scale, adopt advanced technologies, raise efficiency and improve profitability. Ultimately, the goal is to strengthen the intermediation role of banks and to ensure that they are able to perform their developmental role of enhancing economic growth, which subsequently leads to improved overall economic performance. Recapitalization is a major reform objective which means increasing the number of long-term finances used in financing the organization. Giokas (2008) postulated that it aids economies of scale because institutions can reduce their operating costs as a result of reduction in branch networks, staff overheads etc. John (2013) opined that recapitalization may raise liquidity in short term but will not guarantee a conducive macroeconomic environment required to ensure high asset quality and good profitability.

The banking sector reforms as given by the government have one main objective, which is to ensure that there is efficiency and soundness in the banking system. These reforms should ensure that there is flexibility in the banks which can enhance the overall development of the economy, as banks are one of the most important aspects of the financial sector of the country. Thus, the banking industry must get a highly diversified and strong system, which will improve the working of the entire system where the depositors' have a guarantee of their money and the borrowers have adequate supply of funds to meet their requirements (Berger *et al.*, 2008). This will develop the economy of the country. When the economy of a country is an open economy and the financial infrastructure is not very strong, it may lead to banking sector crisis and the failure of the sector. The banks which are not optimally capitalized will only survive but they cannot accomplish the required growth. This results in the weak loan supply, thus, create huge blockages to the growth in the economic activity of the country (Giannetti and Simonov, 2013). Recapitalization is a monumental step taken by the government, which will restore the health of the health of the banking sector. Hoshi and Kashyap (2010) found that the recapitalization of the bank has led to increased profits since the start of the recapitalization process and thus, its highly beneficial for the sector. Similarly, the public-sector banks need a significant increase in their capital to avoid the shrinkage in their balance sheet and meet the Basel 3 requirements. Juliet Ifechi and Akani (2015) pointed out that the banks need recapitalization as it increases the capital adequacy, liquidity, management quality, quality of assets and earnings quality. The recapitalization must be one of the most aspect in the banking sector as it ensures the development of the bank. Similarly, a bank should be recapitalized to an extent where they can write off their loans or they can avoid failures by liquidating the collaterals that they possess. Enoch *et al.* (2001) explained that the method of recapitalization should ensure that the present value of the cash outflow of the government is minimized.

Clementina and Isu (2016) stated that commercial banks must have adequate capital to provide a cushion for absorbing possible loan losses, fund for its internal needs, and expansion drives and added security for depositors. This can only be done through recapitalization. Financial sector reforms have been implemented in a number of countries to improve a strong banking system. They control a large part of the money supply in circulation and can influence the nature and character of any country's production. When advanced countries pursue the right balance of financial regulation, whether by increasing capital requirements or by imposing restrictions on certain activities, it is essential to understand the possible cost of these laws. Recapitalization is the process of restructuring the debt and equity balance of a company, often to make the capital structure of a company more stable. It is basically the strategy used by a company to boost its financial stability or to overhaul its financial structure. The method involves effectively swapping one form of financing for another, such as withdrawing preferred shares from the capital structure of the company and replacing them with bonds. If banks are stuck in a position where their debts are comparatively higher than their assets, the recapitalization plan comes into effect. Sufian and Chong (2008) examined the determinants of the profitability of banks in the Philippines during the period 1990 to 2005. The study found that capitalization has a positive impact on bank profitability (ROE). The study further argued that banks in developing countries require a strong capital structure, because it offers them strength to withstand financial crises and offers depositors a better safety net in times of bankruptcy and distress macroeconomic conditions. Naceur and Omran (2011) showed that bank capitalization and credit risk, have a positive and significant impact on banks' net interest-margin (NIM), cost efficiency, and profitability.

Recapitalization entails increasing the debt stock of a company or issuing additional shares through existing shareholders or new shareholders or a combination. John (2013) also advocated that the objectives of recapitalization are to enable the banks to increase their market power, induce restructuring and engender the alignment and realignment of banks to ensure a good, responsive, competitive and transparent banking system suited to the demand of the economy and the challenges of globalization. Joshua (2011) posited that recapitalization is carried out in order to arrest systems decay, restoration of public confidence, building of strong, competent and competitive players in the global arena, ensuring longevity and many more which acts as a springboard to achieving improved performance. Moreover, Bakare (2011) argued that apart from its multiplier effect on the economy as a whole, adequate capital act as a buffer and security for banks.

Demirguc and Levine (2003) asserted that recapitalization serves as a significant tool for bank consolidation and promote efficiency in their operations. Mukherjee *et al.* (2004) also indicated that when recapitalization is done through mergers and acquisitions, banks can achieve operational synergy. Recapitalization generally aids in economies of scale because institutions can reduce branch networks, staff overheads, among others thereby reducing their operating costs. Saona (2011) argued that, though recapitalization may raise liquidity in the short term, this will not necessarily guarantee a conducive macroeconomic environment required ensuring high asset quality and good profitability. Banks are also forced to reduce some of their assets, especially the risky ones when regulatory capital increases. In effect, this reduces the positive impact of capital on their profitability and negative effects on their ROE. Alnaa (2020) examined the profitability performance of local banks during the pre and post recapitalization period. Using the data of domestic banks from 2006 to 2016. The study revealed that recapitalization policy has a positive effect on management efficiency for Ghana Commercial Bank. CAL bank and HFC performed poorly in management efficiency after the recapitalization exercise. Similarly, the study revealed that CAL bank and HFC also performed better in return on assets after recapitalization. Finally, the study further showed a low rate of returns on shareholders'

dividend, return on equity, after the recapitalization. From the findings, the study concluded that recapitalization has negative effects on the performance of the local banks in Ghana. Moreover, Oluitan *et al.* (2015) examined the effect of recapitalization on the operational performance of banks in Nigeria. The study showed that size is relevant in explaining the relationship over both periods, but more robust during the post-recapitalization period. The pre- recapitalization period analysis showed that banks total capital divided by total asset is the second significant variable while bank deposit is the second significant variable for the post- recapitalization period. The result suggested that enhanced trust in the banking system with the exercise that resulted in increase in the deposit level of the banks.

Manu *et al.* (2018) analyzed the effect of recapitalization on public sector banks. The study found significant difference in earnings per share and net non-performing assets of selected public sector banks during pre and post announcement of recapitalization. However, the study found no significant difference in performance of Nifty PSU stock index during pre and post recapitalization announcement. Thus, recapitalization has a greater potential to reduce the NPA of banks and earnings quality of Indian banking sectors. However, the government and RBI must take necessary policy reforms and prevention measures to enhance the profitability of public sectors banks and economic growth of the country.

In the context of Nepal, Binadi *et al.* (2022) examined the effect of credit risk and deposit mobilization on the profitability of Nepalese commercial banks. The study showed that capital adequacy ratio and deposit mobilization have a positive impact on return on asset. It implies that higher the capital adequacy ratio and deposit mobilization, higher would be the return on asset. However, capital adequacy ratio and deposit mobilization have a negative impact on return on equity. It indicates that increase in capital adequacy ratio and deposit mobilization leads to decrease in return on equity. Similarly, Mahaseth *et al.* (2022) showed that equity capital to total assets, core capital to risk weighted assets, total capital to total assets, bank size and assets to liabilities ratio have positive impact on return on asset of Nepalese commercial banks. Similarly, core capital to total assets, cost income ratio and debt to equity ratio have negative impact on return on asset. Chalise (2019) examined the impact of capital adequacy and cost-income ratio on the performance of Nepalese commercial banks. The study revealed that cost-income ratio has negative significant impact on banks performance and total capital adequacy has negative insignificant impact with bank performance (ROA). However, debt-equity ratio and bank size have positive insignificant impact on bank performance. Similarly, equity ratio has a positive and significant impact on bank performance.

The above discussion shows that empirical evidences vary greatly across the studies on the impact of recapitalization on bank profitability. Though there are above mentioned empirical evidences in the context of other countries and in Nepal, no such findings using more recent data exist in the context of Nepal. Therefore, in order to support one view or the other, this study has been conducted.

The main purpose of the study is to analyze the effect of recapitalization on the performance of Nepalese commercial banks. Specifically, it examines the relationship of capital adequacy ratio, bank size, liquidity, capital investment ratio and bank deposits with return on assets and return on equity of Nepalese commercial banks.

The remainder of this study is organized as follows. Section two describes the sample, data and methodology. Section three presents the empirical results and the final sections draws the conclusion.

2. Methodological aspects

The study is based on the secondary data which were gathered from 26 commercial banks for the period from 2013/14 to 2020/21, leading to a total of 208 observations. The main sources of data include Banking and Financial statistics published by Nepal Rastra Bank, reports published by Ministry of Finance and the annual report of respective banks. This study is based on descriptive as well as causal comparative research designs. Table 1 shows the list of commercial banks selected for the study along with the study period and number of observations.

Table 1: List of commercial banks selected for the study along with study period and number of observations

S. N.	Name of the banks	Study period	Observations
1	Agricultural Development Bank Limited	2013/14-2020/21	8
2	Bank of Kathmandu Limited	2013/14-2020/21	8
3	Century Commercial Bank Limited	2013/14-2020/21	8
4	Citizens Bank International Limited	2013/14-2020/21	8
5	Global IME Bank Limited	2013/14-2020/21	8
6	Himalayan Bank Limited	2013/14-2020/21	8
7	Kumari Bank Limited	2013/14-2020/21	8
8	Laxmi Bank Limited	2013/14-2020/21	8
9	Machhapuchchhre Bank Limited	2013/14-2020/21	8
10	Mega Bank Nepal Limited	2013/14-2020/21	8
11	Nabil Bank Limited	2013/14-2020/21	8
12	Nepal Bangladesh Bank Limited	2013/14-2020/21	8
13	Nepal Bank Limited	2013/14-2020/21	8
14	Nepal Credit and Commerce Bank Limited	2013/14-2020/21	8
15	Nepal Investment Bank Limited	2013/14-2020/21	8
16	Nepal SBI Bank Limited	2013/14-2020/21	8
17	NIC Asia Bank Limited	2013/14-2020/21	8
18	NMB Bank Limited	2013/14-2020/21	8
19	Prabhu Bank Limited	2013/14-2020/21	8
20	Prime Commercial Bank Limited	2013/14-2020/21	8
21	Sanima Bank Limited	2013/14-2020/21	8
22	Siddhartha Bank Limited	2013/14-2020/21	8
23	Standard Chartered Bank Nepal Limited	2013/14-2020/21	8
24	Everest Bank Limited	2013/14-2020/21	8
25	Sunrise Bank Limited	2013/14-2020/21	8
26	Rastriya Banijya Bank Limited	2013/14-2020/21	8
Total number of observations			208

Thus, the study is based on the 208 observations.

The model

The model used in this study assumes that the performance depends upon recapitalization. The dependent variables selected for the study are return on assets and return on equity. Similarly, the selected independent variables are capital adequacy ratio, bank size, liquidity, capital investment ratio and bank deposits. Therefore, the model takes the following form:

$$ROA_{it} = \beta_0 + \beta_1 CAR_{it} + \beta_2 LIQ_{it} + \beta_3 BS_{it} + \beta_4 BD_{it} + \beta_5 CIR_{it} + e_{it}$$

$$ROE_{it} = \beta_0 + \beta_1 CAR_{it} + \beta_2 LIQ_{it} + \beta_3 BS_{it} + \beta_4 BD_{it} + \beta_5 CIR_{it} + e_{it}$$

Where,

ROA = Return on assets as measured by the ratio of net income to total assets, in percentage.

ROE = Return on equity as measured by the ratio of net income to total equity, in percentage.

CAR = Capital adequacy ratio as measured by the ratio of total capital to total risk weighted exposure, in percentage.

LIQ = Liquidity as measured by the ratio of total loans to total deposits, in percentage.

BS = Bank size as measured by the total assets, Rs in billion.

BD = Bank deposit as measured by the total deposits of bank, Rs in billion.

CIR = Capital investment ratio as measured by the ratio of total capital to total investment, in percentage.

The following section describes the independent variables used in this study along with hypothesis formulation.

Bank size

Aladwan (2015) investigated the effect of bank size on its profitability for Jordanian listed commercial banks within different size bank categories. The study found a positive relationship between bank size measured by total assets and bank profitability. Similarly, Halkos and Salamouris (2004) investigated the efficiency measurement of the Greek commercial banks with the use of financial ratios. The study concluded that the higher the bank assets, higher would be the efficiency. Mule *et al.* (2015) assessed the relationship between corporate size, profitability and firm value listed companies at the Nairobi Securities Exchange using data for the period 2010 through 2014. The study indicated that there is a positive and significant relationship between firm size and return on equity. Similarly, Rudhani *et al.* (2016) investigated the influence of internal factors in the profitability of commercial banks in Kosovo. The study revealed that bank size has a positive impact on return on assets. Based on it, this study develops the following hypothesis:

H_1 : There is a positive relationship between bank size and bank profitability.

Capital adequacy ratio

A well-capitalized firm faces lower expected bankruptcy costs, which in turn reduce their cost of funding and increase their profitability (Berger, 1995). An adequate capital will provide a protection against the insolvency and liquidation arising from the risks that the bank is facing. Therefore, the management has to work effectively on how to raise capital and maintain sufficient capital in reserves (Olalekan and Adeyinka, 2013). Vyas *et al.* (2008) revealed that capital adequacy ratio is positively related to profitability of commercial banks. Likewise, Ebenezer *et al.* (2017) stated that capital adequacy ratio has a positive and significant effect on bank profitability. Ini and Eze (2018) assessed

the effect of capital adequacy requirements on the performance of commercial banks in Nigeria over the period of 1996 to 2016. The study showed that capital adequacy ratio has positive effect on the financial performance of commercial banks in Nigeria. Based on it, this study develops the following hypothesis:

H₂ : There is a positive relationship between capital adequacy ratio and bank profitability.

Liquidity

Hassan and Ahmed (2019) examined the impact of bank specific characteristics in determining the Islamic banking profitability in Bangladesh. The study found that there is a positive relationship between liquidity and return on assets. Similarly, Madushanka and Jathurika (2018) investigated the relationship between liquidity and profitability of listed manufacturing companies in Sri Lanka. The study revealed that liquidity has positive and significant impact on the profitability. Supriyono and Herdhayinata (2019) analyzed both the internal and external profitability determinants of the BPD Bank in Indonesia. The study found that bank liquidity has a positive relationship with return on assets and return on equity. Likewise, Moussa and Boubaker (2020) analyzed the impact of liquidity on bank profitability of Tunisia. The study found that liquidity ratio has a positive relationship with return on assets. Based on it, this study develops the following hypothesis:

H₃ : There is a positive relationship between liquidity and bank profitability.

Bank deposits

Gul *et al.* (2011) examined the relationship of bank-specific and macro-economic characteristics with bank profitability. The study found that deposit has a significant positive relationship with return on assets and return on equity. Likewise, Saeed (2014) investigated the impact of bank-specific, industry-specific, and macroeconomic variables on bank profitability before, during, and after the financial crisis of 2008. The study revealed that the deposit has positive impact on return on assets and return on equity. In addition, Smirlock (1985) revealed that there is a positive association of bank deposit and loans with bank profitability. Moreover, Hirindu Kawshala (2017) examined the effect of bank specific factors of profitability in Sri Lankan domestic commercial banks. The result showed a positive relationship of bank size, capital, deposits, and liquidity with bank profitability. Based on it, this study develops the following hypothesis:

H₄ : There is a positive relationship between bank deposits and bank profitability.

Capital investment ratio

Almazari (2014) investigated the internal factors that affecting profitability of banks. The study also compared the profitability of the Saudi and Jordanian banks by using the internal factors for estimations. The study found a negative association between capital investment ratio and profitability in both Saudi and Jordanian banks. Lian *et al.* (2017) examined the relationship of capital investment on firm's profitability in the context of Malaysia. The study found that capital investment ratio has a significant negative impact on return on assets. Agbeja *et al.* (2015) stated that there is a negative relationship between capital investment ratio and bank profitability. Elisa and Guido (2016) examined the factors affecting bank profitability in Europe. The study found that capital investment ratio is negatively related to bank profitability. Based on it, this study develops the following hypothesis:

H₅ : There is a negative relationship between capital investment ratio and bank profitability.

3. Results and discussion

Descriptive statistics

Table 2 presents the descriptive statistics of the selected dependent and independent variables during the period 2013/14 to 2020/21.

Table 2: Descriptive statistics

This table shows the descriptive statistics of dependent and independent variables of 26 Nepalese commercial banks for the study period from 2013/14 to 2020/21. The dependent variables are ROA (Return on assets as measured by the ratio of net income to total assets, in percentage) and ROE (Return on equity as measured by the ratio of net income to total equity, in percentage). The independent variables are CAR (Capital adequacy ratio as measured by the ratio of total capital to total risk weighted exposure, in percentage), LIQ (Liquidity as measured by the ratio of total loans to total deposits, in percentage), BS (Bank size as measured by the total assets, Rs in billion), CIR Capital investment ratio as measured by the ratio of total capital to total investment, in percentage) and BD (Bank deposit as measured by the total deposits of bank, Rs in billion).

Variables	Minimum	Maximum	Mean	Std. Deviation
ROA	-5.02	4.61	1.51	0.77
ROE	-26.89	55.31	14.74	6.68
BS	20.57	345.94	108.96	63.41
CAR	4.28	22.99	13.31	2.44
LIQ	48.32	103.38	82.00	9.51
CIR	8.12	448.58	102.08	55.43
BD	17.15	227.98	73.98	13.58

Source: SPSS output

Correlation analysis

Having indicated the descriptive statistics, Pearson's correlation coefficients are computed and the results are presented in Table 3.

Table 3: Pearson's correlation coefficients matrix

This table shows the bivariate Pearson's correlation coefficients of dependent and independent variables of 26 Nepalese commercial banks for the study period from 2013/14 to 2020/21. The dependent variables are ROA (Return on assets as measured by the ratio of net income to total assets, in percentage) and ROE (Return on equity as measured by the ratio of net income to total equity, in percentage). The independent variables are CAR (Capital adequacy ratio as measured by the ratio of total capital to total risk weighted exposure, in percentage), LIQ (Liquidity as measured by the ratio of total loans to total deposits, in percentage), BS (Bank size as measured by the total assets, Rs in billion), CIR Capital investment ratio as measured by the ratio of total capital to total investment, in percentage) and BD (Bank deposit as measured by the total deposits of bank, Rs in billion).

Variables	ROA	ROE	BS	CAR	LIQ	CIR	Ln BD
ROA	1						
ROE	0.526**	1					
BS	0.062	0.030	1				
CAR	0.224**	-0.161*	0.125	1			

LIQ	-0.122	-0.300**	0.136*	0.281**	1		
CIR	-0.096	-0.266**	-0.165*	0.352**	0.359**	1	
BD	0.171*	0.123	0.930**	0.151*	0.147*	-0.208**	1

Source: SPSS output

*Note: The asterisk signs (**) and (*) indicate that the results are significant at one percent and five percent levels respectively.*

Table 3 shows that capital adequacy ratio is positively correlated to return on assets. It means that increase in capital adequacy ratio leads to increase in return on assets. Similarly, liquidity has a negative relationship with return on assets. It shows that an increase in liquidity leads to a decrease in return on assets. Moreover, there is a positive relationship between bank size and return on assets. It indicates that increase in bank size leads to increase in return on assets. In contrast, capital investment ratio has a negative relationship with return on assets. It indicates increase in capital investment ratio leads to decrease in return on assets. In addition, the study shows that there is a positive relationship between bank deposits and return on assets. It means that increase in bank deposits leads to increase in return on assets in Nepalese commercial banks.

Similarly, the result also shows that capital adequacy ratio is negatively correlated to return on equity. It means that increase in capital adequacy ratio leads to decrease in return on equity. Moreover, liquidity has a negative relationship with return on equity. It shows that an increase in liquidity leads to a decrease in return on equity. Likewise, there is a positive relationship between bank size and return on equity. It indicates that increase in bank size leads to increase in return on equity. In addition, capital investment ratio has a negative relationship with return on equity. It indicates increase in capital investment ratio leads to decrease in return on equity. In addition, the study shows that there is a positive relationship between bank deposits and return on equity. It means that increase in bank deposits leads to increase in return on equity in Nepalese commercial banks.

Regression analysis

Having indicated the Pearson's correlation coefficients, the regression analysis has been carried out and results are presented in Table 4. More specifically, it shows the regression results of capital adequacy ratio, bank size, liquidity, capital investment ratio and bank deposit with return on assets of Nepalese commercial banks.

Table 4: Estimated regression results of bank size, capital adequacy ratio, bank liquidity, capital investment ratio and bank deposit with return on assets

The results are based on panel data of 26 commercial banks with 208 observations for the period of 2013/14 to 2020/21 by using the linear regression model and the model is $ROA_{it} = \beta_0 + \beta_1 CAR_{it} + \beta_2 LIQ_{it} + \beta_3 BS_{it} + \beta_4 BD_{it} + \beta_5 CIR_{it} + e_{it}$ where, the dependent variable is ROA (Return on assets as measured by the ratio of net income to total assets, in percentage). The independent variables are CAR (Capital adequacy ratio as measured by the ratio of total capital to total risk weighted exposure, in percentage), LIQ (Liquidity as measured by the ratio of total loans to total deposits, in percentage), BS (Bank size as measured by the total assets, Rs in billion), CIR Capital investment ratio as measured by the ratio of total capital to total investment, in percentage) and BD (Bank deposit as measured by the total deposits of bank, Rs in billion).

Model	Intercept	Regression coefficients of					Adj. R_bar ²	SEE	F-value
		BS	CAR	LIQ	CIR	BD			
1	1.432 (13.411)**	0.004 (0.894)					0.001	0.773	0.799
2	0.573 -1.975		0.271 (3.301)**				0.146	0.755	10.896
3	2.326 (5.017)**			-0.013 (1.762)			0.011	0.768	3.106
4	1.652 (14.715)**				-0.001 (1.390)		0.004	0.771	1.932
5	-1.01 (0.996)					0.225 (2.494)*	0.085	0.763	6.221
7	0.545 (1.843)	0.003 (0.506)	0.069 (3.206)				0.042	0.756	5.557
8	1.661 (3.488)**	0.004 (0.827)	0.087 (3.940)**	-0.117 (2.957)**			0.077	0.742	6.758
9	1.432 2.935	0.002 (0.286)	0.101 (4.367)**	-0.113 (2.196)*	-0.002 (1.921)		0.089	0.737	6.057
10	-8.678 (3.619)	0.208 (3.856)**	0.086 (3.838)**	-0.116 (2.733)**	-0.001 (0.971)	1.011 (4.300)**	0.161	0.707	8.961

Notes:

i. Figures in parenthesis are t-values.

ii. The asterisk signs (**) and (*) indicate that the results are significant at one percent and five percent level respectively.

iii. Return on asset is the dependent variable.

Table 4 shows that the beta coefficients for bank size are positive with return on assets. It indicates that the bank size has a positive impact on return on assets. This finding is similar to the findings of Rudhani *et al.* (2016). Similarly, the beta coefficients for capital adequacy ratio are positive with return on assets. It indicates that capital adequacy ratio has a positive impact on return on assets. This finding is consistent with the findings of Ini and Eze (2018). However, the beta coefficients for bank liquidity are negative with return on assets. It indicates that bank liquidity has a negative impact on return on assets. This finding is similar to the findings of Supriyono and Herdhayinata (2019). Similarly, the beta coefficients for capital investment ratio are negative with return on assets. It indicates that capital investment ratio has a negative impact on return on assets. This finding is inconsistent with the findings of Agbeja *et al.* (2015). Likewise, the beta coefficients for bank deposit are positive with return on assets. It indicates that bank deposit has a positive impact on return on assets. This finding is similar to the findings of Smirlock (1985).

Table 5 shows the estimated regression results of capital adequacy ratio, bank size, liquidity, capital investment ratio and bank deposit with return on equity of Nepalese commercial banks.

Table 5: Estimated regression results of bank size, capital adequacy ratio, bank liquidity, capital investment ratio and bank deposit on return on equity

The results are based on panel data of 26 commercial banks with 208 observations for the period of 2013/14 to 2020/21 by using the linear regression model and the model is $ROE_{it} = \beta_0 + \beta_1 CAR_{it} + \beta_2 LIQ_{it} + \beta_3 BS_{it} + \beta_4 BD_{it} + \beta_5 CIR_{it} + e_{it}$ where, the dependent variable is ROE (Return on equity as measured by the ratio of net income to total equity, in percentage). The

independent variables are CAR (Capital adequacy ratio as measured by the ratio of total capital to total risk weighted exposure, in percentage), LIQ (Liquidity as measured by the ratio of total loans to total deposits, in percentage), BS (Bank size as measured by the total assets, Rs in billion), CIR Capital investment ratio as measured by the ratio of total capital to total investment, in percentage) and BD (Bank deposit as measured by the total deposits of bank, Rs in billion).

Model	Intercept	Regression coefficients of					Adj. R_bar ²	SEE	F-value
		BS	CAR	LIQ	CIR	BD			
1	14.396 (15.567)**	0.003 (0.433)					0.004	6.696	0.187
2	20.608 (8.113)**		-0.441 (2.348)*				0.081	6.611	5.512
3	32.020 (8.309)**			-0.211 (4.513)**			0.186	6.391	20.368
4	18.013 (19.158)**				-0.032 (3.957)**		0.166	6.458	15.655
5	-0.896 (0.101)					1.393 (1.774)	0.010	6.649	3.146
7	20.252 (7.825)**	0.005 (0.737)	-0.458 (2.419)*				0.019	6.619	3.021
8	33.565 (8.204)**	0.008 (1.196)	-0.249 (1.315)	-0.200 (4.104)**			0.090	6.377	7.785
9	31.437 (7.511)**	0.004 (0.6030)	-0.121 (0.612)	-0.166 (3.244)**	-0.019 (2.079)*		0.104	6.326	7.014
10	-51.455 (2.492)	0.065 (3.540)**	-0.242 (1.257)	-0.188 (3.784)**	-0.011 (1.169)	8.278 (4.094)**	0.169	6.094	9.399

Notes:

- i. Figures in parenthesis are t-values.
- ii. The asterisk signs (**) and (*) indicate that the results are significant at one percent and five percent level respectively.
- iii. Return on equity is the dependent variable.

Table 5 shows that the beta coefficients for bank size are positive with return on equity. It indicates that bank size has a positive impact on return on equity. This finding is similar to the findings of Mule *et al.* (2015). Similarly, the beta coefficients for capital adequacy ratio are negative with return on equity. It indicates that capital adequacy ratio has a negative impact on return on equity. This finding is inconsistent with the findings of Ebenezer *et al.* (2017). Likewise, the beta coefficients for bank liquidity are negative with return on equity. It indicates that bank liquidity has a negative impact on return on equity. This finding is similar to the findings of Madushanka and Jathurika (2018). Similarly, the beta coefficients for capital investment ratio are negative with return on equity. It indicates that the capital investment ratio has a negative impact on return on equity. This finding is consistent with the findings of Almazari (2014).

4. Summary and conclusion

In the modern economic world, the banking system plays an important role. The financial sector is crucial to the economies of various countries, and banks remain a core of the sector, especially in developing economies where the capital market is not strong enough. The banking sector and the rest of the developing world have undergone a significant transformation in their operating environment over the years. Recapitalization of banks has been one of the various bank reforms in recent years in developing and developed economies. As a result, understanding the impact of recapitalizing financial institutions specifically banks are crucial for both developed and developing economies.

This study attempts to analyze the effect of recapitalization on the performance of Nepalese commercial banks. The study is based on secondary data of 26 commercial banks with 208 observations for the period from 2013/14 to 2020/21.

The study showed that liquidity ratio and capital investment ratio have negative impact on return on assets. However, bank size, bank deposit and capital adequacy ratio have positive impact on return on assets. Likewise, capital investment ratio, liquidity ratio and capital investment ratio have negative impact on return on equity. However, bank size and bank deposits have positive impact on return on equity. Likewise, the study concluded that capital adequacy ratio is the most influencing factor that explains the changes in return on assets of Nepalese commercial banks. However, the study also concluded that the most dominant factor that determines the return on equity is liquidity ratio followed by capital investment ratio and capital adequacy ratio in the context of Nepalese commercial banks.

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Effect of firm specific and macroeconomic factors on profitability of Nepalese insurance companies

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Abstract

This study examines the effect of firm specific factors and macroeconomic factors on the profitability of Nepalese insurance companies. Return on assets (ROA) and return on equity (ROE) are the dependent variables. The selected independent variables are firm size, liquidity, tangibility, dividend per share, premium growth, inflation, gross domestic product and money supply. The study is based on secondary data of 16 insurance companies with 124 observations for the study period from 2013/14 to 2020/21. The data were collected from the annual reports of Rastriya Beema Samiti, reports published by Ministry of Finance and annual reports of selected Nepalese insurance companies. The regression models are estimated to test the significance and effect of firm specific factors and macroeconomic factors on the profitability of Nepalese insurance companies.

The study showed that liquidity ratio has a negative impact on return on assets and return on equity. It means that increase in liquidity ratio leads to decrease in return on assets. In contrast, assets tangibility has a positive impact on return on assets and return on equity. It shows that higher the assets tangibility, higher would be the return on assets and return on equity. Similarly, dividend per share has a positive impact on return on assets and return on equity. It shows that higher the dividend per share, higher would be the return on assets and return on equity. Furthermore, premium growth has a positive impact on return on assets. It means that higher the premium growth, higher would be the return on assets and return on equity. In contrast, inflation has the negative impact on return on assets. and return on equity It indicates that higher the inflation, lower would be the return on assets and return on equity. Likewise, gross domestic product has a positive impact on return on assets and return on equity. It means that higher the gross domestic product, higher would be the return on assets and return on equity. In contrast, the money supply has the negative impact on return on assets. It indicates that higher the money supply, lower would be the return on assets and return on equity.

Key words: Return on asset, return on equity, firm size, liquidity, tangibility, dividend per share; premium growth, inflation, gross domestic product and money supply.

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1. Introduction

The insurance sector plays important role in the financial services industry in almost developed and developing countries. It contributes to economic growth, efficient resource allocation, reduction of transaction costs, creation of liquidity, facilitation of economics of scale in investment, and spread of financial losses (Haiss and Sumegi, 2008). Insurance plays a significant role in a country's economic growth and offers financial protection to an individual or firm against monetary losses suffered from unforeseen circumstances. This is because the world is characterized by risks and uncertainties and insurance has evolved as a way of providing security against the risks and uncertainties. The insurance companies, at large, play a critical role in ensuring overall financial and economic stability in the nation and provide a wide range of benefits from ensuring individual financial security to facilitating large scale social security (Karim and Jhantasana, 2005). The insurance companies help individuals to hedge risks by sharing among multiple people. They provide financial compensation when any unforeseen circumstance occurs.

Berger *et al.* (1997) contended that the factors underpinning the financial performance of financial services firms are often difficult to discern because of the intangible nature of outputs and the lack of transparency over resource allocation decisions. Company's profitability is dependent on both the internal and external factors. The internal determinants are liquidity ratio, inventory turnover ratio, return on asset and return equity, and size of the company. Similarly, the external determinants are real domestic product growth rate (GDP), national inflation rate, interest rate and so on (Kanwal and Nadeem, 2013). Greene and Segal (2004) argued that the performance of insurance companies in financial terms is normally expressed in net premium earned, profitability from underwriting activities, annual turnover, return on investment and return on equity. Likewise, Ahmed *et al.* (2011) found that performance of Pakistan life insurance companies is determined by size, risk and leverage. Pervan *et al.* (2012) assessed the factors affecting the profitability of the insurance companies between 2005 and 2010. By using a dynamic panel model with GMM estimator, the study showed a significant negative influence of the loss ratio on profitability. Similarly, the study also showed a significant positive influence of age, market share and past performance on current performance. Similarly, Curak *et al.* (2011) assessed the determinants of the financial performance of the Croatian composite insurers between 2004 and 2009. By applying panel data technique, the study showed that company size, underwriting risk, inflation and return on equity have a significant influence on insurers' profitability.

Mehari and Aemiro (2013) examined the impact of the Ethiopian insurance companies' characteristics on their performance. The study included 9 insurance companies which are analyzed through panel data technique during 2005–2010. The results showed that company size, loss ratio, tangibility and leverage have significant impact on the insurance companies' profitability. However, growth of gross written premiums, age and liquidity have an insignificant impact on the insurance companies' profitability. Chen and Wong (2004) showed that profitability of insurance companies decreased with the increase in equity ratio. The study also found that size, investment, liquidity is the important determinants of financial health of insurance companies. Similarly, Almajali *et al.* (2012) analyzed the insurance companies listed on the Amman Stock Exchange during 2002–2007. The study showed that liquidity, leverage, company size and management competence index have a significant positive effect on financial performance of the insurers. Furthermore, Burca and Batrinca (2014) analyzed the determinants of the financial performance in the Romanian insurance market during the period 2008–2012. The study concluded that the underwriting risk has a negative effect on financial performance. It implies that taking an excessive underwriting risk can affect the company's

stability through higher expenses. The study also showed that there is a positive linkage between firm size and the insurers' financial performance. It indicates that larger firms have more resources, better risk diversification, complex information systems and better expenses management. Moreover, the insurance financials leverage reflects the potential impact of technical reserves' deficit on equity in the event of unexpected losses and has a negative influence on the financial performance.

Kozak (2011) examined the determinants of the profitability of 25 general insurance companies from Poland during 2002–2009. By applying a regression model, the study found that growth of gross written premiums, operating costs reduction, GDP growth and growth of the market share of the companies with foreign ownership have a positive impact on the performance of insurance companies. Moreover, Mwangi and Murigu (2015) argued that firm size has a negative relationship with the profitability of insurance companies. However, leverage has a positive relationship with profitability. According to Malik (2011), there is a positive and significant impact of size and volume of capital, negative and significant impact of financial leverage and insignificant impact of age on profitability. Similarly, Chen *et al.* (2009) examined the determinants of profitability. The results showed that profitability of insurance companies decreased with the increase in equity ratio. The functional status of insurers does not affect the profitability of being insured but public coverage has significant impact on profitability of insurance companies. Likewise, Moro and Anderloni (2014) investigated the influence of specific factors on insurance performance in 198 European insurance companies between 2002 and 2014. The study concluded that asset size and diversification negatively affect ROA, while reserves dimension and asset turnover positively impact the performance of insurance companies. Similarly, Hidayat and Firmansyah (2017), using a sample of 15 Islamic insurance companies in Indonesia between 2011 and 2015, showed that the board of directors has no significant impact on the performance of the company. However, leverage, institutional ownership and managerial ownership have significant effect on profitability. Furthermore, Akhtar (2018) examined the performance of insurance companies in Saudi Arabia over the period 2010–2015. The study found that the efficiency of Saudi insurance companies is affected by the market share and profitability.

In the context of Nepal, Dahal *et al.* (2020) examined the liquidity management and financial performance of Nepalese insurance companies. The results showed that insurance premium has positive impact on return on assets and earnings per share. It means that increase in insurance premium leads to increase in return on assets and earnings per share. Likewise, firm size has positive impact on return on assets and earnings per share. It indicates that increase in firm size leads to increase return on assets and earnings per share. Similarly, Pradhan and Shrestha (2015) revealed that liquidity has negative impact on the financial performance of firm. However, size has positive impact on financial performance of firm. In addition, Budhathoki *et al.* (2020) showed that bank size has a positive impact on return on assets. It indicates that larger the bank size, higher would be the return on assets. Moreover, Dahal *et al.* (2015) found that gross domestic product growth rate and inflation rate have positive impact on the return on assets but negative impact on return on equity. Jaishi and Poudel (2021) found that leverage, firm size, liquidity and tangibility have positive and significant impact on the financial performance of Nepalese insurance companies. Similarly, Upadhyaya (2020) found that firm size has positive impact on return on assets. However, leverage ratio and liquidity ratio have negative impact on return on assets. On contrary, leverage ratio has a positive impact on return on equity. Furthermore, Pradhan (2014) found that gross domestic product and market share were positively related to bank profitability, whereas inflation and liquidity were negatively related to bank profitability.

The above discussion shows that empirical evidences vary greatly across the studies on the effect of

firm specific and macroeconomic factors on the profitability of insurance companies. Though there are above mentioned empirical evidences in the context of other countries and in Nepal, no such findings using more recent data exist in the context of Nepal. Therefore, in order to support one view or the other, this study has been conducted.

The main purpose of the study is to analyze the effect of firm specific and macroeconomic factors on the profitability of Nepalese insurance companies. Specifically, it examines the relationship of firm size, liquidity, tangibility, dividend per share, premium growth, inflation, gross domestic product and money supply with return on asset and return on equity of Nepalese insurance companies.

The remainder of this study is organized as follows. Section two describes the sample, data and methodology. Section three presents the empirical results and the final sections draw the conclusion.

2. Methodological aspects

The study is based on the secondary data which were collected from 16 Nepalese insurance companies from 2013/14 to 2020/21, leading to a total of 124 observations. The study employed stratified sampling method. The main sources of data include annual reports of Rastriya Beema Samiti, reports published by Ministry of Finance and annual reports of selected Nepalese insurance companies. This study is based on descriptive as well as causal comparative research designs. Table 1 shows the list of insurance companies selected for the study along with the study period and number of observations.

Table 1: List of insurance companies selected for the study along with study period and number of observations

S. N.	Name of the insurance companies	Study period	Observations
Life insurance companies			
1	National Life Insurance Company	2013/14 - 2019/20	7
2	Nepal Life Insurance Company	2013/14 - 2020/21	8
3	Life Insurance Corporation (Nepal)	2013/14 - 2019/20	7
4	Met Life Insurance Company	2013/14 - 2020/21	8
5	Asian Life Insurance Company	2013/14 - 2020/21	8
6	Surya Life Insurance Company	2013/14 - 2020/21	8
7	Gurans Life Insurance Company	2013/14 - 2019/20	7
8	Prime Life Insurance Company	2013/14 - 2019/20	7
Non-life insurance companies			
9	United Insurance Company	2013/14 - 2020/21	8
10	Premier Insurance Company	2013/14 - 2020/21	8
11	Neco Insurance Limited	2013/14 - 2020/21	8
12	Sagarmatha Insurance Company	2013/14 - 2020/21	8
13	Prabhu Insurance Limited	2013/14 - 2020/21	8
14	IME General Insurance Company	2013/14 - 2020/21	8

15	Prudential Insurance Limited	2013/14 - 2020/21	8
16	Lumbini General Insurance Company	2013/14 - 2020/21	8
Total number of observations			124

Thus, the study is based on the 124 observations.

The model

The model in this study assumes that the insurance companies' profitability depends on different firm specific and macroeconomic factors. The selected dependent variables are return on assets and return on equity. The selected independent variables are firm size, liquidity, tangibility, dividend per share; premium growths, inflation, gross domestic product and money supply. Therefore, the model takes the following forms:

Profitability = f (firm size, liquidity, tangibility, premium growth, dividend per share, gross domestic product, money supply and inflation).

More specifically,

$$ROA = \beta_0 + \beta_1 Fsize + \beta_2 LQ + \beta_3 TAN + \beta_4 DPS + \beta_5 PG + \beta_6 GDP + \beta_7 INF + \beta_8 MS + e$$

$$ROE = \beta_0 + \beta_1 Fsize + \beta_2 LQ + \beta_3 TAN + \beta_4 DPS + \beta_5 PG + \beta_6 GDP + \beta_7 INF + \beta_8 MS + e$$

Where,

ROA = Return on assets as measured by the ratio of net income to total assets, in percentage.

ROE = Return on equity as measured by the ratio of net income to total equity, in percentage.

Fsize = Firm size of insurance company measured by total assets, Rs in millions

LIQ = Liquidity ratio as measured by the ratio of current assets to current liabilities, in times.

TAN = Tangibility as measured by the ratio of total fixed assets to total assets, in percentage.

DPS = Dividend per share as measured by the ratio of total dividend distributed to number of outstanding shares, in percentage.

PG = Premium growth rate is the percentage increase in gross written premiums, in percentage.

GDP = Gross domestic product as measured by the total goods and services produced within the country in a year, USD in billion.

INF = Inflation rate as measured by the change in consumer price index, in percentage.

MS = Money supply as measured by the broad money, USD in billion.

The following section describes the independent variables used in this study along with hypothesis formulation.

Firm size

Firms with large size have the advantage of economies of scale thereby leading to efficiency in comparison to firms with small size. Small firms are likely to face difficulty as it relates to competing with large firms in highly competitive markets due to the fact that smaller firms are likely to have lesser power. Burca and Batrinca (2014) found that company size and retained risk ratio have the positive effect on the profitability of the insurance company. Similarly, Sasidharan *et al.* (2020) found that firm size, capital adequacy, and reinsurance dependency have significant positive relationships

with profitability of insurance company. Likewise, Kripa (2016) assessed the factors affecting the profitability of insurance companies in Albania. The study found that there is significantly significant and positive relationship between profitability and assets size of insurance company. Furthermore, Malik (2011) concluded that there is significantly positive relationship between profitability and size of the firm. Likewise, Tegegn *et al.* (2020) found that size of the firm have positive relationship with profitability. Based on it, this study develops the following hypothesis:

H_1 : *There is a positive relationship between firm size and profitability of insurance company.*

Liquidity

Liquidity ratio measures the firm's ability to use its near cash or quick assets to retire its liabilities. Abebe and Abera (2019) found that capital adequacy and liquidity have a positive and significant effect on performance of insurance company. Similarly, Kariuki *et al.*(2021) found that liquidity positively affects the financial performance of insurance companies (ROA and ROE). Likewise, Msomi (2022) found that there is a positive association between liquidity and financial performance of the insurance companies. Further, Mazviona *et al.* (2017) found that liquidity has a positive and significant impact on profitability of insurance companies. Furthermore, Yuvaraj and Abate (2013) concluded that liquidity ratio is positively and significantly related with profitability of insurance company. Based on it, this study develops the following hypothesis:

H_2 : *There is a positive relationship between liquidity and profitability of insurance company.*

Tangibility

Tangibility of assets in insurance companies is determined by the proportion of fixed assets to total assets. It is considered to be one of the most significant determinants of firm's performance (Chechet *et al.*, 2013). Himmelberg *et al.* (1999) concluded positive and significant relationship between tangibility and profitability of insurance companies. Similarly, Cekrezi (2015) concluded that tangibility has a positive and significant relationship with the profitability measured by ROA. Likewise, Ben Dhiab (2021) concluded that the growth rate of written premium and the tangibility ratio are the main factors that positively influence the profitability of Saudi insurance companies. Furthermore, Shahi and Agnihotri (2022) found that tangibility of insurance company has a significant positive effect on the life insurance companies' profitability in India. In addition, Mehari and Aemiro (2013) concluded that tangibility is statistically significant and positively related to the profitability of insurance company measured by the return on assets. Based on it, this study develops the following hypothesis:

H_3 : *There is a positive relationship between tangibility and profitability of insurance company.*

Dividend per share

Dividends per share (DPS) are the amount of dividend that a publicly-traded company pays per share of common stock, over their reporting period that they have issued. If dividends per share go up, it is often a signal that the firm is performing well financially (Stein, 1989). Miller and Rock (1985) suggested that dividend announcements convey information about the future prospects of the firms. Investors with imperfect information about company conditions would use dividends as a clue to the prospects of the companies. Amidu and Joshua (2006) found that there is a positive relationship between return on assets and dividend policy. Likewise, Murekefu and Ouma (2012) indicated that dividend payout was a major factor that determine the firm performance positively. Similarly,

Uwuigbe *et al.* (2012) found that there is positive and statistically association between return on equity and dividend per share. Furthermore, Ajanthan (2013) established a positive and statistically quite meaningful relations between dividend per share and firm performance. In addition, Rahman (2018) indicated that there is an insignificant positive relationship between return on equity and dividend per share. Based on it, this study develops the following hypothesis:

H₄ : There is a positive relationship between dividend per share and profitability of insurance company.

Premium growth

Premium growth measures the rate of market penetration by insurance companies as it relates to gross written premiums. The main source of income earned by insurance companies resulting from insurance activities is the gross written premiums. The increase in premium growth rate is ensuring the growth of the company and increase of its market share. Guendouz and Ouassaf (2018) concluded that written premium growth rate has significant positive effect on the profitability of insurance companies. Likewise, Hussanie and Joo (2019) revealed that premium growth and tangibility are positive and significant in determining the profitability, as measured by ROA. Similarly, Markonah *et al.* (2019) found that the higher premium growth will improve the financial performance of insurance companies and it is positively related with the performance. Furthermore, Derbali (2014) found that age and premium growth have a positive impact on performance of insurance in Tunisia. In addition, Alshadadi and Deshmukh (2021) found that premium growth has a positive impact on profitability of insurance company. Based on it, this study develops the following hypothesis:

H₅ : There is a positive relationship between premium growth and profitability of insurance company.

Inflation

Inflation is measured by change in the consumer price index. Inflation serves as one of the ways through which the macroeconomic stability of an economy is measured. Inflation occurs when there is a general and continuous rise in the prices of goods and services in the economy. Inflation reflects a reduction in the purchasing power per unit of money, a loss of real value in the medium of exchange and unit of account within the economy (Gbadebo and Mohammed, 2015). Khan (2014) concluded that an increase in inflation rates will result into a decrease in performance of firm in terms of profitability. Likewise, Owoputi *et al.* (2014) found that inflation rate is negative and significant with profitability measured by both ROA and ROE. Similarly, Hailegebreal (2016) found that inflation has negative and significant effect on the profitability of insurance industry. Further, Alomari and Azzam (2017) found that inflation has negative and significant effect on the profitability of the insurance industry in Jordan. Furthermore, Siddik *et al.* (2022) found that inflation has a noteworthy adverse influence on non-life insurance companies' profitability. Based on it, this study develops the following hypothesis:

H₆ : There is a negative relationship between inflation and profitability of insurance company.

Gross domestic product

Gross domestic product (GDP) measures the monetary value of final goods and services which that are bought by the final users produced in a country in a given period. It is one of the primary indicators used to gauge the health of a country's economy. Gross domestic product is the total value of everything produced in the country. Kozak (2011) found that GDP growth rate has a positive impact on the performance of insurance companies. Likewise, Berhe and Kaur (2017) found that

growth rate of GDP and money supply were the major factors that significantly and positively affect the profitability of insurance companies. Similarly, Hasan *et al.* (2018) concluded that the macroeconomic variables (GDP growth rate and money supply) have statistically positive significant influence on the performance of non-life insurance companies. Furthermore, Shawar and Siddiqui (2019) found that the gross domestic product have an insignificant but positive relationship with profitability of the insurance industry. In addition, Meher and Zewudu (2020) found that there is the positive relationship between the gross domestic product and profitability of the insurance company. Based on it, this study develops the following hypothesis:

H_7 : *There is a positive relationship between gross domestic product and profitability of insurance company.*

Money supply

Money supply refers to the quantity of money available and it depends on the monetary policy that is being followed. The money supply is basically determined by Central Bank's policy. Nevertheless, it is affected by the behavior of households that hold money and banks in which money is held. Sufian and Habibullah (2009) revealed that growth in money supply is negatively related to the profitability levels. Similarly, Lemi *et al.* (2020) showed statistically significant and negative impacts of broad money supply on firm profitability. Likewise, Mureithi *et al.* (2019) concluded that the supply of money in the market inversely affects performance of the firm. Furthermore, Benson and Mahadia (2022) found that the money supply has negative and insignificant relationship with the performance of firm. In addition, Taha and Top (2022) concluded that money supply has a negative and significant impact on measuring the bank profitability. Based on it, this study develops the following hypothesis:

H_8 : *There is a negative relationship between money supply and profitability of insurance company.*

3. Results and discussion

Descriptive statistics

Table 2 presents the descriptive statistics of the selected dependent and independent variables during the period 2013/14 to 2020/21.

Table 2: Descriptive statistics

This table shows the descriptive statistics of dependent and independent variables of 16 Nepalese insurance companies for the study period from 2013/14 to 2020/21. The dependent variables are ROA (Return on assets as measured by the ratio of net profit to total asset, in percentage) and ROE (Return on equity as measured by the ratio of net income to total equity, in percentage). The independent variables are Fsize (Firm size of insurance company measured by total assets, Rs in millions), LIQ (Liquidity ratio as measured by the ratio of current assets to current liabilities, in times), TAN (Tangibility ratio as measured by the total fixed assets to total assets, in percentage), DPS (Dividend per share as measured by the ratio of total dividend distributed to number of outstanding shares, in percentage), PG (Premium growth rate is the percentage increase in gross written premiums, in percentage), INF (Inflation rate as measured by the change in consumer price index, in percentage), MS (Money supply as measured by the broad money, USD in billion), and GDP (Gross domestic product as measured by the total goods and services produced within the country in a year, USD in billion).

Variables	Minimum	Maximum	Mean	Std. Deviation
ROA	-2.83	12.05	4.98	3.40
ROE	-17.29	53.66	17.17	9.89
Fsize	19.97	25.57	22.34	1.26
LQ	0.82	16.68	4.35	3.74
TAN	0.14	15.99	3.01	3.01
DPS	0.00	84.00	15.54	16.75
PG	-27.24	106.69	26.38	23.53
INF	3.60	9.93	6.23	2.21
GDP	20.00	34.27	28.61	5.66
MS	75.36	135.76	97.63	16.80

Source: SPSS output

Correlation analysis

Having indicated the descriptive statistics, Pearson's correlation coefficients are computed and the results are presented in Table 3.

Table 3: Pearson's correlation coefficients matrix

This table shows the bivariate Pearson's correlation coefficients of dependent and independent variables of 16 Nepalese insurance companies for the study period from 2013/14 to 2020/21. The dependent variables are ROA (Return on assets as measured by the ratio of net profit to total asset, in percentage) and ROE (Return on equity as measured by the ratio of net income to total equity, in percentage). The independent variables are Fsize (Firm size of insurance company measured by total assets, Rs in millions), LQ (Liquidity ratio as measured by the ratio of current assets to current liabilities, in times), TAN (Tangibility ratio as measured by the total fixed assets to total assets, in percentage), DPS (Dividend per share as measured by the ratio of total dividend distributed to number of outstanding shares, in percentage), PG (Premium growth rate is the percentage increase in gross written premiums, in percentage), INF (Inflation rate as measured by the change in consumer price index, in percentage), MS (Money supply as measured by the broad money, USD in billion), and GDP (Gross domestic product as measured by the total goods and services produced within the country in a year, USD in billion).

Variables	ROA	ROE	Fsize	LQ	TAN	DPS	PG	INF	GDP	MS
ROA	1									
ROE	0.78**	1								
Fsize	-0.35**	-0.02	1							
LQ	-0.21*	-0.06	0.49**	1						
TAN	0.52**	0.35**	-0.41**	-0.33**	1					
DPS	0.12	0.40**	0.34**	0.07	0.07	1				
PG	0.03	0.01	-0.11	0.00	0.01	-0.05	1			
INF	-0.07	-0.14	-0.22*	0.25**	0.07	0.01	0.05	1		
GDP	0.08	0.17	0.30**	-0.29**	-0.14	-0.01	-0.14	-0.79**	1	
MS	-0.04	-0.13	0.24**	-0.19*	-0.09	-0.06	-0.12	-0.50**	0.73**	1

Note: The asterisk signs (**) and (*) indicate that the results are significant at one percent and five percent levels respectively.

Table 3 shows that firm size has a negative relationship with return on assets. It means that increase in firm size leads to decrease in return on assets. Likewise, there is a negative relationship between liquidity ratio and return on assets. It means that increase in liquidity ratio leads to decrease in return on assets. In contrast, assets tangibility has a positive relationship with return on assets. It shows that higher the assets tangibility, higher would be the return on assets. Similarly, the dividend per share has the positive relationship with return on assets. It shows that higher the dividend per share, higher would be the return on assets. Furthermore, premium growth has a positive relationship with return on assets. It means that higher the premium growth, higher would be the return on assets. In contrast, the inflation has the negative relationship with return on assets. It indicates that higher the inflation, lower would be the return on assets. Likewise, gross domestic product has a positive relationship with return on assets. It means that higher the gross domestic product, higher would be the return on assets. In contrast, the money supply has the negative relationship with return on assets. It indicates that higher the money supply, lower would be the return on assets.

Similarly, the result also shows that firm size has a negative relationship with return on equity. It means that increase in firm size leads to decrease in return on equity. Likewise, there is a negative relationship between liquidity ratio and return on equity. It shows that increase in liquidity ratio leads to decrease in return on equity. In contrast, assets tangibility has a positive relationship with return on equity. It indicates that higher the assets tangibility, higher would be the return on equity. Similarly, dividend per share has a positive relationship with return on equity. It reveals that higher the dividend per share, higher would be the return on equity. Furthermore, premium growth has a positive relationship with return on equity. It shows that higher the premium growth, higher would be the return on equity. Further, inflation has a negative relationship with return on equity. It indicates that higher the inflation, lower would be the return on equity. On the other hand, gross domestic product has a positive relationship with return on equity. It means that increase in gross domestic product leads to increase in return on equity. Likewise, there is a negative relationship between money supply and return on equity. It shows that increase in money supply leads to decrease in return on equity.

Regression analysis

Having indicated the Pearson's correlation coefficients, the regression analysis has been carried out and results are presented in Table 4. More specifically, it shows the regression results of firm size, liquidity, tangibility, dividend per share, premium growth, inflation, gross domestic product and money supply with return on asset of Nepalese insurance companies.

Table 4: Estimated regression results of firm size, liquidity, tangibility, dividend per share, premium growth, inflation, gross domestic product and money supply on return on assets

The results are based on panel data of 16 insurance company with 124 observations for the period of 2013/14 to 2020/21 by using the linear regression model and the model is $ROA = \beta_0 + \beta_1 Fsize + \beta_2 LQ + \beta_3 TAN + \beta_4 DPS + \beta_5 PG + \beta_6 GDP + \beta_7 INF + \beta_8 MS + e$ where, the dependent variable is ROA (Return on assets as measured by the ratio of net profit to total asset, in percentage). The independent variables are Fsize (Firm size of insurance company measured by total assets, Rs in millions), LIQ (Liquidity ratio as measured by the ratio of current assets to current liabilities, in times), TAN (Tangibility ratio as measured by the total fixed assets to total assets, in percentage), DPS (Dividend per share as measured by the ratio of total dividend distributed to number of outstanding shares, in percentage), PG (Premium growth rate is the percentage increase in gross written premiums, in percentage), INF (Inflation rate as measured by the change in consumer price index, in percentage), MS (Money supply as measured by the broad money, USD in billion), and GDP (Gross domestic product as measured by the total goods and services produced within the country in a year, USD in billion).

Model	Intercept	Regression coefficients of								Adj. R _{bar} ²	SEE	F-value
		Fsize	LQ	TAN	DPS	PG	INF	GDP	MS			
1	25.956 (5.088)**	-0.939 (4.118)**								0.115	3.198	16.955
2	5.815 (12.644)**		-0.192 (2.387)**							0.037	3.336	5.695
3	3.206 (8.671)**			0.591 (6.790)**						0.268	2.908	46.107
4	4.601 (11.063)**				0.025 (1.345)					0.007	3.388	1.809
5	4.884 (10.586)**					0.004 (0.776)				0.080	3.412	0.081
6	4.302 (4.70)**						-0.109 (0.789)			0.030	3.405	0.622
7	6.427 (4.073)**							0.050 (0.933)		0.001	3.40	0.871
8	5.748 (3.171)**								-0.08 (4.290)**	0.070	3.411	0.184
9	24.631 (4.323)**	-0.870 (3.313)**	-0.047 (0.529)							0.110	3.208	8.567
10	13.853 (2.521)**	-0.472 (1.907)	-0.024 (0.30)	0.52 (5.439)**						0.280	2.885	16.923
11	18.374 (3.162)**	-0.696 (2.623)**	-0.037 (0.467)	0.474 (4.907)**	0.036 (2.142)*					0.301	2.843	14.219
12	18.36 (3.103)**	-0.695 (2.592)**	-0.037 (0.463)	0.474 (4.885)**	0.036 (2.133)*	0.016 (0.014)				0.295	2.855	11.28
13	19.653 (2.905)**	-0.742 (2.526)**	-0.053 (0.590)	0.475 (4.874)**	0.014 (0.13)	0.023 (0.13)	-0.053 (0.399)			0.290	2.865	9.359
14	18.325 (2.677)**	-0.869 (2.783)**	-0.095 (0.986)	0.488 (4.983)**	0.039 (2.293)**	0.002 (0.176)	-0.111 (0.577)	0.099 (1.185)		0.292	2.860	8.250
15	18.418 (2.680)**	-0.878 (2.799)**	-0.095 (0.979)	0.484 (4.914)**	0.040 (2.325)**	0.002 (0.182)	-0.092 (0.465)	0.069 (0.659)	-0.011 (0.479)	0.287	2.870	7.200

Notes:

i. Figures in parenthesis are t-values.

ii. The asterisk signs (**) and (*) indicate that the results are significant at one percent and five percent level respectively.

iii. Return on asset is the dependent variable.

Table 4 shows that the beta coefficients for firm size are negative with return on assets. It indicates that firm size has a negative impact on return on assets. This finding contradicts with the findings of Tegegn *et al.* (2020). Similarly, the beta coefficients for liquidity are negative with return on assets. It shows that liquidity ratio has a negative impact on return on assets. This finding is inconsistent with the findings of Msomi (2022). Similarly, the beta coefficients for tangibility are positive with return on assets. It means that tangibility has a positive impact on return on assets. This finding is similar to the findings of Shahi and Agnihotri (2022). Likewise, the beta coefficients for dividend

per share are positive with return on assets. It reveals that dividend per share has a positive impact on return on assets. This finding is consistent with the findings of Rahman (2018). Furthermore, the beta coefficients for premium growths are positive with return on assets. It indicates that premium growth has a positive impact on return on assets. This finding is similar to the findings of Alshadadi and Deshmukh (2021).

Table 5 shows the estimated regression results of firm size, liquidity, tangibility, dividend per share, premium growth, inflation, gross domestic product and money supply with return on equity of Nepalese insurance companies.

Table 5: Estimated regression results of firm size, liquidity, tangibility, dividend per share, premium growth, inflation, gross domestic product and money supply on return on equity

The results are based on panel data of 16 insurance company with 124 observations for the period of 2013/14 to 2020/21 by using the linear regression model and the model is $ROE = \beta_0 + \beta_1 Fsize + \beta_2 LQ + \beta_3 TAN + \beta_4 DPS + \beta_5 PG + \beta_6 GDP + \beta_7 INF + \beta_8 MS + e$ where, the dependent variable is ROE (Return on equity as measured by the ratio of net income to total equity, in percentage). The independent variables are Fsize (Firm size of insurance company measured by total assets, Rs in millions), LIQ (Liquidity ratio as measured by the ratio of current assets to current liabilities, in times), TAN (Tangibility ratio as measured by the total fixed assets to total assets, in percentage), DPS (Dividend per share as measured by the ratio of total dividend distributed to number of outstanding shares, in percentage), PG (Premium growth rate is the percentage increase in gross written premiums, in percentage), INF (Inflation rate as measured by the change in consumer price index, in percentage), MS (Money supply as measured by the broad money, USD in billion), and GDP (Gross domestic product as measured by the total goods and services produced within the country in a year, USD in billion).

Model	Intercept	Regression coefficients of								Adj. R ²	SEE	F-value
		Fsize	LQ	TAN	DPS	PG	INF	GDP	MS			
1	20.326 (1.283)	-0.141 (0.199)								0.008	9.933	0.040
2	17.847 (13.056)**		-0.155 (0.650)							0.005	9.918	0.423
3	13.709 (11.591)**			1.152 (4.137)**						0.116	9.303	17.118
4	13.526 (12.088)**				0.235 (4.782)**					0.153	9.117	23.870
5	17.097 (12.729)**					0.003 (0.076)				0.008	9.935	0.006
6	13.341 (5.043)**						-0.615 (1.537)			0.011	9.84	2.361
7	25.646 (5.647)**							0.296 (1.092)		0.021	9.791	3.616
8	24.681 (4.715)**								-0.077 (1.455)	0.009	9.85	2.177
9	15.414 (0.872)	-0.113 (0.138)	-0.174 (0.632)							0.013	9.958	0.219
10	-12.576 (0.711)	1.147 (1.411)	-0.011 (0.042)	1.351 (3.390)**						0.120	9.282	6.592
11	16.023 (0.909)	-0.267 (0.332)	0.093 (0.385)	1.060 (3.614)**	0.227 (4.466)**					0.240	8.626	10.710

12	15.290 (0.852)	-0.244 (0.300)	-0.090 (0.368)	1.062 (3.591)**	0.227 (4.449)**	0.008 (0.248)				0.234	8.66	8.512
13	1.875 (0.092)	-0.242 (0.272)	-0.073 (0.270)	1.054 (3.591)*	0.217 (4.212)**	0.008 (0.252)	-0.552 (1.373)			0.240	8.628	7.461
14	4.843 (0.234)	-0.525 (0.558)	-0.167 0.574	1.026 (3.471)**	0.211 (4.070)**	0.004 (0.129)	-0.185 (0.319)	0.221 (0.877)		0.238	8.636	6.493
15	4.90 (0.260)	-0.520 (0.548)	-0.167 0.573	1.024 (3.438)**	0.212 (4.038)**	0.004 (0.129)	-0.174 (0.292)	0.239 (0.758)	-0.007 (0.097)	0.232	8.673	5.634

Notes:

- i. Figures in parenthesis are t-values.
- ii. The asterisk signs (**) and (*) indicate that the results are significant at one percent and five percent level respectively.
- iii. Return on equity is the dependent variable.

Table 5 shows that the beta coefficients for firm size are negative with return on equity. It indicates that firm size has a negative impact on return on equity. This finding contradicts with the findings of Sasidharan *et al.* (2020). The beta coefficients for liquidity are negative with return on equity. It shows that liquidity ratio has a negative impact on return on equity. This finding is inconsistent with the findings of Kariuki *et al.* (2021). Likewise, the beta coefficients for tangibility are positive with return on equity. It indicates that tangibility has a positive impact on return on equity. This finding is similar to the findings of Ben Dhiab (2021). Similarly, the beta coefficients for dividend per share are positive with return on equity. It indicates that dividend per share has a positive impact on return on equity. This finding is consistent with the findings of Ajanthan (2013). Furthermore, the beta coefficients for premium growth are positive with return on equity. It indicates that premium growth has a positive impact on return on equity. This finding is similar with the findings of Markonah *et al.* (2019).

4. Summary and conclusion

Insurance companies are an essential component of a nation as it plays a crucial role in ensuring overall financial and economic stability. Profitability is one of the most important objectives of financial management, since one of the main tasks and goals of financial management is to increase shareholders wealth. The variation of profits between insurance companies over the years, within a country, leads to believe that macro-economic factors and specific factors of a firm play a major role in determining profitability. Different types of risks may hinder the insurance profitability and ultimately the stability of insurance companies. Therefore, insurance companies must analyze the factors that may be associated with their profitability to come up with a way to minimize the negative effects so that the overall financial system (in general) and economy (as a whole) will be stable.

This study attempts to analyze the effect of firm specific and macroeconomic factors on the profitability of Nepalese insurance companies. The study is based on secondary data of 16 commercial banks with 128 observations for the period from 2013/14 to 2020/21.

The study shows that firm size, liquidity rate, inflation and money supply have negative impact on return on assets (ROA). However, tangibility, dividend per share, premium growth and gross domestic product has positive impact on return on assets (ROA). Likewise, firm size, liquidity rate, inflation and money supply have negative impact on return on equity (ROE). However, tangibility, dividend per share, premium growth and gross domestic product has positive impact on return on equity (ROE). Likewise, the study also concluded that tangibility followed by firm size is the most

influencing factor that explains the changes in the return on assets (ROA) of Nepalese insurance companies. Similarly, the study also concluded that dividend per share followed by tangibility is the most influencing factor that explains the changes in the return on equity (ROE) of Nepalese insurance companies.

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Credit portfolio diversification and firm performance of Nepalese commercial banks

– Rashna Maharjan and Prof. Radhe Shyam Pradhan*

Abstract

This study examines the effect of credit portfolio diversification on the performance of Nepalese commercial banks. Return on asset and return on equity are selected as the dependent variables. Similarly, real estate loan, term loan, overdraft loan, deprived sector loan, capital adequacy ratio, loan to deposit ratio, and non-performing loan are selected as the independent variables. This study is based on secondary data of 22 commercial banks with 132 observations for the study period from 2015/16 to 2020/21. The data were collected from Banking and Financial statistics published by Nepal Rastra Bank, reports published by Ministry of Finance, the annual report of respective banks and World Bank database. The correlation coefficients and regression models are estimated to test the significance and importance of credit portfolio diversification on the performance of Nepalese commercial banks.

The study showed that real estate loan has a positive impact on return on equity. It reveals that higher the real estate loan, higher would be the return on equity. In addition, the study showed that overdraft loan has a positive impact on return on equity. It indicates that increase in overdraft loans leads to increase in return on equity. Likewise, deprived sector loan has a positive impact on return on equity. It reveals that higher the deprived sector loan, higher would be the return on equity. Moreover, the study showed that non-performing loan has a negative impact on return on equity. It indicates that increase in non-performing loans leads to decrease in return on equity. Furthermore, capital adequacy ratio has a positive impact on return on assets. It indicates that increase in capital adequacy ratio leads to increase in return on assets.

Key words: *Return on asset, return on, real estate loan, term loan, overdraft loan, deprived sector loan, capital adequacy ratio, loan to deposit ratio, and non-performing loan.*

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1. Introduction

The banking sector is the driving force for a country's economy. Bank is a business entity that collects funds from the public in the form of deposits and distributes funds to the public in the form of credit and or other forms. Bank performance greatly affects the level of public trust, so it is important for banks to maintain good performance (Safitri *et al.*, 2020). According to Fase and Abma (2003), the expansion of the financial system can have a favorable impact on a country's economic growth. A bank's sound financial health provides a promise not only to its depositors, but also to its shareholders, staff, and the entire economy (Aspal and Malhotra, 2013). Banking operation in competitive environment is more stable as they diversify their portfolio that results in to enhanced performance and risk adjusted returns for bank (Amidu, 2013).

A credit portfolio is an investment portfolio made up of debts such as mortgages and vehicle loans (Disney and Gathergood, 2013). Diversified credit portfolios influence the risk level of banks with losses in one sector or one location being compensated from the gains obtained from the other sectors or locations (Hailu and Tassew, 2018). Diamond (1984) suggested that diversification should be a way to reduce the risk within a portfolio of assets given asymmetric information in banking market. According to Green and Wachter (2005), companies interested in expanding their credit portfolios can choose from a choice of loan options to match their demands. Boot and Schmeits (2000) revealed that diversified financial institutions may reduce the expected costs of financial distress or bankruptcy by lowering risks through spreading operations across different products. Credit portfolio management (CPM) is a critical function for banks (and other financial institutions such as insurers and institutional investors) with large, diverse credit portfolios that frequently include illiquid loans. Credit portfolio management arose from the desire to improve the financial performance of commercial banks' vast corporate loan portfolios.

Loan portfolio management is the act of managing and controlling the risks inherent in the credit process. The loan portfolio management procedure is critical and serves as a main supervision function. Assessing loan portfolio management entails examining how bank management identifies and controls risk throughout the lending process. The diversification of the credit portfolio requires expertise in different areas that banks may not have in most cases (Almagtome *et al.*, 2019). Tabak *et al.* (2011) found that loan portfolio concentration increases return and reduces default risk. A strong portfolio mix attained through various types of investments has a positive impact on financial stability. Furthermore, portfolio diversification does not appear to be an appealing strategy for any bank because it may increase rivalry with other banks (Jensen, 1986). As a result, banks should diversify their loan portfolios in order to eliminate asymmetric information and lower financial intermediation costs even further (Diamond, 1984). Loan portfolio planning, client screening and portfolio control are all conducted with the sole objective of achieving desired loan portfolio profitability, which itself is reflected in loan interest payment and loan repayment (Jain, 1996). For managing the credit portfolio, banks may divide its total credit assets into different portfolios or sub portfolios (Isa *et al.*, 2013).

Huynh and Dang (2021) assessed the relationship between loan portfolio diversity and bank return. The study discovered that greater loan portfolio diversity among different types of loan products led to better risk-adjusted performance. Alktrani (2021) analyzed the influence of loan portfolio concentration and diversity on bank equity return. The study discovered that loan portfolio diversification improves return on equity. Khai *et al.* (2020) investigated the influence of credit portfolio diversification on the profitability of commercial banks in Vietnam. The findings revealed that commercial banks' profitability grew as a result of their loan portfolio diversification approach.

Nikita (2020) examined the impact of credit portfolio diversification on the financial stability of Russian Bank. The study found that the increase in the level of credit portfolio diversification has a positive effect on the Bank's financial stability. Adesina and Nasiku (2020) explained the effect of credit diversification strategy and financial performance. The study found that there is a positive relationship between integrated loan portfolio management strategy and price earnings ratio which is the measure of financial performance of the listed banks.

Kamwaro (2013) examined the relationship between investment portfolio choice and profitability of investment companies listed in the Nairobi securities exchange. The study revealed that portfolio composition has a positive impact on financial performance of investment companies listed in the Nairobi Securities Exchange. Similarly, Atahau and Cronje (2017) revealed a positive relationship between economic sector loan diversification and loan portfolio returns. Kraft and Jankov (2005) found that loan portfolio management involves evaluating the steps which the bank management takes to identify and control risks throughout the credit process. Ruckes (2004) stated that fast credit growth indicates a sound financial position of the bank that allows an expansive strategy to improve its market shares. In addition, Prilmeier and Stulz (2016) stated that fast credit growth is usually coupled by low contemporaneous loan loss provisioning, leading and high profitability. Likewise, Asantey and Tengey (2014) found that there is a negative correlation between loan and lending potential. Acharya *et al.* (2006) found a positive impact of sectoral focus on the profitability of banks. Furthermore, Hamidovich (2016) stated that credit portfolio management deals with the evaluation of each portfolio at periodic intervals to judge the quality of assets held in the portfolio and protect them from losing values through appropriate corrective action in time.

Afza *et al.* (2004) investigated the relationship between diversification and a firm's financial performance taking sample of 65 Pakistani firms categorizing them as diversified and non-diversified. The study found that the non-diversified firms performed better than the diversified firms. However, the high return of non-diversified firms is accompanied by low risk and the low return of diversified firms is riskier. Rossi *et al.* (2009) found a positive relationship between diversification and firm profits. However, the study showed a negative relationship between diversification and banking costs and risks. The study also found that increase in diversification lowers the economic capital requirements for banks. Likewise, Berger *et al.* (1999) found that consolidation in the financial services industry has been consistent with greater diversification of risks on average but with little or no cost efficiency improvements. Moreover, Langrin and Roach (2009) revealed that greater returns or lower risk is not guaranteed by loan portfolio diversification. Lins and Servaes (2002) found that firms with a more diversified asset will tend to have lower profit than firms that have not diversified their assets. In addition, Ishak and Napier (2006) argued that diversification of portfolio will tend to increase the firm value. Diversification is a portfolio tactic that is intended to reduce risk by combining various investments with great returns.

In the context of Nepal, Gauchan and Upadhyaya (2020) analyzed the credit portfolio management and its relationship with bank financial performance. The study found that, with the exception of consumption and other sectors, all sectors have a favorable impact on banks' financial performance. The study also showed that sector-wise portfolio management provides a good framework for banks to maintain their sustainability. Likewise, Gautam (2021) analyzed the competitive conditions of commercial banks in Nepal. The findings showed the increasing pattern of capitalization and the decreasing trend of non-performing loan ratio, indicating that Nepalese commercial banks have a low possibility of loan default and, are more financially stable. The study also showed the declining trend of bank concentration and HHI. Moreover, Kadariya *et al.* (2012) revealed that there is a positive relation between level of investment and bank profitability. Similarly, Malla (2017) assessed

the concentration of banks for credit portfolio management by analyzing security wise loan, product wise loan and sector wise concentration of loan. The study revealed that the portfolio management of the Nepalese banking sector has been improving for its better financial performance. Furthermore, Oli (2021) examined the impact of portfolio investment on financial performance of Nepalese commercial bank. The study revealed that there is a negative relationship between real estate investment and return on assets. Loan portfolio has a positive impact on return on assets. Similarly, government securities investment and investment equity and bond have a positive impact on return on assets of Nepalese commercial bank.

The above discussion shows that empirical evidences vary greatly across the studies on the credit portfolio diversification and firm performances of banks. Though there are above mentioned empirical evidences in the context of other countries and in Nepal, no such findings using more recent data exist in the context of Nepal. Therefore, in order to support one view or the other, this study has been conducted.

The main purpose of the study is to examine the association between credit portfolio diversification and firm performance of selected Nepalese commercial banks. Specifically, it examines the relationship of real estate loan, term loan, overdraft loan, deprived sector loan, capital adequacy ratio, loan to deposit ratio, and non-performing loan with return on asset and return on equity of Nepalese commercial banks.

The remainder of this study is organized as follows. Section two describes the sample, data and methodology. Section three presents the empirical results and the final sections draws the conclusion.

2. Methodological aspects

The study is based on the secondary data which were gathered from 22 commercial banks for the period from 2015/16 to 2020/21, leading to a total of 132 observations. The study employed stratified sampling method. The main sources of data include Banking and Financial statistics published by Nepal Rastra Bank, reports published by Ministry of Finance, the annual report of respective banks and World Bank database. This study is based on descriptive as well as causal comparative research designs. Table 1 shows the list of commercial banks selected for the study along with the study period and number of observations.

Table 1: List of commercial banks selected for the study along with study period and number of observations

S. N.	Name of the banks	Study period	Observations
Public Banks			
1	Nepal Bank Limited	2015/16 - 2020/21	6
2	Rastriya Banijya Bank Limited	2015/16 - 2020/21	6
3	Agricultural Development Bank Limited		
Joint Venture Banks			
4	Everest Bank Limited	2015/16 - 2020/21	6
5	Himalayan Bank Limited	2015/16 - 2020/21	6
6	Nabil Bank Limited	2015/16 - 2020/21	6

7	NMB Bank Limited	2015/16 - 2020/21	6
8	Nepal SBI Bank Limited	2015/16 - 2020/21	6
9	Standard Chartered Bank Nepal Limited	2015/16 - 2020/21	6
Private Banks			
10	Citizens Bank International Limited	2015/16 - 2020/21	6
11	Global IME Bank Limited	2015/16 - 2020/21	6
12	Kumari Bank Limited	2015/16 - 2020/21	6
13	Mega Bank Nepal Limited	2015/16 - 2020/21	6
14	Nepal Investment Bank Limited	2015/16 - 2020/21	6
15	NIC Asia Bank Limited	2015/16 - 2020/21	6
16	Prabhu Bank Limited	2015/16 - 2020/21	6
17	Prime Commercial Bank Limited	2015/16 - 2020/21	6
18	Sanima Bank Limited	2015/16 - 2020/21	6
19	Machhapuchchhre Bank Limited	2015/16 - 2020/21	6
20	Civil Bank Limited	2015/16 - 2020/21	6
21	Sunrise Bank Limited	2015/16 - 2020/21	6
22	Laxmi Bank Limited	2015/16 - 2020/21	6
Total number of observations			132

Thus, the study is based on the 132 observations.

The model

The model used in this study assumes that the bank's performance depends upon credit portfolio diversification. The dependent variables selected for the study are return on asset and return on equity. Similarly, the selected independent variables are real estate loan, term loan, overdraft loan, deprived sector loan, capital adequacy ratio, loan to deposit ratio, and non-performing loan. Therefore, the model takes the following form:

Profitability = f (REL, TL, OD, DSL, CARL, LTD and NPL)

More specifically,

$$ROA_{it} = \beta_0 + \beta_1 REL_{it} + \beta_2 TL_{it} + \beta_3 OD_{it} + \beta_4 DSL_{it} + \beta_5 CAR_{it} + \beta_6 LDR_{it} + \beta_7 NPL_{it} + e_{it}$$

$$ROE_{it} = \beta_0 + \beta_1 REL_{it} + \beta_2 TL_{it} + \beta_3 OD_{it} + \beta_4 DSL_{it} + \beta_5 CAR_{it} + \beta_6 LDR_{it} + \beta_7 NPL_{it} + e_{it}$$

Where,

ROA = Return on assets as measured by the ratio of net income to total assets, in percentage.

ROE = Return on equity as measured by the ratio of net income to total equity, in percentage.

REL = Real estate loans, Rs in millions.

TL = Term Loans, Rs in millions.

OD = Overdraft loans, Rs in millions.

DSL = Deprived sector loans, Rs in millions.

CAR = Capital adequacy ratio as measured by the ratio of total capital to total risk weighted exposure, in percentage.

LDR = Loan to deposit ratio as measured by the ratio of total loans to total deposits, in percentage.

NPL = Nonperforming loan as measured by non-performing loan to total loan, in percentage.

The following section describes the independent variables used in this study along with hypothesis formulation.

Real estate loan

A real estate loan is mostly made up of commercial real estate loans, including condo construction and conversion loans, commercial loans, and residential real estate loans. Killins (2020) analyzed the impact of real estate prices, real estate exuberance and real estate volatility on bank profits. The study found that the change in housing prices tends to result in a positive impact on profitability (ROA and ROE). Abdulrehman and Nyamute (2018) determined the effect of mortgage financing on financial performance of commercial banks in Kenya. The findings revealed a positive significant effect of amount of mortgage offered on financial performance. Martins *et al.* (2019) examined the determinants of real estate bank profitability. The study showed that increase in credit to real estate and retail loans leads to increase in the profitability of banks. Similarly, Gorton and Rosen (1995) found the positive but insignificant correlation between returns and real-estate loan. Based on it, this study develops the following hypothesis:

H_1 : *There is a positive relationship between real estate loan and firm performance.*

Term loan

Pham *et al.* (2022) determined the effect of capital structure on the profitability of Vietnamese commercial banks. The study found that short term loan has a negative effect on bank profitability, whereas non-deposit liabilities have a positive effect on bank profitability. Abor and Biekpe (2005) found a negative relationship between profitability and long-term debt in the context of Ghana. Similarly, Ferati and Ejupi (2012) showed a negative correlation of long-term debts with financial performance. Furthermore, Yakubu *et al.* (2017) evidenced a negative influence of short-term and long-term debt on bank profits. In addition, Anthony (2013) reported a negative and significant effect of long-term leverage on the Ghanaian non-financial firms' profit level. Moreover, Yapa (2015) noted that long-term debt to total assets which measures firms' leverage negatively drives the profitability of SMEs operating in the UK. Based on it, this study develops the following hypothesis:

H_2 : *There is a negative relationship between term loan and firm performance.*

Overdraft loan

Overdraft refers to the extension of credit from a financial institution to its customer when they execute a transaction for which the account holder has insufficient funds. Belgrave *et al.* (2012) assessed the effects of controlling quality of personal loans on the performance of commercial banks in Barbados. The study found that overdraft loans have a statistically significant and positive influence on the financial performance of commercial banks. According to Balla and McKenna (2009), the percentage of overdrafts in private banking space in non-performing loan status (NPL) too is generally almost constant across the months as shown by the red trend line. The study also showed a positive relationship between overdraft loans and bank profitability. Abebe (2022) investigated the

effect of asset and liability management on the financial performance of microfinance institutions in the sub-Saharan African region. The study revealed that short-term financial liabilities including overdraft have a positive impact on the return on assets of sub-Saharan MFIs. Based on it, this study develops the following hypothesis:

H_3 : *There is a positive relationship between overdraft loan and firm performance.*

Deprived sector loan

Deprived sector lending refers to credit extended to sections of the economy that would not otherwise receive timely and enough credit. The lending in the priority sector has been a positive for public banks however the transaction costs should be reduced in order to increase the profits (Wadhwa *et al.*, 2020). According to Gaur and Mohapatra (2020), loans in deprived sectors have positive impact on banks' financial performance. Martinez-Campillo *et al.* (2020) assessed how efficient are public banks in supporting priority and non-priority sectors in India. The results suggested that Indian public banks performed relatively well in both activities, although social efficiency was slightly greater than financial efficiency. Desai (2021) analyzed the profitability of Indian banks and how it is affected by lending in the priority sector. The study concluded that agricultural lending has a significant negative impact on bank profitability whereas the service sector lending adds positive value towards financial profitability of banks. Industrial and personal credit were found to be insignificant factors affecting profitability. Based on it, this study develops the following hypothesis:

H_4 : *There is a positive relationship between deprived sector loan and firm performance.*

Capital adequacy ratio

Capital adequacy ratio is the ratio of a bank's capital in relation to its risk weighted assets and current liabilities. Kumar *et al.* (2020) investigated the relationship between monetary policy and bank profitability in New Zealand. The study revealed that capital adequacy ratio is positively related to return on assets. Farkasdi *et al.* (2021) determined the determinants of profitability in commercial banks in Germany. The study showed a positive relationship between capital adequacy ratio and profitability measured by return on equity. Similarly, Nahar *et al.* (2020) identified a positive relationship between capital adequacy ratio and profitability. Handayani *et al.* (2019) revealed that capital adequacy ratio is positively related to return on assets. Alzoubi (2018) concluded a positive relationship between capital adequacy ratio and profitability of banks measured by return on assets. Ikpesu and Oke (2022) examined the effect of capital adequacy and asset quality on banking sector performance. The study concluded that capital adequacy and asset quality both affect bank performance positively in Nigeria. Based on it, this study develops the following hypothesis:

H_5 : *There is a positive relationship between capital adequacy ratio and firm performance.*

Loan to deposit ratio

Loan to deposit ratio is calculated as the ratio of total credit supplied by banks to deposits collected. Amir and Amri (2022) determined the effect of loan to deposit ratio on return on assets. The study revealed that loan to deposit ratio has a significant positive effect on return on assets. Likewise, Limajatini *et al.* (2019) analyzed the effect of the loan to deposit on profitability in conventional banking companies listed on the Indonesia Stock Exchange and concluded that concluded that LDR has a significant effect on profitability. Loan to deposit ratio has a positive and insignificant effect on the profitability of banking companies in the Indonesia Stock Exchange (Anggari and Dana, 2020).

According to Gerinata (2021), loan to deposit ratio has a positive and significant effect on return on assets. Based on it, this study develops the following hypothesis:

H_6 : There is a negative relationship between loan to deposit ratio and firm performance.

Non-performing loan

A non-performing loan (NPL) is a loan in which the borrower is in default and has failed to make monthly principal and interest payments for a predetermined period of time. Aronokhale (2022) analyzed the impact of non-performing loans on profitability of commercial banks in Nigeria. The findings showed that more non-performing loans the banks are carrying in their books, the more losses they would incur. According to Swandewi and Purnawati (2021), non-performing loan has a negative and significant relationship with return on assets. When the rate of nonperforming loans increases, the bank's ROA will decrease, meaning that the bank profitability will be lowered (Do *et al.*, 2020). Brastama and Yadnya (2020) concluded that non-performing loan is negatively related to profitability. Dewi and Badjra (2020) revealed that non-performing loan is negatively associated with bank profitability. Similarly, Nwana and Oguezie (2017) concluded that non-performing loan is negatively related to profitability of banks. Based on it, this study develops the following hypothesis:

H_7 : There is a negative relationship between non-performing loan and firm performance.

3. Results and discussion

Descriptive statistics

Table 2 presents the descriptive statistics of the selected dependent and independent variables during the period 2015/16 to 2020/21.

Table 2: Descriptive statistics

This table shows the descriptive statistics of dependent and independent variables of 22 Nepalese commercial banks for the study period of 2015/16 to 2020/21. The dependent variables are ROA (Return on assets as measured by the ratio of net profit to total asset, in percentage) and ROE (Return on equity as measured by the ratio of net income to total equity, in percentage). The independent variables are REL (Real estate loan is the loan done for construction of house or resources to acquire housing project by household, Rs in million), TL (Term loan is repaid in regular payment over a set period of time, Rs in million), ODL (Overdraft is an extension of credit from a financial institution to its customer when they execute a transaction for which the account holder has insufficient funds, Rs in million), DSL (Deprived sector lending is credit extended to sections of the economy that would not otherwise receive timely and enough credit, Rs in million), CAR (Capital adequacy ratio as measured by the ratio of total capital to total risk weighted exposure, in percentage), LDR (Loan to deposit ratio as measured by the rate of total loans to total deposits, in percentage) and NPL (Nonperforming loan as measured by non-performing loans to total loans, in percentage).

Variables	Minimum	Maximum	Mean	Std. Deviation
ROA	0.01	2.79	1.59	0.52
ROE	5.46	44.05	15.21	4.73
REL	93.82	16421.12	4473.10	2873.71
TL	2073.56	54195.89	16943.29	11207.66
ODL	688.55	82314.04	16147.02	12630.85
DSL	28.91	24652.32	4577.24	5215.02

CAR	10.20	22.99	14.04	2.40
LDR	56.88	103.38	85.31	8.40
NPL	0.01	4.75	1.40	1.15

Source: SPSS output

Correlation analysis

Having indicated the descriptive statistics, Pearson's correlation coefficients are computed and the results are presented in Table 3.

Table 3: Pearson's correlation coefficients matrix

This table shows the bivariate Pearson's correlation coefficients of dependent and independent variables of 22 Nepalese commercial banks for the study period from 2015/16 to 2020/21. The dependent variables are ROA (Return on assets as measured by the ratio of net profit to total asset, in percentage) and ROE (Return on equity as measured by the ratio of net income to total equity, in percentage). The independent variables are REL (Real estate loan is the loan done for construction of house or resources to acquire housing project by household, Rs in million), TL (Term loan is repaid in regular payment over a set period of time, Rs in million), ODL (Overdraft is an extension of credit from a financial institution to its customer when they execute a transaction for which the account holder has insufficient funds, Rs in million), DSL (Deprived sector lending is credit extended to sections of the economy that would not otherwise receive timely and enough credit, Rs in million), CAR (Capital adequacy ratio as measured by the ratio of total capital to total risk weighted exposure, in percentage), LDR (Loan to deposit ratio as measured by the rate of total loans to total deposits, in percentage) and NPL (Nonperforming loan as measured by non-performing loans to total loans, in percentage).

Variables	ROA	ROE	REL	TL	ODL	DSL	CAR	LDR	NPL
ROA	1								
ROE	0.396**	1							
REL	-0.050	0.180*	1						
TL	-0.316**	-0.119	0.372**	1					
ODL	0.002	0.203*	0.339**	0.302**	1				
DSL	-0.045	0.094	-0.009	-0.070	0.306**	1			
CAR	0.038	-0.345**	-0.211*	-0.165	-0.142	-0.032	1		
LDR	-0.349**	-0.392**	-0.079	0.207*	-0.130	-0.046	0.030	1	
NPL	-0.133	-0.018	-0.108	0.126	0.106	-0.018	0.080	-0.061	1

Note: The asterisk (**) and (*) indicate that the results are significant at one percent and five percent levels respectively.

Table 3 shows that real estate loan has a negative relationship with return on assets. It means that increase in real estate loans lead to decrease in return on assets. Similarly, term loan has a negative relationship with return on assets. It shows that increase in term loans leads to decrease in return on assets. Moreover, deprived sector loan has a negative relationship with return on assets. It indicates that increase in deprived sector loans leads to decrease in return on assets. In addition, loan to deposit ratio has a negative relationship with return on assets. It shows that higher the loan to deposit ratio, lower would be the return on assets. In contrast, overdraft loan has a positive relationship with return on assets. It indicates that increase in overdraft loan ratio leads to increase in return on assets. In addition, the study shows that non-performing loan has a positive relationship with return on assets. It indicates that increase in non-performing loan leads to increase in return on assets. Furthermore, there is a positive relationship between capital adequacy ratio and return on assets. It indicates that increase in capital adequacy ratio leads to increase in return on assets.

Similarly, the result also shows that real estate loan is positively related to return on equity. It reveals that higher the real estate loan, higher would be the return on equity. In addition, the study shows that overdraft loan has a positive relationship with return on equity. It indicates that increase in overdraft loans leads to increase in return on equity. Moreover, deprived sector loan has a positive relationship with return on equity. It reveals that higher the deprived sector loan, higher would be the return on equity. However, there is a negative relationship between term loan and return on equity. It means that increase in term loan leads to decrease in return on equity. Furthermore, there is a negative relationship between capital adequacy ratio and return on equity. It indicates that increase in capital adequacy ratio leads to decrease in return on equity. In addition, loan to deposit ratio has a negative relationship with return on equity. It shows that higher the loan to deposit ratio, lower would be the return on equity. Further, this study shows that non-performing loan has a negative relationship with return on equity. It indicates that increase in non-performing loans leads to decrease in return on equity.

Regression analysis

Having indicated the Pearson's correlation coefficients, the regression analysis has been carried out and the results are presented in Table 4. More specifically, it shows the regression results of real estate loan, term loan, overdraft loan, deprived sector loan, capital adequacy ratio, loan to deposit ratio, and non-performing loan with return on assets of Nepalese commercial banks.

Table 4: Estimated regression results of real estate loan, term loan, overdraft loan, deprived sector loan, capital adequacy ratio, loan to deposit ratio, and non-performing loan on return on assets

The results are based on panel data of 22 commercial banks with 132 observations for the period of 2015/16-2020/21 by using the linear regression model and the model is $ROA_{it} = \beta_0 + \beta_1 REL_{it} + \beta_2 TL_{it} + \beta_3 OD_{it} + \beta_4 DSL_{it} + \beta_5 CAR_{it} + \beta_6 LDR_{it} + \beta_7 NPL_{it} + e_{it}$ where, the dependent variables are ROA (Return on assets as measured by the ratio of net profit to total asset, in percentage). The independent variables are REL (Real estate loan is the loan done for construction of house or resources to acquire housing project by household, Rs in million), TL (Term loan is repaid in regular payment over a set period of time, Rs in million), ODL (Overdraft is an extension of credit from a financial institution to its customer when they execute a transaction for which the account holder has insufficient funds, Rs in million), DSL (Deprived sector lending is credit extended to sections of the economy that would not otherwise receive timely and enough credit, Rs in million), CAR (Capital adequacy ratio as measured by the ratio of total capital to total risk weighted exposure, in percentage), LDR (Loan to deposit ratio as measured by the rate of total loans to total deposits, in percentage) and NPL (Nonperforming loan as measured by non-performing loans to total loans, in percentage).

Model	Intercept	Regression coefficients of							Adj. R _{bar} ²	SEE	F-value
		REL	TL	ODL	DSL	CAR	LDR	NPL			
1	2.886 (2.308)*	-0.059 (1.033)							0.001	0.526	1.067
2	6.918 (4.871)**		-0.228 (3.750)**						0.091	0.502	14.061
3	1.619 (1.25)			0.001 (0.018)					0.008	0.529	0.124
4	3.423 (-0.085)				-0.085 (2.476)*				0.038	0.516	6.13
5	1.478 (5.41)**					0.008 (0.434)			0.006	0.528	0.188
6	3.462 (7.835)**						-0.022 (4.246)**		0.115	0.495	18.027

7	1.68 (23.352)**							-0.061 (1.527)	0.010	0.524	2.33
8	6.488 (4.187)**	-0.043 (0.701)	-0.25 (3.651)**						0.087	0.503	7.249
9	5.5 (3.182)**	-0.039 (0.642)	-0.276 (3.871)**	0.072 (1.275)					0.092	0.502	5.398
10	6.505 (3.81)**	-0.03 (0.511)	-0.282 (4.079)**	0.143 (2.407)*	-0.107 (3.051)**				0.147	0.486	6.639
11	7.029 (3.516)**	-0.022 (0.367)	-0.286 (4.098)**	0.138 (2.308)*	-0.109 (3.069)**	0.01 (0.508)			0.142	0.488	5.332
12	7.922 (3.961)9*	-0.022 (0.354)	-0.201 (2.593)**	0.086 (1.36)	-0.085 (2.343)*	0.009 (0.478)	-0.014 (2.356)*		0.172	0.479	5.528
13	4.08 (2.977)**			0.019 (0.362)			-0.023 (4.386)**	-0.068 (1.793)	0.126	0.492	7.320

Notes:

- Figures in parenthesis are t-values.
- The asterisk signs (**) and (*) indicate that the results are significant at one percent and five percent level respectively.
- Return on asset is the dependent variable.

Table 4 shows that the beta coefficients for real estate loan are negative with return on assets. It indicates that real estate loan has a negative impact on return on assets. This finding is similar to the findings of Abdulrehman and Nyamute (2018). The beta coefficients for term loan are negative with return on assets. It indicates that term loan has a negative impact on return on assets. This finding is consistent with the findings of Ferati and Ejupi (2012). Similarly, the beta coefficients for overdraft loan are positive with return on assets. It indicates that overdraft loan has a positive impact on return on assets. This finding contradicts with the findings of Balla and McKenna (2009). Likewise, the beta coefficients for deprived sector loan are negative with return on assets. It indicates that deprived sector loan has a negative impact on return on assets. This finding differs with the findings of Desai (2021). Similarly, the beta coefficients for loan to deposit ratio are negative with return on assets. It indicates that loan to deposit ratio has a negative impact on return on assets. This finding is similar to the findings of Anggari and Dana (2020). Moreover, the beta coefficients for non-performing loans are negative with return on assets. It indicates that non-performing loan has a negative impact on return on assets. This finding is similar to the findings of Swandewi and Purnawati (2021).

Table 5 shows the estimated regression results of real estate loan, term loan, overdraft loan, deprived sector loan, capital adequacy ratio, loan to deposit ratio, and non-performing loan on return on equity.

Table 5: Estimated regression results of real estate loan, term loan, overdraft loan, deprived sector loan, capital adequacy ratio, loan to deposit ratio, and non-performing loan on return on equity

The results are based on panel data of 22 commercial banks with 132 observations for the period of 2015/16-2020/21 by using the linear regression model and the model is $ROE_{it} = \beta_0 + \beta_1 REL_{it} + \beta_2 TL_{it} + \beta_3 OD_{it} + \beta_4 DSL_{it} + \beta_5 CAR_{it} + \beta_6 LDR_{it} + \beta_7 NPL_{it} + e_{it}$ where, the dependent variables are ROE (Return on assets as measured by the ratio of net income to total equity, in percentage). The independent variables are REL (Real estate loan is the loan done for construction of house or resources to acquire housing project by household, Rs in million), TL (Term loan is repaid in regular payment over a set period of time, Rs in million), ODL (Overdraft is an extension of credit from a financial institution to its customer when they execute a transaction for which the account holder has insufficient funds, Rs in million), DSL (Deprived sector lending is credit extended to sections of the economy

that would not otherwise receive timely and enough credit, Rs in million), CAR (Capital adequacy ratio as measured by the ratio of total capital to total risk weighted exposure, in percentage), LDR (Loan to deposit ratio as measured by the rate of total loans to total deposits, in percentage) and NPL (Nonperforming loan as measured by non-performing loans to total loans, in percentage).

Model	Intercept	Regression coefficients of							Adj. R _{bar} ²	SEE	F-value
		REL	TL	ODL	DSL	CAR	LDR	NPL			
1	-5.243 (0.47)	0.931 (1.837)							0.018	4.696	3.375
2	27.255 (2.034)*		-0.516 (0.899)						0.001	4.742	0.808
3	-3.507 (-0.304)			0.806 (1.625)					0.012	4.709	2.64
4	13.603 (1.999)*				0.075 (0.238)				0.007	4.755	0.056
5	24.74 (10.718)**					-0.678 (4.186)**			0.112	4.465	17.518
6	34.061 (8.731)**						-0.221 (4.854)**		0.147	4.376	23.559
7	15.32 (23.479)**							-15.32 (0.074)	0.007	4.756	0.042
11	36.683 (2.054)*	0.835 (1.527)	-1.898 (3.049)**	0.814 (1.52)	0.221 (0.698)	-0.691 (3.977)**			0.153	4.361	5.729
13	49.438 (2.848)**	0.215 (0.374)	-0.71 (1.018)	0.061 (0.112)	0.116 (0.371)	-0.681 (4.092)**	-0.197 (3.781)**	-0.029 (0.085)	0.231	4.154	6.637
14	45.301 (3.527)**	0.097 (0.199)				-0.664 (4.158)**	-0.217 (4.986)**	-0.217 (0.225)	0.242	4.126	11.433
15	55.439 (4.224)**		-0.563 (1.011)			-0.706 (4.45)**	-0.201 (4.463)**	-0.005 (0.016)	0.247	4.11	11.766

Notes:

- i. Figures in parenthesis are t-values.
- ii. The asterisk signs (**) and (*) indicate that the results are significant at one percent and five percent level respectively.
- iii. Return on equity is the dependent variable.

Table 5 shows that the beta coefficients for real estate loan are positive with return on equity. It indicates that real estate loan has a positive impact on return on equity. This finding is similar to the findings of Martins *et al.* (2019). Similarly, the beta coefficients for overdraft loan are positive with return on equity. It indicates that overdraft loan has a positive impact on return on equity. This finding is consistent with the findings of Abebe (2022). Likewise, the beta coefficients for deprived sector loan are positive with return on equity. It indicates that deprived sector loan has a positive impact on return on equity. This finding is similar to the findings of Mohapatra (2020). On the contrary, the beta coefficients for term loan are negative with return on equity. It indicates that term loan has a negative impact on return on equity. This finding is consistent with the findings of Abor and Biekpe (2005). Further, the beta coefficients for loan to deposit ratio are negative with return on equity. It indicates that loan to deposit ratio has a negative impact on return on equity. This finding is similar to the findings of Limajatini *et al.* (2019).

4. Summary and conclusion

Commercial banks are an integral part of economy as it acts as a financial intermediary between depositors and lenders. Portfolio diversity is one strategy used to manage a given portfolio by reducing the instability and risk of a particular group of investments, assets, or products. Many banking crises have increased the idea that bank failure is strongly linked to concentration. Hence, commercial banks should diversify their loan portfolios to avoid idiosyncratic shocks. Therefore, commercial banks must maintain a diverse portfolio of loan that might help in minimizing risks. Creating a portfolio of investments and loans is aimed at improving the banks' financial performance and limiting risk.

This study attempts to analyze the association between credit portfolio diversification and firm performance of Nepalese commercial banks. The study is based on secondary data of 22 commercial banks with 132 observations for the period from 2015/16 to 2020/21.

The study showed that real estate loan, term loan, deprived sector loan, loan to deposit ratio, and non-performing loan have negative impact on return on assets. However, overdraft loan and capital adequacy ratio have positive impact on return on assets. Similarly, real estate loan, overdraft loan and deprived sector loan have positive impact on return on equity. Likewise, term loan, capital adequacy ratio, loan to deposit ratio, and non-performing loan have negative impact on return on equity. The study concluded that term loan is the most influencing factor that explains the changes in the return on assets of selected Nepalese commercial banks. Similarly, the study also concluded that capital adequacy ratio is the most influencing factor that explains the changes in the return on equity in context of selected Nepalese commercial banks.

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Impact of credit risk, operational risk and liquidity risk on the profitability of Nepalese commercial banks

– Sabitri Darlami*

Abstract

This study examines the impact of credit risk, operational risk and liquidity risk on the profitability of Nepalese commercial banks. Return on assets and return on equity are selected as the dependent variables. Similarly, capital adequacy ratio, non-performing loan, loan loss provision, cost to income ratio, leverage ratio and loan to deposit ratio are selected as the independent variables. This study is based on secondary data of 26 commercial banks with 208 observations for the study period from 2013/14 to 2020/21. The data were collected from Banking and Financial Statistics published by Nepal Rastra Bank, annual reports of the selected commercial banks and reports published by Ministry of Finance. The correlation coefficients and regression models are estimated to test the significance and importance of credit risk, operational risk, and liquidity risk on the profitability of Nepalese commercial banks.

The study showed that capital adequacy ratio has a positive impact on return on assets. It indicates that higher the capital adequacy ratio, higher would be the return on assets. However, non-performing loan has a negative impact on return on assets and return on equity. It means that increase in non-performing loan leads to decrease in return on assets and return on equity. Similarly, loan loss provision has a negative impact on return on assets and return on equity. It means that increase in loan loss provision leads to decrease in return on assets and return on equity. In addition, loan to deposit ratio has a negative impact on return on assets and return on equity. It means that higher the loan to deposit ratio, lower would be the return on assets and return on equity. Furthermore, cost to income ratio has a negative impact on return on assets and return on equity. It indicates that increase in cost to income ratio leads to decrease in return on assets and return on equity. Moreover, leverage ratio has a negative impact on return on assets and return on equity. It means that increase in leverage ratio leads to decrease in return on assets and return on equity.

Key words: *Return on assets, return on equity, capital adequacy ratio, non-performing loan, loan loss provision, cost to income ratio, leverage ratio and loan to deposit ratio.*

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1. Introduction

A strong financial system plays a critical role in enabling growth and reducing vulnerability to crises among commercial banks. Stability of the financial system in an economy is an important catalyst for economic growth due to its function in facilitating exchange of value. The high level of bank capital boosts the confidence and trust of the public about the soundness of the bank (Carmona *et al.*, 2019). Commercial banks play important role for the development of the countries through the resource mobilization. Without sound and effective regulation, financial systems can become unstable, triggering crises that can devastate the real economy. Banks are subject to many risks while conducting their business practices, such as credit risk, operating risk, interest rate risk, regulatory risk, market risk, liquidity risk, insolvency risk, and foreign exchange risk. Banking is about taking and handling the risk, rather than preventing it (Mendoza and Rivera, 2017). Among the threats faced by the banks, however, credit risk is considered to be the most critical risk because large sums of bank earnings come from credit as a result of interest paid on credit (Almekhlafi, *et al.*, 2016). Credit risk is a risk resulting from the consumers' failure to pay back their loans or the money they owe to the bank on time and in full (Adekunle *et al.*, 2015).

A number of potential risks exist, including credit risks, liquidity risks, market risk, operational risks and policy risks. Credit risk is unfortunately the greatest risk facing banks (Chen and Pan, 2012). In the case of the banks, the credit risk and the related difficulties may be caused by the increased degree of perception of hazards. This is due to certain features of the customers and their economic situations, which require extensive empirical consideration in most cases. In addition, while banks may accept the losses from their usual incomes, unexpected losses that cannot be absorbed by normal income might occur (Olalekan and Adeyi). Moreover, banks must dedicate enough resources to enhance credit management's capacity to balance available loan, risk and borrowing requirements resources. The goal of credit risk management is to minimize risk and lift the risk adjusted rates of return of the bank by assuming and retaining credit exposure within appropriate parameters (Kanchu and Kumar, 2013). Al-Chahadah *et al.* (2022) examined the relationship between liquidity risk and the profitability among commercial banks listed on the Amman Stock Exchange. The results showed no statistically significant relationship between the liquidity risk indicators and the majority of profitability indicators. However, the cash reserve ratio (CRR) index was statistically significant with the utilization ratio (UR). Additionally, there was a statistically significant relationship between the return on equity and the legal reserve ratios and the funds' investment. Similarly, Al-Husainy *et al.* (2021) analyzed the effect of liquidity risk and credit risk on the profitability of commercial banks in Iraq. The findings illustrated that liquidity risk has a positive significant association with bank profitability. Meanwhile, credit risk has an adverse significant association with bank profitability.

Effective handling of credit risk in banking industry is important for the survival and growth of the banking industry. The handling of credit is of greater concern because of the higher levels of perceived risks causing from some of the characteristics of clients and business conditions. Furthermore, banks engage in off-balance sheet activities hoping to earn additional income to compensate for the decline of its earnings from traditional activities. Conversely, banks that are heavily involved in nontraditional activities are subject to higher risks which may lead to lower profitability (Al-Harbi, 2019). Similarly, Hussein and Ahmad (2007) revealed that efficiency levels are different among the various branches of the bank. The study suggested that bank can reduce employee's expenses and other operating expenses along with an increase in the total loan portfolio by giving focus on operational improvement efforts. Moreover, Berger (1995) indicated that highly efficient firm can maximize profit relative to its competitors by maintaining its current size and pricing strategy or by reducing

prices and expanding its operations. Tafri *et al.* (2009) examined the influence of risk management on the profitability of Malaysian conventional banks. By utilizing ROE and ROA as measures of bank performance and liquidity risk, credit risk, and interest rate risk as independent variables, the study pointed out that the credit risk has significant adverse influence on ROE and ROA. Nonetheless, the study found insignificant effect for liquidity risk on both ROE and ROA. In the contrary, Olagunju *et al.* (2012) pointed out a positive association between bank performance and liquidity risk. The study showed that the liquidity risk and banks' performance have bi-directional relationship indicating that both liquidity risk and banks' profitability have significant effect on each other. Furthermore, Berrios (2013) examined the association amongst credit risk and the profitability and liquidity of banks in the USA public state commercial banks. The study showed significant positive association between the credit risk and banks' profitability.

Ramadhanti *et al.* (2019) determined the effect of capital adequacy, liquidity, and credit risk on bank profitability. The study found a negative relationship between non-performing loan and bank profitability. Similarly, Kadioglu and Ocal (2017) investigated whether non-performing loans affect the bank's profitability in Turkey. The study found that non-performing loan has a negative relationship with return on asset and return on equity. In addition, Farkasdi *et al.* (2021) determined the determinants of profitability in commercial banks in Germany. The study showed a positive relationship between capital adequacy ratio and profitability measured by return on equity. Moreover, Yigermal (2017) analyzed the impact of bank specific and macro-economic factors on the profitability of selected Ethiopian private commercial banks. The study concluded that credit to deposit ratio is negatively related to profitability of Ethiopian private commercial banks.

In the context of Nepal, Chaudhary *et al.* (2022) analyzed the effect of credit risk, liquidity risk and bank capital on the profitability of Nepalese commercial banks. The study showed that credit risk, liquidity risk, loan growth and efficiency have negative impact on the return on assets. However, bank capital and firm size have positive impact on the return on assets. Similarly, credit risk, liquidity risk and loan growth have negative impact on return on equity. However, bank capital, firm size and efficiency have positive impact on the return on equity. The study concluded that credit risk has a significant impact on the profitability in Nepalese commercial banks. The study also concluded that credit risk followed by bank size are the most influencing factors that explain the changes in the return on equity in the context of Nepalese commercial banks. Chettri (2022) assessed the impact of credit risk and liquidity risk on bank stability in Nepal. The study showed that individually decrease in credit risk and increase in liquidity risk enhance bank stability, however they do not jointly increase or decrease. Shah *et al.* (2022) investigated the determinants of profitability of Nepalese commercial banks. The study showed that total deposit, liquidity and assets quality have negative impact on return on assets and return on equity in the context of Nepalese commercial banks. The study also showed that bank size, capital adequacy ratio and management efficiency have positive impact on return on assets and return on equity. The study concluded that management efficiency is the most influencing factor that explains the changes in return on assets of Nepalese commercial banks. The study also concluded that liquidity ratio followed by capital adequacy ratio is the most influencing factor that explains the changes in return on equity of Nepalese commercial banks.

The above discussion shows that empirical evidences vary greatly across the studies on the impact of credit risk, operation risk and liquidity risk on profitability. Though there are above mentioned empirical evidences in the context of other countries and in Nepal, no such findings using more recent data exist in the context of Nepal. Therefore, in order to support one view or the other, this study has been conducted.

The main purpose of the study is to analyze the impact of credit risk, operation risk and liquidity risk on the profitability of Nepalese commercial banks. Specifically, it examines the relationship of capital adequacy ratio, non-performing loan, loan loss provision, cost to income ratio, leverage ratio and loan to deposit ratio with return on assets and return on equity of Nepalese commercial banks.

The remainder of this study is organized as follows. Section two describes the sample, data and methodology. Section three presents the empirical results and the final sections draws the conclusion.

2. Methodological aspects

The study is based on the secondary data which were gathered from 26 commercial banks for the study period from 2013/14 to 2020/21, leading to a total of 208 observations. The main sources of data include Banking and Financial statistics published by Nepal Rastra Bank, reports published by Ministry of Finance and the annual report of respective banks. This study is based on descriptive as well as causal comparative research designs. Table 1 shows the list of commercial banks selected for the study along with the study period and number of observations.

Table 1: List of commercial banks selected for the study along with study period and number of observations

S. N.	Name of the banks	Study period	Observations
1	Agricultural Development Bank Limited	2013/14-2020/21	8
2	Bank of Kathmandu Limited	2013/14-2020/21	8
3	Century Commercial Bank Limited	2013/14-2020/21	8
4	Citizens Bank International Limited	2013/14-2020/21	8
5	Global IME Bank Limited	2013/14-2020/21	8
6	Himalayan Bank Limited	2013/14-2020/21	8
7	Kumari Bank Limited	2013/14-2020/21	8
8	Laxmi Bank Limited	2013/14-2020/21	8
9	Machhapuchchhre Bank Limited	2013/14-2020/21	8
10	Mega Bank Nepal Limited	2013/14-2020/21	8
11	Nabil Bank Limited	2013/14-2020/21	8
12	Nepal Bangladesh Bank Limited	2013/14-2020/21	8
13	Nepal Bank Limited	2013/14-2020/21	8
14	Nepal Credit and Commerce Bank Limited	2013/14-2020/21	8
15	Nepal Investment Bank Limited	2013/14-2020/21	8
16	Nepal SBI Bank Limited	2013/14-2020/21	8
17	NIC Asia Bank Limited	2013/14-2020/21	8
18	NMB Bank Limited	2013/14-2020/21	8
19	Prabhu Bank Limited	2013/14-2020/21	8
20	Prime Commercial Bank Limited	2013/14-2020/21	8

21	Sanima Bank Limited	2013/14-2020/21	8
22	Siddhartha Bank Limited	2013/14-2020/21	8
23	Standard Chartered Bank Nepal Limited	2013/14-2020/21	8
24	Everest Bank Limited	2013/14-2020/21	8
25	Sunrise Bank Limited	2013/14-2020/21	8
26	Rastriya Banijya Bank Limited	2013/14-2020/21	8
Total number of observations			208

Thus, the study is based on the 208 observations.

The model

The model used in this study assumes that the profitability depends upon credit risk, operational risk and liquidity risk. The dependent variables selected for the study are return on assets and return on equity. Similarly, the selected independent variables are capital adequacy ratio, non-performing loan, loan loss provision, cost to income ratio, leverage ratio and loan to deposit ratio. Therefore, the model takes the following form:

$$ROA_{it} = \beta_0 + \beta_1 CAR_{it} + \beta_2 NPL_{it} + \beta_3 LEV_{it} + \beta_4 CTR_{it} + \beta_5 LLP_{it} + \beta_6 LDR_{it} + e_{it}$$

$$ROE_{it} = \beta_0 + \beta_1 CAR_{it} + \beta_2 NPL_{it} + \beta_3 LEV_{it} + \beta_4 CTR_{it} + \beta_5 LLP_{it} + \beta_6 LDR_{it} + e_{it}$$

Where,

ROA = Return on assets as measured by the ratio of net income to total assets, in percentage.

ROE = Return on equity as measured by the ratio of net income to total equity, in percentage.

CAR = Capital adequacy ratio as measured by the ratio of total capital to total assets, in percentage.

NPL = Nonperforming loan as measured by the ratio of non-performing loans to total loans, in percentage.

LEV = Leverage is measured as the ratio of total debt to total assets, in percentage.

CTI = Cost to income as measured by ratio of total cost to income ratio, in percentage.

LLP = Loan loss provision as measured by the ratio of loan loss provision to total loans, in percentage.

LDR = Loan to deposit ratio as measured by the total credit to total deposit, in percentage.

The following section describes the independent variables used in this study along with hypothesis formulation.

Capital adequacy ratio

Capital adequacy requirement improves the soundness and safety of the banking sector and consequently its profitability. Moussa (2015) found that there is a positive relationship between capital and financial performance. Kosmidou (2008) revealed that capital adequacy has a positive association with banks' profitability. Agbeja *et al.* (2015) showed that there is a positive relationship between capital adequacy ratio and bank's profitability. Nguyen (2020) explored the impact of capital adequacy on bank profitability in the context of Vietnam. The study showed that bank capital adequacy has a positive impact on return on assets of small-sized banks in Vietnam. Moreover, Ikpefan (2013)

examined capital adequacy, management and performance in the Nigerian commercial bank. The study found that capital adequacy ratio has a positive impact on return on assets. However, Silaban (2017) assessed the effect of capital adequacy ratio, net interest margin and non-performing loans on bank profitability in Indonesia. The study found insignificant positive relationship between capital adequacy ratio and return on assets. Based on it, this study develops the following hypothesis:

H_1 : *There is a positive relationship between capital adequacy ratio and bank profitability.*

Non- performing loan

Gizaw *et al.* (2015) asserted that non-performing loan (NPL) is the major indicator of commercial banks' credit risk. Moreover, the study concluded that NPLR has statistically significant large negative effect on profitability measured by ROA. Likewise, Adebisi and Matthew (2015) concluded that there is a significant negative relationship between non- performing loan and return on assets. In addition, Inggawati *et al.* (2018) examined the influence of loan to deposit ratio (LDR), Loan operational compared with income operational, non-performing loan (NPL) toward profitability of Bank Perkreditan Rakyat (BPR) in Sidoarjo regency. The study found that loan to deposit ratio has a negative significant impact on return on assets. The result also revealed that non-performing loan has significant negative impact on return on assets. Moreover, Azeem and Amara (2014) examined the impact of profitability on quantum of non-performing loans in Pakistani Banks over the period of 2006 to 2012. The study revealed that the non-performing loan has a negative relationship with return on assets and return on equity. Likewise, Cetin (2019) found that non-performing loans and return on assets are negatively correlated. Furthermore, Ozurumba (2016) investigated the impact of non-performing loans on the performance of selected commercial Banks in Nigeria. The study found that non-performing loan has a negative impact on return on assets and return on equity. Based on it, this study develops the following hypothesis:

H_2 : *There is a negative relationship between non-performing loan and bank profitability.*

Leverage ratio

Leverage ratio is used to measure how much the company's assets are financed with debt. Onaolapo and Kajola (2010) revealed that the debt ratio has a significantly negative impact on the firm's performance measured by return on assets and return on equity. Similarly, Ejigu (2016) determined the internal factors affecting financial performance in Ethiopia. The study found that leverage has a negative and significant relationship with the profitability. Likewise, Djamaluddin and Herawaty (2019) analyzed the factors that affect the profitability of general insurance companies in Indonesia. The study found that leverage has a negative impact on return on assets. Elshaday *et al.* (2018) found that capital adequacy ratio and size of the bank have positive and statistically significant effect on return on equity. Likewise, non-performing loans, loan loss provision, leverage ratio and operational cost efficiency have negative and statistically significant effect on return on equity. However, Setiawan (2015) examined the determinants of ROA (return on assets) of full-fledged Islamic banks in Indonesia. The study revealed that financing to deposit ratio, debt to total asset ratio and capital adequacy ratio have positive and significant relationship with return on assets. Mule and Mukras (2015) found that leverage has negative impact on return on equity. Based on it, this study develops the following hypothesis:

H_3 : *There is a negative relationship between leverage and bank profitability.*

Cost to income ratio

Almumani (2013) found that the cost income ratio is the major endogenous factors under the control of management that determines the profitability of the commercial banks in Jordan. This study also showed that there is a negative relationship between cost to income ratio and bank efficiency and stability of Jordanian commercial banks. Hess and Francis (2004) observed that cost to income ratio and the bank profitability were inversely related to each other. Likewise, Salami and Uthman (2018) showed that there is a negative relationship between cost to income ratio and profitability of banks. Further, Mathuva (2009) assessed the association between capital adequacy ratios, cost to income ratio and bank performance of Kenya. The study found that cost to income ratio has a negative impact on return on assets and return on equity. Almazari (2014) found that cost to income ratio has a significant negative impact on return on assets. Almazari and Alamri (2017) examined the effect of capital adequacy on profitability between two banks South American banks and south British bank. The study found that there is a positive and significance relationship between cost to income ratio and return on assets. However, there exist a negative relationship between return on assets and cost to income ratio. Based on it, this study develops the following hypothesis:

H_4 : *There is negative relationship of cost to income ratio with bank profitability.*

Loan loss provision

Loan loss provision is provisioning for credit losses on the loan portfolio. If banks operate in more risky environments and lack the expertise to control their lending operations, it will probably result in a higher loan-loss provision ratio to cover this risk. Alhadab and Alsahawneh (2016) found that loan loss provision has a negative impact on the profitability of Jordanian commercial banks. Similarly, Ahmad *et al.* (2014) confirmed that there is a negative relationship between the loan loss provision (LLP) and profitability (ROA, ROE). Moreover, Ul Mustafa *et al.* (2012) examined the impact of loan loss provisions of the banks on the performance of the banks operating in Pakistan. The study found that there is negative relationship between loan loss provision and return on assets. Likewise, Kaaya and Pastory (2013) analyzed the credit risk and performance of Tanzanian commercial banks employing panel data analysis technique, for the period 2005-2011. The study found that loan loss provision has a negative impact on return on assets and return on equity. Pelealu and Worang (2017) evaluated the effect of loan loss provision on the performance of Indonesian banks. The study found that loan loss provision has insignificant negative impact on return on assets. Based on it, this study develops the following hypothesis:

H_5 : *There is a negative relationship between loss loan provision and bank profitability.*

Loan to deposit ratio

Rengasamy (2014) found that there exists a positive and significant impact of credit to deposit ratio on return on assets. Similarly, Sari *et al.* (2017) analyzed the effect of third-party fund, capital adequacy ratio, and loan to deposit ratio on bank's profitability after the application of IFRS. The study found that loan to deposit ratio (LDR) partially has positive but not significant effect on return on assets (ROA). Jeslin (2017) investigated the impact of credit risk on the profitability of the bank. The study found positive impact of loan to deposit ratio on return on equity. Hapsari (2018) examined the effect of loan to deposit ratio and non-performing loans ratio toward financial performance. The study revealed that there is a positive relationship between loan to deposit ratio and return on assets. Soengeng *et al.* (2018) revealed that loan to deposit ratio has a significant positive impact on return

on assets. Furthermore, Hadian and Phety (2021) found positive impact of loan to deposit ratio on return on assets. Based on it, this study develops the following hypothesis:

H_6 : There is a positive relationship between loan to deposit ratio and bank profitability.

3. Results and discussion

Descriptive statistics

Table 2 presents the descriptive statistics of the selected dependent and independent variables during the period 2013/14 to 2020/21.

Table 2: Descriptive statistics

This table shows the descriptive statistics of dependent and independent variables of 26 Nepalese commercial banks for the study period from 2013/14 to 2020/21. The dependent variables are ROA (Return on assets as measured by the ratio of net income to total assets, in percentage) and ROE (Return on equity as measured by the ratio of net income to total equity, in percentage). The independent variables are CAR (Capital adequacy ratio as measured by the ratio of total capital to total assets, in percentage), NPL (Nonperforming loan as measured by the ratio of non-performing loans to total loans, in percentage), CTI (Cost to income as measured by ratio of total cost to income ratio, in percentage), LLP (Loan loss provision as measured by the ratio of loan loss provision to total loans, in percentage), LDR (Loan to deposit ratio as measured by the total credit to total deposit, in percentage), and LEV (Leverage is measured as the ratio of total debt to total assets, in percentage).

Variables	Minimum	Maximum	Mean	Std. Deviation
ROA	-5.02	4.61	1.51	0.77
ROE	-26.89	55.31	14.71	6.73
CAR	4.28	22.99	13.31	2.45
NPL	0.02	24.29	1.82	2.15
CTI	15.01	93.85	42.69	11.72
LLP	0.04	9.13	0.94	0.84
LDR	48.32	133.60	85.55	12.06
LEV	5.29	112.58	69.42	10.76

Source: SPSS output

Correlation analysis

Having indicated the descriptive statistics, Pearson's correlation coefficients are computed and the results are presented in Table 3.

Table 3: Pearson's correlation coefficients matrix

This table shows the bivariate Pearson's correlation coefficients of dependent and independent variables of 26 Nepalese commercial banks for the study period from 2013/14 to 2020/21. The dependent variables are ROA (Return on assets as measured by the ratio of net income to total assets, in percentage) and ROE (Return on equity as measured by the ratio of net income to total equity, in percentage). The independent variables are CAR (Capital adequacy ratio as measured by the ratio of total capital to total assets, in percentage), NPL (Nonperforming loan as measured by the ratio of non-performing loans to total loans, in percentage), CTI (Cost to income as measured by ratio of total cost to income ratio, in percentage), LLP (Loan loss provision as measured by the ratio of loan loss provision to total loans, in percentage), LDR (Loan to deposit ratio as measured by the total credit to total deposit, in percentage), and LEV (Leverage is measured as the ratio of total debt to total assets, in percentage).

Variables	ROA	ROE	CAR	NPL	CTI	LLP	LDR	LEV
ROA	1							
ROE	0.527**	1						
CAR	0.224**	-0.159*	1					
NPL	-0.285**	-0.270**	-0.171*	1				
CTI	-0.188**	-0.117	-0.064	0.438**	1			
LLP	-0.379**	-0.370**	-0.079	0.744**	0.283**	1		
LDR	-0.214**	-0.478**	0.264**	0.078	-0.064	0.183**	1	
LEV	-0.122	-0.383**	0.105	0.101	-0.168*	0.220**	0.704**	1

Source: SPSS output

Note: The asterisk signs (**) and (*) indicate that the results are significant at one percent and five percent levels respectively.

Table 3 shows that there is a positive relationship between capital adequacy ratio and return on assets. It indicates that higher the capital adequacy ratio, higher would be the return on assets. However, non-performing loan has a negative relationship with return on assets. It means that increase in non-performing loan leads to decrease in return on assets. Similarly, there is a negative relationship between loan loss provision and return on assets. It means that increase in loan loss provision leads to decrease in return on assets. In addition, loan to deposit ratio has a negative relationship with return on assets. It means that increase in loan to deposit ratio leads to decrease in return on assets. Furthermore, there is a negative relationship between cost to income ratio and return on assets. It indicates that increase in cost to income ratio leads to decrease in return on assets. Moreover, there is a negative relationship between leverage ratio and return on assets. It means that increase in leverage ratio leads to decrease in return on assets.

Similarly, there is a negative relationship between capital adequacy ratio and return on equity. It indicates that higher the capital adequacy ratio, lower would be the return on equity. However, non-performing loan has a negative relationship with return on equity. It means that increase in bank non-performing loan leads to decrease in return on equity. Similarly, there is a negative relationship between loan loss provision and return on equity. It means that increase in loan loss provision leads to decrease in return on equity. In addition, loan to deposit ratio has a negative relationship with return on equity. It means that increase in loan to deposit ratio leads to decrease in return on equity. Furthermore, there is a negative relationship between cost to income ratio and return on equity. It indicates that increase in cost to income ratio leads to decrease in return on equity. Moreover, there is a negative relationship between leverage ratio and return on equity. It means that increase in leverage ratio leads to decrease in return on equity.

Regression analysis

Having indicated the Pearson's correlation coefficients, the regression analysis has been carried out and results are presented in Table 4. More specifically, it shows the regression results of capital adequacy ratio, non-performing loan, cost to income ratio, loan loss provision, loan to deposit ratio and leverage ratio with return on assets of Nepalese commercial banks.

Table 4: Estimated regression results of capital adequacy ratio, non-performing loan, cost to income ratio, loan loss provision, loan to deposit ratio and leverage ratio with return on assets

The results are based on panel data of 26 commercial banks with 208 observations for the period of 2013/14-2020/21 by using the linear regression model and the model is $ROA_{it} = \beta_0 + \beta_1 CAR_{it} + \beta_2 NPL_{it} + \beta_3 LEV_{it} + \beta_4 CTR_{it} + \beta_5 LLP_{it} + \beta_6 LDR_{it} + e_{it}$ where, the dependent variable is ROA (Return on assets as measured by the ratio of net income to total assets, in percentage). The independent variables are CAR (Capital adequacy ratio as measured by the ratio of total capital to total assets, in percentage), NPL (Nonperforming loan as measured by the ratio of non-performing loans to total loans, in percentage), CTI (Cost to income as measured by ratio of total cost to income ratio, in percentage), LLP (Loan loss provision as measured by the ratio of loan loss provision to total loans, in percentage), LDR (Loan to deposit ratio as measured by the total credit to total deposit, in percentage), and LEV (Leverage is measured as the ratio of total debt to total assets, in percentage).

Model	Intercept	Regression coefficients of						Adj. R _{bar} ²	SEE	F-value
		CAR	NPL	CTI	LLP	LDR	LEV			
1	0.573 (1.975)*	0.071 (3.301)**						0.046	0.755	10.896
2	1.701 (25.171)**		-0.103 (4.267)**					0.077	0.742	18.205
3	2.044 (10.231)**			-0.012 (2.746)**				0.031	0.760	7.542
4	1.842 (24.664)**				-0.349 (5.870)**			0.139	0.717	34.460
5	2.689 (7.136)**					-0.014 (3.147)**		0.041	0.756	9.903
6	2.123 (6.086)**						-0.009 (1.764)	0.010	0.768	3.112
7	0.922 (3.119)**	0.057 (2.707)**	-0.091 (3.805)**					0.104	0.731	13.045
8	1.121 (3.235)**	0.057 (2.722)**	-0.079 (2.950)**	-0.005 (1.101)				0.105	0.731	9.110
9	1.241 (3.715)**	0.064 (3.140)**	-0.034 (0.095)	-0.007 (1.451)	-0.373 (4.257)**			0.174	0.702	11.936
10	2.292 (5.258)**	0.084 (4.106)**	-0.034 (0.948)	-0.009 (1.874)	-0.321 (3.716)**	-0.015 (3.612)**		0.221	0.682	12.724
11	2.042 (4.378)**	0.087 (4.248)**	-0.033 (0.929)	-0.007 (1.512)	-0.336 (3.877)**	-0.021 (3.650)**	-0.010 (1.481)	0.225	0.680	11.032

Notes:

- i. Figures in parenthesis are t-values.
- ii. The asterisk signs (**) and (*) indicate that the results are significant at one percent and five percent level respectively.
- iii. Return on asset is the dependent variable.

Table 4 shows that the beta coefficients for capital adequacy ratio are positive with return on assets. It indicates that capital adequacy ratio has a positive impact on return on assets. This finding is similar to the findings of Kosmidou (2008). The beta coefficients for loan loss provision are negative with return on assets. It indicates that loan loss provision has a negative impact on return on assets. This finding is consistent with the findings of Alhadab and Alsahawneh (2016). Similarly, the beta coefficients for loan to deposit ratio are negative with return on assets. It indicates that loan to deposit ratio has a negative impact on return on assets. This finding is similar to the findings of Soengeng *et al.* (2018). Likewise, the beta coefficients for cost to income ratio are negative with return on assets. It

indicates that cost to income ratio has a negative impact on return on assets. This finding is consistent with the findings of Almumani (2013). Moreover, the beta coefficients for non-performing loans are negative with return on assets. It indicates that non-performing loan has a negative impact on return on assets. This finding is similar to the findings of Inggawati *et al.* (2018).

Table 5 shows the estimated regression results of capital adequacy ratio, non-performing loan, cost to income ratio, loan loss provision, loan to deposit ratio and leverage ratio with return on equity of Nepalese commercial banks.

Table 5: Estimated regression results of capital adequacy ratio, non-performing loan, cost to income ratio, loan loss provision, loan to deposit ratio and leverage ratio on return on equity

The results are based on panel data of 26 commercial banks with 208 observations for the period of 2013/14-2020/21 by using the linear regression model and the model is $ROE_{it} = \beta_0 + \beta_1 CAR_{it} + \beta_2 NPL_{it} + \beta_3 LEV_{it} + \beta_4 CTR_{it} + \beta_5 LLP_{it} + \beta_6 LDR_{it} + e_{it}$ where, the dependent variable is ROE (Return on equity as measured by the ratio of net income to total equity, in percentage). The independent variables are CAR (Capital adequacy ratio as measured by the ratio of total capital to total assets, in percentage), NPL (Nonperforming loan as measured by the ratio of non-performing loans to total loans, in percentage), CTI (Cost to income as measured by ratio of total cost to income ratio, in percentage), LLP (Loan loss provision as measured by the ratio of loan loss provision to total loans, in percentage), LDR (Loan to deposit ratio as measured by the total credit to total deposit, in percentage), and LEV (Leverage is measured as the ratio of total debt to total assets, in percentage).

Model	Intercept	Regression coefficients of						Adj. R _{bar} ²	SEE	F-value
		CAR	NPL	CTI	LLP	LDR	LEV			
1	20.523 (8.017)**	-0.436 (2.307)*						0.020	6.663	5.323
2	16.258 (27.489)**		-0.848 (4.029)**					0.069	6.497	16.231
3	17.576 (9.998)**			-0.067 (1.686)				0.009	6.703	2.842
4	17.496 (26.792)**				-2.968 (5.709)**			0.132	6.271	32.591
5	37.531 (12.714)**					-0.267 (7.805)**		0.224	5.929	60.921
6	31.339 (11.082)**						-0.239 (5.949)**	0.142	6.234	35.385
7	24.189 (9.412)**	-0.580 (3.167)**	-0.961 (4.597)**					0.108	6.360	13.487
8	24.077 (7.965)**	-0.581 (3.160)**	-0.968 (4.160)**	0.003 (0.071)				0.103	6.375	8.949
9	25.002 (8.498)**	-0.531 (2.975)**	-0.097 (0.298)	-0.008 (0.197)	-2.875 (3.729)**			0.157	6.182	10.613
10	40.884 (11.389)**	-0.221 (1.310)	-0.101 (0.341)	-0.035 (0.929)	-2.088 (2.939)*	-0.229 (6.627)**		0.304	5.617	19.070
11	42.131 (10.932)**	-0.237 (1.394)	-0.097 (0.328)	-0.042 (1.101)	-2.012 (2.811)**	-0.200 (4.204)**	-0.047 (0.893)	0.303	5.620	16.009

Notes:

- i. Figures in parenthesis are t-values.
- ii. The asterisk signs (**) and (*) indicate that the results are significant at one percent and five percent level respectively.
- iii. Return on equity is the dependent variable.

Table 5 shows that the beta coefficients for capital adequacy ratio are negative with return on equity. It indicates that capital adequacy ratio has a negative impact on return on equity. This finding contradicts with the findings of Agbeja *et al.* (2015). The beta coefficients for loan loss provision are negative with return on equity. It indicates that loan loss provision has a negative impact on return on equity. This finding is consistent with the findings of Kaaya and Pastory (2013). Similarly, the beta coefficients for loan to deposit ratio are negative with return on equity. It indicates that loan to deposit ratio has a negative impact on return on equity. This finding is similar to the findings of Jeslin (2017). Likewise, the beta coefficients for cost to income ratio are negative with return on equity. It indicates that cost to income ratio has a negative impact on return on equity. This finding is consistent with the findings of Almazari (2014). Moreover, the beta coefficients for non-performing loans are negative with return on equity. It indicates that non-performing loan has a negative impact on return on equity. This finding is similar to the findings of Ozurumba (2016).

4. Summary and conclusion

This study attempts to analyze the impact of credit risk, operational risk and liquidity risk on the profitability of Nepalese commercial banks. The study is based on secondary data of 26 commercial banks with 208 observations for the period from 2013/14 to 2020/21.

The study showed that non-performing loan, loan loss provision, leverage ratio, loan to deposit ratio and cost to income ratio have negative impact on return on assets. However, capital adequacy ratio has positive impact on return on assets. Likewise, capital adequacy ratio, non-performing loan, loan loss provision, leverage ratio, loan to deposit ratio and cost to income ratio have negative impact on return on equity. Likewise, the study concluded that loan loss provision followed by the non-performing loan and capital adequacy ratio is the most influencing factor that explains the return on assets of Nepalese commercial banks. However, the study also concluded that the most dominant factor that determines the return on equity is loan to deposit ratio followed by leverage ratio and loan loss provision in the context of Nepalese commercial banks.

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Effect of working capital management and credit management policy on financial performance of commercial banks in Nepal

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Abstract

This study examines the effect of working capital management and credit management policy on the financial performance of Nepalese commercial banks. Return on asset and return on equity are selected as the dependent variables. Similarly, working capital, loan to deposit ratio, capital adequacy ratio, non-performing loan, cash asset ratio, operating cash flow to total asset and rate of bank's ability to return deposits are selected as the independent variables. This study is based on secondary data of 16 commercial banks with 128 observations for the study period from 2014/15 to 2021/22. The data were collected from Banking and Financial statistics published by Nepal Rastra Bank and the annual report of respective banks. The correlation coefficients and regression models are estimated to test the significance and importance of working capital management and credit management policy on the financial performance of Nepalese commercial banks.

The study showed working capital has a positive impact on return on assets and return on equity. It means that increase in working capital leads to increase in return on assets and return on equity. In addition, non-performing loan has a negative impact on return on assets and return on equity. It indicates that increase in non-performing loan leads to decrease in return on assets and return on equity. However, there is a negative impact of loan to deposit ratio with return on assets and return on equity. It shows that higher the loan to deposit ratio, lower would be the return on assets and return on equity. Moreover, rate of bank's ability to return deposits has a positive impact on return on assets which means that the higher the rate of bank's ability to return deposits, higher would be the return on assets. Likewise, operating cash flow to total assets has a positive impact on return on assets and return on equity indicating that increase in operating cash flow to total assets leads to increase in return on assets and return on equity

Key words: *Return on asset, return on equity, working capital, loan to deposit ratio, capital adequacy ratio, non-performing loan and cash asset ratio.*

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1. Introduction

The success of a country's economy primarily depends upon on its banking sector performance. Banks serve the vital intermediary role in a market-oriented economy and have been seen as the key to investment and growth. A strong and profitable banking system promotes broader financial stability and increases the economy's resilience to adverse macroeconomic shocks (Tafri *et al.*, 2009). Fase and Abma (2003) stated that the expansion of the financial system can have a positive impact on the economic growth of a country. Similarly, commercial banks play an important part for economic development of a country as they provide capital for the development of industry, trade and business by investing the savings collected as deposits from public. It also offers numerous services to its customers in view of vacillating their economic and social life so that integrated and speedy development of a country is only possible when competitive, reliable banking services are reached and carried to every corner of the country. Banks are viable financial institutions which mobilize financial resources through their intermediation role for productive investment, trade and other economic activities (Eriki and Osifo, 2015). Furthermore, there is a strong consensus that a stable banking system is necessary for sustainable economic growth and that banks, thus, play a crucial and important role in economic development (Menicucci and Paolucci 2016). Yakubu and Affoi (2014) indicated that a substantial link exists between the role of commercial bank and economic growth and development.

Similarly, Mburu *et al.* (2020) stated that working capital is vital to the continued operations of companies involved in various activities. Working capital management has to do with managing all segments of current assets such as cash and equivalent assets and current liabilities such as short-term debts (Yahaya and Bala, 2015). When it is no longer circulated, it ceases to exist. Likewise, most of the financial decisions of a bank are concerned with current assets and current liabilities. It plays a significant role to fulfill the requirement of working capital of any other type of business enterprises. Bhattacharya (2001) mentioned that working capital is the cash available for day-to-day functions of a business. Furthermore, working capital decisions have an influence on the firm's risk, return, and market value (Horne and Wachowicz, 2008). Working capital management enhances the development of banking sectors by adequate allotment of working capital in the economy (Ghosh, 2015). Thus, working capital management is a critical component of financial management. It plays a crucial role in success and failure of business companies irrespective to their nature. It is impossible for any business to run smoothly without appropriate control for it.

On other hand, credit management policy contains solidity and safety of purse invested for achieving a bank's profitability. It is a formal written document that details how the decision whether or not to grant credit is taken and how outstanding receivables are collected. Myers and Brealey (2003) described credit management as the method and strategy adopted by a firm to ensure that they maintain an optimal level of credit and its effective management. It is an aspect of financial management involving credit analysis, credit rating, credit classification and credit reporting. A key requirement for effective credit management is the ability to intelligently and efficiently manage customer credit lines. In order to minimize exposure to bad debt, over reserving and bankruptcies, companies must have greater insight into customer financial strength, credit score history and changing payment patterns (Kagoyire and Shukla, 2016). For commercial banks to minimize loan losses, it is essential for the bank to develop an effective credit risk management system. Credit risk management is very important to banks as it is an integral part of the loan process. It maximizes bank risk, adjusted risk rate of return by maintaining credit exposure with view to shielding the bank from the adverse effect of credit risk (Kargi, 2011). Berger and DeYoung (1997) pointed out that the absence of effective

credit risk management would lead to the incidence of banking turmoil and even the financial crisis.

Abdulnafa *et al.* (2022) investigated the impact of working capital management and credit management policy on the financial performance of Jordanian banks. The study found a statistically significant relationship between working capital management and financial performance. Ibrahim and Isaika (2021) examined the effect of working capital management on the financial performance of non-financial companies quoted on the Nigerian stock exchange. The study revealed that working capital management has a significant effect on financial performance. Adiyanto *et al.* (2020) revealed that the size of working capital is influenced by the operating cash flow available in the firms which indicates that the firms that are able to generate operating cash flow tend to have higher cash and working capital. Uremadu (2017) analyzed the working capital management and financial performance of manufacturing sectors in Nigeria where return on assets was used as a performance measure. The study concluded that manufacturing firms in Nigeria should follow conservative working capital management policy.

Furthermore, Fidelis and Umoffong (2020) examined the influence of credit management on the profitability of manufacturing companies. The study found that liquidity management and credit policy have a negative association with return on assets. At the same time, credit risk has a significant negative relationship with a bank's profitability. Similarly, Abiola and Olausi (2014) analyzed the impact of credit risk management on the commercial bank's performance in Nigeria. The study revealed that credit risk management has a significant impact on the performance of the banks in Nigeria. Furthermore, the results concluded that the sampled banks have poor credit risk management practices; hence there was high levels of the non-performing loans in their loans portfolios. Siddique *et al.* (2021) examined the effect of credit risk management and bank-specific factors on South Asian commercial banks' financial performance. The study found that non-performing loan is negatively related to financial performance while capital adequacy is significantly positively related to the financial performance of the Asian commercial banks. Al-Husainy and Jadah (2021) examined the impact of liquidity and credit risks on the profitability of Iraqi commercial banks. The study found that liquidity risk has a significant positive relationship with bank profitability. Effective management of credit risk or non-performance exposure in the banking sectors increases profitability. According to Abuzayed (2012), cash capital management assessed by receivables, the currency conversion cycle, and credit account maintenance have a significant beneficial impact on organizational performance as evaluated by both return on assets and return on investment. Highly profitable firms are able to provide more credit facilities to customers thereby, expected to have a greater working capital investment (Moussa, 2019). Firms with large growth opportunities are required to provide large working capital in order to take advantage of these business opportunities (Singh *et al.*, 2017).

In the context of Nepal, Chhetri (2021) investigated the effect of credit risk on the financial performance of commercial banks in Nepal. The study revealed that non-performing loan (NPLR) has negative and statistically significant impact on financial performance (ROA). Capital adequacy ratio (CAR) and bank size (BS) have negative and statistically no significant impact on financial performance (ROA). Credit to deposit (CDR) has positive but no significant relationship with the financial performance (ROA). The study concluded that the management quality ratio (MQR) has positive and significant relationship with the financial performance (ROA) of the commercial banks in Nepal. Similarly, Gurung and Gurung (2022) assessed the factors determining profitability of Nepalese commercial banks. The study found that loan to deposit ratio and GDP have a positive and significant impact on return on assets. Further, the study also showed that non-performing loan and capital adequacy ratio have a negative and significant impact on return on equity. However, the study revealed bank size, loan loss provision and inflation have a positive and significant impact on return

on equity. However, Bhatt and Verghese (2018) concluded that credit to deposit ratio has a negative and significant relationship with return on assets of Nepalese commercial banks. Pradhan and Shah (2019) focused on credit risk assessment practices in commercial banks on the basis of their internal efficiency, assessment of assets and borrower. The study discovered that credit risk management practices and credit risk mitigation measures have a positive relationship with loan repayment, while obstacles faced by borrowers have no significant relationship with loan repayment.

The above discussion shows that empirical evidences vary greatly across the studies on the effect of working capital management and credit management policy on financial performance of banks. Though there are above mentioned empirical evidences in the context of other countries and in Nepal, no such findings using more recent data exist in the context of Nepal. Therefore, in order to support one view or the other, this study has been conducted.

The main purpose of the study is to analyze the effect of working capital management and credit management policy on the financial performance of Nepalese commercial banks. Specifically, it examines the relationship of working capital, loan to deposit ratio, capital adequacy ratio, non-performing loan, cash asset ratio, operating cash flow to total asset and rate of bank's ability to return deposits with return on asset and return on equity of Nepalese commercial banks.

The remainder of this study is organized as follows. Section two describes the sample, data and methodology. Section three presents the empirical results and the final sections draws the conclusion.

2. Methodological aspects

The study is based on the secondary data which were gathered from 16 commercial banks for the period from 2014/15 to 2021/22, leading to a total of 128 observations. The study employed stratified sampling method. The main sources of data include Banking and Financial statistics published by Nepal Rastra Bank, reports published by Ministry of Finance and annual report of respective banks. This study is based on descriptive as well as causal comparative research designs. Table 1 shows the list of commercial banks selected for the study along with the study period and number of observations.

Table 1: List of commercial banks selected for the study along with study period and number of observations

S. N.	Name of the banks	Study period	Observations
Public Banks			
1	Nepal Bank Limited	2014/15 - 2021/22	8
2	Rastriya Banijya Bank Limited	2014/15 - 2021/22	8
Joint Venture Banks			
3	Everest Bank Limited	2014/15 - 2021/22	8
4	Himalayan Bank Limited	2014/15 - 2021/22	8
5	Nabil Bank Limited	2014/15 - 2021/22	8
6	NMB Bank Limited	2014/15 - 2021/22	8
Private Banks			
7	Citizen Bank International Limited	2014/15 - 2021/22	8

8	Global IME Bank Limited	2014/15 - 2021/22	8
9	Kumari Bank Limited	2014/15 - 2021/22	8
10	Mega Bank Nepal Limited	2014/15 - 2021/22	8
11	Nepal Investment Bank Limited	2014/15 - 2021/22	8
12	NIC Asia Bank Limited	2014/15 - 2021/22	8
13	Prabhu Bank Limited	2014/15 - 2021/22	8
14	Prime Commercial Bank Limited	2014/15 - 2021/22	8
15	Sanima Bank Limited	2014/15 - 2021/22	8
16	Siddhartha Bank Limited	2014/15 - 2021/22	8
Total number of observations			128

Thus, the study is based on the 128 observations.

The model

The model used in this study assumes that the bank's financial performance depends upon working capital management and credit management policy. The dependent variables selected for the study are return on asset and return on equity. Similarly, the selected independent variables are working capital, loan to deposit ratio, capital adequacy ratio, non-performing loan, cash asset ratio, operating cash flow to total assets and rate of bank's ability to return deposits. Therefore, the model takes the following form:

Financial performance = f (WC, LDR, CAR, NPL, CR, OTA and RBARD)

More specifically,

$$ROA = \beta_0 + \beta_1 WC + \beta_2 LDR + \beta_3 CAR + \beta_4 NPL + \beta_5 CR + \beta_6 OTA + \beta_7 RBARD + e_{it}$$

$$ROE = \beta_0 + \beta_1 WC + \beta_2 LDR + \beta_3 CAR + \beta_4 NPL + \beta_5 CR + \beta_6 OTA + \beta_7 RBARD + e_{it}$$

Where,

ROA = Return on assets as measured by the ratio of net income to total assets, in percentage.

ROE = Return on equity as measured by the ratio of net income to total equity, in percentage.

WC = Working capital as measured by the difference between current assets and current liabilities, Rs. in billion.

LDR = Loan to deposit ratio as measured by the ratio of total loans to total deposits, in percentage.

CAR = Capital adequacy ratio as measured by the ratio of total capital to total risk weighted exposure, in percentage.

NPL = Nonperforming loan as measured by the ratio of non-performing loans to total loans, in percentage.

CR = Cash asset ratio as measured by the ratio of cash and cash equivalent to current liabilities, in percentage.

OTA = Operating cash flow to total assets as measured by the ratio of operating cash flow to total assets, in percentage.

RBARD = Rate of bank's ability to return deposits as measured by the ratio of total equity to total deposit, in percentage.

The following section describes the independent variables used in this study along with hypothesis formulation.

Working capital

Yashim *et al.* (2020) revealed that working capital management has a significant and positive effect on return on asset (ROA) of the Nigerian Deposit Money Banks. Lartey and Boadi (2018) revealed that there is a positive and statistically significant relationship between working capital and return on equity of the listed banks. Moreover, Kehinde (2018) revealed that there is no significant relationship between working capital and return on asset. Likewise, Uremadu (2017) carried out a study on working capital management and financial performance of manufacturing sectors in Nigeria. The study found that there is positive impact of working capital on financial performance measured by return on assets. Based on it, this study develops the following hypothesis:

H_1 : *There is a positive relationship between working capital and bank's financial performance.*

Loan to deposit ratio

Suroso (2022) showed that loan to deposit ratio has a negative effect on ROA and ROE. Similarly, Vellanita *et al.* (2019) revealed a negative relationship between loan to deposit ratio and return on equity. Likewise, Golubeva *et al.* (2019) showed that loan to deposit ratio has a negative relationship with return on equity. In addition, Mohanty and Krishnankutty (2018) showed that return on asset has a negative and significant relationship with loan to deposit ratio. Moreover, Mehta and Bhavani (2017) concluded that loan to deposit ratio is negatively related to return on assets and return on equity. Based on it, this study develops the following hypothesis:

H_2 : *There is a negative relationship between loan to deposit ratio and bank's financial performance.*

Capital adequacy ratio

Kumar *et al.* (2020) revealed that capital adequacy ratio is positively related to return on assets. Farkasdi *et al.* (2021) determined the determinants of profitability in commercial banks in Germany. The study showed a positive relationship between capital adequacy ratio and profitability measured by return on equity. Similarly, Nahar *et al.* (2020) identified a positive relationship between capital adequacy ratio and financial performance. Handayani *et al.* (2019) analyzed the determinants of Islamic commercial bank profitability in Indonesia. The study revealed that capital adequacy ratio is positively related to return on assets. Ariwidanta and Wiksuana (2018) determined the relationship between credit and liquidity risk to profitability through the capital adequacy ratio as a mediating variable. The study concluded that capital adequacy ratio is positively related to return on assets. Based on it, this study develops the following hypothesis:

H_3 : *There is a positive relationship between capital adequacy ratio and bank's financial performance.*

Non-performing loan

Anggriani and Muniarty (2020) stressed that banks should lower the level of non-performing loan to increase return on assets suggesting a negative relationship between non-performing loan and financial performance. Collaku and Aliu (2021) showed a significant negative relationship between non-performing loan and profitability as measured by return on assets. Likewise, Brastama and Yadnya (2020) concluded that non-performing loan is negatively related to financial performance.

Similarly, Dewi and Badjra (2020) revealed that non-performing loan is negatively related to profitability. Moreover, Ramadhanti *et al.* (2019) determined the effect of capital adequacy, liquidity, and credit risk toward profitability. The study found that there is a negative relationship between non-performing loan and bank profitability. Based on it, this study develops the following hypothesis:

H₄ : There is a negative relationship between capital adequacy ratio and bank's financial performance.

Cash asset ratio

Alshatti (2015) investigated the effect of the liquidity management on profitability in the Jordanian commercial. The study showed that there is a positive effect of the increase in the quick ratio, cash assets ratio and the investment ratio of the available funds on the profitability of Jordanian commercial banks. Malik *et al.* (2016) revealed that there is a statistically significant and positive relationship of cash to asset with return on assets and return on equity. Moreover, Bardia (2004) concluded that there is a positive relationship between cash asset ratio and profitability. Further, Sur *et al.* (2001) revealed that there is a very significant positive association between cash and cash equivalent and financial performance. Based on it, this study develops the following hypothesis:

H₅ : There is a positive relationship between cash asset ratio and bank's financial performance.

Operating cash flow to total assets

Ghodrati and Abyak (2014) investigated the relationship between operational cash flow and the returns to stockholders. The study showed that there is a significant positive relationship between the operating cash flows profitability and the returns of all stakeholders. Frank and James (2014) found that operating and financing cash flow have significant positive relationship with firm performance while investing cash flow and corporate performance have significant negative relationship. Mauchi *et al.* (2011) found that there is a positive relationship between the level of operating cash flow and the profitability of the company. Amah *et al.* (2016) revealed that cash flow from operating activities has a significant and strong relationship, while cash flow from investing and financing activities has negative and weak relationship with performance of the sampled banks. Based on it, this study develops the following hypothesis:

H₆ : There is a positive relationship between operating cash flow to total assets and bank's financial performance.

Rate of bank's ability to return deposits

Diamond and Dybvig (1983) found that it is not the borrowing or leverage of the financial sector that is salient but rather the proportion of debt that is comprised of short-term demandable deposits. The study showed that the higher the rate of bank's ability to return deposits, higher would be the firm's financial performance. Abioro (2013) revealed that there is a positive relationship between bank's ability to return deposits and financial performance. Majid (2003) found that there is a positive impact of bank's ability to return deposits and financial performance. Nyanga (2012) bank's ability to return deposits has a positive impact on ROE. Based on it, this study develops the following hypothesis:

H₇ : There is a positive relationship between rate of bank's ability to return deposits and bank's financial performance.

3. Results and discussion

Descriptive statistics

Table 2 presents the descriptive statistics of the selected dependent and independent variables during the period 2014/15 to 2021/22.

Table 2: Descriptive statistics

This table shows the descriptive statistics of dependent and independent variables of 16 Nepalese commercial banks for the study period of 2014/15 to 2021/22. The dependent variables are ROA (Return on assets as measured by the ratio of net income to total assets, in percentage) and ROE (Return on equity as measured by the ratio of net income to total equity, in percentage). The independent variables are WC (Working capital as measured by the difference between current assets and current liabilities, Rs. in billion), LDR (Loan to deposit ratio as measured by the ratio of total loans to total deposits, in percentage), CAR (Capital adequacy ratio as measured by the ratio of total capital to total risk weighted exposure, in percentage), NPL (Nonperforming loan as measured by the ratio of non-performing loans to total loans, in percentage), CR (Cash asset ratio as measured by the ratio of cash and cash equivalent to current liabilities, in percentage), OTA (Operating cash flow to total assets as measured by the ratio of operating cash flow to total assets, in percentage) and RBARD (Rate of bank's ability to return deposits as measured by the ratio of total equity to total deposit, in percentage).

Variables	Minimum	Maximum	Mean	Std. Deviation
ROA	0.23	2.79	1.55	0.49
ROE	0.28	54.07	15.61	6.37
WC	14.70	25.87	22.08	1.78
LDR	58.46	98.08	83.92	7.49
CAR	7.49	17.91	13.13	1.62
NPL	0.02	7.33	1.46	1.10
CR	0.38	51.60	5.64	5.01
OTA	0.02	25.29	3.99	3.60
RBARD	0.69	131.74	15.18	15.27

Source: SPSS output

Correlation analysis

Having indicated the descriptive statistics, Pearson's correlation coefficients are computed and the results are presented in Table 3.

Table 3: Pearson's correlation coefficients matrix

This table shows the bivariate Pearson's correlation coefficients of dependent and independent variables of 16 Nepalese commercial banks for the study period from 2014/15 to 2021/22. The dependent variables are ROA (Return on assets as measured by the ratio of net income to total assets, in percentage) and ROE (Return on equity as measured by the ratio of net income to total equity, in percentage). The independent variables are WC (Working capital as measured by the difference between current assets and current liabilities, Rs. in billion), LDR (Loan to deposit ratio as measured by the ratio of total loans to total deposits, in percentage), CAR (Capital adequacy ratio as measured by the ratio of total capital to total risk weighted exposure, in percentage), NPL (Nonperforming loan as measured by the ratio of non-performing loans to total loans, in percentage), CR (Cash asset ratio as measured by the ratio of cash and cash equivalent to current liabilities, in percentage), OTA (Operating cash flow to total assets as measured by the ratio of operating cash flow to total assets, in percentage) and RBARD (Rate of bank's ability to return deposits as measured by the ratio of total equity to total deposit, in percentage).

Variables	ROA	ROE	WC	LDR	CAR	NPL	CR	OTA	RBARD
ROA	1								
ROE	0.494**	1							
WC	0.122	0.103	1						
LDR	-0.292**	-0.458**	-0.11	1					
CAR	-0.052	-0.415**	-0.028	0.357**	1				
NPL	-0.038	-0.040	-0.013	-0.401**	-0.193*	1			
CR	0.115	-0.076	0.200*	0.032	0.182*	-0.008	1		
OTA	0.193*	0.101	-0.088	-0.153	-0.062	0.134	0.051	1	
RBARD	0.006	-0.113	0.076	0.174*	0.131	-0.061	0.026	-0.084	1

Note: The asterisk signs (**) and (*) indicate that the results are significant at one percent and five percent levels respectively.

Table 3 shows that working capital has a positive relationship with return on assets. It means that increase in working capital leads to increase in return on assets. However, there is a negative relationship of loan to deposit ratio with return on assets. It shows that higher the loan to deposit ratio, lower would be the return on assets. Similarly, there is also a negative relationship between capital adequacy ratio and return on assets. It indicates that increase in capital adequacy ratio leads to decrease in return on assets. In addition, non-performing loan has a negative relationship with return on assets. It indicates that increase in non-performing loan leads to decrease in return on assets. In contrast, this study shows that there is a positive relationship between cash asset ratio and return on assets. It means that higher the cash asset ratio, higher would be the return on assets. Likewise, operating cash flow to total assets is positively correlated to return on assets which indicates that increase in operating cash flow to total assets leads to increase in return on assets. Moreover, there is a positive relationship between return on assets and rate of bank's ability to return deposits which means that the higher the rate of bank's ability to return deposits, higher would be the return on assets.

On other hand, the result also shows that working capital has a positive relationship with return on equity. It means that increase in working capital leads to increase in return on equity. However, there is a negative relationship between loan to deposit ratio and return on equity. It means that increase in loan to deposit ratio leads to decrease in return on equity. Similarly, non-performing loan is also negatively correlated to return on equity. It indicates that increase in non-performing loan leads to decrease in return on equity. Furthermore, there is a negative relationship between capital adequacy ratio and return on equity. It indicates that increase in capital adequacy ratio leads to decrease in return on equity. Furthermore, there is a negative relationship between cash asset ratio and return on equity. It means that higher the cash asset ratio, lower would be the return on equity. Moreover, there is a positive relationship between operating cash flow to total asset and return on equity indicating that increase in operating cash asset ratio leads to increase in return on equity.

Regression analysis

Having indicated the Pearson's correlation coefficients, the regression analysis has been carried out and results are presented in Table 4. More specifically, it shows the regression results of working capital, loan to deposit ratio, capital adequacy ratio, non-performing loan, cash asset ratio, operating cash flow to total assets and rate of bank's ability to return deposits with return on asset of Nepalese commercial banks.

Table 4: Estimated regression results of working capital, loan to deposit ratio, capital adequacy ratio, non- performing loan, cash asset ratio, operating cash flow to total assets and rate of bank's ability to return deposits on return on assets

The results are based on panel data of 16 commercial banks with 128 observations for the period of 2014/15-2021/22 by using the linear regression model and the model is $ROA = \beta_0 + \beta_1 WC_{it} + \beta_2 LDR_{it} + \beta_3 CAR_{it} + \beta_4 NPL_{it} + \beta_5 CR_{it} + \beta_6 OTA_{it} + \beta_7 RBARD_{it} + e_{it}$ where, the dependent variable is ROA (Return on assets as measured by the ratio of net income to total assets, in percentage). The independent variables are WC (Working capital as measured by the difference between current assets and current liabilities, Rs. in billion), LDR (Loan to deposit ratio as measured by the ratio of total loans to total deposits, in percentage), CAR (Capital adequacy ratio as measured by the ratio of total capital to total risk weighted exposure, in percentage), NPL (Nonperforming loan as measured by the ratio of non-performing loans to total loans, in percentage), CR (Cash asset ratio as measured by the ratio of cash and cash equivalent to current liabilities, in percentage), OTA (Operating cash flow to total assets as measured by the ratio of operating cash flow to total assets, in percentage) and RBARD (Rate of bank's ability to return deposits as measured by the ratio of total equity to total deposit, in percentage).

Model	Intercept	Regression coefficients of							Adj. R _{bar} ²	SEE	F-value
		WC	LDR	CAR	NPL	CR	OTA	RBARD			
1	0.813 (1.514) *	0.033 (1.377)							0.007	0.487	1.895
2	3.154 (6.726) **		-0.019 (3.433)**						0.078	0.470	11.788
3	1.758 (4.935) **			-0.016 (0.586)					0.005	0.490	0.344
4	1.575 (21.812) **				-0.017 (0.424)				0.007	0.491	0.180
5	1.487 (22.842) **					0.011 (1.296)			0.005	0.488	1.681
6	1.446 (22.682) **						0.026 (2.212)*		0.030	0.482	4.894
7	1.547 (25.224) **							0.031 (0.071)	0.008	0.491	0.005
8	2.550 (3.455) **	0.025 (1.060)	-0.018 (3.298)**						0.079	0.469	6.461
9	2.436 (3.202) **	0.025 (1.049)	-0.020 (3.304)**	-0.018 (0.644)					0.075	0.470	4.426
10	3.025 (3.718) **	0.022 (0.941)	-0.024 (3.806)**	-0.015 (0.539)	-0.078 (0.059)				0.094	0.465	4.300
11	3.185 (3.874) **	0.016 (0.666)	-0.024 (3.811)**	-0.008 (0.302)	-0.080 (1.948)	0.011 (0.054)			0.098	0.464	3.761
12	2.853 (3.441) **	0.021 (0.901)	-0.023 (3.601)**	-0.009 (0.339)	-0.085 (2.108)*	0.009 (1.088)	0.023 (1.987) *		0.119	0.459	3.869
13	2.928 (3.495) **	0.020 (0.831)	-0.023 (3.656)**	-0.008 (0.284)	-0.086 (2.120)*	0.009 (1.092)	0.023 (2.015) *	0.002 (0.702)	0.116	0.460	3.372

Notes:

- i. Figures in parenthesis are t-values.
- ii. The asterisk signs (**) and (*) indicate that the results are significant at one percent and five percent level respectively.
- iii. Return on asset is the dependent variable.

Table 4 shows that the beta coefficients for working capital are positive with return on assets. It indicates that working capital has a positive impact on return on assets. This finding is similar to the findings of Yashim *et al.* (2020). However, the beta coefficients for loan to deposit ratio are negative with return on assets. It indicates that loan to deposit ratio has a negative impact on return on assets. This finding is consistent with the findings of Suroso (2022). Similarly, the beta coefficients for capital adequacy ratio are negative with return on assets. It indicates that capital adequacy ratio has a negative impact on return on assets. This finding is inconsistent with the findings of Handayani *et al.* (2019). Moreover, the beta coefficients for non-performing loans are negative with return on assets. It indicates that non-performing loan has a negative impact on return on assets. This finding is similar to the findings of Collaku and Aliu (2021). Likewise, the beta coefficients for cash asset ratio are positive with return on assets. It indicates that cash asset ratio has a positive impact on return on assets. This finding is consistent with the findings of Bardia (2007).

Table 5 presents regression results of working capital, loan to deposit ratio, capital adequacy ratio, non- performing loan, cash asset ratio, operating cash flow to total assets and rate of banks' ability to return deposits on return on equity.

Table 5: Estimated regression results of working capital, loan to deposit ratio, capital adequacy ratio, non- performing loan, cash asset ratio, operating cash flow to total assets and rate of bank's ability to return deposits on return on equity

The results are based on panel data of 16 commercial banks with 128 observations for the period of 2014/15-2021/22 by using the linear regression model and the model is $ROE = \beta_0 + \beta_1 WC_{it} + \beta_2 LDR_{it} + \beta_3 CAR_{it} + \beta_4 NPL_{it} + \beta_5 CR_{it} + \beta_6 OTA_{it} + \beta_7 RBARD_{it} + e_{it}$ where, the dependent variable is ROE (Return on equity as measured by the ratio of net income to total equity, in percentage). The independent variables are WC (Working capital as measured by the difference between current assets and current liabilities, Rs. in billion), LDR (Loan to deposit ratio as measured by the ratio of total loans to total deposits, in percentage), CAR (Capital adequacy ratio as measured by the ratio of total capital to total risk weighted exposure, in percentage), NPL (Nonperforming loan as measured by the ratio of non-performing loans to total loans, in percentage), CR (Cash asset ratio as measured by the ratio of cash and cash equivalent to current liabilities, in percentage), OTA (Operating cash flow to total assets as measured by the ratio of operating cash flow to total assets, in percentage) and RBARD (Rate of bank's ability to return deposits as measured by the ratio of total equity to total deposit, in percentage).

Model	Intercept	Regression coefficients of							Adj. R_bar ²	SEE	F-value
		WC	LDR	CAR	NPL	CR	OTA	RBARD			
1	7.527 (1.074)	0.366 (1.157)							0.003	6.365	1.338
2	48.333 (8.515) **		-0.390 (5.788) **						0.210	5.687	33.501
3	37.077 (8.774) **			-1.635 (5.118) **					0.166	5.822	26.195
4	15.947 (16.961) **				-0.231 (0.449)				0.006	6.393	0.202
5	16.156 (18.983) **					-0.097 (0.857)			0.002	6.380	0.734
6	14.898 (17.700) **						0.178 (1.137)		0.002	6.366	1.293
7	16.326 (20.567) **							-0.047 (1.278)	0.005	6.357	1.633

8	43.746 (4.883) **	0.189 (0.663)	-0.385 (5.668)**						0.200	5.700	16.895
9	51.035 (5.792) **	0.201 (0.736)	-0.297 (4.270)**	-1.137 (3.551)**					0.268	5.452	16.512
10	63.305 (6.950) **	0.144 (0.549)	-0.390 (5.455)**	-1.200 (3.912)**	-1.628 (3.548)**				0.331	5.214	16.689
11	62.964 (6.801) **	0.157 (0.584)	-0.390 (5.434)**	-1.187 (3.786)**	-1.625 (3.526)**	-0.023 (0.234)			0.326	5.234	13.260
12	61.511 (6.497) **	0.181 (0.668)	-0.384 (5.300)**	-1.183 (3.766)**	-1.650 (3.566)**	-0.029 (0.295)	0.101 (0.763)		0.323	5.243	11.109
13	61.315 (6.397) **	0.185 (0.677)	-0.382 (5.206)**	-1.179 (3.728)**	-1.649 (3.546)**	-0.029 (0.295)	0.100 (0.751)	-0.005 (1.160)	0.318	5.264	9.449

Notes:

- i. Figures in parenthesis are t-values.
- ii. The asterisk signs (**) and (*) indicate that the results are significant at one percent and five percent level respectively.
- iii. Return on equity is the dependent variable.

Table 5 shows that the beta coefficients for working capital are positive with return on equity. It indicates that working capital has the positive impact on return on equity. This finding is similar to the findings of Lartey and Boadi (2018). Similarly, the beta coefficients for loan to deposit ratio are negative with return on equity. It indicates that credit to deposit ratio has a negative impact on return on equity. This finding is inconsistent to the findings of Vellanita *et al.* (2019). Moreover, the beta coefficients for non-performing loans are negative with return on equity. It indicates that non-performing loan has a negative impact on return on equity. This finding is similar to the findings of Dewi and Badjra (2020). Moreover, the beta coefficients for cash asset ratio are negative with return on equity. It indicates that cash asset ratio has negative impact on return on equity. This finding is consistent with the findings of Alshatti (2015). Further, the study observed that the beta coefficients of operating cash flow to total assets are positive with return on equity which indicated that there is a positive impact of operating cash flow to total assets on return on equity. This finding is consistent with the findings of Mauchi *et al.* (2011).

4. Summary and conclusion

Commercial banks are significant financial intermediaries that contribute significantly to the growth of any nation's economy. They gather money from surplus units, loan it to deficit units, and make money in between those two functions. Commercial banks run a significant risk of loan default and trouble paying depositors during these activities. These risks may be due to a variety of circumstances, including improper management of working capital and lack of credit management related policies that may or may not be prevented. These concerns might make the financial system less profitable and ultimately less stable. Commercial banks must analyze the factors that may be associated with their financial performance to come up with a way to minimize the negative effects so that the overall financial system in general will be stable.

This study attempts to analyze the effect of working capital management and credit management policy on financial performance of Nepalese commercial banks. The study is based on secondary data of 16 commercial banks with 128 observations for the period from 2014/15 to 2021/22.

The study showed that loan to deposit ratio, non-performing loan and capital adequacy ratio have negative impact on both return on assets and return on equity. Similarly, working capital and operating cash flow have a positive impact on both return on assets and return on equity. Likewise, cash asset ratio and rate of bank's ability to return deposits has a positive impact in return on assets of Nepalese commercial banks. However, cash asset ratio and rate of bank's ability to return deposits has negative impact on return on equity. Likewise, the study also concluded that loan to deposit ratio followed by operating cash flow to total assets and working capital is the most influencing factor that explains the changes in the return on asset of Nepalese commercial banks. Similarly, the study also concluded that loan to deposit ratio followed by operating cash flow to total assets and non-performing loan is the most influencing factor that explains the changes in return on equity in context of Nepalese commercial banks.

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Bank-related, industry-related and macroeconomic factors affecting profitability of Nepalese commercial banks

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Abstract

The study examines the effect of bank-related, industry-related and macroeconomic factors on the profitability of Nepalese commercial banks. Return on assets and return on equity are selected as the dependent variables. The selected independent variables are bank size, capital adequacy ratio, liquidity ratio, loan ratio, deposit ratio, concentration ratio, GDP growth rate and inflation rate. The study is based on secondary data of 27 commercial banks with 189 observations for the period from 2014/15 to 2020/21. The data were collected from Banking and Financial Statistics published by Nepal Rastra Bank, publications and websites of Nepal Rastra Bank (NRB) and Ministry of Finance (MoF) and annual reports of the selected commercial banks. The correlation coefficients and regression models are estimated to test the significance and importance of bank-related, industry-related and macroeconomic factors on the profitability of Nepalese commercial banks.

The study showed that bank size has a positive impact on return on assets and return on equity. It indicates that larger bank size leads to increase in return on assets and return on equity. Similarly, capital adequacy ratio has a positive impact on return on assets. It means that increase in capital adequacy ratio leads to increase in return on assets. Similarly, there is a negative impact of liquidity ratio on return assets and return on equity. It means that increase in liquidity ratio leads to decrease in return on assets and return on equity. However, loan ratio has a negative impact on return on assets and return on equity. It shows that increase in loans ratio leads to decrease in return on assets. Furthermore, there is a positive impact of deposit ratio on return on assets and return on equity. It indicates that increase in deposit ratio leads to increase in return on assets and return on equity. Moreover, there is a negative impact of concentration ratio on return on assets. It indicates that increase in concentration ratio leads to decrease in return on assets. In addition, GDP growth rate has a positive impact on return on assets and return on equity. It means that increase in GDP growth rate leads to increase in return on assets and return on equity.

Key words: Bank size, capital adequacy ratio, liquidity ratio, loan ratio, deposit ratio, concentration ratio, GDP growth rate, inflation rate, return on assets and return on equity.

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1. Introduction

A strong financial system promotes investment by financing productive business opportunities, mobilizing savings, efficiently allocating resources and makes easy the trade of goods and services. Banks serve the vital intermediary role in a market-oriented economy and have been seen as the key to investment and growth. Sound financial health of a bank is the guarantee not only to its depositors but is equally significant for the shareholders, employees and whole economy as well (Sangmi and Nazir, 2010). The financial system based on banks provides information regarding the investment opportunities. It directs resources to productivity channels resulting in facilitating the process of the economic growth (Beck et al., 2000). Banks play a pivotal role in the shaping up of the economy of a country. Profit is the major reason behind every one to take greater amount of risk and make business successful. It is the central source of investment fund. In banking sector, the importance of banks' profitability can be appraised at the micro and macro levels of the economy (Kosmidou, 2008). Dietrich and Wanzenried (2011) asserted that profitability is an indicator of the bank's competitive position in banking market and of the quality of its management, ensuring the health of the banking system. Profitability is a measure of firm's efficiency. Bank's profitability provides an important source of equity especially if reinvested into the business. This should lead to safe banks, and as such high profits could promote financial stability (Flamini et al., 2009).

Bank capital adequacy is the key driver of a resilient banking system that is capable of absorbing shocks. Capital requirements for banks have traditionally been regarded as one of the main tools to guarantee the financial stability of the banking sector. Capital requirements are regulations that limit the volume of leverage that banks can take on, but also the volume of quality capital banks must attain (Howarth and Quaglia, 2013). Capital adequacy ratio is the ratio of bank's capital in relation to its risk weighted assets and current liabilities. Capital adequacy is used to determine whether a bank has enough capital to support the risk on its balance sheet i.e., it is used to mitigate bank solvency problem (Agbeja et al., 2015). Shingjergji and Hyseni (2015) found that profitability indicators such as return on assets and return on equity do not have any influence on capital adequacy ratio. Nwankwo (1991) indicated that adequate capital is the quantum of funds which a bank should have or plan to maintain in order to conduct its business in a prudent manner. Bourke (1989) showed a positive and statistically significant correlation between bank size and profitability. Likewise, Pasiouras and Kosmidou (2007) examined the impact of bank size and capital ratio on profitability. The study revealed that an increase in size often causes to amplify the profitability level. However, Berger and Humphrey (1991) believed that banks can save costs by increasing their size but on the other hand they may face scale inefficiencies.

Dietrich and Wanzenried (2011) found a negative correlation between profitability and bank size. The study also found that the core reason of negative relationship is that large banks faced considerable losses due to several irrecoverable loans. Sufian and Chong (2008) believed that the capital structures of banks operating in developing countries must be very strong because the economy expects a considerable support of the banking sector during crises and macroeconomic disturbance. Berger and Humphrey (1991) asserted that banks with low capital structures put themselves into a dangerous situation and this also affects their profitability level. On the other hand, Molyneux and Thornton (1992) argued that a particular amount of equity allows banks to minimize their cost of capital which may have a positive effect on bank's profitability. Tanna et al. (2005) found an association between ROA and macroeconomic variables. The study found a significant and positive relationship between bank profitability and GDP. On the contrary, Sastrosuwito and Suzuki (2012) also pointed that there is an insignificant correlation between the profitability of banks and annual growth rate in the Indonesian banking industry.

Aburime (2009) examined the influence of macroeconomic variables in the banking sector in Nigeria. The study revealed a significant impact of interest rate on bank profitability. The results of correlation coefficient also demonstrated a positive correlation between the two factors. Molyneux and Thornton (1992) demonstrated a positive and statistically significant correlation among interest rate, inflation rate, and bank profitability. However, Bourke (1989) indicated a negative relationship between inflation and bank profitability. The inverse relationship between inflation and profitability largely based on the capability of bank to predict inflation occurrence. If the banks are successful in anticipating the rate of inflation and its occurrence, this means that they can devise proper strategies of dealing with this situation. Shepherd (1972) found a negative relation between firm size and profitability. Similarly, Naceur and Goaeid (2008) also obtained a negative relationship between the size of the bank and the interest margin. However, Kapaya and Raphael (2016) argued that bank size has a positive impact on profitability if larger banks benefit from economies of scope; exploit scale economies or access capital at lower costs than smaller banks. Likewise, Tilahun and Chawla (2016) revealed that loan to deposit ratio, branch size, and ownership have significant effect on NIM; while bank size has no significant effect. In addition, Hagedoorn and Cloodt (2003) suggested that bank size is not the major determinant of profitability and that profitability would depend largely on how well firms cope with size and exploit the opportunities associated with it. According to Doyran (2013), liquidity and leverage were important factors affecting NIM and profits in the Argentine banks. NIM has a positive relationship with operating expenses. Similarly, Brock and Suarez (2000) showed that liquidity and cost ratio have positive impact on net interest margin at Latin American countries. However, Molyneux and Thornton (1992) found a negative relationship between bank profitability and the level of liquid assets held by the bank.

In the context of Nepal, Rijal et al. (2020) assessed the implication of Basel III for capital, liquidity and profitability of Nepalese commercial banks. The study showed that total equity capital to total assets, capital adequacy, bank size and bank liquidity have a positive impact on return on assets whereas cost income ratio, debt equity and asset growth have negative impact on return on assets. Similarly, total equity capital to total assets, debt equity, bank size and bank liquidity have positive impact on return on equity whereas cost income ratio, capital adequacy and asset growth has negative impact on return on equity of Nepalese commercial banks. Similarly, Kisi et al. (2020) examined the factors affecting credit risk in Nepalese commercial banks. The study showed that credit to deposit ratio, operating inefficiency, inflation rate and capital adequacy ratio have positive impact on non-performing loan. However, bank size, gross domestic product growth rate, and broad money supply have negative impact on the non-performing loan of Nepalese commercial banks.

In addition, Budhathoki et al. (2020) concluded that increase in nonperforming loans of the bank has significant influence on the profitability of banks. The study also concludes that non-performing loan ratio is the most influencing factor that explains the changes in return on assets of Nepalese commercial banks. Similarly, bank size is the most influencing factor that explains the changes in earnings per share of Nepalese commercial banks. Furthermore, Dahal et al. (2020) revealed that firm size has positive impact on return on assets and earning per share. It indicates that increase in firm size leads to increase return on assets and earnings per share. Similarly, current ratio has negative impact on return on assets. It means that increase in current ratio leads to decrease in return on assets. Likewise, solvency ratio has negative impact on return on assets.

The above discussion shows that empirical evidences vary greatly across the studies on the effect of bank-related, industry-related and macroeconomic factors on bank profitability. Though there are above mentioned empirical evidences in the context of other countries and in Nepal, no such findings using more recent data exist in the context of Nepal. Therefore, in order to support one view or the other, this study has been conducted.

The main purpose of the study is to analyze the impact of bank-related, industry-related and macroeconomic factors on the profitability of Nepalese commercial banks. Specifically, it examines the relationship of bank size, capital adequacy ratio, liquidity ratio, loan ratio, deposit ratio, concentration ratio, GDP growth rate and inflation rate with return on assets and return on equity of Nepalese commercial banks.

The remainder of this study is organized as follows. Section two describes the sample, data and methodology. Section three presents the empirical results and the final sections draws the conclusion.

2. Methodological aspects

The study is based on the secondary data which were gathered from 27 Nepalese commercial banks from 2014/15 to 2020/21, leading to a total of 189 observations. The main sources of data include publications and websites of Nepal Rastra Bank (NRB), Ministry of Finance (MoF), and annual reports of the selected commercial banks. This study is based on descriptive as well as causal comparative research designs. Table 1 shows the list of commercial banks selected for the study along with the study period and number of observations.

Table 1: List of commercial banks selected for the study along with study period and number of observations

S. N.	Name of the banks	Study period	Observations
1	Agricultural Development Bank Limited	2014/15 - 2020/21	7
2	Bank of Kathmandu Limited	2014/15 - 2020/21	7
3	Century Commercial Bank Limited	2014/15 - 2020/21	7
4	Citizens Bank International Limited	2014/15 - 2020/21	7
5	Civil Bank Limited	2014/15 - 2020/21	7
6	Everest Bank Limited	2014/15 - 2020/21	7
7	Global IME Bank Limited	2014/15 - 2020/21	7
8	Himalayan Bank Limited	2014/15 - 2020/21	7
9	Kumari Bank Limited	2014/15 - 2020/21	7
10	Laxmi Bank Limited	2014/15 - 2020/21	7
11	Machhapuchchhre Bank Limited	2014/15 - 2020/21	7
12	Mega Bank Nepal Limited	2014/15 - 2020/21	7
13	Nabil Bank Limited	2014/15 - 2020/21	7
14	Nepal Bangladesh Bank Limited	2014/15 - 2020/21	7
15	Nepal Bank Limited	2014/15 - 2020/21	7
16	Nepal Credit and Commerce Bank Limited	2014/15 - 2020/21	7
17	Nepal Investment Bank Limited	2014/15 - 2020/21	7
18	Nepal SBI Bank Limited	2014/15 - 2020/21	7
19	NIC Asia Bank Limited	2014/15 - 2020/21	7
20	NMB Bank Limited	2014/15 - 2020/21	7
21	Prabhu Bank Limited	2014/15 - 2020/21	7

22	Prime Commercial Bank Limited	2014/15 - 2020/21	7
23	Rastriya Banijya Bank Limited	2014/15 - 2020/21	7
24	Sanima Bank Limited	2014/15 - 2020/21	7
25	Siddhartha Bank Limited	2014/15 - 2020/21	7
26	Standard Chartered Bank Nepal Limited	2014/15 - 2020/21	7
27	Sunrise Bank Limited	2014/15 - 2020/21	7
Total number of observations			189

Thus, the study is based on 189 observations.

The model

The model used in this study assumes that profitability depends on bank-related, industry-related and macroeconomic factors. The dependent variables selected for the study are return on assets and return on equity. Similarly, the selected independent variables in this study are bank size, capital adequacy ratio, liquidity ratio, loan ratio, deposit ratio, concentration ratio, GDP growth rate and inflation rate. The following model equations are designed to test the hypothesis:

$$ROA_{it} = \beta_0 + \beta_1 BS_{it} + \beta_2 CAR_{it} + \beta_3 LIQ_{it} + \beta_4 LR_{it} + \beta_5 DR_{it} + \beta_6 CNR_{it} + \beta_7 GDP_{it} + \beta_8 INF_{it} + e_{it}$$

$$ROE_{it} = \beta_0 + \beta_1 BS_{it} + \beta_2 CAR_{it} + \beta_3 LIQ_{it} + \beta_4 LR_{it} + \beta_5 DR_{it} + \beta_6 CNR_{it} + \beta_7 GDP_{it} + \beta_8 INF_{it} + e_{it}$$

Where,

ROA = Return on assets as measured by the ratio of net income to total assets, in percentage.

ROE = Return on equity as measured by the ratio of net income to shareholder's equity, in percentage.

BS = Bank size as measured by the total assets of a bank, Rs. in billion.

CAR = Capital adequacy ratio as measured by the ratio of equity to total assets, in percentage.

LIQ = Bank liquidity as measured by the ratio of total loans to total deposits, in percentage.

LR = Loan ratio as measured by the ratio of total loans to total assets, in percentage.

DR = Deposit ratio as measured by the ratio of total deposits to total assets, in percentage.

CNR = Concentration ratio as measured by the total assets of 4 big banks divided by total assets of all banks, in percentage.

GDP = GDP growth rate as measured by the annual growth rate of Nepal, in percentage.

INF = Inflation as measured by the change in consumer price index, in percentage.

The following section describes the independent variables used in this study along with hypothesis formulation.

Bank size

According to Bagchi (2013), bank size has a strong positive affiliation with profitability. Similarly, Saliha and Abdessatar (2011) showed a positive relation between firm profitability and size. Smirlock (1985) found that there is significantly positive relationship between bank size and profitability. Petria et al. (2015) revealed that size impacts the ROA positively and significantly. The study also concluded that banks with higher total assets achieved better profits. Flamini et al. (2009) found that there is a positive relationship between bank returns and bank size. Kapaya and Raphael (2016)

assessed the effects of bank-specific, industry-specific and macroeconomic determinants on banks profitability. The study argued that bank size has a positive impact on profitability measured by net interest margin and return on assets. Based on it, this study develops the following hypothesis:

H₁ : There is a positive relationship between bank size and bank profitability.

Capital adequacy ratio

Lin et al. (2005) showed that there is a significant positive relationship between the capital adequacy ratio and financial performance measured by return on assets. Bateni et al. (2014) indicated that there is a positive relationship of capital adequacy ratio with debt-equity ratio and net interest margin. Khalid et al. (2021) also showed that there is a positive relationship between the banks' financial performance and capital adequacy ratio. Shingjergji and Hyseni (2015) revealed that the profitability indicator i.e., return on equity ROE have no impact on the capital adequacy ratio in the Albanian banking system. Furthermore, Mathuva (2009) proved that there is a positive relationship between capital adequacy ratio and bank profitability. Based on it, this study develops the following hypothesis:

H₂ : There is a positive relationship between capital adequacy ratio and bank profitability.

Liquidity ratio

Hongli et al. (2019) indicated that liquidity (LIQ) measured by current assets to current liabilities has a positive significant effect on return on equity (ROE). Likewise, Abbas et al. (2021) found that there is a positive relationship between the profitability and liquidity of the firms. Bourke (1989) found a positive and statistically significant relationship between liquidity and net interest margin. Similarly, Khan and Ali (2016) found that there is a significant positive relationship between liquidity with profitability of banks in Pakistan. Likewise, Mahdi and Abbes (2018) found a positive impact of the net interest margin on the liquidity of the banking industry of conventional banks indicating that the most profitable banks maintain higher liquidity ratios. Similarly, Fungacova and Poghosyan (2011) found a significant positive relationship between banks liquidity and profitability. Based on it, this study develops the following hypothesis:

H₃ : There is a positive relationship between liquidity ratio and bank profitability.

Loan ratio

Ibrahim (2017) found that any increase in loan deposit ratio will lead to increase in return on asset. Hakim and Sugianto (2017) specified that ratio of loans to deposit significantly influence the health of the bank. In addition, Christaria and Kurnia (2016) assessed the impact of financial ratios, operational efficiency and non-performing loan towards commercial bank profitability. The study revealed that capital adequacy ratio, loan deposit ratio and non-performing loan simultaneously, have a significant positive impact on ROA. Furthermore, Samad (2015) investigated the impact of bank specific characteristics and macroeconomic variables on the banks' profitability of Bangladesh banking industry. The study concluded that loan deposit ratio has a significant positive impact on the profitability of Bangladesh commercial banks. Based on it, this study develops the following hypothesis:

H₄ : There is a positive relationship between loan ratio and bank profitability.

Deposit ratio

Haddawee and Hammood (2020) analyzed the relationship between bank deposits and profitability of commercial banks. The study revealed that there is a positive significant relation between deposits and bank profitability. Similarly, Raza et al. (2019) assessed the association of bank specific characteristics with its profitability. The study showed that banks deposit has a positive impact on bank profitability. Further, Ferrouhi (2017) showed that there is a significant and positive relationship between deposits and bank performance as measured by NIM. Tuyishime et al. (2015) revealed that there is a positive relationship between deposits mobilization and financial performance of commercial banks. Based on it, this study develops the following hypothesis:

H₅ : There is a positive relationship between deposit ratio and bank profitability.

Concentration ratio

Pathirawasam and Wickremasinghe (2012) found that ownership concentration has a positive impact on the ROA. Likewise, Abbas et al. (2013) found that large shareholder significantly and positively affect firm performance. In contrast, Al-Arif and Awwalayah (2019) showed that market structure proxies by market share (MS) and concentration ratio does not affect profitability of the Indonesian Islamic banking industry. Bourke (1989) showed that the concentration ratio has a significant positive impact on bank profitability in Europe, North America and Australia. Yuanita (2019) indicated that there is positive relationship between concentration ratio and bank profitability. Furthermore, Yadav et al. (2021) concluded that concentration ratio has a positive relationship with bank performance. Based on it, this study develops the followings hypothesis:

H₆ : There is a positive relationship between concentration ratio and bank profitability.

GDP growth rate

Javed and Basheer (2017) showed that rapid economic growth increase profitability of banking sector. Sufian and Kamarudin (2012) found that GDP significantly influences profitability. Similarly, Fotions and Kyriaki (2007) found that the gross domestic product is significant and positively related to net interest margin of domestic banks, but it is negative and significant in case of foreign banks. Likewise, Tanna et al. (2005) found a significant positive relationship between bank profitability and GDP. Moreover, Ali et al. (2011) revealed that GDP growth has a positive effect on the profitability of Pakistan banking sector. Based on it, this study develops the following hypothesis:

H₇ : There is a positive relationship between GDP growth rate and bank profitability.

Inflation rate

Pasiouras and Kosmidou (2007) found a positive and statistically significant relationship between inflation rate and bank profitability. Similarly, Vong and Chan (2009); Tan and Floros (2012) demonstrated that high inflation rates lead to higher bank profitability. Furthermore, Saad and El-Moussawi (2012) assessed the determinants of net interest margins of commercial banks in Lebanon. The study found a positive relationship between inflation rate and bank profitability. In addition, Brock and Suarez (2000); Bennaceur and Goaid (2008) indicated that there exists a positive correlation between inflation rate and net interest margin. Based on it, this study develops the following hypothesis:

H₈ : There is a positive relationship between inflation rate and bank profitability.

5. Results and discussion

Descriptive statistics

Table 2 presents the descriptive statistics of the selected dependent and independent variables during the period 2014/15 to 2020/21.

Table 2: Descriptive statistics

This table shows the descriptive statistics of dependent and independent variables of 27 Nepalese commercial banks for the study period of 2014/15 to 2020/21. The dependent variables are ROA (Return on assets as measured by the ratio of net income to total assets, in percentage) and ROE (Return on equity as measured by the ratio of net income to total shareholders' equity, in percentage). The independent variables are BS (Bank size as measured by total assets of a bank, Rs. in billion), CAR (Capital adequacy as measured by the ratio of tier1 capital plus tier 2 capital to risk weighted assets in percentage), LIQ (Liquidity as measured by the ratio of total loans to total deposits in percentage), CNR (Concentration ratio as measured by the total assets of 4 big banks divided by total assets of all banks, in percentage), LR (Loan ratio as measured by the ratio of total loan to total assets, in percentage), DR (Deposit ratio as measured by the ratio of total deposits to total assets, in percentage), GDPR (GDP growth rate as measured by the annual growth rate of Nepal, in percentage), and INFR (Inflation as measured by the change in consumer price index, in percentage).

Variables	Minimum	Maximum	Mean	S. D.
ROA	0.01	3.12	1.56	0.55
ROE	5.46	55.31	15.26	5.71
BS	24.71	346.14	114.21	63.23
CAR	7.49	22.99	13.71	2.31
LQR	56.47	105.72	85.67	9.16
LR	0.41	0.81	0.69	0.07
DR	65.90	93.60	83.09	5.24
CNR	22.03	28.34	24.86	1.97
GDPR	-2.10	9.00	4.23	3.69
INFR	3.60	9.93	5.73	2.07

Source: SPSS output

Correlation analysis

Having indicated the descriptive statistics, Pearson's correlation coefficients are computed and the results are presented in Table 3.

Table 3: Pearson's correlation coefficients matrix

This table shows the bivariate Pearson's correlation coefficients of dependent and independent variables of 27 Nepalese commercial banks for the study period from 2014/15 to 2020/21. The dependent variables are ROA (Return on assets as measured by the ratio of net income to total assets, in percentage) and ROE (Return on equity as measured by the ratio of net income to total shareholders' equity, in percentage). The independent variables are BS (Bank size as measured by total assets of a bank, Rs. in billion), CAR (Capital adequacy as measured by the ratio of tier1 capital plus tier 2 capital to risk weighted assets in percentage), LIQ (Liquidity as measured by the ratio of total loans to total deposits in percentage), CNR (Concentration ratio as measured by the total assets of 4 big banks divided by total assets of all banks, in percentage), LR (Loan ratio as measured by the ratio of total loan to total assets, in percentage), DR (Deposit ratio as measured by the ratio of total deposits to total assets, in percentage), GDPR (GDP growth rate as measured by the annual growth rate of Nepal, in percentage), and INFR (Inflation as measured by the change in consumer price index, in percentage).

Variables	ROA	ROE	BS	CAR	LQR	LR	DR	CNR	GDPR	INFR
ROA	1									
ROE	0.407**	1								
BS	0.047	0.119	1							
CAR	0.123	-0.346**	0.098	1						
LQR	-0.223**	-0.328**	0.087	0.131	1					
LR	-0.270**	-0.343**	-0.148*	-0.024	0.507**	1				
DR	0.109	0.359**	-0.411**	-0.410**	-0.384**	-0.097	1			
CNR	-0.079	0.250**	-0.362**	-0.335**	-0.325**	-0.207**	0.466**	1		
GDPR	0.165*	0.048	-0.181*	-0.025	0.088	0.035	-0.057	-0.230**	1	
INFR	0.062	0.295**	-0.408**	-0.337**	-0.325**	-0.171*	0.396**	0.608**	0.130	1

*Note: The asterisk signs (**) and (*) indicate that the results are significant at one percent and five percent levels respectively.*

Table 3 shows that bank size is positively correlated to return on assets. It indicates that larger bank size leads to increase in return on assets. Similarly, capital adequacy ratio is positively correlated to return on assets. It means that increase in capital adequacy ratio leads to increase in return on assets. Similarly, there is a negative relationship between liquidity ratio and return assets. It means that increase in liquidity ratio leads to decrease in return on assets. However, loan ratio has a negative relationship with return on assets. It shows that increase in loans ratio leads to decrease in return on assets. Furthermore, there is a positive relationship between deposit ratio and return on assets. It indicates that increase in deposit ratio leads to increase in return on assets. Moreover, there is a negative relationship between concentration ratio and return on assets. It indicates that increase in concentration ratio leads to decrease in return on assets. In addition, GDP growth rate has a positive relationship with return on assets. It indicates that increase in GDP growth rate leads to increase in return on assets. Further, this study shows that there is a positive relationship between inflation rate and return on assets. It means that increase in inflation rate leads to increase in return on assets in Nepalese commercial banks.

Similarly, the result also shows that bank size is positively correlated to return on equity. It indicates that larger bank size leads to increase in return on equity. Similarly, capital adequacy ratio is negatively correlated to return on equity. It indicates that increase in capital adequacy ratio leads to decrease in return on equity. Likewise, there is a negative relationship between liquidity ratio and return on equity. It indicates that increase in liquidity ratio leads to decrease in return on equity. In addition, loan ratio is negatively related to return on equity. It shows that increase in loan ratio leads to decrease in return on equity. Furthermore, there is a positive relationship between deposit ratio and return on equity. It indicates that increase in deposit ratio leads to increase in return on equity. Moreover, there is a positive relationship between concentration ratio and return on equity. It indicates that increase in concentration ratio leads to increase in return on equity. In addition, GDP growth rate has a positive relationship with return on equity. It means that increase in GDP growth rate leads to increase in return on equity. Likewise, there is a positive relationship between inflation rate and return on equity. It means that increase in inflation rate leads to increase in return on assets in Nepalese commercial banks.

Regression analysis

Having indicated the Pearson's correlation coefficients, the regression analysis has been carried out and results are presented in Table 4. More specifically, it shows the regression results of bank size, capital adequacy ratio, liquidity ratio, loan ratio, deposit ratio, concentration ratio, GDP growth rate and inflation rate on return on assets of Nepalese commercial banks.

Table 4: Estimated regression results of bank size, capital adequacy ratio, liquidity ratio, loan ratio, deposit ratio, concentration ratio, GDP growth rate and inflation rate on return on assets

The results are based on panel data of 27 commercial banks with 189 observations for the period of 2014/15-2020/21 by using the linear regression model and the model is $ROA = \beta_0 + \beta_1 BS_i + \beta_2 CAR_{it} + \beta_3 LIQ_{it} + \beta_4 LR_{it} + \beta_5 DR_{it} + \beta_6 CNR_{it} + \beta_7 GDPR_{it} + \beta_8 INF_{it} + e_{it}$ where, the dependent variable is ROA (Return on assets as measured by the ratio of net income to total assets, in percentage). The independent variables are BS (Bank size as measured by total assets of a bank, Rs. in billion), CAR (Capital adequacy as measured by the ratio of tier1 capital plus tier 2 capital to risk weighted assets in percentage), LIQ (Liquidity as measured by the ratio of total loans to total deposits in percentage), CNR (Concentration ratio as measured by the total assets of 4 big banks divided by total assets of all banks, in percentage), LR (Loan ratio as measured by the ratio of total loan to total assets, in percentage), DR (Deposit ratio as measured by the ratio of total deposits to total assets, in percentage), GDPR (GDP growth rate as measured by the annual growth rate of Nepal, in percentage), and INFR (Inflation as measured by the change in consumer price index, in percentage).

Model	Intercept	Regression coefficients of								Adj. R_bar ²	SEE	F-value
		BS	CAR	LQR	LR	DR	G DPR	INFR	CNR			
1	0.405 (0.472)	0.190 (0.973)								0.002	0.426	0.947
2	1.161 (4.823)**		0.029 (1.696)							0.095	0.548	2.876
3	3.158 (8.677)**			-0.019 (4.406)**						0.090	0.528	19.415
4	3.034 (7.877)**				-2.124 (3.837)**					0.680	0.531	14.723
5	0.605 (0.944)					0.012 (1.497)				0.007	0.549	2.241
6	1.460 (24.220)**						0.025 (2.287)*			0.022	0.544	5.230
7	1.469 (12.430)**							0.016 (0.848)		0.001	0.551	0.720
8	2.152 (3.938)**								-0.024 (1.080)	0.001	0.550	1.166
9	-0.136 (0.499)	0.130 (2.219)*	0.077 (4.747)**							0.252	0.476	22.164
10	2.814 (6.101)**	0.001 (1.139)	0.034 (2.012)*	-0.005 (1.512)	-1.690 (2.583)*					0.088	0.526	5.544
11	1.066 (0.953)	0.005 (0.085)	0.046 (2.569)*	-0.005 (1.279)	-1.585 (2.465)*	0.015 (1.577)	0.029 (2.771)**			0.122	0.516	5.366
12	1.172 (1.015)	0.001 (0.052)	0.044 (2.368)*	-0.005 (1.322)	-1.620 (2.488)*	0.015 (1.598)	0.030 (2.789)**	0.009 (0.384)	-0.066 (2.181)*	0.136	0.511	4.702

Notes:

- Figures in parenthesis are t-values.
- The asterisk signs (**) and (*) indicate that the results are significant at one percent and five percent level respectively.
- Return on assets is the dependent variable.

Table 4 shows that the beta coefficients for bank size are positive with return on assets. It indicates that bank size has a positive impact on return on assets. This finding is similar to the findings of Petria et al. (2015). Similarly, the beta coefficients for capital adequacy ratio are positive with return on assets. It indicates that capital adequacy ratio has a positive impact on return on assets. This finding is similar to the findings of Mathuva (2009). Likewise, the beta coefficients for liquidity ratio are negative with return on assets. It indicates that liquidity ratio has a negative impact on return on assets. This finding is inconsistent with the findings of Khan and Ali (2016). Moreover, the beta coefficients for loan ratio are negative with return on assets. It indicates that loan ratio has a negative impact on return on assets. This finding contradicts with the findings of Christaria and Kurnia (2016). Similarly, the beta coefficients for deposit ratio are positive with return on assets. It indicates that deposit ratio has a positive impact on return on assets. This finding is consistent with the findings of Haddawee and Hammood (2020). Similarly, the beta coefficients for concentration ratio are negative with return on assets. It indicates that concentration ratio has a negative impact on return on assets. This finding contradicts with the findings of Bourke (1989). In addition, the beta coefficients of GDP growth rate are positive with return on assets. It indicates that GDP growth rate has a positive impact on return on assets. This finding is consistent with the findings of Ali et al. (2011).

Table 5 shows the estimated regression results of bank size, capital adequacy ratio, liquidity ratio, loan ratio, deposit ratio, concentration ratio, GDP growth rate and inflation rate on return on equity of Nepalese commercial banks.

Table 5: Estimated regression results of bank size, capital adequacy ratio, liquidity ratio, loan ratio, deposit ratio, concentration ratio, GDP growth rate and inflation rate on return on equity

The results are based on panel data of 27 commercial banks with 189 observations for the period of 2014/15-2020/21 by using the linear regression model and the model is $ROE = \beta_0 + \beta_1 BS_i + \beta_2 CAR_i + \beta_3 LIQ_i + \beta_4 LR_i + \beta_5 DR_i + \beta_6 CNR_i + \beta_7 GDPR_i + \beta_8 INF_i + e_{it}$ where the dependent variable is ROE (Return on equity as measured by the ratio of net income to total shareholders' equity, in percentage). The independent variables are BS (Bank size as measured by total assets of a bank, Rs. in billion), CAR (Capital adequacy as measured by the ratio of tier1 capital plus tier 2 capital to risk weighted assets in percentage), LIQ (Liquidity as measured by the ratio of total loans to total deposits in percentage), CNR (Concentration ratio as measured by the total assets of 4 big banks divided by total assets of all banks, in percentage), LR (Loan ratio as measured by the ratio of total loan to total assets, in percentage), DR (Deposit ratio as measured by the ratio of total deposits to total assets, in percentage), GDPR (GDP growth rate as measured by the annual growth rate of Nepal, in percentage), and INFR (Inflation as measured by the change in consumer price index, in percentage).

Model	Intercept	Regression coefficients of								Adj. R_bar ²	SEE	F-value
		BS	CAR	LQR	LR	DR	GDPR	INFR	CNR			
1	14.014 (16.254)**	0.011 (1.640)								0.009	4.458	0.064
2	27.018 (11.441)**		-0.858 (5.051)**							0.115	5.272	25.511
3	40.436 (11.527)**			-0.294 (7.217)**						0.215	5.087	52.084
4	34.647 (8.885)**				-28.010 (4.998)**					0.113	5.381	24.982
5	-17.560 (2.810)**					0.395 (5.262)**				0.124	5.346	27.685
6	15.571 (24.583)**						0.075 (0.662)			0.003	5.721	0.438

7	10.588 (9.016)**							0.814 (4.224)**		0.082	5.473	17.843
8	-4.136 (0.751)								0.780 (3.529)**	0.057	5.546	12.455
9	25.923 (10.869)**	0.014 (2.269)*	-0.896 (5.305)**							0.135	5.314	15.614
10	45.931 (10.644)**	0.012 (2.025)*	-0.850 (5.375)**	-0.076 (2.257)*	20.099 (3.283)**					0.259	4.918	17.417
11	9.149 (0.889)	0.022 (3.479)**	-0.592 (3.559)**	-0.035 (1.000)	-19.985 (3.375)**	0.340 (3.921)**	0.035 (0.360)			0.309	4.748	15.025
12	2.816 (0.269)	0.028 (4.178)**	-0.477 (2.806)	-0.020 (0.588)	-17.914 (3.040)**	0.324 (3.773)**	0.010 (0.105)	0.513 (2.522)*	0.084 (0.304)	0.329	4.679	14.166

Notes:

- i. Figures in parenthesis are t-values.
- ii. The asterisk signs (**) and (*) indicate that the results are significant at one percent and five percent level respectively.
- iii. Return on equity is the dependent variable.

Table 5 shows that the beta coefficients for bank size are positive with return on equity. It indicates that bank size has a positive impact on return on equity. This finding is similar to the findings of Bagchi (2013). Similarly, the beta coefficients for capital adequacy ratio are negative with return on equity. It indicates that capital adequacy ratio has a negative impact on return on equity. This finding is consistent with the findings of Khalid et al. (2021). Likewise, the beta coefficients for liquidity ratio are negative with return on equity. It indicates that liquidity ratio has a negative impact on return on equity. This finding is inconsistent with the findings of Hongli et al. (2019). Moreover, the beta coefficients for loan ratio are negative with return on equity. It indicates that loan ratio has a negative impact on return on equity. This finding contradicts with the findings of Samad (2015). Similarly, the beta coefficients for deposit ratio are positive on return on equity. It indicates that deposit ratio has a positive impact on return on equity. This finding is consistent with the findings of Haddawee and Hammood (2020). Similarly, the beta coefficients for concentration ratio are positive on return on equity. It indicates that concentration ratio has a positive impact on return on equity. This finding is consistent with the findings of Yadav et al. (2021). In addition, the beta coefficients for GDP growth rate are positive with return on equity. It indicates that leverage ratio has a positive impact on return on equity. This finding is consistent with the findings of Sufian and Kamarudin (2012).

4. Summary and conclusion

Banking sector in all countries has an important effect on economy movements. Essential role played by banks for improvement of the overall economic activities, including out its mediation and its financial activities, are necessary for the economic growth of any country. Bank performance is one of the important issues for the healthy functioning of the economy. Although there is good number of measures for evaluating bank performance, for a healthy, solid and stable banking sector, the banks must be analyzed and evaluated in a way that will allow the smooth correction and removal of the potential vulnerabilities.

This study attempts to analyze the effect of bank-related, industry-related and macroeconomic factors on the profitability of Nepalese commercial banks. The study is based on secondary data of 27 commercial banks with 189 observations for the period from 2014/15 to 2020/21.

The study showed that bank size, capital adequacy ratio, deposit ratio, GDP growth rate and inflation rate have a positive impact on return on assets. However, loan ratio, concentration ratio and liquidity ratio have negative impact on bank return on assets. Furthermore, the study also shows that bank size, deposit ratio, GDP growth rate and inflation rate have a positive impact on return on equity. However, capital adequacy ratio, liquidity ratio, concentration ratio and loan ratio have a negative impact on return on equity. The study concluded that loan ratio followed by capital adequacy ratio and GDP growth rate is the most influencing factor that explains the changes in the profitability in terms of return on assets. Likewise, the study also concluded that the most dominant factor that determines the return on equity is liquidity ratio followed by deposit ratio and loan ratio in the context of Nepalese commercial banks.

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Impact of financial ratios, operational efficiency and non-performing loans on the profitability of Nepalese commercial banks

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Abstract

This study examines the impact of financial ratios, operational efficiency and non-performing loans on the profitability of Nepalese commercial banks. Return on asset and net-interest margin are selected as the dependent variables. Similarly, capital adequacy ratio, loan loss provision ratio, loan-deposit ratio, debt to equity ratio, operational efficiency and non-performing loan are selected as the independent variables. This study is based on secondary data of 16 commercial banks with 128 observations for the study period from 2013/14 to 2020/21. The data were collected from Banking and Financial statistics published by Nepal Rastra Bank, reports published by Ministry of Finance, the annual report of respective banks and World Bank database. The correlation coefficients and regression models are estimated to test the significance and importance of financial ratios, operational efficiency and non-performing loans on the profitability of Nepalese commercial banks.

The study showed that capital adequacy ratio has a positive impact on return on asset. It indicates that increase in capital adequacy ratio leads to increase in return on asset. Moreover, loan loss provision ratio has a negative impact on return on asset. It indicates that higher the loan loss provision ratio, lower would be the return on asset. Furthermore, operational efficiency has a negative impact on return on asset. It indicates that higher the operational efficiency, lower would be the return on asset. Likewise, non-performing loan has a negative impact on return on asset. It indicates that higher the non-performing loan, lower would be the return on asset. The study also showed that loan to deposit ratio has negative impact on return on equity and net-interest margin. It indicates that higher the loan to deposit ratio, lower would be the return on asset and net-interest margin. Similarly, debt to equity assets ratio has a negative impact on return on asset and net-interest margin. It indicates that higher the debt-to-equity ratio, lower would be the return on asset and net-interest margin.

Key words: *Return on asset, net-interest margin, capital adequacy ratio, loan loss provision ratio, debt to equity ratio, operational efficiency and non-performing loan.*

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1. Introduction

Commercial banks are important financial intermediaries that play a greater role in economic development of any country. A strong financial system plays a critical role in enabling growth and reducing vulnerability to crises among commercial banks. This mitigates the likelihood of disruptions in the financial intermediation process that are severe enough to significantly impair the allocation of savings to profitable investment opportunities (Stein, 2011). The banking system plays a major role in transferring funds from the saving units to the investing units (Nshimiyimana and Zubeda, 2017). If the banking industry does not perform well, the effect to the economy could be huge and broad. Thus, banks are a critical part of financial system, which play a pivotal role in contributing to country's economic development (Said and Tumin, 2011). Banks have to manage their risks, maintain profitability and increase public confidence level. This is linked to bank health assessment which is very important for all the stakeholders such as the owners, the management, the customers and the government itself. Stakeholder, potential investor, manager, lenders, creditors, regulatory agencies and competitors are interested in different ratios (Mirfakhr *et al.*, 2011).

Commercial banks are important financial intermediaries that play a greater role in economic development of any country. They collect funds from surplus units and provide loan to deficit units earning profit in between those function. During these activities, commercial banks carry a huge risk of loan default and difficulty in payment to depositors which may be affiliated to various factors such as instability in the government, instable economic condition or other bank related factors that may or may not be avoided. These risks may hinder the profitability and ultimately the stability of banking system (Jaara, 2021). Banks are the most important financial intermediaries in the most economies that provide a bundle of different services. As financial intermediaries, banks play a crucial role in the operation of most economies. The efficiency of financial intermediation can also affect economic growth. Besides, banks insolvencies can result in systemic crisis. Economies that have a profitable banking sector are better able to withstand negative shocks and contribute to the stability of the financial system (Athanasoglou *et al.*, 2005).

Meero (2015) examined the relationship between capital structure variables and performance of Islamic and Conventional Banks in Gulf Countries (GC). The study indicated that there is a positive relationship between debt equity ratio and profitability. However, Hafeez *et al.* (2016) found that debt equity ratio has a negative and significant relation with profitability. Kingu *et al.* (2018) revealed that non-performing loan has a negative and significant impact on bank's profitability. However, Abiola and Olausi (2014) found that non-performing loan has a significant and positive impact on the commercial bank's performance in Nigeria. Nuhiu *et al.* (2017) elaborated whether the determinants of commercial banks profitability affect the financial performance of commercial banks in Kosovo. The study found that non-performing loans and capital adequacy ratio have positive relationship with financial performance. In addition, Liyana and Indrayani (2020) determined the effect of non-performing loan, loan to deposit ratio, and net interest margin on financial performance (return on assets). The study showed that loan to deposit ratio has a positive relationship with return on assets. Operational efficiency (OEOI) has a positive and significant effect on bank profits as measured by ROA. Chou and Buchdadi (2016) revealed that LDR has a positive and significant effect on ROA. Similarly, Vernanda and Widayarti (2016) showed that LDR has a positive and insignificant effect on profitability (ROA). However, Pinasti and Mustikawati (2018) showed that LDR has a negative effect and no significant effect on profitability.

Alshebmi (2020) analyzed the non-performing loans and its effect on banks profitability in context of Saudi Arabia banking sector. The study found that there is a negative and insignificant relationship

between non-performing loan ratio and return on assets ratio. Likewise, Bhattacharai (2016) examined the effect of non-performing loan on the profitability of commercial banks in Nepal. The study revealed that non-performing loan ratio has positive effect on shareholders' return (ROE). Similarly, Martiningtiyas and Nitinegeri (2020) examined the effect of non-performing loans (NPL) on profitability in banking sector in Indonesia. The study revealed that NPL has a significant negative influence on profitability of bank. In addition, Akter and Roy (2017) investigated the impact of non-performing loan on profitability on banking sector of Dhaka stock exchange. The study found that non-performing loan is one of the major factors influencing banks profitability and it has statistically significant negative impact on net profit margin (NPM) of listed banks for the study periods. Likewise, Nwosu *et al.* (2020) investigated the association between non-performing loans and profitability of Nigerian commercial banks. The study revealed a statistically significant negative impact of non-performing loan on bank's profitability.

Samad (2015) examined the determinants of bank profitability in context of Bangladesh commercial banks. The study revealed that loan loss provision has a negative impact on bank's profitability measured in terms of ROA and ROE. Higher levels of loan loss provisions are expected to lead to higher levels of NPLs resulting decrease in bank's performance. In addition, Staikouras and Wood (2004) analyzed the determinants of European's bank profitability. The study concluded that loan loss provision negatively impacts bank's profitability. Likewise, Annor and Obeng (2017) analyzed the impact of credit risk management on the profitability of selected commercial banks listed on Ghana stock exchange. The study concluded that there is a statistically significant negative relationship of loan loss provision with the profitability of a bank. Similarly, Islam (2018) evaluated loan loss provisioning for non-performing loans and its impact on the profitability of commercial banks in Bangladesh. The study revealed that profitability was significantly and negatively influenced by the loan loss provisions. Said and Tumin (2011) examined the association between performance and financial ratios of commercial banks in Malaysia and China. The study revealed that operating expenses is negatively related to banks performance in both countries when performance is measured by ROA. Ameer (2015) investigated the determinants of banking sector performance in Pakistan. The study found indirect link of operating expenses with performance of banks. In addition, Diaconu and Oanea (2015) examined the determinants of bank's stability of Credit Coop. The study revealed that an increase in operational expenses will reduce the profitability and stability. Similarly, Kedia (2016) investigated the determinants of profitability of Indian public sector banks. The study concluded that net profits of public sector banks have significant correlation with operating expenses. Likewise, Trofimov *et al.* (2018) analyzed the determinants of commercial bank's profitability in Malaysia. The study found that cost efficiency has a significant negative relationship with commercial bank's performances.

In the context of Nepal, Budhathoki *et al.* (2020) examined the impact of liquidity, leverage, and total assets size on the profitability. The study revealed that there is a negative relationship of loan to deposit ratio (low level of liquidity) with the bank's ROA, ROE, and NIM. Similarly, Poudel (2018) found that solvency ratio, interest spread rate, and inflation have an insignificant negative impact on profitability whereas capital adequacy ratio, total assets, and GDP growth have a significant positive impact on profitability of commercial banks in Nepal. Likewise, Gautam (2018) showed that credit to deposit ratio, net profit to loan and advances, non-performing loan to total loan and interest income to loan and advance have positive impact on profitability. In addition, Pradhan *et al.* (2017) revealed that bank operating efficiency, loan ratio, total deposit to total assets and loan loss provision to total equity have significantly positive impact on financial performance of commercial banks whereas loan loss provision to total loan, core capital ratio, risk weighted ratio and total capital ratio have negative impact on financial performance of Nepalese commercial banks. Likewise, Gurung and

Gurung (2022) investigated the factors determining profitability of commercial banks in context of Nepalese Banking Sector. The study found that there exists a negative relationship between loan loss provisions and ROA.

The above discussion shows that empirical evidences vary greatly across the studies on the impact of financial ratios, operational efficiency and non-performing loans on the profitability of banks. Though there are above mentioned empirical evidences in the context of other countries and in Nepal, no such findings using more recent data exist in the context of Nepal. Therefore, in order to support one view or the other, this study has been conducted.

The main purpose of the study is to analyze the impact of financial ratios, operational efficiency and non-performing loans on the profitability of Nepalese commercial banks. Specifically, it examines the relationship of capital adequacy ratio, loan loss provision ratio, and loan-deposit ratio, debt to equity ratio, operational efficiency and non-performing loans with return on asset and net-interest margin of Nepalese commercial banks.

The remainder of this study is organized as follows. Section two describes the sample, data and methodology. Section three presents the empirical results and the final sections draws the conclusion.

2. Methodological aspects

The study is based on the secondary data which were gathered from 16 commercial banks for the period from 2013/14 to 2020/21, leading to a total of 128 observations. The study employed stratified sampling method. The main sources of data include Banking and Financial statistics published by Nepal Rastra Bank, reports published by Ministry of Finance, the annual report of respective banks and World Bank database. This study is based on descriptive as well as causal comparative research designs. Table 1 shows the list of commercial banks selected for the study along with the study period and number of observations.

Table 1: List of commercial banks selected for the study along with study period and number of observations

S. N.	Name of the banks	Study period	Observations
Public Banks			
1	Nepal Bank Limited	2013/14 - 2020/21	8
2	Agricultural Development Bank Limited	2013/14 - 2020/21	8
Joint Venture Banks			
3	Nabil Bank Limited	2013/14 - 2020/21	8
4	Nepal SBI Bank Limited	2013/14 - 2020/21	8
5	Everest Bank Limited	2013/14 - 2020/21	8
6	Himalayan Bank Limited	2013/14 - 2020/21	8
7.	Standard Chartered Bank Nepal Limited	2013/14 - 2020/21	8
Private Banks			
8	NIC Asia Bank Limited	2013/14 - 2020/21	8
9	Global IME Bank Limited	2013/14 - 2020/21	8
10	Prime Commercial Bank Limited	2013/14 - 2020/21	8

11	Bank of Kathmandu Limited	2013/14 - 2020/21	8
12	Machhapuchchhre Bank Limited	2013/14 - 2020/21	8
13	Prabhu Bank Limited	2013/14 - 2020/21	8
14	Kumari Bank Limited	2013/14 - 2020/21	8
15	Sanima Bank Limited	2013/14 - 2020/21	8
16	Laxmi Bank Limited	2013/14 - 2020/21	8
Total number of observations			128

Thus, the study is based on the 128 observations.

The model

The model used in this study assumes that the bank's profitability depends upon financial ratios, operational efficiency and non-performing loans. The dependent variables selected for the study are return on asset and net-interest margin. Similarly, the selected independent variables are capital adequacy ratio, loan loss provision ratio, and loan-deposit ratio, debt to equity ratio, operational efficiency and non-performing loan. Therefore, the model takes the following form:

Profitability = f (CAR, LLP, LDR, DE, OE and NPL)

More specifically,

$$\text{ROA} = \beta_0 + \beta_1 \text{CAR} + \beta_2 \text{LLP} + \beta_3 \text{LDR} + \beta_4 \text{DE} + \beta_5 \text{OE} + \beta_6 \text{NPL} + e_{it}$$

$$\text{NIM} = \beta_0 + \beta_1 \text{CAR} + \beta_2 \text{LLP} + \beta_3 \text{LDR} + \beta_4 \text{DE} + \beta_5 \text{OE} + \beta_6 \text{NPL} + e_{it}$$

Where,

ROA = Return on assets as measured by the ratio of net income to total assets, in percentage.

NIM = Net-interest margin as measured by the ratio of net interest income to total assets, in percentage.

CAR = Capital adequacy ratio as measured by the ratio of total capital to total risk weighted exposure, in percentage.

LLP = Loan loss provision is measured by loan loss provision to total loans, in percentage.

LDR = Loan to deposit ratio as measured by the ratio of bank's total amount of loans to the total amount of deposits for the same period, in percentage.

DE = Debt to equity ratio as measured by the ratio of total debt to total equity, in percentage.

OE = Operating efficiency as measured by the ratio of operating expenses to operating income, in percentage.

NPL = Nonperforming loans as measured by the ratio of non-performing loans to total loans, in percentage.

The following section describes the independent variables used in this study along with hypothesis formulation.

Capital adequacy ratio

Capital adequacy ratio (CAR) is defined as the ratio of capital to the risk-weighted sum of a bank's assets. Ben Naceur and Goaid (2008) examined the impact of bank specific variables and macroeconomic indicators and financial structure's effect on banking sector's profitability in Tunisia from 1980 to

2000. The study concluded that capital adequacy ratio has a positive effect on profitability. Similarly, Jadhav *et al.* (2021) found that capital adequacy ratio has a positive impact on profitability. Likewise, Ebenezer *et al.* (2017) stated that CAR has a positive and significant effect on bank profitability. In addition, Olalekan and Adeyinka (2013) showed a positive and significant relationship between capital adequacy and profitability of bank. Based on it, this study develops the following hypothesis:

H_1 : *There is a positive relationship between capital adequacy ratio and profitability of Nepalese commercial banks.*

Loan loss provision ratio

Vong and Chan (2009) examined the determinants of profitability among banks in Macao from 1993 to 2007. The study found a significant negative relationship between loan loss provisions and bank profitability. Likewise, Elshaday *et al.* (2018) revealed that there is a negative and statistically significant effect of loan loss provision on banks' financial performance. Furthermore, Ozili (2015) revealed a negative but insignificant relation between return on assets and loan loss provisions. Based on it, this study develops the following hypothesis:

H_2 : *There is a negative relationship between loan loss provision ratio and profitability of Nepalese commercial banks.*

Loan to deposit ratio

Abreu and Mendes (2002) found that there is a statistically significant and positive relationship between loans to deposits ratio and bank profitability. Similarly, Sharifi and Akhter (2016) found that CDR positively influence public sector bank's financial performance. Likewise, Ulandari *et al.* (2016) found that loan to deposit ratio has a positive effect on profitability. Moreover, Shafana (2015) found that credit to deposit ratio has a significant positive effect on profitability of financial institutions. Similarly, Bolek and Wilinski (2012) found that credit to deposit ratio has a positive impact on the profitability. Based on it, this study develops the following hypothesis:

H_3 : *There is a positive relationship between loan to deposit ratio and profitability of Nepalese commercial banks.*

Debt to equity ratio

Debt to equity ratio is used to assess the size of the company's debt to the equity owned by the company (Safitri *et al.*, 2020). Gweji and Karanja (2014) investigated the effect of financial leverage on firm performance of deposit taking savings and credit co-operative in Kenya. The study showed that there is a perfect positive relationship between financial leverage surrogated by debt-equity ratio with firm performance. Similarly, Amanda (2019) concluded that debt to equity ratio has a positive effect on profitability. Likewise, Birru (2018) concluded a positive relationship between debt-to-equity ratio and financial performance of banks. Musah (2018) examined the effect of capital structure on the profitability of commercial banks in Ghana. The study found that debt to equity ratio is positively associated with profitability. In addition, Niresh (2012) found that debt to equity ratio has a positive impact on profitability. Based on it, this study develops the following hypothesis:

H_4 : *There is a positive relationship between debt-to-equity ratio and profitability of Nepalese commercial banks.*

Operational efficiency

Sufian and Chong (2008) examined the determinants of Philippines banks profitability during the period 1990–2005. The study found that operational efficiency negatively influences bank profitability. Moreover, Juwita *et al.* (2018) found a negative and significant effect of operational efficiency on ROA. Likewise, Purwoko and Sudiyatno (2013) concluded that operating efficiency has a negative impact on banks performance. In addition, Alam *et al.* (2022) concluded that operational efficiency has a negative impact on ROA (Return on assets). In contrast, Sabir *et al.* (2012) found that operating efficiency has no significant effect on profitability. However, Yesmine and Bhuiyah (2015) revealed that operating efficiency has a significant negative impact on banks' profitability. Based on it, this study develops the following hypothesis:

H_5 : *There is a negative relationship between operational efficiency and profitability of Nepalese commercial banks.*

Non-performing loan

Trujillo-Ponce (2013) evaluated the determinants of productivity among Spanish commercial banks. The study found that NPLs has a negative impact on both ROA and ROE. Likewise, Felix and Claudine (2008) found that return on equity (ROE) and return on assets (ROA) both measuring profitability were inversely related to the ratio of non-performing loan to total loan. Furthermore, Altunbas *et al.* (2000) confirmed that there exists a negative relationship between NPLs ratio and performance. Pham (2013) evaluated the impact of NPLs on the profitability of Vietnamese commercial banks between 2005 and 2012. The result indicated that NPLs has a significant and negative correlation with banks' profitability. Based on it, this study develops the following hypothesis:

H_6 : *There is a negative relationship between non-performing loan and profitability of Nepalese commercial banks.*

3. Results and discussion

Descriptive statistics

Table 2 presents the descriptive statistics of the selected dependent and independent variables during the period 2013/14 to 2020/21.

Table 2: Descriptive statistics

This table shows the descriptive statistics of dependent and independent variables of 16 Nepalese commercial banks for the study period of 2013/14 to 2020/21. The dependent variables are ROA (Return on assets as measured by the ratio of net profit to total asset, in percentage) and Net-interest margin (Net-interest margin as measured by the ratio of net interest income to total assets, in percentage). The independent variables are CAR (Capital adequacy ratio as measured by the ratio of total capital to total risk weighted exposure, in percentage), LLP (Loan loss provision is measured by loan loss provision to total loans, in percentage), LDR (Loan to deposit ratio as measured by the ratio of bank's total amount of loans to the total amount of deposits for the same period, in percentage), DE (Debt to equity ratio as measured by the ratio of total debt to total equity, in percentage), OE (Operating efficiency as measured by the ratio of operating expenses to operating income, in percentage) and NPL (Nonperforming loans as measured by the ratio of non-performing loans to total loans, in percentage).

Variables	Minimum	Maximum	Mean	Std. Deviation
ROA	-1.44	3.90	1.60	0.56
NIM	1.87	9.93	3.38	1.14
CAR	4.55	22.99	13.51	2.61
LLP	0.11	3.56	0.77	0.56
LDR	48.92	98.08	81.73	9.73
DE	4.19	14.67	8.22	2.25
OE	0.00	821.85	37.24	73.91
NPL	0.02	5.35	1.29	1.15

Source: SPSS output

Correlation analysis

Having indicated the descriptive statistics, Pearson's correlation coefficients are computed and the results are presented in Table 3.

Table 3: Pearson's correlation coefficients matrix

This table shows the bivariate Pearson's correlation coefficients of dependent and independent variables of 16 Nepalese commercial banks for the study period from 2013/14 to 2020/21. The dependent variables are ROA (Return on assets as measured by the ratio of net profit to total asset, in percentage) and Net-interest margin (Net-interest margin as measured by the ratio of net interest income to total assets, in percentage). The independent variables are CAR (Capital adequacy ratio as measured by the ratio of total capital to total risk weighted exposure, in percentage), LLP (Loan loss provision is measured by loan loss provision to total loans, in percentage), LDR (Loan to deposit ratio as measured by the ratio of bank's total amount of loans to the total amount of deposits for the same period, in percentage), DE (Debt to equity ratio as measured by the ratio of total debt to total equity, in percentage), OE (Operating efficiency as measured by the ratio of operating expenses to operating income, in percentage) and NPL (Nonperforming loans as measured by the ratio of non-performing loans to total loans, in percentage).

Variables	ROA	NIM	CAR	LLP	LDR	DE	OE	NPL
ROA	1							
NIM	0.268**	1						
CAR	0.126	-0.013	1					
LLP	-0.198*	0.147	0.094	1				
LDR	-0.187*	-0.222*	-0.006	-0.001	1			
DE	-0.280**	-0.462**	-0.451**	-0.063	0.007	1		
OE	-0.515**	0.055	-0.209*	0.173	-0.213*	0.048	1	
NPL	-0.108	0.536**	0.044	0.535**	-0.036	-0.277**	0.128	1

Note: The asterisk signs (**) and (*) indicate that the results are significant at one percent and five percent levels respectively.

Table 3 shows that capital adequacy ratio has a positive relationship with return on assets. It means that increase in capital adequacy ratio leads to increase in return on assets. However, there is a negative relationship between loan loss provision ratio and return assets. It means that increase in loan loss provision ratio leads to decrease in return on assets. In contrast, loan to deposit ratio has a negative relationship with return on assets. It shows that increase in loan to deposit ratio leads to decrease in return on assets. Furthermore, there is a negative relationship between debt-to-equity

ratio and return on assets. It indicates that increase in debt-to-equity ratio leads to decrease in return on assets. Further, this study shows that there is a negative relationship between operational efficiency and return on assets. It means that increase in operational inefficiency leads to decrease in return on assets. Likewise, non-performing loan has a negative relationship with return on assets. It indicates that increase in non-performing loan leads to decrease in return on assets.

Similarly, the result also shows that capital adequacy ratio is negatively related to net-interest margin. It indicates that increase in capital adequacy ratio leads to decrease in net-interest margin. However, there is a positive relationship between loan loss provision ratio and net-interest margin. It indicates that increase in loan loss provision ratio leads to increase in net-interest margin. In addition, loan to deposit ratio is negatively related to net-interest margin. It shows that increase in loan to deposit ratio leads to decrease in net-interest margin. Furthermore, there is a negative relationship between debt-to-equity ratio and net-interest margin. It indicates that increase in debt-to-equity ratio leads to decrease in net-interest margin. However, there is a positive relationship between operational efficiency and net-interest margin. It means that increase in operational efficiency leads to increase in net-interest margin in Nepalese commercial bank. Likewise, non-performing loan has a positive relationship with net-interest margin. It means that increase in non-performing loan leads to increase in net-interest margin.

Regression analysis

Having indicated the Pearson's correlation coefficients, the regression analysis has been carried out and the results are presented in Table 4. More specifically, it shows the regression results of capital adequacy ratio, loan loss provision, loan to deposit ratio, debt to equity ratio, operational efficiency and non-performing loan with return on assets of Nepalese commercial banks.

Table 4: Estimated regression results of capital adequacy ratio, loan loss provision, loan to deposit ratio, debt to equity ratio, operational efficiency and non-performing loan on return on assets

The results are based on panel data of 16 commercial banks with 128 observations for the period of 2013/14-2020/21 by using the linear regression model and the model is $ROA = \beta_0 + \beta_1 CAR_{it} + \beta_2 LLP_{it} + \beta_3 LDR_{it} + \beta_4 DE_{it} + \beta_5 OE_{it} + \beta_6 NPL_{it} + e_{it}$ where, the dependent variable is ROA (Return on assets as measured by the ratio of net profit to total asset, in percentage). The independent variables are CAR (Capital adequacy ratio as measured by the ratio of total capital to total risk weighted exposure, in percentage), LLP (Loan loss provision is measured by loan loss provision to total loans, in percentage), LDR (Loan to deposit ratio as measured by the ratio of bank's total amount of loans to the total amount of deposits for the same period, in percentage), DE (Debt to equity ratio as measured by the ratio of total debt to total equity, in percentage), OE (Operating efficiency as measured by the ratio of operating expenses to operating income, in percentage) and NPL (Nonperforming loans as measured by the ratio of non-performing loans to total loans, in percentage).

Model	Intercept	Regression coefficients of						Adj. R_bar ²	SEE	F-value
		CAR	LLP	LDR	DE	OE	NPL			
1	1.237 (4.771)**	0.027 (1.427)						0.008	0.553	2.036
2	1.751 (21.253)**		-0.197 (2.269)*					0.032	0.547	5.147
3	2.472 (6.011)**			-0.011 (2.135)*				0.027	0.548	4.561
4	2.168 (12.045)**				-0.069 (3.271)**			0.071	0.536	10.703

5	1.744 (36.833)**					-0.004 (6.748)**		0.260	0.478	45.531
6	1.667 (22.564)**						-0.052 (1.215)	0.004	0.555	1.475
7	1.341 (5.201)**	0.031 (1.677)	-0.211 (2.433)*					0.045	0.543	4.017
8	2.214 (4.669)**	0.031 (1.690)	-0.211 (2.471)*	-0.011 (2.181)*				0.073	0.535	4.343
9	3.159 (5.719)**	0.004 (0.185)	-0.217 (2.623)**	-0.011 (2.239)*	-0.071 (3.072)**			0.132	0.517	5.837
10	4.286 (9.081)**	0.027 (1.639)	-0.106 (1.545)	-0.018 (4.457)**	-0.078 (4.158)**	-0.004 (7.949)**		0.424	0.422	19.667
11	4.439 (9.151)**	0.031 (1.822)	-0.049 (0.598)	-0.018 (4.517)**	-0.086 (4.367)**	-0.004 (7.947)**	-0.053 (1.304)	0.427	0.421	16.766

Notes:

- Figures in parenthesis are t-values.
- The asterisk signs (**) and (*) indicate that the results are significant at one percent and five percent level respectively.
- Return on asset is the dependent variable.

Table 4 shows that the beta coefficients for capital adequacy ratio are positive with return on assets. It indicates that capital adequacy ratio has a positive impact on return on assets. This finding is similar to the findings of Jadhav *et al.* (2021). However, the beta coefficients for loan loss provision ratio are negative with return on assets. It indicates that loan loss provision ratio has a negative impact on return on assets. This finding is similar to the findings of Elshaday *et al.* (2018). Similarly, the beta coefficients for loan to deposit ratio are negative with return on assets. It indicates that loan to deposit ratio has a negative impact on return on assets. This finding is similar to the findings of Shafana (2015). Likewise, the beta coefficients for debt to equity are negative with return on assets. It indicates that debt to equity ratio has a negative impact on return on assets. This finding is inconsistent to the findings of Amanda (2019). Similarly, the beta coefficients for non-performing loans are negative with return on assets. It indicates that non-performing loan has a negative impact on return on assets. This finding is inconsistent to the findings of Altunbas *et al.* (2000).

Table 5 shows the estimated regression results of capital adequacy ratio, loan loss provision, loan to deposit ratio, debt to equity ratio, operational efficiency and non-performing loan on net-interest margin of Nepalese commercial banks.

Table 5: Estimated regression results of capital adequacy ratio, loan loss provision, loan to deposit ratio, debt to equity ratio, operational efficiency and non-performing loan on net-interest margin

The results are based on panel data of 16 commercial banks with 128 observations for the period of 2013/14-2020/21 by using the linear regression model and the model is $NIM = \beta_0 + \beta_1 CAR_{it} + \beta_2 LLP_{it} + \beta_3 LDR_{it} + \beta_4 DE_{it} + \beta_5 OE_{it} + \beta_6 NPL_{it} + e_{it}$ where, the dependent variable is net-interest margin (Net-interest margin as measured by the ratio of net interest income to total assets, in percentage). The independent variables are CAR (Capital adequacy ratio as measured by the ratio of total capital to total risk weighted exposure, in percentage), LLP (Loan loss provision is measured by loan loss provision to total loans, in percentage), LDR (Loan to deposit ratio as measured by the ratio of bank's total amount of loans to the total amount of deposits for the same period, in percentage), DE (Debt to equity ratio as measured by the ratio of total debt to total equity, in percentage), OE (Operating efficiency as measured by the ratio of operating expenses to operating income, in percentage) and NPL (Nonperforming loans as measured by the ratio of non-performing loans to total loans, in percentage).

Model	Intercept	Regression coefficients of						Adj. R _{bar} ²	SEE	F-value
		CAR	LLP	LDR	DE	OE	NPL			
1	3.457 (6.441)**	-0.006 (0.146)						0.008	1.145	0.021
2	3.149 (18.435)**		0.311 (1.667)					0.014	1.133	2.778
3	5.512 (6.573)**			-0.026 (2.561)**				0.042	1.117	6.557
4	5.306 (15.535)**				-0.234 (5.846)**			0.207	1.016	34.172
5	3.348 (29.546)**					0.001 (0.620)		0.005	1.144	0.384
6	2.692 (20.895)**						0.534 (0.135)	0.282	0.967	50.481
7	3.305 (6.117)**	-0.012 (0.305)	0.305 (1.682)					0.007	1.137	1.425
8	5.446 (5.522)**	-0.012 (0.327)	0.305 (1.718)	-0.026 (2.571)**				0.049	1.112	3.196
9	9.421 (9.383)**	-0.127 (3.529)	0.281 (1.868)	-0.026 (3.001)**	-0.296 (7.107)**			0.321	0.941	15.981
10	9.644 (9.143)**	-0.133 (3.589)**	0.302 (1.971)*	-0.027 (3.085)**	-0.297 (7.118)**	0.001 (0.705)		0.318	0.943	12.831
11	8.250 (8.597)**	-0.103 (3.113)**	0.216 (1.338)	-0.025 (3.261)**	-0.222 (5.683)**	0.001 (0.902)	0.481 (5.939)**	0.467	0.832	19.576

Notes:

- i. Figures in parenthesis are t-values.
- ii. The asterisk signs (**) and (*) indicate that the results are significant at one percent and five percent level respectively.
- iii. Return on equity is the dependent variable.

Table 5 shows that the beta coefficients for capital adequacy ratio are negative with net-interest margin. It indicates that capital adequacy ratio has a negative impact on net-interest margin. This finding is inconsistent with the findings of Ebenezer *et al.* (2017). However, the beta coefficients for loan loss provision ratio are positive with net-interest margin. It indicates that loan loss provision ratio has a positive impact on net-interest margin. This finding is similar to the findings of Ozili (2015). Similarly, the beta coefficients for loan to deposit ratio are negative with net-interest margin. It indicates that loan to deposit ratio has a negative impact on net-interest margin. This finding is similar to the findings of Bolek and Wilinski (2012). Likewise, the beta coefficients for debt to equity are negative with net-interest margin. It indicates that debt to equity ratio has a negative impact on net-interest margin. This finding is inconsistent to the findings of Gweji and Karanja (2014).

4. Summary and conclusion

Commercial banks are an integral part of economy as it acts as a financial intermediary between depositors and lenders. The banks issue debts and loans to the creditors to capitalize their intermediation activities. Banks charge interest on the debts provided and provide interest on the deposit collected, with the difference being the source of income for the banks. These spread in

interest in turn is the major source of profit of bank which may be affected due to various factors that must be regularly reviewed so that the banks can make necessary decisions to control such factors.

This study attempts to analyze the impact of financial ratios, operational efficiency and non-performing loans on the profitability of Nepalese commercial banks. The study is based on secondary data of 16 commercial banks with 128 observations for the period from 2013/14 to 2020/21.

The study showed that loan loss provision, loan to deposit ratio, debt to equity ratio, operational efficiency and non-performing loan have negative impact on return on asset. However, capital adequacy ratio has a positive impact on return on asset. Likewise, loan to deposit ratio, debt to equity ratio and capital adequacy ratio have negative impact on net-interest margin. However, loan loss provision, operational efficiency and non-performing loan have positive impact on net-interest margin. The study concluded that operational efficiency is the most influencing factor that explains the changes in the return on asset of Nepalese commercial banks. Similarly, the study also concluded that debt to equity ratio is the most influencing factor that explains the changes in the net-interest margin in context of Nepalese commercial banks.

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Role of non-performing asset, capital adequacy and insolvency risk on the performance of Nepalese commercial banks

– Jyoti Chand*

Abstract

The study examines the role of non-performing asset, capital adequacy and insolvency risk on the performance of Nepalese commercial banks. Return on assets and return on equity are selected as the dependent variables. The selected independent variables are non-performing assets, capital adequacy ratio, credit to deposit ratio, insolvency risk and bank size. The study is based on secondary data of 27 commercial banks with 189 observations for the period from 2014/15 to 2020/21. The data were collected from Banking and Financial Statistics published by Nepal Rastra Bank, publications and websites of Nepal Rastra Bank (NRB) and Ministry of Finance (MoF) and annual reports of the selected commercial banks. The correlation coefficients and regression models are estimated to test the significance and importance of non-performing asset, capital adequacy and insolvency risk on the performance of Nepalese commercial banks.

The study showed that that non-performing loans has a negative impact on return on assets and return on equity. It shows that increase in non-performing loans leads to decrease in return on assets and return on equity. Likewise, capital adequacy ratio has a positive impact on return on assets. It means that increase in capital adequacy ratio leads to increase in return on assets. Moreover, capital adequacy ratio has a negative impact on return on equity. It means that increase in capital adequacy ratio leads to decrease in return on equity. Similarly, there is a negative impact of credit to deposit ratio on return assets and return on equity. It means that increase in credit to deposit ratio leads to decrease in return on assets and return on equity. However, insolvency risk has a negative impact on return on equity indicating that increase in insolvency risk leads to decrease in return on equity. Further, the study also showed that there is a positive impact of bank size on return on assets and return on equity. It means that increase in total assets leads to increase in return on assets and return on equity of Nepalese commercial banks.

Key words: Non-performing assets, capital adequacy ratio, credit to deposit ratio, insolvency risk and bank size, return on assets and return on equity.

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1. Introduction

The banking system plays an important role in the modern economic world. Banks collect the savings of the individuals and lend them out to a business. It plays an important role in the creation of new capital (or capital formation) in a country and thus help the growth process. Credit management is one of the most critical functions of any business. Advances in technology have transformed the credit management process in recent years making it more efficient and easier to manage. Many banks have made credit processes easier through digitization (Chabachib *et al.*, 2020). Digitization is becoming the norm for credit processes. However, the ease and speed provided turns out to have its own risk where the loan interest is higher than the average bank credit interest. Credit risk refers to the risk of default or non-payment or non-adherence to contractual obligations by a borrower. The revenue of banks comes primarily from interest on loans and accordingly, loans form a major source of credit risk. NPA ratio is a reflection of the overall bank efficiency and performance (Chabachib *et al.*, 2019). The increased NPAs put pressure on the recycling of funds and reduces the ability of banks for lending more and thus results in lesser interest income (Pasha and Srivenkataramana, 2014). In addition to NPA, the bank's credit risk can be examined through the bank's capital adequacy ratio (CAR). CAR is the ratio of a bank's capital in relation to its risk-weighted assets and current liabilities. It is decided by central banks and bank regulators to prevent commercial banks from taking excess leverage and becoming insolvent in the process. A bank with a high CAR is considered to be above the minimum requirements needed to suggest solvency. Generally, a bank with a high capital adequacy ratio is considered safe and likely to meet its financial obligations (Dabo *et al.*, 2018). In the banking sector, insolvency risk means the probability that the bank can no longer fulfill its financial obligations to depositors. The most common cause of bank failure occurs when the value of the bank's assets falls to below the market value of the bank's liabilities, which are the bank's obligations to creditors and depositors (Tan *et al.*, 2017).

Qin and Pastory (2012) examined the profitability of commercial banks in Tanzania. The results showed that liquidity and asset quality have a positive effect on the bank profitability. Similarly, Samad (2015) assessed 42 commercial banks in Bangladesh to find out the determinants of the profitability of banks. The study found that bank size and macro-economic variables were insignificant to profitability but bank-specific factors such as equity capital to total asset, loan to deposit ratio, loan loss provision to total asset and operating expenses have a significant effect on the profitability of the banks in Bangladesh. Owolabi and Obida (2012) found that there is no significant correlation between capital adequacy ratio and bank performance variables. Kaaya and Pastory (2013) examined the relationship between credit risk and bank performance as measured by return on asset. The study found a negative correlation between credit risks and bank profitability. Similarly, Shingjergji and Shingjergji (2013) showed that there is a negative relationship between return on equity (ROE) and the non-performing loan ratio showing that higher non-performing loan ratios will deteriorate the performance of the banks. Likewise, Iloska (2014) indicated that the strength and quality of capital influences bank profitability. Clearly, lower capital ratios imply higher leverage and risk leading to higher borrowing costs.

Capital requirements for banks have traditionally been regarded as one of the main tools to guarantee the financial stability of the banking sector. Capital requirements are regulations that limit the volume of leverage that banks can take on, but also the volume of quality capital banks must attain (Howarth and Quaglia, 2013). Capital adequacy ratio is the ratio of bank's capital in relation to its risk weighted assets and current liabilities. The study found that there is a negative relationship between non-performing loans and capital adequacy ratio (Makri *et al.*, 2014). However, Constant

and Ngomsi (2012) found a positive association between non-performing loans and capital adequacy ratio. Capital adequacy is used to determine whether a bank has enough capital to support the risk on its balance sheet i.e., it is used to mitigate bank solvency problem (Agbeja *et al.*, 2015). Shingjergji and Hyseni (2015) found that profitability indicators such as return on assets and return on equity do not have any influence on capital adequacy ratio. Insolvency or bankruptcy occurs when a bank cannot fulfill its obligations in its operations. It also implies that the cost of funds is greater than the profit. The bank cannot pay its debts as they fall due, even though its assets may be worth more than its liabilities. The bank ends up owing more than it owns or is owed to them; this means its assets are worth less than its liabilities. Therefore, this situation leads to insolvency for banks (Tursoy, 2018). Fang *et al.* (2019) found that there is a positive relationship between bank profitability, cost efficiency, banking sector development, stock market development, and inflation in China. The study found that the insolvency risk has a positive relationship with bank performance as measured by ROA and NIM.

Banks with higher capital are capable of absorbing any negative shocks and assumed to possess less insolvency. Higher capital may also incentivize shareholders to monitor management activities, therefore lower the probability of taking an excessive risk by managers (Ahemed, 2017). Bank capital is considered as one of the important factors affecting bank profitability. The bank's equity capital directly influenced the rate of return on equity. Further, Margolis and Walsh (2003) found a positive and significant relationship between liquidity and financial performances. Duca and McLaughlin (1990) found that the variation in bank profitability is largely attributable to variations in credit risk, since increased exposure to credit risk is normally associated with decreased firm profitability. Muthmainnah (2017) stated that leverage ratio has a positive effect on the level of profitability. Kolapo *et al.* (2012) investigated the effect of credit risk on performance of five commercial banks in Nigeria. The study revealed that non-performing loans and loan loss provision have statistically significant negative impact on return on assets while loans and advances has statistically positive impact on bank performance.

In the context of Nepal, Poudel (2012) examined the impact of the credit risk management in bank's financial performance in Nepal. The study concluded that credit risk, bank capital adequacy and non-performing assets have significant impact on bank's financial performance. Likewise, Budhathoki *et al.* (2020) examined the impact of assets quality, capital adequacy ratio, assets diversification and operating efficiency on banks' profitability. The study showed that assets quality, operating efficiency, and capital adequacy ratio significantly affect bank profitability. Moreover, Neupane (2020) examined the key determinants of profitability of Nepalese commercial banks. The result revealed that the bank profitability measured by return on assets of Nepalese commercial banks is significantly affected by concentration ratio, banking sector development, GDP growth, inflation and exchange rate. Mishra *et al.* (2021) analyzed the impact of size, loans and deposit, inflation and capital on the profitability of the banks. The study showed that there is a negative relationship of ROA and ROE with loan ratio, deposit ratio and capital ratio, while there is positive relation with bank size and inflation. Parajuli (2016) showed that liquidity and bank size are positively related to bank profitability measured by return on assets, return on equity and net interest margin.

The above discussion shows that empirical evidences vary greatly across the studies on the role of non-performing asset, capital adequacy and insolvency risk on the performance of commercial banks. Though there are above mentioned empirical evidences in the context of other countries and in Nepal, no such findings using more recent data exist in the context of Nepal. Therefore, in order to support one view or the other, this study has been conducted.

The main purpose of the study is to analyze the role of non-performing asset, capital adequacy and insolvency risk on the performance of Nepalese commercial banks. Specifically, it examines the relationship of non-performing assets, capital adequacy ratio, credit to deposit ratio, insolvency risk and bank size with return on assets and return on equity of Nepalese commercial banks.

The remainder of this study is organized as follows. Section two describes the sample, data and methodology. Section three presents the empirical results and the final sections draws the conclusion.

2. Methodological aspects

The study is based on the secondary data which were gathered from 27 Nepalese commercial banks from 2014/15 to 2020/21, leading to a total of 189 observations. The main sources of data include publications and websites of Nepal Rastra Bank (NRB), Ministry of Finance (MoF), and annual reports of the selected commercial banks. This study is based on descriptive as well as causal comparative research designs. Table 1 shows the list of commercial banks selected for the study along with the study period and number of observations.

Table 1: List of commercial banks selected for the study along with study period and number of observations

S. N.	Name of the banks	Study period	Observations
1	Agricultural Development Bank Limited	2014/15 - 2020/21	7
2	Bank of Kathmandu Limited	2014/15 - 2020/21	7
3	Century Commercial Bank Limited	2014/15 - 2020/21	7
4	Citizens Bank International Limited	2014/15 - 2020/21	7
5	Civil Bank Limited	2014/15 - 2020/21	7
6	Everest Bank Limited	2014/15 - 2020/21	7
7	Global IME Bank Limited	2014/15 - 2020/21	7
8	Himalayan Bank Limited	2014/15 - 2020/21	7
9	Kumari Bank Limited	2014/15 - 2020/21	7
10	Laxmi Bank Limited	2014/15 - 2020/21	7
11	Machhapuchchhre Bank Limited	2014/15 - 2020/21	7
12	Mega Bank Nepal Limited	2014/15 - 2020/21	7
13	Nabil Bank Limited	2014/15 - 2020/21	7
14	Nepal Bangladesh Bank Limited	2014/15 - 2020/21	7
15	Nepal Bank Limited	2014/15 - 2020/21	7
16	Nepal Credit and Commerce Bank Limited	2014/15 - 2020/21	7
17	Nepal Investment Bank Limited	2014/15 - 2020/21	7
18	Nepal SBI Bank Limited	2014/15 - 2020/21	7
19	NIC Asia Bank Limited	2014/15 - 2020/21	7
20	NMB Bank Limited	2014/15 - 2020/21	7
21	Prabhu Bank Limited	2014/15 - 2020/21	7
22	Prime Commercial Bank Limited	2014/15 - 2020/21	7

23	Rastriya Banijya Bank Limited	2014/15 - 2020/21	7
24	Sanima Bank Limited	2014/15 - 2020/21	7
25	Siddhartha Bank Limited	2014/15 - 2020/21	7
26	Standard Chartered Bank Nepal Limited	2014/15 - 2020/21	7
27	Sunrise Bank Limited	2014/15 - 2020/21	7
Total number of observations			189

Thus, the study is based on 189 observations.

The model

The model used in this study assumes that bank performance depends on different factors. The dependent variables selected for the study are return on assets and return on equity. Similarly, the selected independent variables in this study are non-performing assets, capital adequacy ratio, credit to deposit ratio, insolvency risk and bank size. The following model equations are designed to test the hypothesis:

$$ROA_{it} = \beta_0 + \beta_1 NPA_{it} + \beta_2 CAR_{it} + \beta_3 CDR_{it} + \beta_4 INR_{it} + \beta_5 BS_{it} + e_{it}$$

$$ROE_{it} = \beta_0 + \beta_1 NPA_{it} + \beta_2 CAR_{it} + \beta_3 CDR_{it} + \beta_4 INR_{it} + \beta_5 BS_{it} + e_{it}$$

Where,

ROA = Return on assets as measured by the ratio of net income to total assets, in percentage.

ROE = Return on equity as measured by the ratio of net income to shareholder's equity, in percentage.

NPA = Nonperforming assets as measured by the ratio of total non-performing loans to total loans, in percentage.

CAR = Capital adequacy ratio as measured by the ratio of total capital to total assets, in percentage.

CDR = Credit to deposit ratio as measured by the ratio of total credit to total deposit ratio, in percentage.

INR = Z-score is the proxy of insolvency risk as measured by the ratio of capital to assets ratio to the standard deviation of return on assets, in percentage.

BS = Bank size as measured by the total assets of a bank, Rs. in billion.

The following section describes the independent variables used in this study along with hypothesis formulation.

Non-performing assets

A non-performing asset (NPA) is a loan or advance for which the principal or interest payment remained overdue for a specified period, usually 90 days (Dawn, 2018). Kumari *et al.* (2017) examined the relationship between NPA and the performance of banks in the Indian banking industry. The study found a significant negative relationship between nonperforming loans and ROA in private banks. Dawn (2018) showed that there is a significant negative relationship between nonperforming loans and return on assets. Pervez and Bansal (2019) found a significant negative relationship between non-performing assets and NIM in the Indian banking industry. Kingu *et al.* (2018) found that there is a negative relationship between non-performing loan and level of profitability. Abiola and Olausi (2014) revealed that non-performing loan has a significant negative impact on the return

of asset and return on equity of commercial banks in Nigeria. In addition, Singh (2017) revealed that return on assets and return on equity are negatively related with non-performing loans. Based on it, this study develops the following hypothesis:

H_1 : *There is a negative relationship between non-performing assets and bank performance.*

Capital adequacy ratio

Capital adequacy ratio is defined as the percentage ratio of a financial institution's primary capital to its assets and used as a measure of its financial strength and stability (Asikhia and Sokefun, 2013). Wijaya and Yudawisastra (2019) examined the influence of capital adequacy ratio, net interest margin and liquidity ratio against profitability ratio. The study found that there is a positive relationship between capital adequacy ratio and return on assets. Lin *et al.* (2005) showed that there is a significant positive relationship between the capital adequacy ratio and various financial performances. Pervez and Bansal (2019) found a significant positive relationship between CAR and ROE in banks in India. Similarly, Getahun *et al.* (2015) showed a positive relationship between capital adequacy ratio and banks performance measured by return on assets, return on equity and net interest margin. In addition, Khalid *et al.* (2021) also showed that there is a positive relationship between the banks' financial performance and capital adequacy ratio. Based on it, this study develops the following hypothesis:

H_2 : *There is a positive relationship between capital adequacy ratio and bank performance.*

Credit to deposit ratio

Al-Qudah and Jaradat (2013) found that there is positive association between ROE and total loans to total deposits. Shingiergji (2013) stated that credit to deposit ratio has a positive and significant association with bank performance. Likewise, Kosmidou *et al.* (2008) revealed a positive relationship between loan to deposit ratio and profitability ratio. Similarly, Sharifi and Akhter (2016) showed that there is a positive relationship between CD ratio and profitability. Likewise, Prasanjaya and Ramantha (2013) found that loan deposit ratio has a significant positive effect on return on assets of the bank. Albulescu (2015) found that return on asset has a negative and significant relationship with credit to deposit ratio. Similarly, Rosyid and Noor (2018) revealed that there is a positive relationship of loan to deposit ratio with the profitability of firms listed in Indonesia Stock Exchange. Yudha *et al.* (2017) concluded that loan to deposit ratio has a positive effect on bank profitability measured by return on assets. Based on it, this study develops the following hypothesis:

H_3 : *There is a positive relationship between credit to deposit ratio and bank performance.*

Insolvency risk

Insolvency risk, in this study, is measured using the Z-score ratio by Altman for emerging markets. Tan and Floros (2014) employed Z-Score as an indicator of risk measurement and found a significant positive relationship between insolvency risk and ROA and ROE in the Chinese banking industry. Similarly, Tan *et al.* (2017) showed that there is a significant positive relationship between insolvency risk measured by Z-Score and the profitability of commercial banks in China measured by ROA. Moreover, Shair *et al.* (2019) also revealed that there was a significant positive relationship between insolvency risk and ROA, ROE, and NIM in the Pakistani banking industry. Based on it, this study develops the following hypothesis:

H_4 : *There is a positive relationship between insolvency risk and bank performance.*

Bank size

Kapaya and Raphael (2016) assessed the effects of bank-specific, industry-specific and macroeconomic determinants on banks profitability. The study argued that bank size has a positive impact on profitability measured by net interest margin and return on assets. Hirindu (2017) proved that bank size is positive and it is statistically significant determinants of profitability for ROA models. Rudhani *et al.* (2016) asserted that bank size has a positive correlation with profitability. Maina *et al.* (2019) showed that firm size as measured by customer deposits and loans advance have a positive relationship with profitability of commercial banks in Kenya. Kosmidou *et al.* (2008) found that bank size is positively related to bank profitability. Pervin *et al.* (2015) showed that loan to asset ratio and bank size have a positive relation with return on asset (ROA). Terraza (2015) showed a positive effects of bank capital and bank size on banks' profitability. Gul *et al.* (2011) showed that there is direct relationship between the size of banks and profitability. Based on it, this study develops the following hypothesis:

H_5 : *There is a positive relationship between bank size and bank performance.*

3. Results and discussion

Descriptive statistics

Table 2 presents the descriptive statistics of the selected dependent and independent variables during the period 2014/15 to 2020/21.

Table 2: Descriptive statistics

This table shows the descriptive statistics of dependent and independent variables of 27 Nepalese commercial banks for the study period of 2014/15 to 2020/21. The dependent variables are ROA (Return on assets as measured by the ratio of net income to total assets, in percentage) and ROE (Return on equity as measured by the ratio of net income to shareholder's equity, in percentage). The independent variables are NPL (Nonperforming assets as measured by the ratio of total non-performing loans to total loans, in percentage), CAR (Capital adequacy ratio as measured by the ratio of total capital to total assets, in percentage), CDR (Credit to deposit ratio as measured by the ratio of total credit to total deposit ratio, in percentage), INR (Z-score is the proxy of insolvency risk as measured by the ratio of capital to assets ratio to the standard deviation of return on assets, in percentage) and BS (Bank size as measured by the total assets of a bank, Rs. in billion).

Variables	Minimum	Maximum	Mean	S. D.
ROA	0.01	3.12	1.56	0.55
ROE	5.46	55.31	15.26	5.71
NPL	0.02	7.49	1.42	1.23
CAR	7.49	22.99	13.71	2.31
CDR	56.47	105.72	85.67	9.16
INR	3.44	72.75	16.61	5.95
BS	24.71	346.14	114.11	62.56

Source: SPSS output

Correlation analysis

Having indicated the descriptive statistics, Pearson's correlation coefficients are computed and the results are presented in Table 3.

Table 3: Pearson's correlation coefficients matrix

This table shows the bivariate Pearson's correlation coefficients of dependent and independent variables of 27 Nepalese commercial banks for the study period from 2014/15 to 2020/21. The dependent variables are ROA (Return on assets as measured by the ratio of net income to total assets, in percentage) and ROE (Return on equity as measured by the ratio of net income to shareholder's equity, in percentage). The independent variables are NPL (Nonperforming assets as measured by the ratio of total non-performing loans to total loans, in percentage), CAR (Capital adequacy ratio as measured by the ratio of total capital to total assets, in percentage), CDR (Credit to deposit ratio as measured by the ratio of total credit to total deposit ratio, in percentage), INR (Z-score is the proxy of insolvency risk as measured by the ratio of capital to assets ratio to the standard deviation of return on assets, in percentage) and BS (Bank size as measured by the total assets of a bank, Rs. in billion).

Variables	ROA	ROE	NPL	CAR	CDR	INR	BS
ROA	1						
ROE	0.407**	1					
NPL	-0.141	-0.060	1				
CAR	0.123	-0.346**	0.008	1			
CDR	-0.223**	-0.328**	0.018	0.131	1		
INR	0.098	-0.336**	-0.041	0.335**	0.236**	1	
BS	0.047	0.119	0.071	0.098	0.087	0.113	1

Note: The asterisk signs (**) and (*) indicate that the results are significant at one percent and five percent levels respectively.

Table 3 shows that non-performing loans has a negative relationship with return on assets. It shows that increase in non-performing loans leads to decrease in return on assets. Likewise, capital adequacy ratio is positively correlated to return on assets. It means that increase in capital adequacy ratio leads to increase in return on assets. Similarly, there is a negative relationship between credit to deposit ratio and return assets. It means that increase in credit to deposit ratio leads to decrease in return on assets. However, there is a positive relationship between insolvency risk and return on assets. It indicates that increase in insolvency risk leads to increase in return on assets. Further, this study shows that there is a positive relationship between bank size and return on assets. It means that increase in total assets leads to increase in return on assets of Nepalese commercial banks.

Similarly, the result also shows that non-performing assets is negatively related to return on equity. It shows that increase in non-performing assets leads to decrease in return on equity. In addition, capital adequacy ratio is negatively correlated to return on equity. It indicates that increase in capital adequacy ratio leads to decrease in return on equity. Likewise, there is a negative relationship between credit to deposit ratio and return on equity. It indicates that increase in credit to deposit ratio leads to decrease in return on equity. In addition, there is a negative relationship between insolvency risk and return on equity. It indicates that increase in insolvency risk leads to decrease in return on equity. In addition, bank size has a positive relationship with return on equity. It means that larger bank size leads to increase in return on equity.

Regression analysis

Having indicated the Pearson's correlation coefficients, the regression analysis has been carried

out and results are presented in Table 4. More specifically, it shows the regression results of non-performing assets, capital adequacy ratio, credit to deposit ratio, insolvency risk and bank size on return on assets of Nepalese commercial banks.

Table 4: Estimated regression results of non-performing assets, capital adequacy ratio, credit to deposit ratio, insolvency risk and bank size on return on assets

The results are based on panel data of 27 commercial banks with 189 observations for the period of 2014/15-2020/21 by using the linear regression model and the model is $ROA = \beta_0 + \beta_1 NPA_{it} + \beta_2 CAR_{it} + \beta_3 CDR_{it} + \beta_4 INR_{it} + \beta_5 BS_{it} + e_{it}$ where, the dependent variable is ROA (Return on assets as measured by the ratio of net income to total assets, in percentage). The independent variables are NPL (Nonperforming assets as measured by the ratio of total non-performing loans to total loans, in percentage), CAR (Capital adequacy ratio as measured by the ratio of total capital to total assets, in percentage), CDR (Credit to deposit ratio as measured by the ratio of total credit to total deposit ratio, in percentage), INR (Z-score is the proxy of insolvency risk as measured by the ratio of capital to assets ratio to the standard deviation of return on assets, in percentage) and BS (Bank size as measured by the total assets of a bank, Rs. in billion).

Model	Intercept	Regression coefficients of					Adj. R _{bar} ²	SEE	F-value
		NPA	CAR	CDR	INR	BS			
1	1.657 (26.627)**	-0.063 (1.942)*					0.015	0.546	3.770
2	1.161 (4.823)**		0.029 (1.696)				0.010	0.548	2.876
3	2.387 (8.985)**			-0.110 (3.132)**			0.085	0.538	9.811
4	1.414 (11.893)**				0.009 (1.341)		0.004	0.549	1.797
5	1.611 (19.272)**					0.015 (0.643)	0.003	0.551	0.414
6	1.251 (5.143)**	-0.062 (1.966)*	0.030 (1.724)				0.025	0.544	3.392
7	2.034 (6.173)**	-0.062 (1.961)*	0.037 (2.206)*	-0.109 (3.414)**			0.078	0.529	6.275
8	2.053 (6.247)**	-0.059 (1.888)*	0.029 (1.624)	-0.112 (3.662)**	0.011 (1.501)		0.084	0.527	5.302
9	2.069 (6.262)**	-0.058 (1.838)*	0.029 (1.652)	-0.111 (3.616)**	0.011 (1.538)	0.009 (0.573)	0.080	0.528	4.292

Notes:

- i. Figures in parenthesis are t-values.
- ii. The asterisk signs (**) and (*) indicate that the results are significant at one percent and five percent level respectively.
- iii. Return on assets is the dependent variable.

Table 4 shows that that the beta coefficients for non-performing loans are negative with return on assets. It indicates that non-performing loan has a negative impact on return on assets. This finding is similar to the findings of Abiola and Olausi (2014). Similarly, the beta coefficients for capital adequacy ratio are positive with return on assets. It indicates that capital adequacy ratio has a positive impact on return on assets. This finding is consistent with the findings of Wijaya and Yudawisastra (2019). Likewise, the beta coefficients for credit to deposit ratio are negative with return on assets. It indicates that credit to deposit ratio has a negative impact on return on assets. This finding is similar to the findings of Yudha *et al.* (2017). Similarly, the beta coefficients for insolvency risk are positive with return on assets. It indicates that insolvency risk has a positive impact on return on assets. This

finding is consistent with the findings of Tan *et al.* (2017). In addition, the beta coefficients of bank size are positive with return on assets. It indicates that bank size has a positive impact on return on assets. This finding is similar to the findings of Terraza (2015).

Table 5 shows the estimated regression results of non-performing assets, capital adequacy ratio, credit to deposit ratio, insolvency risk and bank size on return on equity of Nepalese commercial banks.

Table 5: Estimated regression results of non-performing assets, capital adequacy ratio, credit to deposit ratio, insolvency risk and bank size on return on equity

The results are based on panel data of 27 commercial banks with 189 observations for the period of 2014/15-2020/21 by using the linear regression model and the model is $ROE = \beta_0 + \beta_1 NPA_{it} + \beta_2 CAR_{it} + \beta_3 CDR_{it} + \beta_4 INR_{it} + \beta_5 BS_{it} + e_{it}$, the dependent variable is ROE (Return on equity as measured by the ratio of net income to shareholder's equity, in percentage). The independent variables are NPL (Nonperforming assets as measured by the ratio of total non-performing loans to total loans, in percentage), CAR (Capital adequacy ratio as measured by the ratio of total capital to total assets, in percentage), CDR (Credit to deposit ratio as measured by the ratio of total credit to total deposit ratio, in percentage), INR (Z-score is the proxy of insolvency risk as measured by the ratio of capital to assets ratio to the standard deviation of return on assets, in percentage) and BS (Bank size as measured by the total assets of a bank, Rs. in billion).

Model	Intercept	Regression coefficients of					Adj. R _{bar} ²	SEE	F-value
		NPA	CAR	CDR	INR	BS			
1	14.847 (22.807)**	-0.277 (0.816)					0.002	5.717	0.665
2	27.018 (11.441)**		-0.858 (5.051)**				0.115	5.373	25.511
3	27.802 (10.407)**			-0.148 (4.749)**			0.103	5.411	22.549
4	20.619 (17.663)**				-0.323 (4.879)**		0.108	5.395	23.800
5	14.014 (16.254)**					0.011 (1.640)	0.009	5.687	2.691
6	26.607 (11.061)**	-0.290 (0.908)	-0.859 (5.055)**				0.115	5.376	13.155
7	36.327 (11.358)**	-0.313 (1.027)	-0.765 (4.676)**	-0.130 (4.367)**			0.193	5.132	15.978
8	35.996 (11.440)**	-0.271 (0.903)	-0.619 (3.650)**	0.113 (3.784)**	-0.183 (2.722)*		0.220	5.045	14.250
9	35.195 (11.370)**	-0.208 (0.045)	-0.648 (3.894)**	-0.118 (4.022)**	-0.198 (2.991)**	0.017 (2.936)**	0.251	4.944	13.596

Notes:

- i. Figures in parenthesis are t-values.
- ii. The asterisk signs (**) and (*) indicate that the results are significant at one percent and five percent level respectively.
- iii. Return on equity is the dependent variable.

Table 5 shows that the beta coefficients for non-performing loans are negative with return on equity. It indicates that non-performing loan has a negative impact on return on equity. This finding is similar to the findings of Kingu *et al.* (2018). Similarly, the beta coefficients for capital adequacy ratio are negative with return on equity. It indicates that capital adequacy ratio has a negative impact on return on equity. This finding is inconsistent with the findings of Getahun *et al.* (2015). Likewise, the beta coefficients for credit to deposit ratio are negative with return on equity. It indicates that credit

to deposit ratio has a negative impact on return on equity. This finding contradicts with the findings of Rosyid and Noor (2018). Similarly, the beta coefficients for insolvency risk are negative with return on equity. It indicates that insolvency risk has a negative impact on return on equity. This finding is inconsistent with the findings of Shair *et al.* (2019). In addition, the beta coefficients for bank size are positive with return on equity. It indicates that bank size has a positive impact on return on equity. This finding is similar to the findings of Rudhani *et al.* (2016).

4. Summary and conclusion

Financial institutions are considered as an engine of economic growth for developing countries because of their contribution to overall GDP. They play an intermediate role between lenders and borrowers, which help in economic growth. Therefore, the better performance of banks not only ensures financial stability but also contributes to the economic growth of a country. So, the study focused on analyzing the role of non-performing asset, capital adequacy and insolvency risk on the bank performance to insure the health of the banks.

This study attempts to analyze the role of non-performing asset, capital adequacy and insolvency risk on the performance of Nepalese commercial banks. The study is based on secondary data of 27 commercial banks with 189 observations for the period from 2014/15 to 2020/21.

The study showed that capital adequacy ratio, insolvency risk and bank size have a positive impact on return on assets. However, non-performing loan and credit to deposit ratio have negative impact on return on assets. Furthermore, the study also showed that bank size has a positive impact on return on equity. However, non-performing assets, capital adequacy ratio, credit to deposit ratio, and insolvency risk have a negative impact on return on equity. The study concluded that credit to deposit ratio followed by non-performing assets are the most influencing factors that explain the changes in the profitability in terms of return on assets. Likewise, the study also concluded that the most dominant factor that determines the profitability in terms of return on equity are capital adequacy ratio followed by insolvency risk and credit to deposit ratio in the context of Nepalese commercial banks.

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Impact of firm specific factors affecting stock price of Nepalese insurance companies

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Abstract

This study examines the effect of firm specific factors affecting stock price of Nepalese insurance companies. Stock return and market price per share are selected as the dependent variables. The selected independent variables are premium growth, return on assets, return on equity, dividend per share, earnings per share, price earnings ratio and company size. The study is based on secondary data of 20 insurance companies with 140 observations for the study period from 2014/15 to 2020/21. The data were collected from the annual reports of Rastriya Beema Samiti, reports published by NEPSE and annual reports of selected Nepalese insurance companies. The regression models are estimated to test the significance and effect of firm specific factors on the stock price of Nepalese insurance companies.

The study showed that earnings per share have positive impact on market price per share and stock return. It indicates that increase in earnings per share leads to increase in market share price and stock return. The study also showed that price earnings ratio has a positive effect on market price per share. It reveals that higher the price earnings ratio, higher would be the market share price. In addition, the study shows that company size has a positive effect on market price per share. It indicates that larger the company size, higher would be the market price per share. In addition, return on equity has a positive impact on market price per share and stock return. It implies that increase in return on equity leads to increase in market price per share and stock return. Moreover, the premium growth has the positive impact on market price per share and stock return. It means that increase in premium growth leads to the increase in market price per share and stock return. Furthermore, dividend per share has a positive impact on market price per share. It shows that increase in dividend per share leads to increase in the market price per share.

Key words: Market price per share, stock return, premium growth, dividend per share, earning pe share, price earnings ratio, return on assets, return on equity and company size.

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1. Introduction

A well-developed insurance sector is a boon for economic development as it provides long-term funds for infrastructure development at the same time strengthening the risk-taking ability of the country (Vadlamannati, 2008). Insurance companies serve as the cornerstone of risk management in any country. They guarantee financial safety, serve as a vital constituent in the chain of financial intermediation, and create an avenue for long term funds for infrastructural projects (Kunreuther, 2002). Financial institutions encompass a broad range of business operations within the financial service sector including banks, trust companies, insurance companies, brokerage firms and investment dealers. In the same vein, an important role is being played by insurance business by helping in bearing risk, helping in creating employment, and acting as source of tax revenue to the government, creating an avenue for investors and financial investment services like bonds and stocks (Hamadu and Mojekwu, 2010). It plays a significant role in a country's economic growth and offers financial protection to individuals or firms against monetary losses suffered from unforeseen circumstance.

The stock market plays an important role in economic development by promoting capital formation and raising economic growth. Trading of securities in this market facilitates savers and users of capital by fund pooling, risk sharing, and transferring wealth. Investors take decisions to invest in particular shares of companies, keeping in view their share prices. Stock prices also reflect the value of anticipated future profits of companies. Since business cycle conditions influence the future profitability of firms, expectations about the business cycle will affect the current value of firms (Sadorsky, 2003). There is an association between changes in share prices and changes in financial fundamental variables (Nisa and Nishat, 2011). Mian *et al.* (2010) stated that the stock market plays a significant role in the economy of a country and important role in the allocation of resources, both directly as a source of funds and as a determinant of firms' value and its borrowing capacity. It works as an intermediary between savers and companies seeking additional financing for business expansion. It provides a platform to individuals, governments, firms and organizations to trade and invest through the purchase of shares. A stock market is very crucial to sustainable economic growth as it can assure the flow of resources to the most productive investment opportunities. Stock markets are place to trade securities, operate as a facilitator between savers and users of capital by means of pooling of funds, sharing risk, and transferring wealth. Stock markets are essential for economic growth as they insure the flow of resources to the most productive investment opportunities (Kurihara, 2006). Volatility of stock price is a form of market efficiency which is the reaction to the incomplete information in the market (Hameed *et al.*, 2006). Volatility measures variability of the degree of price movement in a stock, futures contract or any other market. It measures dispersion around the mean or average return of a security and the range of an asset price about its mean level over a fixed amount of time (Oluseyi, 2015).

Stock market is the most important part of any economy. The judgment of countries economic condition is measured through the performance of its stock market. Tandon and Malhotra (2013) assessed the factors affecting stock prices determined in the context of the National Stock Exchange (NSE) 100 Companies. Using a linear regression model, the results showed that price-earnings ratio, earnings per share and firms' book value have a significant positive relationship with the stock price of the company, while the dividend is a significant inverse relationship with the market price of the shares. Similarly, Al Qaisi *et al.* (2016) examined the factors affecting the market stock price of the insurance companies listed in Amman Stock Exchange. The study found that there is a significant effect of ROA, debt ratio, the age of the company, and the size of the company with market stock

price in insurance companies listed in Amman stock exchange. Moreover, the results found that there is no effect between ROE and market stock price in these insurance companies. In addition, Al Masum (2014) relationship between the distribution of profits and stock market returns policy of the private commercial banks in Bangladesh for the period from 2007 to 2011. The result showed that return on equity, earnings per share and retention ratio have positive relationship with stock Prices and significantly clarify the variations in the market prices of shares. However, profit after tax and dividend yield have negative and insignificant relationship with stock prices. The results also showed that the dividend policy has an important positive impact on stock prices. Arslan *et al.* (2014) assessed the impact of dividend yield and price earnings ratio on stock returns: A study non-financial listed firms of Pakistan. Using fixed effect model, the findings of study revealed that price earnings ratio and size of firm have significant positive impact on stock prices. The study also found a significant negative relationship between dividend yield and stock prices.

Menike and Prabath (2014) examined the impact of accounting variables on stock on a sample of 100 companies listed in the Colombo Stock Exchange (CSE) from 2008 to 2012. Using a single and multiple regressions model, the results revealed that EPS, DPS, BVPS were positive and have significant impact on the stock price in the CSE. Ikhatua (2013) investigated the accounting information and stock volatility in the Nigerian Capital Market. The found that book value per share, the release of information on book values, dividend per share and earnings per share have a significant effect on stock volatility in Nigeria. Moreover, Khan *et al.* (2012) explained that accounting variables such as dividend yield (DY), earnings yield (EY) and book value per share (BVPS) has direct and positive association with the stock return in the Karachi Stock Exchange in Pakistan for the period 2005 to 2011. Further the study found that BVPS has more explanatory power than the EY and DY. Arshad *et al.* (2015) found that earning per share has more influence on share prices. The results also showed that return on assets have also significant but negative relation with share prices while other variable price earnings ratio, have no relationship with share prices. Finally, Curak *et al.* (2011) investigated firm specific determinants of the Croatian composite insurance companies' financial performance during the period from 2004 to 2009. Based on the panel data analysis, the study showed that size, underwriting risk and equity return have significant influence on the performance of insurance companies which is measured by return on assets. Moreover, Lee (2014) assessed the effect of the firm specific factors of Taiwanese property-liability insurance companies on profitability. The study showed that operating ratio and ROA are affected significantly by the underwriting, reinsurance usage and return on investment. Additionally, the results also showed that the market share has the negative and significant effect on operating ratio, while financial leverage is significantly and negatively related to ROA. Moreover, firm size, firm growth significantly correlated to ROA. Ramzan (2013) found that firm size has a positive significant relationship with the share price while the other variables dividend yield, asset growth, return on assets have positive but insignificant relationship.

In the context of Nepal, Bhattarai (2018) investigated the firm specific and macroeconomic variables effects on share prices of Nepalese companies. The study concluded that the major factors that influence the share price of the firms were EPS, firm size, and P/E ratio. According to Gautam (2017), there is positive relationship of leverage, market capitalization, dividend payout and dividend yield with stock return. Similarly, Rakhal (2018) concluded that remittance and money supply positively affect the stock market whereas interest rate and exchange rate negatively affect the stock market performance. Likewise, Karki (2018) revealed that the performance of stock market is positively related to real gross domestic product, inflation and money supply. Joshi *et al.* (2016) revealed that there is a positive relationship of return on equity with firm age, number of meetings held and institutional ownership. Likewise, firm size, board size, lagged return on assets, risk, audit committee

size and credit to deposit ratio is negatively correlated to return on equity of Nepalese commercial banks.

The above discussion shows that empirical evidences vary greatly across the studies on the impact of firm specific factors on the stock price of insurance companies. Though there are above mentioned empirical evidences in the context of other countries and in Nepal, no such findings using more recent data exist in the context of Nepal. Therefore, in order to support one view or the other, this study has been conducted.

The main purpose of the study is to analyze the impact firm specific factors on the stock price of Nepalese insurance companies. Specifically, it examines the relationship of premium growth, earning per share, price earnings ratio, dividend per share, return on assets, company size, and return on equity with stock return and share price of Nepalese insurance companies.

The remainder of this study is organized as follows. Section two describes the sample, data and methodology. Section three presents the empirical results and the final sections draws the conclusion.

2. Methodological aspects

The study is based on the secondary data which were collected from 20 Nepalese insurance companies from 2014/15 to 2020/21, leading to a total of 140 observations. The study employed stratified sampling method. The main sources of data include annual reports of Rastriya Beema Samiti, reports published by Nepal Stock Exchange and annual reports of selected Nepalese insurance companies. This study is based on descriptive as well as causal comparative research designs. Table 1 shows the list of insurance companies selected for the study along with the study period and number of observations.

Table 1: List of insurance companies selected for the study along with study period and number of observations

S. N.	Name of the insurance companies	Study period	Observations
1	Asian Life Insurance Company Limited	2014/15-2020/21	7
2	Gurans Life Insurance Company Limited	2014/15-2020/21	7
3	Himalayan General Insurance Company Limited	2014/15-2020/21	7
4	IME General Insurance Limited	2014/15-2020/21	7
5	Life Insurance Corporation (Nepal) Limited	2014/15-2020/21	7
6	Lumbini General Insurance Company Limited	2014/15-2020/21	7
7	Met Life-American Life Insurance Company Limited	2014/15-2020/21	7
8	National Life Insurance Company Limited	2014/15-2020/21	7
9	Neco Insurance Company Limited	2014/15-2020/21	7
10	Nepal life insurance Company Limited	2014/15-2020/21	7
11	NLG insurance Limited	2014/15-2020/21	7
12	Prabhu Insurance Limited	2014/15-2020/21	7
13	Premier Insurance Company (Nepal) Limited	2014/15-2020/21	7

14	Prime Life Insurance Company Limited	2014/15-2020/21	7
15	Prudential Insurance Company Limited	2014/15-2020/21	7
16	Sagarmatha Insurance Company Limited	2014/15-2020/21	7
17	Shikhar Insurance Company Limited	2014/15-2020/21	7
18	Siddhartha Insurance Limited	2014/15-2020/21	7
19	Surya Insurance Company Limited	2014/15-2020/21	7
20	United Insurance Company (Nepal) Limited	2014/15-2020/21	7
Total number of observations			140

Thus, the study is based on the 140 observations.

The model

The model in this study assumes that the insurance companies' stock price depends on different firm specific factors. The selected dependent variables are market price of share and share return. The selected independent variables are earnings per share, price earnings ratio, company size, return on assets, return on equity, dividend per share and premium growth. Therefore, the model takes the following forms:

Stock price = f (earnings per share, price earnings ratio, company size, return on assets, return on equity, dividend per share and premium growth)

More specifically, the given model has been segmented into following models:

$$SP = \beta_0 + \beta_1 \text{EPS} + \beta_2 \text{PE} + \beta_3 \text{CS} + \beta_4 \text{PG} + \beta_5 \text{DPS} + \beta_6 \text{ROA} + \beta_7 \text{ROE} + e$$

$$\text{STR} = \beta_0 + \beta_1 \text{EPS} + \beta_2 \text{PE} + \beta_3 \text{CS} + \beta_4 \text{PG} + \beta_5 \text{DPS} + \beta_6 \text{ROA} + \beta_7 \text{ROE} + e$$

Where,

SP = Stock price as measured by the closing market share price of the year, in Rs.

STR = Stock return as measured by the difference between current year share price and previous year share price plus dividend of the year to current year share price, in percentage.

ROA = Return on assets as measured by the ratio of net income to total assets, in percentage.

ROE = Return on equity as measured by the ratio of net income to total equity, in percentage.

EPS = Earnings per share as measured by the ratio of share price to price earnings, in Rs.

PE = Price earnings ratio as measured by the ratio of share price to earnings per share, in times.

CS = Company size of insurance company measured by total assets, Rs in millions

DPS = Dividend per share as measured by the ratio of total dividend distributed to number of outstanding shares, in percentage.

PG = Premium growth rate is the percentage increase in gross written premiums, in percentage.

The following section describes the independent variables used in this study along with hypothesis formulation.

Earnings per share

Earnings per share serve as an indicator of a company's profitability. Bustani *et al.* (2021) assessed

the effect of earning per share, price to book value, dividend payout ratio, and net profit margin on the stock price in Indonesia stock exchange. The study revealed that there is significant positive relationship between earning per share and share price. According to Agrawal and Bansal (2021), earnings per share has a significant positive effect on the price of stock. Moreover, Jatoi *et al.* (2014) analyzed the effect of earnings per share on market share price of 13 cement firms listed on Karachi stock exchange for the period of 2009 to 2013. The study showed a positive relationship between earnings per share on market share price. According to Modigliani and Miller (1961), firms share price is based upon its earnings and firm's value is unrelated to dividend policy. The study showed that earning per share have a positive relationship with market price of share. Based on it, the study develops the following hypothesis:

H_1 : *There is a positive relationship between earnings per share and stock price.*

Price earnings ratio

Price-to-earnings ratio (P/E ratio) is the ratio for valuing a company that measures its current share price relative to its per-share earnings (EPS). Mudzakar (2021) found that price to earnings ratio has a positive influence on stock returns. Balan and Srinivasan (2017) found that there is a positive relationship between price to earnings ratio and market price. Tandon and Malhotra (2013) found that price-earnings ratio has a positive and significant impact on market price of shares. Similarly, Arslan *et al.* (2014) analyzed the impact of dividend yield and price earnings ratio on stock returns of non-financial listed firms of Pakistan. The study revealed that price earnings ratio has a significant positive impact on stock prices. Srinivasan (2012) revealed that price earnings ratio is the crucial determinant of share prices. Similarly, Khan (2012) revealed that price earnings ratio are has a significant and positive association with share price. Based on it, this study develops the following hypothesis:

H_2 : *There is a positive relationship between price earnings ratio and stock price.*

Company size

Size is an important financial measure used to represent the volume of the bank. According to Fachrudin and Ihsan (2021), firm size has a positive and significant relationship with the stock price. Isayas and Yitayaw (2020) indicated that size has a significant positive impact on market price of share. Similarly, Al Qaisi *et al.* (2016) investigated that the effect of firm specific factors on market stock price. The result showed that there is a significant positive relationship between size of the company and market stock price in insurance companies. Furthermore, Vygodina (2006) found that there is a positive relationship between large company size and share price. In addition, Dickens *et al.* (2002) found that the temptation to buy shares of large companies lead to increase its market price, with access to capital, which will enhance their stock price. The results showed that there is a positive relationship between company size and share price. Based on it, this study develops the following hypothesis:

H_3 : *There is a positive relationship between company size and stock price.*

Return on equity

Return on equity measures the amount of profit a company earned relative to the total amount of shareholder equity invested. Thus, a higher ROE indicates that management is very effective in utilizing shareholders capital. Rostami *et al.* (2016) investigated the impact of dividend policy, earning

per share, return on equity, profit after tax on stock prices. The results showed that share price has positive relationship with ROE. Similarly, Hunjra *et al.* (2014) analyzed the impact of dividend policy, earning per share, return on equity, profit after tax on stock prices. The study revealed that ROE has positive and significant influence on stock return. Yanto *et al.* (2021) examined the influences of return on asset, return on equity, net profit margin, debt equity ratio and current ratio toward stock price. The study revealed that share price has positive and significant impact on ROE. Furthermore, Idawati and Wahyudi (2015) assessed the effect of earning per shares (EPS) and return on assets (ROA) against share price on coal mining company listed in Indonesia stock exchange. The study revealed that there is a significant positive impact on stock price movements in Nigeria. Based on it, this study develops the following hypothesis:

H_4 : *There is a positive relationship between return on equity and stock price.*

Dividend per share

Dividend per share is one the important component of firm policies which refers to the proportion of earning distributed as dividend and the rest kept for further investment. Dividend per share framed by an organization is one of the crucial issues in corporate finance since it may have an impact on the firm's value and shareholder wealth. The result showed a significant and positive effects on stock return (Hunjra *et al.*, 2014). Aرسال (2021) found that there is a significant and positive relationship between DPS and market share price. Ahmed (2018) assessed the impact of dividend per share and earnings per share on stock prices in Pakistan (Textile Sector). The result showed dividend per-share has a significant positive effect on the price of stock price. Similarly, Bustani *et al.* (2021) revealed that dividend per-share is a significant determinant of share price. Further, Srinivasan (2012) found that dividend per share has positive and significant impact on share price. Based on it, this study develops the following hypothesis:

H_5 : *There is a positive relationship between DPS and stock price.*

Return on assets

Return on assets measure the revenue generated from the use of the firm's assets. Kabajeh *et al.* (2012) assessed the relationship between the ROA, ROE and ROI ratios with Jordanian insurance public companies market share prices. The result showed that ROA has significant and positive relationship with stock price. Similarly, Avdalovic and Milenković (2017) examined the impact of company performances on the stock price: An empirical analysis on selected companies in Serbia. The study showed that ROA has significant positive relationship with market price per share. Likewise, Khatab *et al.* (2011) analyzed the association between corporate governance and firm performance of Karachi stock market. The study showed that ROA has significant positive association with market price per share. Moreover, Al Qaisi *et al.* (2016) investigated the factors affecting the market stock price of the insurance companies listed in Amman Stock Exchange. The results revealed that market price per share has the significant impact on ROA. Based on it, this study develops the following hypothesis:

H_6 : *There is a positive relationship between ROA and stock price.*

Premium growth

Haiss and Sümegi (2008) examined the relationship between insurance and economic growth in Europe. The study found a positive association between premium growth and stock price. Similarly, Andersson *et al.* (2008) revealed that stock price is positively related to premium growth and firm size.

Moreover, Levine and Zervos (1996) showed a causal relationship between stock market development and long-run growth. The study also revealed a positive association between premium growth and stock price. Apergis and Eleftheriou (2002) examined the interest rates, inflation, and stock prices of the Athens Stock Exchange. The study showed a positive relationship of interest rates, inflation, and premium growth with stock price. Based on it, this study develops the following hypothesis:

H_7 : *There is a positive relationship between premium growth and stock price.*

3. Results and discussion

Descriptive statistics

Table 2 presents the descriptive statistics of the selected dependent and independent variables during the period 2014/15 to 2020/21.

Table 2: Descriptive statistics

This table shows the descriptive statistics of dependent and independent variables of 20 Nepalese insurance companies for the study period from 2014/15 to 2020/21. The dependent variables are SP (Stock price as measured by the closing market share price of the year, in Rs) and STR (Stock return as measured by the difference between current year share price and previous year share price plus dividend of the year to current year share price, in percentage). The independent variables are CS (Company size of insurance company measured by total assets, Rs in millions), LIQ (Liquidity ratio as measured by the ratio of current assets to current liabilities, in times), PE (Price earnings ratio as measured by the ratio of share price to earnings per share, in times), DPS (Dividend per share as measured by the ratio of total dividend distributed to number of outstanding shares, in percentage), EPS (Earnings per share as measured by the ratio of share price to price earnings, in Rs), PG (Premium growth rate is the percentage increase in gross written premiums, in percentage), ROA (Return on assets as measured by the ratio of net profit to total asset, in percentage) and ROE (Return on equity as measured by the ratio of net income to total equity, in percentage).

Variables	Minimum	Maximum	Mean	Std. Deviation
SP	80	4006	1087.88	715.88
STR	-3.70	10.46	0.31	1.327
ROA	-20.82	18.62	4.95	4.35
ROE	-177.29	98.79	13.85	20.45
PG	-0.88	1.27	0.22	0.22
EPS	-102.80	100.81	28.65	19.93
PE	-12.65	278.00	47.92	46.39
DPS	0.00	84.00	17.61	13.75
CS	0.26	127.27	11.50	18.66

Source: SPSS output

Correlation analysis

Having indicated the descriptive statistics, Pearson's correlation coefficients are computed and the results are presented in Table 3.

Table 3: Pearson's correlation coefficients matrix

This table shows the bivariate Pearson's correlation coefficients of dependent and independent variables of 20 Nepalese insurance companies for the study period from 2014/15 to 2020/21. The dependent variables are SP (Stock price as measured by the closing market share price of the year, in Rs) and STR (Stock return as measured by the difference between current year share price and previous year share price plus dividend of the year to current year share price, in percentage). The independent variables are CS (Company size of insurance company measured by total assets, Rs in millions), LIQ (Liquidity ratio as measured by the ratio of current assets to current liabilities, in times), PE (Price earnings ratio as measured by the ratio of share price to earnings per share, in times), DPS (Dividend per share as measured by the ratio of total dividend distributed to number of outstanding shares, in percentage), EPS (Earnings per share as measured by the ratio of share price to price earnings, in Rs), PG (Premium growth rate is the percentage increase in gross written premiums, in percentage), ROA (Return on assets as measured by the ratio of net profit to total asset, in percentage) and ROE (Return on equity as measured by the ratio of net income to total equity, in percentage).

Variables	SP	STR	ROA	ROE	PG	EPS	PE	DPS	CS
SP	1								
STR	0.304**	1							
ROA	-0.099	0.072	1						
ROE	0.086	0.044	0.614**	1					
PG	0.210*	0.282**	-0.053	-0.062	1				
EPS	0.267**	0.084	0.636**	0.726**	0.030	1			
PE	0.222**	0.052	-0.331**	-0.049	0.128	-0.345**	1		
DPS	0.317**	-0.020	0.022	0.069	0.120	0.354**	-0.125	1	
CS	0.205*	-0.083	-0.345**	0.037	-0.004	-0.063	0.129	0.228**	1

Note: The asterisk signs (**) and (*) indicate that the results are significant at one percent and five percent levels respectively.

Table 3 shows that earnings per share is positively correlated to market price per share. It indicates that increase in earnings per share leads to increase in market share price. The study also shows that price earnings ratio has a positive relationship with market price per share. It reveals that higher the price earnings ratio, higher would be the market share price. In addition, the study shows that company size is positively correlated to market price per share. It indicates that larger the company size, higher would be the market price per share. However, the study shows that return on assets has a negative relationship with market price per share. It reveals that higher the return on assets, lower would be the market price per share. In addition, return on equity has a positive relationship with market price per share. It implies that increase in return on equity leads to increase in market price per share. Moreover, the premium growth has the positive relationship with market price per share. It means that increase in premium growth leads to the increase in market price per share. Furthermore, dividend per share has a positive relationship with market price per share. It shows that increase in dividend per share leads to increase in the market price per share.

On the other hand, earnings per share is positively correlated to stock return. It indicates that increase in earnings per share leads to increase in stock return. The study also shows that price earnings ratio has a positive relationship with stock return. It reveals that higher the price earnings ratio, higher would be the stock return. However, the study shows that company size is negatively correlated to stock return. It indicates that larger the company size, lower would be the stock return. In addition,

the study shows that return on assets has a positive relationship with stock return. It reveals that increase in return on assets leads to increase in stock return. The study shows return on equity has positive relationship with stock return. It indicates that increase in return on equity leads to increase in stock return. The study shows that premium growth has a positive relationship with stock return. It indicates increase in premium growth leads to the increase in stock return. Furthermore, dividend per share has a negative relationship with stock return. It means that higher the dividend per share, lower would be the stock return.

Regression analysis

Having indicated the Pearson's correlation coefficients, the regression analysis has been carried out and results are presented in Table 4. More specifically, it shows the regression results of earnings per share, price earnings ratio, company size, return on assets, return on equity, premium growth and dividend per share on market price per share of Nepalese insurance companies.

Table 4: Estimated regression results of earnings per share, price earnings ratio, company size, return on assets, return on equity, premium growth and dividend per share on market price per share of Nepalese insurance companies

The results are based on panel data of 20 insurance companies with 140 observations for the period of 2014/15-2020/21 by using the linear regression model and the model is $SP = \beta_0 + \beta_1 ROA + \beta_2 ROE + \beta_3 PG + \beta_4 EPS + \beta_5 PE + \beta_6 DPS + \beta_7 CS + e$, where the dependent variable is SP (Stock price as measured by the closing market share price of the year, in Rs). The independent variables are CS (Company size of insurance company measured by total assets, Rs in millions), LIQ (Liquidity ratio as measured by the ratio of current assets to current liabilities, in times), PE (Price earnings ratio as measured by the ratio of share price to earnings per share, in times), DPS (Dividend per share as measured by the ratio of total dividend distributed to number of outstanding shares, in percentage), EPS (Earnings per share as measured by the ratio of share price to price earnings, in Rs), PG (Premium growth rate is the percentage increase in gross written premiums, in percentage), ROA (Return on assets as measured by the ratio of net profit to total asset, in percentage) and ROE (Return on equity as measured by the ratio of net income to total equity, in percentage).

Model	Intercept	Regression coefficients of							Adj. R _{bar} ²	SEE	F-value
		ROA	ROE	PG	EPS	PE	DPS	CS			
1	1168.384 (12.752)**	-16.257 (1.169)							0.003	714.945	1.366
2	1046.085 (14.300)**		3.016 (1.016)						0.001	715.801	1.033
3	935.092 (11.037)**			669.019 (2.528)*					0.037	702.399	6.389
4	813.675 (7.922)**				9.570 (3.249)**				0.064	692.479	10.555
5	924.005 (10.834)**					3.419 (2.670)**			0.042	700.612	7.127
6	797.541 (8.506)**						16.487 (3.924)**		0.094	681.454	15.401
7	997.399 (14.272)**							7.863 (2.461)*	0.035	703.210	6.056
8	1171.726 (12.969)**	-40.028 (2.304)*	8.252 (2.229)*						0.031	704.881	3.187
9	1008.089 (9.279)**	-39.196 (2.303)*	8.602 (2.370)*	677.223 (2.597)**					0.070	690.550	4.462

10	745.945 (6.514)**	-67.968 (4.027)**	2.255 (0.557)	533.487 (2.190)*	20.519 (4.815)**				0.200	640.297	9.689
11	321.124 (2.187)*	-49.565 (3.009)**	9.272 (2.232)	347.715 (1.489)	27.721 (6.366)**	5.571 (4.264)**			0.290	603.073	12.373
12	263.534 (1.755)	-44.201 (2.647)**	7.787 (1.841)	321.587 (1.382)	24.143 (4.975)**	5.512 (4.243)**	6.913 (1.629)		0.299	599.385	10.881
13	186.094 (1.171)	-33.294 (1.821)	9.775 (2.204)*	330.627 (1.462)	24.849 (5.114)**	5.611 (4.330)**	5.288 (1.209)	4.569 (1.436)	0.305	597.006	9.696

Notes:

- i. Figures in parenthesis are t-values.
- ii. The asterisk signs (**) and (*) indicate that the results are significant at one percent and five percent level respectively.
- iii. Market price per share is the dependent variable.

Table 4 shows that the beta coefficients for return on assets are negative with market price per share. It indicates that return on assets has a negative impact on market price per share. This finding contradicts with the findings of Avdalovic and Milenković (2017). Similarly, the beta coefficients for return on equity are positive with market price per share. It indicates that return on equity has a positive impact on market price per share. This finding is similar to the findings of Hunjra *et al.* (2014). Likewise, the beta coefficients for premium growth are positive with market price per share. It indicates that premium growth has a positive impact on market price per share. This finding is similar to the findings of Haiss and Sümegi (2008). Moreover, the beta coefficients for company size are positive with market price per share. It indicates that company size has a positive impact on market price per share. This finding is similar to the findings of Fachrudin and Ihsan (2021). The beta coefficients of earnings per share are positive with market price per share. It indicates that earnings per share have positive impact with market price per share. It indicates that price to earnings per share have a positive impact on market price per share. This finding is consistent with the findings of Mudzakar (2021). Furthermore, the beta coefficients for dividend per share are positive with market price per share. It indicates that dividend per share has a positive impact on market price per share. This finding is similar to the findings of Aarsal (2021).

Table 5 shows regression results of earnings per share, price earnings ratio, company size, return on assets, return on equity, dividend per share and premium growth on stock return of Nepalese insurance companies.

Table 5: Estimated regression results of earnings per share, price earnings ratio, company size, return on assets, return on equity, dividend per share and premium growth on stock return of Nepalese insurance companies

The results are based on panel data of 20 insurance companies with 140 observations for the period of 2014/15-2020/21 by using the linear regression model and the model is $STR = \beta_0 + \beta_1 ROA + \beta_2 ROE + \beta_3 PG + \beta_4 EPS + \beta_5 PE + \beta_6 DPS + \beta_7 CS + e$, where the dependent variable is STR (Stock return as measured by the difference between current year share price and previous year share price plus dividend of the year to current year share price, in percentage). The independent variables are CS (Company size of insurance company measured by total assets, Rs in millions), LIQ (Liquidity ratio as measured by the ratio of current assets to current liabilities, in times), PE (Price earnings ratio as measured by the ratio of share price to earnings per share, in times), DPS (Dividend per share as measured by the ratio of total dividend distributed to number of outstanding shares, in percentage), EPS (Earnings per share as measured by the ratio of share price to price earnings, in Rs), PG (Premium growth rate is the percentage increase in gross written premiums, in percentage), ROA (Return on assets as measured by the ratio of net profit to total asset, in percentage) and ROE (Return on equity as measured by the ratio of net income to total equity, in percentage).

Model	Intercept	Regression coefficients of							Adj. R _{bar} ²	SEE	F-value
		ROA	ROE	PG	EPS	PE	DPS	CS			
1	0.204 (1.198)	0.022 (0.848)							0.002	1.348	0.719
2	0.273 (2.008)		0.003 (0.517)						0.005	1.332	0.267
3	-0.067 (0.432)			1.660 (3.447)**					0.073	1.278	11.878
4	0.152 (0.770)				0.006 (0.995)				0.001	1.327	0.990
5	0.242 (1.492)					0.001 (0.609)			0.005	1.330	0.371
6	0.347 (1.894)						-0.002 (0.238)		0.007	1.332	0.057
7	0.381 (2.885)							-0.006 (0.981)	0.001	1.327	0.962
8	0.204 (1.194)	0.022 (0.669)	0.0251 (0.004)						0.009	1.333	0.357
9	-0.204 (1.012)	0.024 (0.761)	0.001 (0.126)	1.690 (3.489)**					0.067	1.282	4.315
10	-0.238 (1.034)	0.020 (0.601)	0.001 (0.067)	1.671 (3.414)**	0.003 (0.308)				0.061	1.286	3.239
11	-0.394 (1.257)	0.027 (0.771)	0.003 (0.353)	1.603 (3.211)**	0.005 (0.569)	0.002 (0.735)			0.057	1.289	2.690
12	-0.319 (0.989)	0.020 (0.561)	0.005 (0.557)	1.637 (3.271)**	0.010 (0.953)	0.002 (0.762)	-0.009 (0.986)		0.057	1.289	2.403
13	-0.261 (0.758)	0.012 (0.301)	0.004 (0.371)	1.630 (3.247)**	0.009 (0.895)	0.002 (0.732)	-0.008 (0.820)	-0.003 (0.501)	0.052	1.292	2.084

Notes:

- i. Figures in parenthesis are t-values.
- ii. The asterisk signs (**) and (*) indicate that the results are significant at one percent and five percent level respectively.
- iii. Share return is the dependent variable.

Table 5 shows that the beta coefficients for return on assets are positive with stock return. It indicates that return on assets has a positive impact on stock return. This finding is similar to the findings of Ikhatua (2013). Similarly, the beta coefficients for return on equity are positive with stock return. It indicates that return on equity has a positive impact on stock return. This finding is consistent with the findings of Bustani *et al.* (2021). Similarly, the beta coefficients for premium growth are positive with stock return. It indicates that interest rate has a positive impact on stock return. This finding is similar to the findings of Lee (2014). The beta coefficients for company size are negative with stock return. It indicates that company size has a negative impact of stock return. The finding is similar to the findings of Ramzan (2013). Similarly, the beta coefficients for price to earnings ratio are positive with stock return. It indicates that price to earnings ratio has a positive impact on stock return. This finding is consistent with the findings of Apergis and Eleftheriou (2002).

4. Summary and conclusion

Good performance of a company determines the position of the company in its market and the growth and consolidation of the market. Due to easy access to transactions and greater flexibility, the stock market is an essential source for mobilizing funds in the company and an individual investor. The stock market price depends upon its demand and supply as well as various internal and external factors.

This study attempts to analyze the factors affecting stock price of Nepalese insurance companies. The study is based on secondary data of 16 commercial banks with 140 observations for the period from 2014/15 to 2020/21.

The study shows that return on assets has a negative impact on market price of share. However, earnings per share, price earnings ratio, company size, return on equity, dividend per share and premium growth have positive impact on market price of share. Likewise, company size and dividend per share have negative impact on stock return. However, earnings per share, price earnings ratio, return on assets, return on equity and premium growth have positive impact on stock return. Likewise, the study also concluded that dividend per share followed by earnings per share is the most influencing factor that explains the changes in market price of share of Nepalese insurance companies. Similarly, the study also concluded that premium growth is the most influencing factor that explains the changes in the stock return in the context of Nepalese insurance companies.

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Influence of financial literacy on personal financial planning in Nepal

– Babita Pantha*

Abstract

This study examines the effect of financial literacy on personal financial planning in Nepal. Personal financial planning is selected as the dependent variable. The selected independent variables are financial knowledge, financial awareness, financial attitude, financial confidence and financial socialization. The primary source of data is used to assess the opinions of the respondents regarding financial literacy, confidence and financial planning. The study is based on primary data of 192 respondents. To achieve the purpose of the study, structured questionnaire is prepared. The correlation coefficients and regression models are estimated to test the significance and importance of financial literacy on personal financial planning in Nepal.

The result showed financial knowledge has a positive impact on personal financial planning. It implies that the broader the financial knowledge, better would be the personal financial planning. The results also revealed that financial awareness has a positive impact on personal financial planning. It implies that higher level of financial awareness leads to better personal financial planning. Similarly, financial attitude has a positive impact on personal financial planning indicating that more positive attitude leads to effective personal financial planning. Moreover, financial confidence has a positive impact on personal financial planning. It indicates that higher the level of financial confidence, better would be the personal financial planning. Furthermore, financial socialization has a positive impact on personal financial planning. It indicates that increase in socialization leads to better financial planning.

Key words: *Financial attitude, financial knowledge, financial awareness, financial confidence and financial socialization.*

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1. Introduction

Financial literacy is the ability to use knowledge and skills to manage financial resources effectively for a lifetime financial well-being. It is the process by which individuals gain an understanding of their financial situation and learn how to strengthen it over a period of time by inculcating the financial habits of savings, budgeting, planning and hence making the right financial decisions (Huston, 2010). Personal financial planning is the process of managing money to achieve personal economic satisfaction. Both financial and personal satisfaction is the result of an organized process that is commonly referred to as personal money management or personal financial planning. This planning process allows people to manage their financial position. In order to achieve this, people first need to identify and set priorities. Having a plan for spending, saving, and investing money make a difference in how well financial needs and goals will be met. Meeting those goals requires financial planning that considers all aspects of financial life like budgeting and managing taxes, liabilities, purchasing decisions, managing insurance, managing investment, retirement and estate planning (Finke and Huston, 2014). According to Ardiany (2022), financial knowledge is the knowledge that refers to what individuals know about personal financial matters as measured by their level of knowledge about various personal financial concepts. Widdowson and Hailwood (2007) defined financial literacy as an informed judgment and ability of decision of decision making of a person in money management. Financial awareness is part of financial knowledge. The individual can enhance their knowledge from several alternative sources such as traditions, experiences, customs and local cultures. There are no huge differences between the financial skills and literacy. Financial literacy and skill are used synonymously that contributes to financial attitude. In practice, skill is an integral part of literacy. Financial literacy has been globally acknowledged as a key life skill and as an important element of economic and financial stability and development.

According to Cohen and Nelson (2011), financial literacy refers to adequate knowledge of personal finance facts and vocabulary for successful personal financial management. It is the ability to make informed judgments and to take effective actions regarding the current and future use and management of money. Personal financial planning is the process of developing and implementing the proper coordinated plans for achievement of one's overall financial objectives. According to Brigham and Ehrhardt (2013), personal financial literacy fosters the transfer of knowledge and skills that is likely to result in effective and efficient personal financial management. Sheth *et al.* (2000) argued that every consumer's desire to fulfill their unlimited demands and needs with limited personal financial resources. According to Reynolds and Abdel-Ghany (2001), personal financial planning is a process whereby individuals are constantly identifying and meeting life objectives and goals through appropriate financial management. Personal financial planning process is an ongoing depending process based on the changes in the financial situation and position. Ahmed and Md (2016) found that poor financial literacy affects financial behavior negatively. It means that the person who has little knowledge and skill of financial matters may lose financial opportunities in the market. Amidjono *et al.* (2016) defined financial literacy as a series of processes or activities to improve the knowledge, competence, and skills of consumers and the wider community so that they are able to manage finances better. It is the understandings of basic financial concepts, principles, skills and ability to identify the key financial products to make rational financial choice. According to Yushita (2017), financial literacy is the financial knowledge and ability possessed by individuals in managing finance and spending money, so that individuals can improve their standard of living and avoid financial difficulties.

Surendar and Sarma (2018) assessed the critical factors using factors analysis in enhancing the

Financial Literacy Levels and examined their impact on select variables of financial planning among teacher of higher education. The study found that the level of financial literacy among the teacher of higher education is satisfactory. The study found that the majority of teachers of higher education have a high level of financial literacy, aware of various aspects of personal financial planning and able to plan on their own irrespective their subject. The study also found that major factors such as retirement planning, tax planning and control, financial planning, financial capacity and inflation are critical factors in personal financial planning. Similarly, Lai *et al.* (2009) examined the attitude of Malaysians on personal financial planning which encompasses money management, insurance planning, investment planning, retirement planning and estate planning. The result showed that job status has the most significant influence on the attitude towards personal financial planning and the frequency in management of various aspects of personal financial planning. Borden *et al.* (2008) stated that financial attitudes have a significant effect on financial management behavior while education level and financial knowledge does not affect financial management behavior. Norden *et al.* (2014) argued that financial behavior arises from his financial attitude. Individuals who are not wise in responding to personal financial problems tend to have bad financial behavior. Herdjiono and Damanik (2016) stated that financial knowledge and parental income does not affect financial management behavior. Moreover, financial attitudes have a significant effect on financial management.

According to Ningsih and Rita (2010), financial attitude is a measure of state of mind, opinion and judgment about finance. Aizcorbe *et al.* (2003) revealed that a family with lower income has small possibility to show saving behavior. The study also showed a positive association between financial attitude and saving behavior. Yahaya *et al.* (2019) assessed the effect of financial knowledge and financial attitudes on financial behavior among university students. The study found that the financial attitude has a significant positive effect on saving behavior. Asandimitra and Kautsar (2019) explored the influence of financial information, financial self-efficacy and emotional intelligence on financial management behavior. The findings showed that there is a positive influence of financial knowledge, financial self-efficacy, financial literacy and emotional intelligence on the financial management behavior of female lecturers at state universities. Sabri and Juen (2014) examined the influence of financial literacy, saving behaviour, and financial management on retirement confidence among women working in the Malaysian public sector. The study found that there is a significant relationship between financial literacy, saving behaviour, and financial management. Similarly, Hayhoe *et al.* (2012) revealed a significant positive association between financial management practice and saving behavior. Furthermore, Jamal *et al.* (2005) assessed the effects of social influence and financial literacy on savings behavior of higher learning institutions in Kota Kinabalu, Sabah. The study showed that there is a positive impact of financial literacy and financial management on savings behavior. Individuals' degree of financial risk tolerance influences their decisions to include certain assets in their portfolio composition (Hallahan *et al.*, 2004). Doan (2020) stated that investors who have higher level of financial risk tolerance tend to invest in high-risk options. Risk tolerance increases with the increasing of wealth (Ahmed *et al.*, 2021). Van Rooij *et al.* (2011) examined the influence of the level of education on investors risk tolerance level. The study found that there is a relationship between the level of education and the level of risk individual investors are willing to take. The study also found a positive association between financial risk diversification skill and saving behavior. Benartzi and Thaler (2007) analyzed the risk taking, diversification behavior and financial literacy of individual investors. The study found that financial literacy and financial risk diversification have positive relationship with saving behavior.

In the context of Nepal, Khanal *et al.* (2022) found that financial attitude and financial awareness

have significant impact on personal financial planning while financial knowledge does not. The study also found that improved level of financial literacy contributes financial behaviour of the small borrowers positively. According to Oli (2018), financial knowledge and financial attitude have a positive significant impact on personal financial planning. The study also showed that increasing financial literacy and capability promotes better financial decision-making, thus, enabling better planning and management of life events such as education, housing purchase, or retirement. In addition, Chaulagain (2015) stated that financial attitude has a positive relationship with financial literacy.

The above discussion reveals that the empirical evidences vary greatly across the studies concerning the influence of financial literacy on personal financial planning. Though there are above mentioned empirical evidences in the context of other countries and in Nepal, no such findings using more recent data exist in the context of Nepal. Therefore, in order to support one view or the other, this study has been conducted.

The main purpose of the study is to analyze the influence of financial literacy on personal financial planning in Nepal. Specifically, it examines the relationship of financial knowledge, financial attitude, financial awareness, financial confidence and financial socialization with personal financial planning in Nepal.

The remainder of this study is organized as follows. Section two describes the sample, data and methodology. Section three presents the empirical results and the final section draws the conclusion.

2. Methodological aspects

The study is based on the primary data. The data were gathered from 192 respondents through questionnaire. The study employed convenience sampling method. The respondents' views were collected on basic financial knowledge, advance financial knowledge, financial awareness, financial attitude, financial communication and financial socialization. The study is based on descriptive and causal comparative research designs.

The model

The model used in this study assumes that personal financial planning depends on financial literacy. The dependent variable selected for study is personal financial planning. Similarly, the selected independent variable are financial knowledge, financial awareness, financial attitude, financial confidence and financial socialization. Therefore, the models take the following form.

$$PFP = \beta_0 + \beta_1 FKW + \beta_2 FK + \beta_3 FAW + \beta_4 FAT + \beta_5 FCO + \beta_6 FSO + e$$

Where,

PFP = Personal financial planning

FKW = Basic financial knowledge

FK = Advance financial knowledge

FAW = Financial awareness

FAT = Financial attitude

FCO = Financial confidence

FSO = Financial socialization

Basic financial knowledge was measured using a 5-point Likert scale where the respondents were asked to indicate the responses using 1 for strongly disagree and 5 for strongly agree. There are 5 items and sample items include “I know how to set financial goals and its importance”, “I know the spending plans benefits” and so on. The reliability of the items was measured by computing the Cronbach's alpha ($\alpha = 0.841$).

Financial knowledge was measured using a 5-point Likert scale where the respondents were asked to indicate the responses using 1 for strongly disagree and 5 for strongly agree. There are 5 items and sample items include “I know the meaning, benefits and process of saving and loan diversification”, “I have knowledge about the fundamental of capital market operation” and so on. The reliability of the items was measured by computing the Cronbach's alpha ($\alpha = 0.900$).

Financial awareness was measured using a 5-point Likert scale where the respondents were asked to indicate the responses using 1 for strongly disagree and 5 for strongly agree. There are 5 items and sample items include “I know what the equity shares is about”, “Government Securities are securities with free of default risk” and so on. The reliability of the items was measured by computing the Cronbach's alpha ($\alpha = 0.737$).

Financial attitude was measured using a 5-point Likert scale where the respondents were asked to indicate the responses using 1 for strongly disagree and 5 for strongly agree. There are 5 items and sample items include “I have strong belief on investment on shares”, “I have a discipline to stick on a spending plan” and so on. The reliability of the items was measured by computing the Cronbach's alpha ($\alpha = 0.797$).

Financial confidence was measured using a 5-point Likert scale where the respondents were asked to indicate the responses using 1 for strongly disagree and 5 for strongly agree. There are 5 items and sample items include “I am confident, to ask questions, on filing complaint in any grievances.”, “I have confidence on choosing suitable financial service providers” and so on. The reliability of the items was measured by computing the Cronbach's alpha ($\alpha = 0.922$).

Financial socialization was measured using a 5-point Likert scale where the respondents were asked to indicate the responses using 1 for strongly disagree and 5 for strongly agree. There are 5 items and sample items include “I get information related to financial product on internet and websites.”, “I ask for financial agent help while making financial decisions” and so on. The reliability of the items was measured by computing the Cronbach's alpha ($\alpha = 0.772$).

The following section describes the independent variables used in this study along with hypothesis formulation.

Financial attitude

According to Dwiastanti (2017), personality characteristics and financial attitude have a significant effect on financial literacy. Similarly, Ibrahim *et al.* (2009) concluded that the characteristics of personnel such as financial attitudes significantly affect the level of student financial literacy. In addition, Chaulagain (2015) stated that there is a positive relationship between financial attitude and financial literacy. Likewise, Susan and Djajadikerta (2017) confirmed that negative financial attitude results in defective financial literacy and financial behavior. Moreover, Setiawati and Nurkhin (2017) stated that financial attitude influences financial behavior related to decision making. Therefore, a person with a positive attitude is able to determine how they should take good action on money. Furthermore, Herdjiono and Daemanik (2016) concluded there is a positive influence of financial attitude on financial management behavior. Based on it, the study develops the following hypothesis:

H_1 : *There is a positive relationship of financial attitude with personal financial planning.*

Financial knowledge

According to Zakaria *et al.* (2012), responsible financial behavior is strongly related to sound financial knowledge. Lusardi and Mitchell (2011) revealed that greater knowledge was associated with planning and succeeding in retirement planning, as well as investing in complex assets such as stocks. According to Fernandes *et al.* (2014), financial literacy has a significant positive effect on financial management behavior. The higher the level of financial literacy, the behavior of personal financial management will also be better. Moreover, Allgood and Walstad (2016) showed that financial knowledge and saving programs can be very effective in overcoming the decreasing in saving. Similarly, Chen and Volpe (1998) found that poor financial knowledge of financial issues such as investment, savings and spending fundamentals are the most common problem encountered by people experiencing financial problems. Based on it, the study develops the following hypothesis:

H₂: There is positive relationship of financial knowledge with personal financial planning.

Financial socialization

Financial socialization is a process derived from the environment, namely the ability, knowledge, and behavior that are important to maximize role of consumers in financial markets. Kim and Chatterjee (2013) revealed a positive association between socialization and personal financial planning. White *et al.* (2021) showed that financial socialization messages are directly related to financial management, optimism and stress. Moreover, Jorgensen *et al.* (2017) assessed the financial behavior of emerging adults using family financial socialization approach. The study showed a positive relationship of financial socialization with financial planning. Based on it, the study develops the following hypothesis:

H₃: There is positive relationship between financial socialization and personal financial planning.

Financial confidence

Grable *et al.* (2017) examined the role of financial professionals on enhancing financial confidence among widows. The study found a positive association between financial confidence, financial professionals assistance and financial planning. Similarly, Robb *et al.* (2012) showed a positive effect of financial confidence on financial planning. Moreover, Neymotin (2010) examined the association of self-esteem with the tendency to engage in financial planning. The result showed that self esteem has positive effect on financial planning. Tokar (2015) revealed that financial literacy and financial behavior are positively related to knowledge and confidence. Furthermore, Parker *et al.* (2012) found a positive relationship between financial confidence and retirement planning. Based on it, the study develops the following hypothesis:

H₄: There is positive relationship of financial confidence with personal financial planning.

Financial awareness

Financial literacy includes the ability of balancing bank accounts, budgeting, saving for the future and learning strategies to manage debts. An individual is considered to be financially literate if he's able to manage his personal finance in the changing life and society (Remund, 2010). Financial literacy, awareness and planning the financial issues of the family is a general deterrence strategy that can help decrease social and psychological pressures and increase family welfare (O'Neill *et al.*, 2005). Adam *et al.* (2017) assessed the relationship between financial practices, financial well-being and health. The results showed that individuals with educated parents enjoy higher financial literacy. The

study also showed a positive relationship between financial awareness and financial planning. Pijoh *et al.* (2020) examined the impact of financial literacy on financial decisions. The results showed that the field of individual activities affects financial literacy level and people who invest in the areas of banking and stock have higher level of financial literacy. The result also showed a positive association between financial awareness and financial planning. Based on it, the study develops the following hypothesis:

H_5 : *There is positive relationship of financial awareness with personal financial planning.*

3. Results and discussion

Correlation analysis

On analysis of data, correlation analysis has been undertaken first and for this purpose, Pearson's correlation coefficients along with means and standard deviations have been computed, and the results are presented in Table 1.

Table 1: Pearson's correlation coefficients matrix

This table presents Kendall's Tau correlation coefficients between dependent variable and independent variables. The correlation coefficients are based on 192 observations. The dependent variable is PFP (Personal financial planning). The independent variables are FKW (Basic financial knowledge), FK (Advance financial knowledge), FAW (Financial awareness), FAT (Financial attitude), FCO (Financial confidence) and FSO (Financial socialization)

Variables	Mean	SD	PFP	FKW	FK	FAW	FAT	FCO	FSO
PFP	4.042	0.638	1						
FKW	3.805	0.734	0.311**	1					
FK	3.994	0.496	0.384**	0.566**	1				
FAW	3.802	0.659	0.045**	0.653**	0.594**	1			
FAT	3.881	0.783	0.384**	0.408**	0.446**	0.369**	1		
FCO	3.617	0.578	0.382**	0.455**	0.441**	0.409**	0.464**	1	
FSO	3.481	0.720	0.464**	0.250**	0.331**	0.453**	0.345**	0.428**	1

Note: The asterisk signs (**) and (*) indicate that the results are significant at one percent and five percent levels respectively.

The correlation matrix indicates that financial knowledge is positively correlated to the personal financial planning. It implies that the broader the financial knowledge, better would be the personal financial planning. The results also reveal that financial awareness is also positively correlated to personal financial planning. It implies that higher level of financial awareness leads to better personal financial planning. Similarly, financial attitude is positively correlated to personal financial planning indicating that more positive attitude leads to effective personal financial planning. Moreover, financial confidence is also positively correlated to personal financial planning. It indicates that higher the level of financial confidence, better would be the personal financial planning. Furthermore, financial socialization is positively correlated to personal financial planning. It indicates that increase in socialization leads to better financial planning.

Regression analysis

Having analyzed the Kendall's Tau correlation coefficients matrix, the regression analysis has been carried out and the results are presented in Table 2. More specifically, it presents the regression results of financial knowledge, financial awareness, financial attitude, financial confidence and financial socialization on personal financial planning in Nepal.

Table 2: Estimated regression results of financial knowledge, financial awareness, financial attitude, financial confidence and financial socialization on personal financial planning

The results are based on 192 observation using linear regression model. The model is $PFPP = \beta_0 + \beta_1 FKW + \beta_2 FK + \beta_3 FAW + \beta_4 FAT + \beta_5 FCO + \beta_6 FSO + e$, where the dependent variable is PFP (Personal financial planning). The independent variables are FKW (Basic financial knowledge), FK (Advance financial knowledge), FAW (Financial awareness), FAT (Financial attitude), FCO (Financial confidence) and FSO (Financial socialization)

Model	Intercept	Regression coefficients of						Adj. R_bar ²	SEE	F-value
		FKW	FK	FAW	FAT	FCO	FSO			
1	1.601 (5.246)**	0.465 (6.240)**						0.166	0.657	38.935
2	1.539 (6.542)**		0.510 (8.404)**					0.267	0.606	70.623
3	3.001 (7.112)**			0.120 (1.150)				0.021	0.719	1.132
4	1.406 (5.305)**				0.546 (7.940)**			0.246	0.574	63.195
5	1.937 (8.134)**					0.398 (6.617)**		0.187	0.650	43.779
6	1.914 (6.173)**						0.433 (5.121)**	0.117	0.566	26.224
7	1.237 (4.369)**	0.142 (1.540)	0.430 (5.372)**					0.272	0.615	36.751
8	0.979 (2.199)**	0.136 (1.474)	0.431 (5.379)**	0.078 (0.874)				0.271	0.615	24.725
9	0.382 (0.858)**	0.072 (0.803)	0.314 (3.888)**	0.084 (0.979)	0.337 (4.452)**			0.338	0.586	25.353
10	0.239 (0.531)**	0.030 (0.326)	0.309 (3.850)**	0.314 (1.306)	0.264 (3.047)	0.124 (1.678)		0.344	0.583	21.043
11	0.189 (0.404)**	0.033 (0.358)	0.307 (3.797)	0.109 (1.247)	0.259 (2.944)**	0.107 (1.279)	0.043 (0.442)**	0.341	0.585	17.492

Notes:

- i. Figures in parenthesis are t-values
- ii. The asterisk signs (**) and (*) indicate that the results are significant at one percent and five percent level respectively.
- iii. Personal financial planning is the dependent variable.

Table 2 reveals that the beta coefficients for financial knowledge are positive with the personal financial planning. It indicates that financial knowledge has a positive impact on personal financial planning. This finding is similar to the findings of Lusardi and Mitchell (2011). Likewise, the beta coefficients for financial awareness are positive with personal financial planning. It indicates that financial awareness has a positive impact on personal financial planning. This finding is consistent with the findings of Adam *et al.* (2017). Moreover, the beta coefficients for financial attitude are

positive with the personal financial planning. It indicates that financial attitude has a positive impact on personal financial planning. This finding is consistent with the findings of Susan and Djajadikerta (2017). In addition, the beta coefficients for financial confidence are positive with personal financial planning. It indicates that financial confidence has a positive impact on personal financial planning. This finding is similar to the findings of Neymotin (2010). Similarly, the beta coefficients for financial socialization are positive with personal financial planning. It indicates that the financial socialization has a positive impact on personal financial planning. The finding is consistent with the findings of Jorgensen *et al.* (2017).

4. Summary and Conclusion

Financial literacy is a key skill to handle the financial scenario. It refers to the knowledge and understanding of the financial concepts, skills, possible impacts and motivations that make effective decision in financial context. Financial literacy is an important component of sound financial decision making. In today's advance and complex financial landscape, financial literacy is essential as it does not only influence and impact upon financial decisions at the firm level but also a country's wider financial wellbeing and socioeconomic development. Financial decision making has been widely acknowledged as one of the important factors that influences financial capability and financial wellbeing. Thus, identifying factors that are significantly associated with financial decisions is relevant and is one of the crucial issues for individual and national development.

This study attempts to examine the influence of financial literacy on personal financial planning in Nepal. The study is based on primary data with 192 observations.

The study showed that financial knowledge, financial awareness, financial attitude, financial confidence and financial socialization have positive effect on personal financial planning in Nepal. The study concluded that basic and advance financial knowledge have significant impact on financial planning. The study also concluded that financial knowledge followed by financial attitude are the most influencing factors that explains the changes in personal financial planning in Nepal.

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Investment behaviour and financial literacy: A case of Kathmandu Valley

– Melina Lamichhane*

Abstract

This study examines the association between investment behaviour and financial literacy in Kathmandu Valley. Investment behaviour is the dependent variable. The selected independent variables are financial knowledge, financial awareness, financial experience, financial skills, financial capability and financial goals. The primary source of data is used to assess the opinions of the respondents regarding the investment behaviour and financial literacy. The study is based on primary data with 158 respondents. To achieve the purpose of the study, structured questionnaire is prepared. The correlation coefficients and regression models are estimated to test the significance and importance of financial literacy on investment behaviour in Kathmandu valley.

The result showed that financial knowledge has a positive impact on investment behaviour. It implies that increase in financial knowledge leads to increase in investment behaviour. The result also revealed that financial awareness has a positive impact on investment behaviour. It implies that increase in financial awareness leads to increase in investment behaviour. Moreover, financial experience has a positive impact on investment behaviour. It implies that increase in financial experience leads to increase in investment behaviour. Furthermore, financial skill has a positive impact on investment behaviour indicating that increase in financial skills leads to increase in investment behaviour. Similarly, the result also showed that financial capability has a positive impact on investment behaviour. It indicates increase in financial capability leads to increase in investment behaviour. Moreover, financial goal has a positive impact on investment behaviour. It implies that better financial goals lead to increase in investment behaviour.

Key words: *Investment behaviour, financial knowledge, financial awareness, financial experience, financial skills, financial capability and financial goals.*

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1. Introduction

Financial literacy is a basic concept in understanding money and its use in daily life. This includes the way income and expenditure are managed and the ability to use the common methods of exchanging and managing money. An important prerequisite for informed financial decision-making is adequate financial knowledge and skills to make competent investment decisions (Eniola and Entebang, 2017). Financial literacy improves individual's understanding of financial matters that enable them to make effective use of investment avenues and services by evaluating associated risks and returns and finally choosing those avenues which are best suited to them (Kefela, 2011). Financial literacy enables them to process financial information and makes informed decisions. Individuals with high financial literacy cannot get cheated by sales people selling financial products not suited for them. Financial literacy aids in improving the quality of financial services and contribute to economic growth and development of a country (Norman, 2010).

Financial literacy of an individual is their level of understanding of financial matters which enables them to process financial information and make informed decisions about personal finance. It is difficult for a common man to understand the risk associated with the new age financial products. In order to understand risk and return associated with these products, a minimum level of financial literacy is a must. Financially literate individuals can make effective use of these financial products and services by evaluating associated risks and returns and finally choosing those products which are best suited to them. The capability to manage personal finances has become increasingly important in today's world. Financial literacy incorporates an understanding of everyday situations that need to be understood such as savings, borrowings, credit and insurance (Roy and Jane, 2018). According to Lusardi (2019), financial literacy can help to prepare consumers for tough financial times, by promoting strategies that mitigate risk such as accumulated savings, differentiating assets, and purchasing insurance. Financial literacy has typically related individual knowledge of economics and finance with their financial decisions related to savings, retirement planning, or portfolio choice. Financial literacy also allows people to make the best use of financial products and invest without waste or experiencing unnecessary costs. With more throwaway income and greater capacity to save and invest, financially literate people tend to have more financial products and are more productive investors (Cole and Fernando, 2008).

Financial literacy entails informed financial decisions. Mouna and Anis (2017) investigated the determinants of financial literacy and its impact on investment behavior. The study found individuals with a low level of financial literacy are less likely to invest in the stock market. The study also showed that the financial literacy level is found to be affected by age, education level, and the annual income. Choudhary *et al.* (2021) examined how investment behaviour and financial literacy are interlinked and determine the impact of socio-demographic variables on the financial literacy and investment behaviour. The study showed that financial literacy has a significant positive association with the age and income of the respondents. The results exhibited that the financial attitude, a key component of financial literacy, shows statistically significant negative influence on the investment behaviour. Moreover, Jamal *et al.* (2005) assessed the effects of social influence and financial literacy on savings behavior of higher learning institutions in Kota Kinabalu, Sabah. The study showed that there is a positive impact of financial literacy and financial management on savings behavior. Chong *et al.* (2020) assessed the effects of financial literacy, self-efficacy and self-coping on financial behavior of emerging adults. The study found that self-efficacy has the strongest positive relationship with financial saving behavior. The effective way of creating a strong sense of efficacy is through the experiences.

Assefa and Rao (2018) assessed the level of financial literacy and examine the relationship between

financial literacy of salaried employees and their preference towards various investment avenues in Ethiopia. The results of the study concluded that financial literacy level of individuals is very low. It does not influence the investment preference of salaried employees towards various investment avenues, except for government bonds. Preference for government bonds is significantly influenced by the level of financial literacy of the respondents. In addition, participants of high as well as low financial literacy groups prefer similar investment avenues. They mainly prefer to invest in traditional and safe financial products and do not invest much in complex financial products which are comparatively riskier and can give higher return. Furthermore, Al-Tamimi and Kalli (2009) analyzed the level of financial literacy of individual investors in UAE who invest in the financial markets of UAE. The result found that financial literacy of UAE investors is much less from what is actually required. The study also found that there exists a significant relationship between financial literacy and investment decisions. Yahaya *et al.* (2019) assessed the effect of financial knowledge and financial attitudes on financial behavior among university students. The study found that the financial attitude has a significant positive effect on saving behavior. Asandimitra and Kautsar (2019) explored the influence of financial information, financial self-efficacy and emotional intelligence on financial management behavior. The findings showed that there is a positive influence of financial knowledge, financial self-efficacy, financial literacy and emotional intelligence on the financial management behavior of female lecturers at state universities.

Muller and Weber (2010) indicated that financial literacy is positively related to investments in low-cost funds. Nevertheless, the study reported that even the most sophisticated investors select actively managed funds instead of less expensive ETFs (exchange traded funds) or index fund alternatives. Even finance professors with presumably high financial literacy do not implement their knowledge when building their own portfolio. Hamza and Arif (2019) examined the impact of financial literacy on investment decisions with the mediating effect of personality traits based on the big-five model. The results suggested that financial literacy did not have a significant effect on investment decisions through agreeableness, conscientiousness and extraversion. However, financial literacy has a significant negative impact on investment decisions through openness to experience and a significant positive impact through neuroticism. Likewise, Sivaramakrishnan *et al.* (2017) examined the effect of financial literacy on investment decisions in the stock market. The study suggested that the intention to invest in the stock market was positively affected by both subjective and objective financial literacy, whereas behavior was only influenced by objective financial literacy. The study also suggested that financial well-being positively influence investor behavior. Furthermore, Fedorova *et al.* (2015) examined the influence of financial literacy on the stock market. The findings of the study suggested that financially literate investors participate proactively in the stock market.

In Nepalese context, Rupakheti (2020) examined the financial literacy among students of Nilkantha Multiple Campus. The study revealed that financial literacy among students appears to be below the average level. Vaidya and GC (2021) assessed the relationship of financial literacy with financial attitude and financial behavior among Tharu women small borrowers. The study found that Tharu women who are in saving group mainly focus on income saving and looking for an opportunity cost. Further, the financial literacy has highly influenced financial behavior among Tharu women of Nepal. Nepali (2018) analyzed the impact of family structure on investment decision making of individual investors in Nepalese stock market. The study concluded that there exists a positive correlation between economic independence and investment decision as well as financial knowledge and investment decision. Manandhar (2018) concluded that there is a positive relationship between financial knowledge and financial ability. With greater financial knowledge, the students are more able to make financial decisions in their professional life. Similarly, there is also a positive relationship between financial knowledge and financial awareness.

The above discussion reveals that the empirical evidences vary greatly across the studies concerning the investment behaviour and financial literacy. Though there are above mentioned empirical evidences in the context of other countries and in Nepal, no such findings using more recent data exist in the context of Nepal. Therefore, in order to support one view or the other, this study has been conducted.

The main purpose of the study is to analyze the association between investment behaviour and financial literacy in Kathmandu Valley. Specifically, it examines the impact of financial knowledge, financial awareness, financial experience, financial skills, financial capability and financial goals on investment behaviour in the context of Kathmandu Valley.

The remainder of this study is organized as follows. Section two describes the sample, data and methodology. Section three presents the empirical results and the final section draws the conclusion.

2. Methodological aspects

The study is based on primary data. The data were gathered from 158 respondents through a questionnaire. The respondents' views were collected on financial knowledge, financial awareness, financial experience, financial skills, financial capability and financial goals. The study is based on descriptive and causal-comparative research designs.

The model

The model estimated in this study assumes that investment behaviour depends on financial knowledge, financial awareness, financial experience, financial skills, financial capability and financial goals. Therefore, the model takes the following form:

$$IB = a + \beta_1 FK + \beta_2 FA + \beta_3 FE + \beta_4 FS + \beta_5 FC + \beta_6 FG + e$$

Where,

IB = Investment behaviour

FK = Financial knowledge

FA = Financial awareness

FE = Financial experience

FS = Financial skills

FC = Financial capability

FG = Financial goals

Financial knowledge was measured using a 5-point Likert scale where the respondents were asked to indicate the responses using 1 for strongly disagree and 5 for strongly agree. There are 5 items and sample items include "I have sound knowledge regarding several ratios and their effect", "E-banking services provide strong commitment for security issues" and so on. The reliability of the items was measured by computing the Cronbach's alpha ($\alpha = 0.895$).

Financial awareness was measured using a 5-point Likert scale where the respondents were asked to indicate the responses using 1 for strongly disagree and 5 for strongly agree. There are 5 items and sample items include "I am aware about the financial terms and concepts", "I am aware about the benefits and cost incurred while borrowing from financial institutions" and so on. The reliability of the items was measured by computing the Cronbach's alpha ($\alpha = 0.891$).

Financial experience was measured using a 5-point Likert scale where the respondents were asked to indicate the responses using 1 for strongly disagree and 5 for strongly agree. There are 5 items and sample items include “I have experience to manage finance”, “I do regularly check my bank statements for inconsistencies” and so on. The reliability of the items was measured by computing the Cronbach’s alpha ($\alpha = 0.871$).

Financial skills was measured using a 5-point Likert scale where the respondents were asked to indicate the responses using 1 for strongly disagree and 5 for strongly agree. There are 5 items and sample items include “I plan for my long-term financial future”, “I have a skill to recognize a scam or investment scheme that seems too good to be true” and so on. The reliability of the items was measured by computing the Cronbach’s alpha ($\alpha = 0.918$).

Financial capability was measured using a 5-point Likert scale where the respondents were asked to indicate the responses using 1 for strongly disagree and 5 for strongly agree. There are 5 items and sample items include “I have the ability and understanding to ensure enough money for my retirement”, “I have the ability and understanding to plan for my long-term financial future” and so on. The reliability of the items was measured by computing the Cronbach’s alpha ($\alpha = 0.911$).

Financial goals was measured using a 5-point Likert scale where the respondents were asked to indicate the responses using 1 for strongly disagree and 5 for strongly agree. There are 5 items and sample items include “I have concrete financial goals toward which I am working”, “My long term financial goals influence the managing of my expenses” and so on. The reliability of the items was measured by computing the Cronbach’s alpha ($\alpha = 0.899$).

Investment behaviour was measured using a 5-point Likert scale where the respondents were asked to indicate the responses using 1 for strongly disagree and 5 for strongly agree. There are 5 items and sample items include “My investment is usually determined by past experiences”, “I usually make investment based on future expectations rather than past performance” and so on. The reliability of the items was measured by computing the Cronbach’s alpha ($\alpha = 0.919$).

The following section describes the independent variables used in this study along with the hypothesis formulation.

Financial knowledge

Financial knowledge reflects the individual's understanding of basic financial terms including compound interest, inflation, deposits, the time value of money, diversification, interest rates, debt, and assets (Dewi *et al.*, 2020). Riitsalu and Murakas (2019) concluded that the subjective financial knowledge has a positive relationship between financial well-being. Similarly, Woodyard (2013) revealed that there is positive relationship between financial knowledge and financial well-being. Moreover, Allgood and Walstad (2013) concluded that both objective and subjective financial knowledge positively influence financial behaviour, with subjective knowledge having a larger relative impact. In addition, Deenanath *et al.* (2019) concluded that there is positive relationship between financial knowledge and financial investing behaviour. Similarly, Hilgert *et al.* (2003) showed that there is positive relationship between financial knowledge and financial behaviour. Moore (2003) concluded a relationship between financial knowledge and investment behaviour. The study revealed that the financial behaviours positively affect a person’s level of financial knowledge and their gains in competency. Based on it, this study develops the following hypothesis:

H_1 : *There is a positive relationship between financial knowledge and investment behaviour.*

Financial awareness

Financial awareness is defined as the process to inculcate the ability to understand personal financial well-being. It includes the awareness about financial products, market information, sources of getting financial knowledge and confidence of discussing financial issues. Al-Tamimi *et al.* (2009) found that there is a significant positive relationship between financial awareness and investment behaviour. Similarly, Xia *et al.* (2014) concluded that financial awareness overconfidence is positively correlated to stock market participation and investment behaviour. Likewise, Manandhar (2018) concluded that there is also a positive relationship between financial knowledge and financial awareness i.e., the financial awareness increases with an increase in financial knowledge and vice versa. Furthermore, Guiso and Jappelli (2005) stated that financial awareness is important for understanding financial knowledge matters that are related to financial products and services which, in turn, positively influence the decisions and investment in financial markets. Moreover, Nga *et al.* (2010) revealed that males have higher level of financial awareness as compared to females. The study also explored that there is positive relationship between financial awareness and investment behaviour. Based on it, this study develops the following hypothesis:

H_2 : *There is a positive relationship between financial awareness and investment behaviour.*

Financial experience

Financial experience can be defined as a factor associated with financial management behaviour. Hilgert *et al.* (2003) argued that financial experience can improve financial management and investment behaviour. Sohn *et al.* (2012) concluded that financial experience has a significant influence on financial literacy and investment behaviour. Putri and Djuminah (2016) explored that the financial experience has a significant positive influence on financial literacy. Hogart and Beverly (2013) showed that increased knowledge and financial experience can improve the behaviour of financial management. Similarly, Frijns *et al.* (2014) found a positive and significant causal effect of financial experience on financial literacy. In addition, Moore (2003) concluded a relationship between financial knowledge, financial experience, and financial behaviour. The study revealed that the financial experience and behaviors positively affect a person's level of financial knowledge and their gains in competency. Based on it, this study develops the following hypothesis:

H_3 : *There is a positive relationship between financial experience and investment behaviour.*

Financial skills

Financial skills relate to the individual's ability, when making financial decisions, to minimize the possibility of getting caught up in financial problems. Dewi *et al.* (2020) found that there is positive relationship between financial skill and financial management behaviour. In addition, Banks and Oldfield (2007) showed that there is strong positive correlation between financial skills and financial behaviour. Further, Cole *et al.* (2011) found that there is positive relationship between financial skills and investment behaviour. According to Khan *et al.* (2017), there is positive relationship between financial skill and financial behaviour. Similarly, Lusardi *et al.* (2010) found that financial skills positively affect the investment behaviour. Moreover, Xiao *et al.* (2014) revealed that financial skills positively affect the financial behaviour. Based on it, this study develops the following hypothesis:

H_4 : *There is a positive relationship between financial skills and investment behaviour.*

Financial capability

Financial capability includes a person's knowledge, their skills to understand their own financial situation, and their motivation to take action. Agnew and Cameron-Agnew (2015) revealed that there is positive association between financial capability and financial behaviour. Similarly, Nicolini *et al.* (2013) concluded that there is positive relationship between financial capability and investment behaviour. Further, Riitsalu and Poder (2016) concluded that there is positive relationship between financial capability and investment behaviour. Similarly, Xiao *et al.* (2014) suggested that there is positive association between financial capability and investment behaviour. Based on it, this study develops the following hypothesis:

H_5 : *There is a positive relationship between financial capability and investment behaviour.*

Financial goals

Determining effective financial goals is the key to success in achieving financial freedom (Dewi *et al.*, 2020). Ketkaew *et al.* (2020) reported a positive relationship between retirement behaviour and individual short-term financial goals. Similarly, O'Neill *et al.* (2000) revealed a positive relationship between financial goals and investment behaviour. Furthermore, Hogarth and Hilgert (2002) concluded a positive relationship between financial goals and investment behaviour. Likewise, Woodyard (2013) found the positive relationship between financial goal and investment behaviour. Based on it, this study develops the following hypothesis:

H_6 : *There is a positive relationship between financial goals and investment behaviour.*

3. Results and discussion

Correlation analysis

On analysis of data, correlation analysis has been undertaken first and for this purpose, Kendall's Tau correlation coefficients along with means and standard deviations have been computed and the results are presented in Table 1.

Table 1: Kendall's Tau correlation coefficients matrix

This table presents Kendall's Tau correlation coefficients between dependent variable and independent variables. The correlation coefficients are based on 158 observations. The dependent variable is IB (Investment behaviour). The independent variables are FK (Financial knowledge), FA (Financial awareness), FE (Financial experience), FS (Financial skills), FC (Financial capability) and FG (Financial goals).

Variables	Mean	S.D.	IB	FK	FA	FE	FS	FC	FG
IB	3.982	0.892	1						
FK	3.832	0.821	0.370**	1					
FA	3.925	0.879	0.353**	0.495**	1				
FE	3.704	0.880	0.351**	0.491**	0.434**	1			
FS	3.895	0.881	0.428**	0.507**	0.537**	0.376**	1		
FC	3.870	0.937	0.379**	0.391**	0.365**	0.400**	0.569**	1	
FG	3.842	0.880	0.285**	0.464**	0.299**	0.288**	0.530**	0.504**	1

Notes: The asterisk signs (**) and (*) indicate that the results are significant at one percent and five percent level respectively.

The correlation matrix indicates that financial knowledge is positively correlated to investment behaviour. It implies that increase in financial knowledge leads to increase in investment behaviour. The result also reveals that financial awareness is positively correlated to investment behaviour. It implies that increase in financial awareness leads to increase in investment behaviour. Moreover, financial experience is positively correlated to investment behaviour. It implies that increase in financial experience leads to increase in investment behaviour. Furthermore, financial skill is positively correlated to investment behaviour indicating that increase in financial skills leads to increase in investment behaviour. Similarly, the result also shows that financial capability is positively correlated to investment behaviour. It indicates increase in financial capability leads to increase in investment behaviour. Moreover, financial goal is positively correlated to investment behaviour. It implies that better financial goals lead to increase in investment behaviour.

Regression analysis

Having analyzed the Kendall's Tau correlation coefficients matrix, the regression analysis has been carried out and the results are presented in Table 2. More specifically, it presents the regression results of financial knowledge, financial awareness, financial experience, financial skills, financial capability and financial goals on investment behaviour in the context of Kathmandu Valley.

Table 2: Estimated regression results of financial knowledge, financial awareness, financial experience, financial skills, financial capability and financial goals on investment behavior

The results are based on 158 observations using linear regression model. The model is $IB = \beta_0 + \beta_1 FK + \beta_2 FA + \beta_3 FE + \beta_4 FS + \beta_5 FC + \beta_6 FG + e$, where the dependent variable is IB (Investment behaviour). The independent variables are FK (Financial knowledge), FA (Financial awareness), FE (Financial experience), FS (Financial skills), FC (Financial capability) and FG (Financial goals).

Model	Intercept	Regression coefficients of						Adj. R _{bar} ²	SEE	F-value
		FK	FA	FE	FS	FC	FG			
1	1.047 (4.332)**	0.766 (12.417)**						0.494	0.635	154.17
2	1.177 (5.078)**		0.715 (12.398)**					0.493	0.635	153.702
3	1.611 (6.725)**			0.640 (10.167)**				0.395	0.694	103.366
4	1.087 (4.952)**				0.743 (13.520)**			0.537	0.607	182.783
5	1.597 (6.904)**					0.616 (10.608)**		0.415	0.682	112.525
6	1.403 (5.857)**						0.671 (11.043)**	0.435	0.670	121.956
7	0.747 (3.171)**	0.433 (4.729)**	0.402 (4.700)**					0.554	0.596	98.553
8	0.712 (3.006)**	0.367 (3.486)**	0.369 (4.149)**	0.112 (1.259)				0.556	0.594	66.478
9	0.609 (2.662)*	0.130 (1.101)	0.225 (2.411)*	0.140 (1.638)	0.378 (3.833)**			0.592	0.570	57.966
10	0.608 (2.648)*	0.128 (1.045)	0.226 (2.398)**	0.139 (1.600)	0.378 (3.239)**	0.008 (0.081)		0.589	0.572	46.073

11	0.557 (2.405)*	0.068 (0.524)	0.245 (2.586)*	0.141 (1.629)	0.319 (2.629)*	0.028 (0.291)	0.143 (1.401)	0.592	0.571	38.965
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Notes:

- i. Figures in parenthesis are t-values
- ii. The asterisk signs (**) and (*) indicate that the results are significant at one percent and five percent level respectively.
- iii. Investment behaviour is the dependent variable.

The regression results show that the beta coefficients for financial knowledge are positive with investment behaviour. It indicates that financial knowledge has a positive impact on investment behaviour. This finding is similar to the findings of Riitsalu and Murakas (2019). Likewise, the beta coefficients for financial awareness are positive with investment behaviour. It indicates that financial awareness has a positive impact on investment behaviour. This finding is consistent with the findings of Xia *et al.* (2014). Moreover, the beta coefficients for financial experience are positive with investment behaviour. It indicates that financial experience has a positive impact on investment behaviour. This finding is similar to the findings of Frijns *et al.* (2014). Furthermore, the beta coefficients for financial skills are positive with investment behaviour. It indicates that a financial skill has a positive impact on investment behaviour. This finding is consistent with the findings of Dewi *et al.* (2020). In addition, the beta coefficients for financial capability are positive with investment behaviour. It indicates that financial capability has a positive impact on investment behaviour. This finding is similar to the findings of Agnew and Cameron-Agnew (2015).

4. Summary and conclusion

Financial literacy is one of the important issues in modern finance. Financial literacy of an individual is defined as their level of understanding the financial concepts which enables them to process the financial information and make informed financial decisions about personal finance. investment behaviour in relation to financial literacy can be used as a strategic tool to influence new investors and retain existing investors. Financial literacy leading to positive investment behaviour can play a major role in the success of investment sectors.

This study attempts to examine the association between investment behaviour and financial literacy in the context of Kathmandu Valley. The study is based on primary data with 158 observations.

The study showed that financial knowledge, financial awareness, financial experience, financial skills, financial capability and financial goals have positive impact on investment behaviour in Kathmandu Valley. The study concluded that increase in financial literacy leads to increase in investment behaviour. The study also concluded that financial skills followed by financial knowledge are the most influencing factors that explain the changes in investment behaviour in the context of Kathmandu Valley.

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Impact of corporate income tax on the financial performance of Nepalese commercial banks

– Kalpana Pathak*

Abstract

This study examines the impact of corporate income tax on the performance of Nepalese commercial banks. Return on asset and market price per share are selected as the dependent variables. Similarly, corporate income tax, total investment, liquidity position, firm size, firm growth and firm age are selected as the independent variables. This study is based on secondary data of 20 commercial banks with 160 observations for the study period from 2013/14 to 2020/21. The data were collected from Banking and Financial Statistics published by Nepal Rastra Bank, annual reports of the selected commercial banks and reports published by Ministry of Finance. The correlation coefficients and regression models are estimated to test the significance and importance of corporate income tax and other bank specific factors on the performance of Nepalese commercial banks.

The study showed corporate income tax has a positive impact on return on assets. It means that increase in corporate income tax leads to increase in return on assets. Similarly, investment has a positive impact on return on assets. It means that increase in total investment leads to increase in return on assets. In contrast, liquidity position has a positive impact on return on assets and market price per share. It shows that higher the liquidity position, higher would be the return on assets and market price per share. Furthermore, firm growth has a positive impact on return on assets. It indicates that increase in firm growth rate leads to increase in return on assets. In addition, firm age has a positive impact on return on assets and market price per share. It indicates that older the firm, higher would be the return on assets and market price per share. Further, this study showed that firm size has a positive impact on return on assets. It means that larger the firm size in terms of assets, higher would be the return on assets.

Key words: Return on asset, market price per share, corporate income tax, total investment, liquidity position and corporate income tax policy.

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1. Introduction

Corporate tax avoidance is an act aiming at reducing tax amount liable to the government, which is expected to raise firm value. Corporate tax contributes to economic development and this is an aspect of corporate social responsibility. However, firms could avoid tax to retain extra profits (Chen and Tsai, 2018). Practically, corporate tax avoidance enhances shareholder's wealth and plays a significant role as a corporate strategy, especially for large firms (Armstrong *et al.*, 2015). Tax-reducing strategies lead to a significant shrink in the government's fiscal revenue, thus affecting its ability to administer welfare policy and social public services, crippling the functioning of the government in maintaining a normal social and economic order. However, agency theory postulates that opportunistic managers can lower tax liabilities through the arrangement of complex transactions, enabling them to shirk or pursue own interests (Khuong *et al.*, 2020).

According to Albertazzi and Gambacorta (2006), corporate tax are taxes levied against the income earned by firms during the course of doing business in a given tax period. Corporate taxes are majorly applied to firms making earnings after expenses are deducted from sales. Abiahu and Amahalu (2017) defined corporate tax as the statutory transfer or payment made from non-public individuals, institutions or groups to the government. Likewise, Myers (2007) asserted that corporate tax is a firm activity other than tax payment, which is about taking benefit of tax incentives for funding decisions. Gatsi *et al.* (2013) asserted that the financial sector of any economy is regarded as an essential sector to the growth of the economy as it contributes to the growth of the economy which is mirrored in job creation and increased tax contribution to the nation. In the modern system of governance, tax system is important which provides governments with reliable and sustainable means of revenue collection, reduces dependency on foreign aid, increase financial autonomy, enables government to provide various cash support to deserving citizens, encourages good governance, accountability and transparency, supports formalize the economy and promote economic growth etc. Chude and Chude (2015) explained the effects of company income tax on the profitability of companies in Nigeria. The study concluded that company income tax has a significant positive relationship with the profitability of companies in Nigeria. Corporations are subjected to different kind of taxes which include payroll tax, property tax, excise tax, withholding tax, customs duties, VAT, and other collective taxes, normally in the same way as other tax payers.

Nwaorgu and Abiahu (2020) examined the effect of corporate tax on the sustainable financial performance of listed firms in Nigeria. The study revealed that corporate tax payment has no significant effect on the return on equity of firms. Further, the findings revealed a positive and significant effect of corporate tax payment on the debt-to-equity ratio of the listed firms. Khuong *et al.* (2020) examined the empirical link using a sample of Vietnamese listed firms over the period from 2010 to 2016, using a wide-ranging set of performance and tax-sheltering indicators. The results indicated a mixed relationship between corporate tax avoidance and firm performance in Vietnam. Traditionally, tax avoidance is considered as a tactic to transfer wealth from government to corporations, which should efficiently enhance firm value. For this reason, it is expected that that corporate tax avoidance is positively related to firm performance. On the other hand, tax avoidance has its own costs, including the implementation cost, reputational damage and punishments from the state if uncovered (Chen *et al.*, 2014). It should be, therefore, the firm's decision to avail itself of tax avoidance as a result of the balancing between the benefits and disadvantages associated with this strategy. Desai and Dharmapala (2006) suggested that firms should design incentive schemes in order to lower the moral hazard risk, thus discouraging managers from engaging in tax avoidance, as an effort to preserve firm value. Inger (2013) also found a robust and positive association between

firm performance and tax avoidance with different measures of tax-reducing tactics. Tax avoidance is negatively associated with firm performance because it complicates the organizational operations, and facilitates managerial opportunism and agency slack. However, in the presence of proper governance mechanisms, agency conflicts and managerial opportunism are curbed, thus helping firms to benefit more from tax avoidance (Desai and Dharmapala, 2009).

Gatsi *et al.* (2013) examined the effect of corporate income tax on the financial performance of manufacturing firms in Ghana. The study revealed that there is a significant negative relationship between corporate income tax and financial performance. The study also disclosed that firms' size, age of the firm and growth of the firm have a significant positive relationship with financial performance. Similarly, Assidi *et al.* (2016) assessed the effect of corporate income tax on profitability of firms in Tunisia and Romania respectively. Using simple regression, the study discovered that corporate income tax is statistically significant determinant of firm profitability. A reduction of effective tax rate leads to a significant increase of firm profitability. Moreover, Otwani *et al.* (2017) investigated the effect of corporate income tax on financial performance of the companies listed on the Nairobi Securities Exchange in Kenya. The study used a mixed research design and found that there is a positive relationship between corporate income tax and financial performance of listed companies on the Nairobi Stock Exchange in Kenya. Furthermore, De Mooij and Ederveen (2001) analyzed the effect of taxation on both firms which are profitable and unprofitable. The study concluded that payout tax adjustment has an economically considerable adverse effect on allocation of the investment and profitability. However, payout tax has no relationship with the firm growth of the firms. Similarly, Jens and Schweltnus (2008) examined the effects of corporate income taxes on profitability and investment of firms in European OECD member countries over the time period of 1996-2004. The results showed that corporate income taxes reduce investment through an increase in the user cost of capital. This may be partly explained by the negative profitability effects of corporate income taxes if there is an increase in the corporate tax rate. Moreover, Rohaya *et al.* (2010) assessed the impact of corporate income tax liabilities on different variables of a firm as gross profit, cost of sales, expenses etc. The study concluded that corporate income tax adversely affects the profitability of corporate institutions but has a positive relationship with the firm size and age of companies. Furthermore, Gatsi *et al.* (2013) empirically determined the effect of corporate income tax on financial performance. The study revealed that there is a significant negative relation between corporate income tax and financial performance. On the other hand, firms' size, age of the firm and growth of the firm have a significant positive relationship with financial performance.

In the context of Nepal, Gyawali (2015) investigated the relationship between corporate income tax and debt-equity mix and estimated the influence of corporate income tax on debt financing of the manufacturing companies of Nepal. The study found that debt financing is influenced by corporate income tax positively. However, such influence is not much significant in shaping specific mix of debt and equity capital of the manufacturing companies. Humagain *et al.* (2022) examined the impact of internal and external factors on the profitability of Nepalese commercial banks. The study also showed that equity to total assets has a positive impact on return on assets and return on equity. Furthermore, total loan to total assets ratio has a positive impact on return on assets and return on equity. It indicates that the increase in total loan to total assets ratio leads to increase in return on assets and return on equity.

The above discussion shows that empirical evidences vary greatly across the studies concerning the impact of corporate income tax on bank performance. Though there are above mentioned empirical evidences in the context of other countries and in Nepal, no such findings using more recent data exist in the context of Nepal. Therefore, in order to support one view or the other, this study has been conducted.

The main purpose of the study is to analyse the impact of corporate income tax on bank performance in the context of Nepalese commercial banks. Specifically, it examines the relationship of corporate income tax, total investment, liquidity position, firm size, firm growth and firm age with return on asset and market price per share of Nepalese commercial banks.

The remainder of this study is organized as follows. Section two describes the sample, data and methodology. Section three presents the empirical results and the final sections draws the conclusion.

2. Methodological aspects

The study is based on secondary data which were gathered from 20 commercial banks from 2013/14 to 2020/21, leading to a total of 160 observations. The study used stratified sampling method to select the banks. The main sources of data include Banking and Financial statistics published by Nepal Rastra Bank, reports published by Ministry of Finance and the annual report of respective banks. This study is based on descriptive as well as causal comparative research designs. Table 1 shows the list of commercial banks selected for the study along with the study period and number of observations.

Table 1: List of commercial banks selected for the study along with study period and number of observations

S.N.	Name of the commercial banks	Study period	Observations
1	Nabil Bank Limited	2013/14 to 2020/21	8
2	Global IME Bank Limited	2013/14 to 2020/21	8
3	Agricultural Development Bank Limited	2013/14 to 2020/21	8
4	Nepal Investment Bank Limited	2013/14 to 2020/21	8
5	NIC Asia Bank Limited	2013/14 to 2020/21	8
6	Prime Commercial Bank Limited	2013/14 to 2020/21	8
7	Nepal Bank Limited	2013/14 to 2020/21	8
8	Himalayan Bank Limited	2013/14 to 2020/21	8
9	Siddhartha Bank Limited	2013/14 to 2020/21	8
10	NMB Bank Limited	2013/14 to 2020/21	8
11	Mega Bank Nepal Limited	2013/14 to 2020/21	8
12	Nepal Bangladesh Bank Limited	2013/14 to 2020/21	8
13	Sanima Bank Limited	2013/14 to 2020/21	8
14	Prabhu Bank Limited	2013/14 to 2020/21	8
15	Kumari Bank Limited	2013/14 to 2020/21	8
16	Everest bank Limited	2013/14 to 2020/21	8
17	Machhapuchchhre Bank Limited	2013/14 to 2020/21	8
18	Citizens Bank International Limited	2013/14 to 2020/21	8
19	Sunrise Bank Limited	2013/14 to 2020/21	8
20	Laxmi Bank Limited	2013/14 to 2020/21	8
Total number of observations			160

Thus, the study is based on the 160 observations.

The model

The model used in this study assumes that bank performance depends upon the corporate income tax of the banks. The dependent variables selected for the study are return on asset and market price per share. Similarly, the selected independent variables are corporate income tax, total investment, liquidity position, firm size, firm growth and firm age. Therefore, the model takes the following form:

Bank performance = $f(\text{CIT, INV, LP, FS, FG and FA})$

More specifically, the given model has been segmented into following models:

$$\text{ROA} = \beta_0 + \beta_1 \text{CIT} + \beta_2 \text{INV} + \beta_3 \text{LP} + \beta_4 \text{FS} + \beta_5 \text{FG} + \beta_6 \text{FA} + e_{it}$$

$$\text{MPS} = \beta_0 + \beta_1 \text{CIT} + \beta_2 \text{INV} + \beta_3 \text{LP} + \beta_4 \text{FS} + \beta_5 \text{FG} + \beta_6 \text{FA} + e_{it}$$

Where,

ROA = Return on assets as measured by the ratio of net income to total assets, in percentage.

MPS = Market price per share as measured by the price at which a share of company stock is traded at the last day of the year, in Rs.

CIT = Corporate income tax as measured by the 25% of total income earned by the firm in a fiscal year, Rs in millions.

INV = Investment as measured by the total investments of the banks, Rs in millions

LP = Liquidity position as measured by the ratio of liquid assets to total assets, in percentage.

FS = Firm size as measured by the total assets of the commercial banks, Rs in millions.

FG = Firm growth as measured by the difference between previous year net profit and current year net profit to current year net profit, in percentage.

FA = Firm age as measured by the number of years that a firm is in operation, in years.

Corporate income tax

Rohaya *et al.* (2010) concluded that corporate income tax adversely affects the profitability of corporate institutions. Similarly, De Mooij and Ederveen (2001) found a negative relationship between corporate taxation and financial performance. Gatsi *et al.* (2013) also revealed that there is a significant negative relation between corporate income tax and financial performance. Likewise, Vrzina and Dimitrijevic (2020) analyzed the corporate income tax burden of agricultural companies in Vojvodina, as well as its impact on company profitability. The study concluded that agriculture is an industry with an exceptionally low corporate income tax burden. The results showed that agricultural companies with lower corporate income tax are more profitable than companies with higher corporate income tax. Furthermore, Harberger (1962) analyzed the effects of the corporation income tax on profitability of the firm in US. The study found that there is negative impact of corporate income tax on return on equity and return on assets. Similarly, Otwani *et al.* (2017) investigated the effect of corporate income tax on financial performance of the companies listed on the Nairobi Securities Exchange in Kenya. The study found that there is a negative relationship between corporate income tax and financial performance of listed companies on the NSE in Kenya. Based on it, this study develops the following hypothesis:

H_1 : *There is a negative relationship between the corporate income tax and financial performance.*

Firm age

Firm age is defined as the number of years of incorporation of the company. Basti *et al.* (2011) concluded that there is a positive relationship between age and profitability measures including return on asset, return on equity and basic earning power. Furthermore, Gatsi *et al.* (2013) concluded that firms' size, age of the firm and growth of the firm have a significant positive relationship with financial performance. Moreover, Kuntluru *et al.* (2008) also found statistically significant positive relationship between firm age and ROA. Similarly, Coad *et al.* (2013) found that older firms enjoy higher productivity and performance measured by the ratio of profits to sales in Spanish manufacturing firms for the period 1998-2006. Similarly, Chhibber and Majumdar (1999) reported that older industrial companies are more experienced and have enjoyed benefits of learning and can enjoy superior performance compared to new companies. Based on it, this study develops the following hypothesis:

H₂: There is a positive relationship between the firm age and financial performance.

Firm growth

The growth ratio is the ratio that measures how much a company is able to maintain its position in the industry and the general economic development. According to Gupta (1981), business growth is considered to lead a decrease in costs through economies of scale, network externalities, outsourcing and an increase in negotiation power with providers and clients. Lee (2018) found a positive and significant relation between growth and profitability. Similarly, Federico and Capelleras (2015) showed a positive influence of company growth on profits. Moreover, Kachlami and Yazdanfar (2016) revealed a positive effect of assets growth on firm profitability. Moreover, Coban (2014) concluded that there is a statistically significant positive relation between current profits and current growth. However, the lagged profits affect current profits positively and lagged profitability is a significant determinant of current profits. Moreover, Goddard *et al.* (2004) also concluded a positive association between profitability and growth of the firm. Based on it, this study develops the following hypothesis:

H₃: There is a positive relationship between the firm growth and financial performance.

Investment

Da Silva *et al.* (2013) showed a positive relation between contemporary investment and profitability, and a negative relation between past investment and profitability. According to Islam *et al.* (2017), investment activities, mainly in shares and debentures of private sectors, have positive impact on return on equity (ROE). The findings also suggested that diversified banking activities including the investment activities made these banks more profitable. Similarly, Jiang *et al.* (2006) found that investments are positively related to the future profitability, after grouping of companies according to the level of investment. Furthermore, Olatunji and Adegbite (2014) found that investments in fixed assets have strong and positive statistical impact on the profitability of banking sector in Nigeria. Likewise, Hailu and Tassew (2018) concluded that the investment diversification positively affects the financial performance of commercial banks in Ethiopia. Based on it, this study develops the following hypothesis:

H₄: There is a positive relationship between the investment and financial performance.

Firm size

Jiang *et al.* (2006) showed that firm size (Total assets, Number of employees and Number of branches) positively affects profitability. Similarly, Gatsi *et al.* (2013) concluded that firms' size, age of the firm and growth of the firm have a significant positive relationship with financial performance. Similarly, Pervan and Visic (2012) concluded that the firm size has a significant positive influence on firm profitability but the relation is weak. Moreover, Dogan (2013) analyzed the effect of firm size on profitability. The study found a positive relation between assets size and profitability of firms. Furthermore, Obehioye and Osahon (2013) also concluded that there is a positive relationship between the size and corporate profitability. Based on it, this study develops the following hypothesis:

H_5 : *There is a positive relationship between the firm size and financial performance.*

Liquidity position

Liquidity refers to the ability of the bank to fulfil its obligations, mainly of depositors. According to Dang (2019), adequate level of liquidity is positively related with bank profitability. Likewise, there is a positive relationship between liquidity and financial performance of corporate institutions (Kadapakkam, 1998). According to Lartey *et al.* (2013), there is a very weak positive relationship between the liquidity and the profitability of the listed banks in Ghana Stock Exchange. Similarly, Warrad *et al.* (2015) stated that when banks hold adequate liquid assets, their profitability would improve. Adequate liquidity helps the bank to minimize liquidity risk and financial crises. The bank can absorb any possible unforeseen financial position. Likewise, Lukorito *et al.* (2014) concluded that if liquid assets are held excessively, profitability could diminish because they have no or little interest generating capacity. Barua (2001) showed that there is a positive link between liquidity and capital adequacy in the context of Czech commercial banks. The study also found a positive association between liquidity ratio and bank profitability. Based on it, this study develops the following hypothesis:

H_6 : *There is a positive relationship between the liquidity position and financial performance.*

3. Results and discussion

Descriptive statistics

Table 2 presents the descriptive statistics of the selected dependent and independent variables during the period 2013/14 to 2020/21.

Table 2: Descriptive statistics

This table shows the descriptive statistics of dependent and independent variables of 20 Nepalese commercial banks for the study period of 2013/14 to 2020/21. The dependent variables are ROA (Return on assets as measured by the ratio of net profit to total asset, in percentage) and MPS (Market price per share as measured by the price at which a share of company stock is traded at the last day of the year, in Rs). The independent variables are CIT (Corporate income tax as measured by the 25% of total income earned by the firm in a fiscal year, Rs in millions), INV (Investment as measured by the total investments of the banks, Rs in millions), LP (Liquidity position as measured by the ratio of liquid assets to total assets, in percentage), FS (Firm size as measured by the total assets of the commercial banks, Rs in millions), FG (Firm growth as measured by the difference between previous year net profit and current year net profit to current year net profit, in percentage) and FA (Firm age as measured by the number of years that a firm is in operation, in years).

Variables	Minimum	Maximum	Mean	Std. Deviation
ROA	-1.44	3.33	1.54	0.48
MPS	163.00	3385.00	571.19	463.60
TAX	-6.00	4528.00	696.63	541.95
INV	1994.00	49917.00	14594.19	9535.14
LP	3.03	26.22	13.41	4.12
FS	20571.00	346147.00	112555.81	63988.94
FG	-62.11	495.66	28.53	61.56
FA	4.00	84.00	22.10	16.85

Correlation analysis

Having indicated the descriptive statistics, Pearson's correlation coefficients are computed and the results are presented in Table 3.

Table 3: Pearson's correlation coefficients matrix

This table shows the bivariate Pearson's correlation coefficients of dependent and independent variables of 20 Nepalese commercial banks for the study period from 2013/14 to 2020/21. The dependent variables are ROA (Return on assets as measured by the ratio of net profit to total asset, in percentage) and MPS (Market price per share as measured by the price at which a share of company stock is traded at the last day of the year, in Rs). The independent variables are CIT (Corporate income tax as measured by the 25% of total income earned by the firm in a fiscal year, Rs in millions), INV (Investment as measured by the total investments of the banks, Rs in millions), LP (Liquidity position as measured by the ratio of liquid assets to total assets, in percentage), FS (Firm size as measured by the total assets of the commercial banks, Rs in millions), FG (Firm growth as measured by the difference between previous year net profit and current year net profit to current year net profit, in percentage) and FA (Firm age as measured by the number of years that a firm is in operation, in years).

Variables	ROA	MPS	CIT	INV	LP	FS	FG	FA
ROA	1							
MPS	0.252**	1						
CIT	0.098	-0.094	1					
INV	0.062	-0.089	0.821**	1				
LP	0.184*	0.103	0.161	0.096	1			
FS	0.010	-0.198*	0.872**	0.912**	0.027	1		
FG	0.237**	-0.017	-0.168	-0.094	-0.066	-0.111	1	
FA	0.074	0.059	-0.116	0.016	-0.270**	0.099	-0.004	1

Note: The asterisk signs (**) and (*) indicate that the results are significant at one percent and five percent levels respectively.

Table 3 shows that corporate income tax has a positive relationship with return on assets. It means that increase in corporate income tax leads to increase in return on assets. Similarly, there is a positive relationship between total investment and return on assets. It means that increase in total investment leads to increase in return on assets. In contrast, liquidity position has a positive relationship with return on assets. It shows that higher the liquidity position, higher would be the return on assets. Furthermore, there is a positive relationship between firm growth and return on assets. It indicates that increase in firm growth rate leads to increase in return on assets. In addition, firm age has a positive relationship with return on assets. It indicates that older the firm, higher would be the return

on assets. Further, this study shows that there is a positive relationship between firm size and return on assets. It means that larger the firm size in terms of assets, higher would be the return on assets.

Similarly, the result also shows that corporate income tax has a negative relationship with market price per share. It means that increase in corporate income tax leads to decrease in market price per share. Similarly, there is a negative relationship between total investment and market price per share. It means that increase in total investment leads to decrease in market price per share. In contrast, liquidity position has a positive relationship with market price per share. It shows that higher the liquidity position, higher would be the market price per share. Furthermore, there is a negative relationship between firm growth and market price per share. It indicates that increase in firm growth rate leads to decrease in market price per share. In addition, firm age has a positive relationship with market price per share. It indicates that older the firm, higher would be the market price per share. Further, this study shows that there is a negative relationship between firm size and market price per share. It means that larger the firm size in terms of assets, lower would be the market price per share.

Regression analysis

Having indicated the Pearson's correlation coefficients, the regression analysis has been carried out and results are presented in Table 4. More specifically, it shows the regression results of corporate income tax, total investment, liquidity position, firm size, firm growth and firm age with return on asset of Nepalese commercial banks.

Table 4: Estimated regression results of corporate income tax, total investment, liquidity position, firm size, firm growth and firm age on return on assets

The results are based on panel data of 20 commercial banks with 128 observations for the period of 2013/14-2020/21 by using the linear regression model and the model is $ROA_{it} = \beta_0 + \beta_1 CIT_{it} + \beta_2 INV_{it} + \beta_3 LP_{it} + \beta_4 FS_{it} + \beta_5 FG_{it} + \beta_6 FA_{it} + e_{it}$, where dependent variable is ROA (Return on assets as measured by the ratio of net profit to total asset, in percentage). The independent variables are CIT (Corporate income tax as measured by the 25% of total income earned by the firm in a fiscal year, Rs in millions), INV (Investment as measured by the total investments of the banks, Rs in millions), LP (Liquidity position as measured by the ratio of liquid assets to total assets, in percentage), FS (Firm size as measured by the total assets of the commercial banks, Rs in millions), FG (Firm growth as measured by the difference between previous year net profit and current year net profit to current year net profit, in percentage) and FA (Firm age as measured by the number of years that a firm is in operation, in years).

Model	Intercept	Regression coefficients of						Adj. R _{bar} ²	SEE	F-value
		CIT	INV	LP	FS	FG	FA			
1	1.220 (3.228)**	0.092 (1.987)*						0.100	0.411	8.970
2	1.220 (2.060)*		0.040 (0.627)					0.017	0.412	0.392
3	1.252 (9.718)**			0.022 (2.350)*				0.123	0.477	15.541
4	1.516 (1.937)				0.007 (0.096)			0.010	0.413	0.010
5	1.489 (36.20)**					0.102 (3.067)**		0.214	0.472	19.410
6	1.495 (23.63)**						0.002 (0.927)	0.004	0.484	0.861
7	1.377 (2.209)*	0.088 (0.821)	-0.036 (0.317)					0.012	0.413	0.553

8	1.252 (1.988)*	0.069 (0.638)	-0.027 (0.239)	0.013 (1.23)				0.005	0.412	0.866
9	2.633 (2.481)*	0.185 (1.432)	0.154 (0.968)	0.008 (0.77)	0.327 (1.61)			0.017	0.409	1.318
10	3.131 (2.894)**	0.274 (2.01)*	0.186 (1.177)	0.013 (1.20)	0.460 (2.16)*		0.004 (1.862)	0.041	0.404	1.761
11	2.609 (2.441)*	0.190 (1.451)	0.151 (0.943)	0.009 (0.803)	0.326 (1.596)	0.030 (0.313)		0.107	0.411	10.052
12	3.106 (2.854)**	0.281 (2.036)*	0.182 (1.147)	0.014 (1.246)	0.460 (2.152)*	0.035 (0.430)	0.004 (1.877)	0.134	0.405	11.492

Notes:

- i. Figures in parenthesis are t-values.
- ii. The asterisk signs (**) and (*) indicate that the results are significant at one percent and five percent level respectively.
- iii. Return on asset is the dependent variable.

The result shows that the beta coefficients for total investment are positive with return on assets. It indicates that total investment made by Nepalese commercial banks has a positive impact on return on assets. This finding is consistent with the findings of Olatunji and Adegbite (2014). Likewise, the beta coefficients for liquidity position are positive with return on assets. It indicates that liquidity position has a positive impact on return on assets. This finding is similar to the findings of Kadapakkam (1998). Similarly, the beta coefficients for firm size are positive with return on assets. It indicates that firm size has a positive impact on return on assets. This finding is consistent with the findings of Obehioye and Osahon (2013). Likewise, the beta coefficients for firm growth are positive with return on assets. It indicates that firm growth has a positive impact on return on assets. This finding is similar to the findings of Lee (2018). Similarly, the beta coefficients for firm age are positive with return on assets. It indicates that firm age has a positive impact on return on assets. This finding is similar to the findings of Chhibber and Majumdar (1999). However, beta coefficients for corporate income tax are positive with return on assets. It indicates that corporate income tax has a positive impact on return on assets. This finding is similar to the findings of Vrzina and Dimitrijevic (2020).

Table 5 shows the regression results of corporate income tax, total investment, liquidity position, firm size, firm growth and firm age with market price per share of Nepalese commercial banks.

Table 5: Estimated regression results of corporate income tax, total investment, liquidity position, firm size, firm growth and firm age on market price per share

The results are based on panel data of 20 commercial banks with 160 observations for the period of 2013/14-2020/21 by using the linear regression model and the model is $MPS_{it} = \beta_0 + \beta_1 CIT_{it} + \beta_2 INV_{it} + \beta_3 LP_{it} + \beta_4 FS_{it} + \beta_5 FG_{it} + \beta_6 FA_{it} + e_{it}$ where dependent variable is MPS (Market price per share as measured by the price at which a share of company stock is traded at the last day of the year, in Rs). The independent variables are CIT (Corporate income tax as measured by the 25% of total income earned by the firm in a fiscal year, Rs in millions), INV (Investment as measured by the total investments of the banks, Rs in millions), LP (Liquidity position as measured by the ratio of liquid assets to total assets, in percentage), FS (Firm size as measured by the total assets of the commercial banks, Rs in millions), FG (Firm growth as measured by the difference between previous year net profit and current year net profit to current year net profit, in percentage) and FA (Firm age as measured by the number of years that a firm is in operation, in years).

Model	Intercept	Regression coefficients of						Adj. R_bar ²	SEE	F-value
		CIT	INV	LP	FS	FG	FA			
1	929.405 (2.567)*	-55.249 (1.99)*						0.060	393.780	4.891
2	1095.506 (1.935)		-55.230 (0.896)					0.002	393.953	0.802
3	415.526 (3.327)**			11.611 (1.304)				0.012	462.588	1.704
4	2077.504 (2.828)**				-131.636 (2.029)*			0.131	387.697	6.121
5	574.876 (14.180)**					-0.129 (0.216)		0.006	465.001	0.052
6	535.417 (8.827)**						1.619 (0.741)	0.004	464.264	0.552
7	1029.203 (1.724)	-37.448 (0.364)	-22.845 (0.211)					0.041	395.656	0.468
8	1136.550 (1.881)	-20.915 (0.201)	-30.438 (0.281)	10.922 (1.108)				0.051	395.206	0.727
9	1182.222 (1.931)	-16.158 (0.154)	-32.770 (0.301)	12.086 (1.194)	-0.022 (0.541)			0.014	396.625	0.614
10	1183.888 (1.924)	-19.542 (0.182)	-29.496 (0.264)	12.501 (1.183)	-0.020 (0.487)		0.321 (0.145)	0.013	398.620	0.491
11	1209.690 (1.953)	-21.166 (0.200)	-30.152 (0.275)	12.810 (1.238)	-0.031 (0.589)	-0.267 (0.373)		0.052	398.379	0.510
12	1211.784 (1.946)	-24.845 (0.228)	-26.618 (0.236)	13.264 (1.227)	-0.021 (0.533)	-0.270 (0.375)	0.343 (0.155)	0.073	400.398	0.430

Notes:

- i. Figures in parenthesis are t-values.
- ii. The asterisk signs (**) and (*) indicate that the results are significant at one percent and five percent level respectively.
- iii. Market price per share is the dependent variable.

The result shows that the beta coefficients for total investment are negative with market price per share. It indicates that total investment made by Nepalese commercial banks has a negative impact on market price per share. This finding is inconsistent with the findings of Hailu and Tassew (2018). Likewise, the beta coefficients for liquidity position are positive with market price per share. It indicates that liquidity position has a positive impact on market price per share. This finding is similar to the findings of Warrad *et al.* (2015). Similarly, the beta coefficients for firm size are negative with market price per share. It indicates that firm size has a negative impact on market price per share. This finding is inconsistent with the findings of Pervan and Visic (2012). Likewise, the beta coefficients for firm growth are negative with market price per share. It indicates that firm growth has a negative impact on market price per share. This finding is similar to the findings of Federico and Capelleras (2015). Similarly, the beta coefficients for firm age are positive with market price per share. It indicates that firm age has a positive impact on market price per share. This finding is similar to the findings of Kuntluru *et al.* (2008). Moreover, beta coefficients for corporate income tax are negative with market price per share. It indicates that corporate income tax has a negative impact on market price per share. This finding is similar to the findings of Harberger (1962).

4. Summary and conclusion

The liquidity challenges faced by banks in Nepal in the recent times and the restricted access to bank loans and facilities by firms and individuals could be linked with high corporate tax payment and this has adversely affected the economy at large. The payment of taxes is actually supposed to be according to income earned which ordinarily should not have been a burden, since those that earn higher pay more taxes and the low-income earner pay less taxes. However, the high rate of company income tax has created the problem of tax evasion and avoidance of firms in Nepal.

This study attempts to analyse the impact of corporate income tax on the performance of Nepalese commercial banks. The study is based on secondary data of 20 commercial banks with 160 observations for the period from 2013/14 to 2020/21.

The study showed that corporate income tax, total investment, liquidity position, firm size, firm growth and firm age have positive impact on return on asset. However, corporate income tax, total investment, firm size and firm growth have negative impact on market price per share. Likewise, the study concluded that firm growth followed by corporate income tax is the most influencing factor that explains the changes in the return on assets of Nepalese commercial banks. Similarly, the study also concluded that firm size followed by corporate income tax is the most influencing factor that explain the changes in market price per share in context of Nepalese commercial banks.

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Effect of capital adequacy ratio, third-party fund, loan to deposit ratio and bank size on the profitability of Nepalese commercial banks

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Abstract

This study examines the effect of capital adequacy ratio, third party fund, loan to deposit ratio, bank size on profitability of Nepalese commercial banks. Return on assets and return on equity are selected as the dependent variables. Similarly, capital adequacy ratio, third party fund, loan to deposit ratio, bank size, non-performing and number of branches are selected as the independent variables. This study is based on secondary data of 19 commercial banks with 152 observations for the study period from 2013/14 to 2020/21. The data were collected from Banking and Financial Statistics and Bank Supervision Report published by Nepal Rastra Bank and annual reports of the selected commercial banks. The correlation coefficients and regression models are estimated to test the significance and importance of capital adequacy ratio, third party fund, loan to deposit ratio and bank size on the profitability of Nepalese commercial banks.

The study showed that capital adequacy ratio has a positive impact on return on assets. It means that increase in capital adequacy ratio leads to increase in return on assets. In contrast, number of branches has a negative impact on return on assets and return on equity. It indicates increase in number of branches leads to decrease in return on asset and return on equity. In addition, the study showed that non-performing loan has a negative impact on return on asset and return on equity s. It means that increase in non-performing loan leads to decrease in return on assets and return on equity in Nepalese commercial banks. However, third-party fund has a negative impact on return on assets and return on equity. It means that increase in third-party funds leads to decrease in return on assets and return on equity. Similarly, loan to deposit ratio has a negative impact on return on assets and return on equity. It shows that increase in loan to deposit ratio leads to a decrease in return on assets and return on equity. Moreover, there is a positive impact of bank size on return on assets. It indicates that increase in bank size leads to increase in return on assets.

Key words: Returns on assets, returns on equity, bank size, loan to deposit ratio, number of branches, capital adequacy ratio, non-performing loan third party fund.

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1. Introduction

The banking sector plays an important role in the development of the entire economy. The significant role of banks in economic progress is undeniable stemming from their intermediary role between borrowers and lenders. Financial intermediaries work in the savings/investment cycle of an economy by serving as conduits to finance between the borrowers and the lenders (Jreisat and Bawazir, 2021). In the era of globalization, banks face multiple risks, including currency, credit, interest rate, and liquidity risks. The world has witnessed numerous poorly managed banks since the past two decades, which had led to the loss of jobs, bankruptcy of companies, and significant economic loss. It is essential for banks, thus, to effectively manage their assets and risks to attain a stable economy and reap profits (Dincer *et al.*, 2016). Capital adequacy is one of the vital indicators of the financial solvency of the banking industry. It is considered as a safety valve to protect the depositors to promote stability and efficiency in the whole financial system of a country (Ahmad and Ahmad, 2017). The maintenance of adequate capital reserves can stimulate the confidence in the financial soundness and stability of the banks.

Ezike and Oke (2013) investigated the impact of the adoption of the capital adequacy standards on the performance of Nigerian banks. The study showed that capital adequacy standards exert a major influence on bank performance and there is a negative impact of capital adequacy on bank profitability. Rahman *et al.* (2015) investigated the impact of capital strength, credit risk, ownership structure, bank size, non-interest income, cost efficiency, off-balance sheet activities, liquidity as potential bank specific determinants as well as growth in gross domestic products, inflation as potential macroeconomic determinants on bank profitability. The result showed that CAR has a positive and insignificant impact on ROA but has a positive and significant impact on ROE. Patni and Darma (2017) examined the influence of non-performing loan, loan to deposit ratio, and net interest margin, and capital adequacy ratio on return in equity and return on assets. The study found that capital adequacy ratio has a positive and significant effect on return on asset and return on equity. Boateng (2018) examined the determinants of profitability of banks in India and Ghana. The study showed that credit risk, net interest margin, capital adequacy and inflation were the most important factors that significantly affect profitability of banks in both Ghana and India. Datta and Al Mahmud (2018) examined the effect of several bank specific variables including capital adequacy on the profitability of listed commercial banks operating in Bangladesh. The result showed that capital adequacy ratio has a positive impact on the profitability of listed commercial banks.

Kinanti and Purwohandoko (2017) analyzed the influence of third-party funds, capital adequacy ratio (CAR), non performing financing (NPF), financing to deposit ratio (FDR) on the return on assets (ROA) during period of 2008-2013 Syariah Banks in Indonesia. The result showed that third party fund and NPF have significant positive effect on ROA. Similarly, CAR and FDR have negative effect on ROA of Syariah Banks in Indonesia. Sari and Murni (2017) examined the effect of third-party fund (TPF), capital adequacy ratio and loan to deposit ratio (LDR) on bank profitability. ROA is used to measure the profitability of the banks. The study found that third-party fund and loan to deposit ratio have positive impact on ROA but the result was insignificant. Similarly, capital adequacy ratio has a positive significant impact on return on assets. Likewise, Sawitri (2018) analyzed the influence of third-party funds, Bank Indonesia Certificates (BIC) and non-performing loans on return on assets and loan to deposit ratio of commercial banks in Indonesia. The results of this study indicated that third-party funds, BIC and non-performing loans are partially and simultaneously influential and significant to loan to deposit ratio. However, third-party funds, BIC and non-performing loans have significant effect on ROA. Moreover, Kustina *et al.* (2019) carried out a study to find the effect

of branchless banking and third-party fund on bank profitability. The empirical result showed that branchless banking application do not have a significant effect on profits. However, branchless banking application has a significant indirect effect on profit through the volume of third-party funds for the banking companies in Indonesia. Moreover, third party fund has a positive impact on profit of banking of Indonesia. In addition, Jubaedah *et al.* (2020) investigated the impact of the spin-off system and the third-party funds on the profitability of Islamic bank in Indonesia that was focused on PT. BRI Sharia bank. The result showed that the third-party funds have a positive and significant effect on the profitability of PT. BRI Sharia Bank in Indonesia.

Christaria and Kurnia (2016) examined the impact of capital adequacy ratio, loan ratio (LDR), operational efficiency proxies by operating expenses to operation income ratio (BOPO), non-performing loan (NPL) towards bank profitability. The study concluded that CAR has a positive impact on ROA. Similarly, other variables (LDR, BOPO and NPL) have negative impact on ROA. Moreover, Awulo *et al.* (2019) explored the relationship between liquidity management and profitability in commercial banks. The study also examined how commercial banks can enhance their liquidity and profitability positions. The empirical result showed that loan to deposit ratio negatively affects return on assets in the long-run, while current ratio significantly and positively influences the return on assets in the long-run. Furthermore, Rajindra (2021) examined the impact of costs and operational revenue and loan to deposit ratio against return on assets. The study concluded that operational cost, operational income and loan to deposit ratio have significant effect on ROA. The results showed that operational costs and operational income have negative and significant impact on return on assets. Moreover, loan to deposit ratio has a positive but insignificant effect on return on assets.

Saeed (2014) investigated the impact of bank-specific, industry-specific and macroeconomic variables on bank profitability before, during and after the financial crisis of 2008. The result showed that the bank size has a positive and significant impact on return on equity as well as return on assets. Petria *et al.* (2015) assessed the major determinants of banks profitability over the period of 2004-2011. The result of regression analysis showed that the size of the bank does not affect the return on equity whereas bank size has a positive and significant influence on return on assets. Elisa and Guido (2016) explored the relationship between bank specific characteristics and profitability in European banking sector in order to determine the impact of internal factors on achieving high profitability. The result revealed that deposit ratio has a positive and significant influence on ROE. Similarly, size has a significant positive impact on profitability. Likewise, Kingu *et al.* (2018) examined the impact of non-performing loans on banks profitability using information asymmetry theory and bad management hypothesis. The regression result indicated that non-performing loan is negatively associated with the level of profitability in commercial banks in Tanzania.

In Nepalese context, Tiwari *et al.* (2022) analyzed the effect of financial ratios, firm size and cash flow from operating activities on the profitability of Nepalese commercial banks. The study showed that liquidity and CAR have positive impact on return on assets of Nepalese commercial banks. Similarly, firm size, cash flow from operating activities, liquidity and leverage ratio have positive impact on return on equity. However, firm size, cash flow from operating activities, leverage and non-performing loans have negative impact on return on assets. Moreover, Humagain *et al.* (2022) examined the impact of internal and external factors on the profitability of Nepalese commercial banks. The study also showed that equity to total assets has a positive impact on return on assets and return on equity. It indicates that the increase in equity to total assets leads to increase in return on assets and return on equity. Likewise, bank size has a positive impact on return on equity. It indicates that the increase in bank size leads to increase in return on equity. Furthermore, total loan to total assets ratio has a positive impact on return on assets and return on equity. It indicates that the

increase in total loan to total assets ratio leads to increase in return on assets and return on equity. In addition, Poudel (2018) examined the impact of credit risk on the profitability of the commercial banks in Nepal. The result showed that credit risk has a significant negative impact on profitability of commercial banks in Nepal. In addition, solvency ratio, interest spread rate, and inflation have insignificant negative impact on profitability. In contrast, capital adequacy ratio, total assets, and GDP growth have significant positive impact on profitability of commercial banks in Nepal. Bhattarai (2016) examined the effect of non-performing loan on the profitability of Nepalese commercial banks. The empirical study showed that non-performing loan ratio have negative effect on overall bank profitability (ROA). However, non-performing loan ratio has positive effect on shareholders' return (ROE). Further, bank size has a significant positive effect on bank profitability (ROA and ROE).

The above discussion shows that empirical evidences vary greatly across the studies on the effect of capital adequacy ratio, third party fund, loan to deposit ratio, bank size on bank profitability. Though there are above mentioned empirical evidences in the context of other countries and in Nepal, no such findings using more recent data exist in the context of Nepal. Therefore, in order to support one view or the other, this study has been conducted.

The main purpose of the study is to examine the effect of capital adequacy ratio, third party fund, loan to deposit ratio, bank size on profitability of Nepalese commercial banks. Specifically, it examines the relationship of capital adequacy ratio, third party fund, loan to deposit ratio, bank size, non-performing and number of branches with return on assets and return on equity of Nepalese commercial banks.

The remainder of this study is organized as follows. Section two describes the sample, data and methodology. Section three presents the empirical results and the final sections draws the conclusion.

2. Methodological aspects

The study is based on the secondary data which were gathered from 19 commercial banks of Nepal for the study period from 2013/14 to 2020/21, leading to a total of 152 observations. The study employed stratified sampling method. The main sources of data include Banking and Financial Statistics and Bank Supervision Report published by Nepal Rastra Bank and annual reports of the selected commercial banks. This study is based on descriptive as well as causal comparative research designs. Table 1 shows the list of commercial banks selected for the study along with the study period and number of observations.

Table 1: List of banks selected for the study along with the study period and number of observations

S. N.	Name of the banks	Year	No. of observations
Private Sector			
1	NIC Asia Bank Limited	2013/14- 2020/21	8
2	Global IME Bank Limited	2013/14- 2020/21	8
3	Siddhartha Bank Limited	2013/14- 2020/21	8
4	Nepal Investment Bank Limited	2013/14- 2020/21	8

5	Prabhu Bank Limited	2013/14- 2020/21	8
6	Kumari Bank Limited	2013/14- 2020/21	8
7	Mega Bank Nepal Limited	2013/14- 2020/21	8
8	Himalayan Bank Limited	2013/14- 2020/21	8
9	Citizens Bank International Limited	2013/14- 2020/21	8
10	Prime commercial Bank Limited	2013/14- 2020/21	8
11	Sanima Bank Limited	2013/14- 2020/21	8
12	Machhapuchchhre Bank Limited	2013/14- 2020/21	8
13	Laxmi Bank Limited	2013/14- 2020/21	8
Public Banks			
14	Ratriya Banijya Bank Limited	2013/14- 2020/21	8
15	Nepal Bank Limited	2013/14- 2020/21	8
Joint Venture Banks			
16	Nabil Bank Limited	2013/14- 2020/21	8
17	NMB Bank Limited	2013/14- 2020/21	8
18	Everest Bank Limited	2013/14- 2020/21	8
19	Standard Chartered Bank Nepal Limited	2013/14- 2020/21	8
Total number of observations			152

Thus, the study is based on 152 observations.

The model

The model estimated in this study assumes that the bank's profitability depends on capital adequacy ratio, third party fund, loan to deposit ratio and bank size. The dependent variables are return on equity and return on assets. The selected independent variables are capital adequacy ratio, third party funds, loan to deposit ratio, bank size, non-performing loan and number of branches. Therefore, the model takes the following form:

$$ROA = \beta_0 + \beta_1 CAR + \beta_2 TPF + \beta_3 LDR + \beta_4 BS + \beta_5 NPL + \beta_6 NB + e$$

$$ROE = \beta_0 + \beta_1 CAR + \beta_2 TPF + \beta_3 LDR + \beta_4 BS + \beta_5 NPL + \beta_6 NB + e$$

Where,

ROA = Return on assets as measured by the ratio of net income to total assets, in percentage.

ROE = Return on equity as measured by the ratio of net income to total equity, in percentage.

CAR = Capital adequacy ratio as measured by the ratio of total capital to total risk weighted exposure, in percentage.

TPF = Third-party fund as measured by the sum of saving, time and demand deposit, Rs in billions.

LDR = Loan to deposit ratio as measured by the ratio of total loans to total deposits, in percentage.

BS = Bank size as measured by the total assets, Rs in billion.

NPL = Non-performing loan as measured by the ratio of non-performing loans to total loans, in percentage.

NB = Number of branches as measured by an absolute number of units from where the bank will serve its customer, in number.

The following section describes the independent variables used in this study along with hypothesis formulation.

Capital adequacy ratio

Fidanoski *et al.* (2018) found capital adequacy ratio has a positive impact on bank profitability. Similarly, De Bandt *et al.* (2014) examined the effect of banks' capitalization on banks' ROE for large French banks over the period from 1993 to 2012. Results found that an increase in capital leads to a significant increase in ROE. Moreover, Kusumastuti and Alam (2019) found that capital adequacy ratio has a positive relationship with bank profitability. In addition, Sebayang (2020) found that bank capital adequacy has a positive impact on return on assets for small-sized banks meanwhile size has an insignificant impact on profitability for large-sized banks in Vietnam. Furthermore, Agbeja *et al.* (2015) stated that there is a positive and significant relationship between capital adequacy and bank's profitability indicating that banks with more equity capital are perceived to have more safety and such advantage can be translated into higher profitability. Based on it, this study develops the following hypothesis:

H_1 : *There is positive relationship between capital adequacy ratio and bank profitability.*

Third party fund

Third party funds indicate customer deposits in the form of savings, current accounts and deposits. Kinanti and Purwohandoko (2017) revealed that third party funds and non performing financing have significant positive effect on return on assets of syariah banks in Indonesia. Moreover, Sari and Murni (2017) analyzed the effect of third-party fund, capital adequacy ratio, and loan to deposit ratio on bank's profitability after the application of IFRS. The results of this study indicate that third party funds (TPF), capital adequacy ratio (CAR), and loan to deposit ratio (LDR) have significant positive effect on return on assets (ROA). Similarly, Sawitri (2018) showed that the prediction of third-party funds, interest rates, and non-performing loans toward loan to deposit ratios have positive impact on return on assets on commercial banks in Indonesia. Furthermore, Kustina *et al.* (2019) revealed branchless banking and third-party funds have positive association with the profitability of banking sector in Indonesia. Based on it, this study develops the following hypothesis:

H_2 : *There is a positive relationship between third-party fund and bank profitability.*

Loan to deposit ratio

Loan to deposit ratio measures the liquidity of the bank. Liquidity is a term used to indicate how easily a company can convert its assets into cash. Inggawati *et al.* (2018) found negative and significant relationship between loan to deposit ratio and bank profitability. In addition, Dutta *et al.* (2013) examined the determinants of return on assets of public sector banks in India. The study revealed that credit to deposit ratio has a negative impact on return on assets. Ramchandani and Jethwani (2017) assessed the impact of credit deposit ratio (CDR) on the profitability of commercial banks of India. The study found that loan to deposit ratio has a negative impact on return on equity. Sunaryo (2020) determined the effect of capital adequacy ratio (CAR), net interest margin (NIM), non-performing loan (NPL), and loan to deposit ratio (LDR) against return on asset (ROA) in general banks in Southeast Asia. The study found that loan to deposit ratio has a negative impact on return on assets.

H_3 : *There is a negative relationship between loan to deposit ratio and bank profitability.*

Bank size

Abbas *et al.* (2021) explored the role of economic growth to influence the inter-relationship between capital, liquidity and profitability of commercial banks in selected Asian emerging economies. The results reported that market funding, loan ratio, credit risk, bank size and bank efficiency are significant indicators that positively influence commercial banks' liquidity, profitability and capital in Asian emerging economies. Similarly, Sufian and Habibullah (2009) examined the determinants of the profitability of the Chinese banking sector during the post-reform period of 2000–2005. The empirical findings from this study suggested that the more diversified and relatively better capitalized CITY tend to exhibit higher profitability levels. Moreover, Staikouras and Wood (2004) found a significant positive relationship between bank size measure in terms of natural logarithm of total assets and the profitability. Based on it, this study develops the following hypothesis:

H_4 : *There is a positive relationship between bank size and bank profitability.*

Non-performing loan

A non-performing loan (NPL) is a loan in which the borrower is in default and has not paid the monthly principal and interest repayments for a specified period. Jolevski (2017) found a negative relationship between non-performing loan ratio and bank profitability. Akter and Roy (2017) found that NPL has a negative impact on profitability of listed banks for the study periods. Patwary and Tasneem (2019) found non-performing loan has a negative and significant impact on return on assets. Furthermore, Do *et al.* (2020) found non-performing loan ratio has a negative and significant impact on bank profitability measure in term of return on assets. Nugraha *et al.* (2021) found non-performing loan has a negative impact on return on assets. Based on it, this study develops the following hypothesis:

H_5 : *There is a negative relationship between non-performing loan and bank profitability.*

Number of branches

Velnampy and Nimalathasan (2010) examined the effect of firm size on profitability of Bank of Ceylon and Commercial Bank of Ceylon Ltd in Sri Lanka. The study found that bank size measured by number of branches has a positive effect on bank profitability. Likewise, Abate and Mesfin (2019) assessed the factors affecting profitability of commercial banks in Ethiopia. The findings of the study showed that capital adequacy, leverage, liquidity, bank size, number of branches and ownership have statistically significant and positive relationship with banks' profitability. Le and Ngo (2020) revealed that there is a positive relationship between number of branches and bank profitability. Furthermore, Almaqtari *et al.* (2019) examined the determinants of profitability of Indian commercial banks using panel data approach. The study found that number of branches is the most significant determinants and have positive relationship with the profitability of Islamic bank. Based on it, this study develops the following hypothesis:

H_6 : *There is a positive relationship between number of branches and bank profitability.*

3. Results and discussion

Descriptive statistics

Table 2 presents the descriptive statistics of the selected dependent and independent variables during the period 2013/14 to 2020/21.

Table 2: Descriptive statistics

This table shows the descriptive statistics of dependent and independent variables of 19 Nepalese commercial banks for the study period of 2013/14 to 2020/21. The dependent variables are ROA (Return on assets as measured by the ratio of net income to total assets, in percentage) and ROE (Return on equity as measured by the ratio of net income to total equity, in percentage). The independent variables are CAR (Capital adequacy ratio as measured by the ratio of total capital to total risk weighted exposure, in percentage), TPF (Third-party fund as measured by the sum of saving, time and demand deposit, Rs in billions), LDR (Loan to deposit ratio as measured by the ratio of total loans to total deposits, in percentage), BS (Bank size as measured by the total assets, Rs in billion), NPL (Non-performing loan as measured by the ratio of non-performing loans to total loans, in percentage) and NB (Number of branches as measured by an absolute number of units from where the bank will serve its customer, in number).

Variables	Minimum	Maximum	Mean	Std. Deviation
ROA	-1.14	3.22	1.61	0.52
ROE	-26.88	69.56	15.94	8.41
CAR	4.55	22.99	13.10	2.31
TPF	17.15	300.25	95.02	54.27
LDR	48.92	95.30	81.73	9.81
BS	20.57	346.15	118.59	67.24
NPL	0.02	24.29	1.75	2.34
NB	0.00	356.00	102.48	74.38

Source: SPSS output

Correlation analysis

Having indicated the descriptive statistics, Pearson's correlation coefficients are computed and the results are presented in Table 3.

Table 3: Pearson's correlation coefficients matrix

This table shows the bivariate Pearson's correlation coefficient matrix of dependent and independent variables of 19 Nepalese commercial banks for the study period from 2013/14 to 2020/21. The dependent variables are ROA (Return on assets as measured by the ratio of net income to total assets, in percentage) and ROE (Return on equity as measured by the ratio of net income to total equity, in percentage). The independent variables are CAR (Capital adequacy ratio as measured by the ratio of total capital to total risk weighted exposure, in percentage), TPF (Third-party fund as measured by the sum of saving, time and demand deposit, Rs in billions), LDR (Loan to deposit ratio as measured by the ratio of total loans to total deposits, in percentage), BS (Bank size as measured by the total assets, Rs in billion), NPL (Non-performing loan as measured by the ratio of non-performing loans to total loans, in percentage) and NB (Number of branches as measured by an absolute number of units from where the bank will serve its customer, in number).

Variables	ROA	ROE	CAR	TPF	LDR	BS	NPL	NB
ROA	1							
ROE	0.619**	1						
CAR	0.174*	-0.271**	1					
TPF	-0.068	-0.006	0.094	1				
LDR	-0.160*	-0.353**	0.159	0.189*	1			
BS	0.063	-0.026	0.125	0.993**	0.216**	1		
NPL	-0.343**	-0.156	-0.339**	-0.056	-0.336**	-0.079	1	
NOB	-0.235**	-0.013	0.002	0.818**	0.282**	0.817**	0.056	1

*Note: The asterisk (**) and (*) indicate that the results are significant at one percent and five percent levels respectively.*

Table 3 shows that capital adequacy ratio is positively correlated to return on assets. It means that increase in capital adequacy ratio leads to increase in return on assets. However, there is a negative relationship between third-party fund and return on assets. It means that increase in third-party funds leads to decrease in return on assets. Similarly, loan to deposit ratio has a negative relationship with return on assets. It shows that an increase in loan to deposit ratio leads to a decrease in return on assets. Moreover, there is a positive relationship between bank size and return on assets. It indicates that increase in bank size leads to increase in return on assets. In contrast, number of branches has a negative relationship with return on assets. It indicates increase in number of branches leads to decrease in return on assets. In addition, the study shows that there is a negative relationship between non-performing loan and return on assets. It means that an increase in non-performing loan leads to decrease in return on assets in Nepalese commercial banks.

Similarly, the result also shows that capital adequacy ratio is negatively correlated to return on equity. It means that increase in capital adequacy ratio leads to decrease in return on equity. Moreover, there is a negative relationship between non-performing loan and return on equity. It means that increase in non-performing loan leads to decrease in return on equity. Furthermore, loan to deposit ratio has a negative relationship with return on equity. It shows that an increase in loan to deposit ratio leads to a decrease in return on equity. Likewise, there is a negative relationship between bank size and return on equity. It indicates that increase in bank size leads to decrease in return on equity. In addition, third-party fund has a negative relationship with return on equity. It indicates increase in third-party fund leads to decrease in return on equity. However, this study shows that there is a negative relationship between number of branches and return on equity. It means that an increase in number of branches leads to decrease in return on equity.

Regression analysis

Having indicated the Pearson's correlation coefficients, the regression analysis has been carried out and results are presented in Table 4. More specifically, it shows the regression results of capital adequacy ratio, third-party fund, loan to deposit ratio, bank size, non-performing loan, and number of branches on return on assets of Nepalese commercial banks.

Table 4: Estimated regression results of capital adequacy ratio, third-party fund, loan to deposit ratio, bank size, non-performing loan ratio and number of branches on return on assets

The results are based on panel data of 19 commercial banks with 152 observations for the period of 2013/14 to 2020/21 by using the linear regression model and the model is $ROA = \beta_0 + \beta_1 CAR_{it} + \beta_2 TPF_{it} + \beta_3 LDR_{it} + \beta_4 BS_{it} + \beta_5 NPL_{it} + \beta_6 NB_{it} + e_{it}$ where, the dependent variable is ROA (Return on assets as measured by the ratio of net income to total assets, in percentage). The independent variables are CAR (Capital adequacy ratio as measured by the ratio of total capital to total risk weighted exposure, in percentage), TPF (Third-party fund as measured by the sum of saving, time and demand deposit, Rs in billions), LDR (Loan to deposit ratio as measured by the ratio of total loans to total deposits, in percentage), BS (Bank size as measured by the total assets, Rs in billion), NPL (Non-performing loan as measured by the ratio of non-performing loans to total loans, in percentage) and NB (Number of branches as measured by an absolute number of units from where the bank will serve its customer, in number).

Model	Intercept	Regression coefficients of						Adj. R_bar ²	SEE	F-value
		CAR	TPF	LDR	BS	NPL	NB			
1	1.098 (4.50)**	0.11 (2.17)*						0.04	0.69	4.89
2	1.684 (18.93)**		-0.001 (0.84)					0.01	0.53	0.70
3	2.320 (6.50)**			-0.09 (1.98)*				0.02	0.52	4.12
4	1.678 (19.25)**				0.05 (0.77)			0.01	0.53	0.60
5	1.754 (34.75)*					-0.28 (4.47)**		0.11	0.50	20.01
6	1.789 (25.12)**						0.17 (2.96)**	0.05	0.51	8.74
7	1.15 (4.62)**	0.14 (2.26)*	-0.01 (1.06)					0.02	0.52	2.90
8	1.85 (4.66)**	0.15 (2.58)**	-0.01 (0.66)	-0.01 (2.24)*				0.05	0.51	3.65
9	1.90 (4.47)**	0.15 (2.41)*	-0.01 (0.42)	-0.01 (2.25)*	0.01 (0.35)			0.04	0.52	2.76
10	2.92 (6.63)**	0.02 (1.04)	-0.01 (0.10)	-0.02 (3.79)**	0.01 (0.04)	-0.29 (5.10)**		0.18	0.48	7.78
11	2.701 (6.07)*	0.01 (0.799)	-0.001 (0.121)	-0.01 (2.987)**	0.01 (0.203)	-0.28 (4.46)**	0.16 (2.35)**	0.21	0.47	7.60

Notes:

- i. Figures in parenthesis are t-values.
- ii. The asterisk signs (**) and (*) indicate that the results are significant at one percent and five percent level respectively.
- iii. Return on asset is the dependent variable.

Table 4 shows that the beta coefficients for capital adequacy ratio are positive with return on assets. It indicates that capital adequacy ratio has a positive impact on return on assets. This finding is similar to the findings of Sebayang (2020). The beta coefficients for non-performing loan are negative with return on assets. It indicates that non-performing loan has a negative impact on return on assets. This finding is not consistent to the findings of Patwary and Tasneem (2019). Similarly, the beta coefficients for loan to deposit ratio are negative with return on assets. It indicates that loan to deposit ratio has a negative impact on return on assets. This finding is similar to the findings of Ramchandani and Jethwani (2017). Likewise, the beta coefficients for bank size are positive with return on assets. It indicates that bank size has a positive impact on return on assets. This finding is consistent with

the findings of Staikouras and Wood (2004). Similarly, the beta coefficients for third-party fund are negative with return on assets. It indicates that third-party fund has a negative impact on return on assets. This finding is inconsistent with the findings of Kustina *et al.* (2019).

Table 5 shows the regression results of capital adequacy ratio, third-party fund, loan to deposit ratio, bank size, non-performing loan, and number of branches on return on equity of Nepalese commercial banks.

Table 5: Estimated regression results of capital adequacy ratio, third-party fund, loan to deposit ratio, bank size, non-performing loan, and number of branches on return on equity

The results are based on panel data of 19 commercial banks with 152 observations for the period of 2013/14 to 2020/21 by using the linear regression model and the model is $ROE = \beta_0 + \beta_1 CAR_{it} + \beta_2 TPF_{it} + \beta_3 LDR_{it} + \beta_4 BS_{it} + \beta_5 NPL_{it} + \beta_6 NB_{it} + e_{it}$ where, the dependent variable is ROE (Return on equity as measured by the ratio of net income to total equity, in percentage). The independent variables are CAR (Capital adequacy ratio as measured by the ratio of total capital to total risk weighted exposure, in percentage), TPF (Third-party fund as measured by the sum of saving, time and demand deposit, Rs in billions), LDR (Loan to deposit ratio as measured by the ratio of total loans to total deposits, in percentage), BS (Bank size as measured by the total assets, Rs in billion), NPL (Non-performing loan as measured by the ratio of non-performing loans to total loans, in percentage) and NB (Number of branches as measured by an absolute number of units from where the bank will serve its customer, in number).

Model	Intercept	Regression coefficients of						Adj. R _{bar} ²	SEE	F-value
		CAR	TPF	LDR	BS	NPL	NB			
1	28.84 (12.86)**	-0.19 (3.44)**						0.07	8.12	11.85
2	16.04 (11.30)**		-0.001 (0.07)					0.01	8.44	0.01
3	40.67 (7.55)**			-0.30 (4.62)**				0.12	7.90	21.35
4	16.33 (11.74)**				-0.003 (0.32)			0.01	8.44	0.10
5	16.93 (20.02)*					-0.56 (1.93)		0.02	8.34	3.73
6	16.10 (13.79)**						-0.002 (0.16)	0.01	8.44	0.03
7	28.63 (7.33)**	-0.199 (3.44)**	-0.001 (0.25)					0.06	8.15	5.92
8	48.73 (8.21)**	-0.182 (2.98)**	-0.01 (1.02)	-0.28 (4.33)**				0.16	7.70	10.66
9	47.83 (7.52)**	-0.179 (2.77)*	-0.05 (0.51)	-0.28 (4.13)**	-0.03 (0.40)			0.16	7.73	7.99
10	64.39 (9.91)**	-1.22 (4.53)**	-0.09 (0.95)	-0.38 (5.95)**	-0.06 (0.81)	-1.53 (5.61)**		0.30	7.03	14.01
11	67.06 (10.17)**	-1.17 (4.34)**	-0.07 (0.77)	-0.42 (6.29)**	-0.07 (0.95)	-1.66 (5.95)**	0.03 (1.90)	0.31	6.97	12.48

Notes:

- i. Figures in parenthesis are t-values.
- ii. The asterisk signs (**) and (*) indicate that the results are significant at one percent and five percent level respectively.
- iii. Return on equity is the dependent variable.

Table 5 shows that the beta coefficients for capital adequacy ratio are negative with return on equity. It indicates that capital adequacy ratio has a negative impact on return on equity. This finding is similar

to the findings of Fidanoski *et al.* (2018). The beta coefficients for non-performing loan are negative with return on equity. It indicates that non-performing loan has a negative impact on return on equity. This finding is not consistent to the findings of Jolevski (2017). Similarly, the beta coefficients for loan to deposit ratio are negative with return on equity. It indicates that loan to deposit ratio has a negative impact on return on equity. This finding is similar to the findings of Inggawati *et al.* (2018). Likewise, the beta coefficients for bank size are negative with return on equity. It indicates that bank size has a negative impact on return on equity. This finding is consistent with the findings of Abbas *et al.* (2021). Similarly, the beta coefficients for third-party fund are negative with return on equity. It indicates that third-party fund has a negative impact on return on equity. This finding is consistent with the findings of Kinanti and Purwohandoko (2017).

4. Summary and conclusion

The financial system plays a fundamental role in the economic growth and development of a country. The significance of a well-ordered financial sector lies in the reality that ensures domestic resources mobilization, making of savings and investments in the sectors. This financial system is the system by which a country needs the most profitable and efficient sectors to make more productive bases for future growth. The major function of a financial system is not only to shift funds from savers to investors but also to make sure that funds are being transferred to the sectors which are most essential for an economy.

This study attempts to examine the effect of capital adequacy ratio, third party fund, loan to deposit ratio, bank size on profitability of Nepalese commercial banks. The study is based on secondary data of 19 commercial banks with 152 observations for the study period from 2013/14 to 2020/21.

The study showed that capital adequacy ratio and bank size have positive impact on return on assets. However, third-party fund, loan to deposit ratio, non-performing loan, and number of branches have negative impact on return on assets. Likewise, the study also showed that capital adequacy ratio, third-party fund, loan to deposit ratio, bank size, non-performing loan, and number of branches have negative impact on return on equity. The study concluded that non-performing loan is the most influencing factor that explains the changes in the return on asset of Nepalese commercial banks. Similarly, the study also concluded that loan to deposit ratio is the most influencing factor that explains the changes in return on equity in context of Nepalese commercial banks.

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Credit growth and response to capital requirements: Evidence from Nepalese commercial banks

– Nita Bhandari*

Abstract

The study examines the relationship between credit growth and response with capital requirements in the context of Nepalese commercial banks. Credit to total assets and credit to total deposits are selected as the dependent variables. The selected independent variables are non-performing loan, Tier 1 capital ratio, capital adequacy ratio, loan loss provision, liquidity ratio, and bank size. The study is based on secondary data of 17 commercial banks with 153 observations for the study period from 2012/13 to 2020/21. The data were collected from Banking and Financial Statistics published by Nepal Rastra Bank, publications and websites of Nepal Rastra Bank (NRB) and Ministry of Finance (MoF) and annual reports of the selected commercial banks. The correlation coefficients and regression models are estimated to test the significance and relationship of credit growth and response with capital requirements in the context of Nepalese commercial banks.

The study showed that non-performing loan has a negative impact on credit to total assets and credit to total deposits. It indicates that higher the non-performing loans, lower would be the credit to total assets and credit to total deposits. In addition, Tier 1 capital ratio has a positive impact on credit to total assets and credit to total deposits. It means that increase in Tier 1 capital ratio leads to increase in credit to total assets and credit to total deposits. Similarly, capital adequacy ratio has a positive impact on credit to total assets and credit to total deposits. It means that increase in capital adequacy ratio leads to increase in credit to total assets and credit to total deposits. Furthermore, loan loss provision has a positive impact on credit to total assets. It indicates that increase in loan loss provision leads to increase in credit to total assets. However, liquidity has a positive impact on credit to total deposits. It indicates that higher the liquidity level, lower would be the credit to total deposits. In addition, bank size has a positive impact on credit to total assets and credit to total deposits. It means that increase in bank size leads to increase in credit to total assets and credit to total deposits.

Key words: Credit to total assets, credit to total deposit, non-performing loan, tier 1 capital ratio, capital adequacy ratio, loan loss provision, liquidity, and bank size.

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1. Introduction

Banks are financial institutions that provide financial services that influence society's welfare and economic perspective. The banks' role is even more crucial in developing countries, where loans are the main source of external financing for a business. However, lending activity also presents the main source of income and risk for banks. Increased credit availability often spurs economic growth helping savings to be channeled into investment, but a rapid credit growth also raises concerns about prudential risks, as it may decrease loan quality, increase systemic risk, and deteriorate bank soundness (Igan and Pinheiro, 2011). Furthermore, an excessive credit growth often leads to the build-up of systemic risks to financial stability, which may result in a systemic banking crisis (Alessi and Detken, 2014). Banks largely depends on competitive marketing strategy that determines their success and growth. The modalities of the banking business have changed a lot in the new millennium compared to the way they used to be in the years bygone (Bhatti and Hussain, 2010). Commercial banks need to proactively study the operating environment and develop relevant strategies that would reduce the severity of their exposure to situations that are likely to affect their financial stability. Commercial banks are the dominant financial institutions in most economies and well-functioning commercial banks accelerate the rate of economic growth while poorly functioning commercial banks are an impediment to economic progress (Richard, 2014).

Credit is the greatest asset investment and the largest source of revenue for banks. If the credit fails then the ability of banks to provide new loans will be limited (Buchory, 2015). There are several possible risk sources, such as credit risk, liquidity risk, market risk and political risk. Unfortunately, credit risk is the highest risk that banks face (Chen and Pan, 2012). Credit is normally the process of borrowing and lending money. Commercial banks regularly complete investment banking activities by allowing their customers to acquire new debt. Bank capital increases bank return in the start and up to trade-off levels, then it results in decrease in profit (Berger, 1995). Credit risk is one of the significant risks of banks by the nature of their activities. Changes in credit risk may reflect changes in the health of a bank's loan portfolio which may affect the performance of the institution (Cooper *et al.*, 2003). Credit risk management in banks has become more important not only because of the financial crisis that the industry is experiencing currently, but also a crucial concept which determine banks' survival, growth and profitability. Credit risk management maximizes bank risk, adjusted risk rate of return by maintaining credit risk exposure with view to shielding the bank from the adverse effects of credit risk (Abiola and Olausi, 2014). Lending plays a vital role in commercial banks daily banking activities where loan and advances is the largest element in the bank's asset portfolio and it is also the major sources of revenue generation for the bank (Malede, 2014).

Bank performance is one of the important issues for the healthy functioning of the economy. Although there is good number of measures for evaluating bank performance, for a healthy, solid and stable banking sector, the banks must be analyzed and evaluated in a way that will allow the smooth correction and removal of the potential vulnerabilities. Gizaw *et al.* (2015) asserted that non-performing loan (NPL) is the major indicator of commercial banks' credit risk. Non-performing loans refer to the financial assets from which banks no longer receive scheduled installment or interest payments which is a very common issue in financial institutions involved in lending business such as banks and NBFIs. Non-performing loans are increasing due to lack of risk management, which threatens the profitability of banks. However, banking sector can avoid their non-performing loans by adopting methods suggested by the central bank of perspective country (Haneef *et al.*, 2012). Non-performing assets could wreck bank's profitability both through a loss of interest income and need to write off the principal loan amount. Ahmad and Ariff (2007) stated that non-performing loans are

the percentage of loan values that are not serviced for three months and above. Parul (2012) stated that the NPL growth involves the necessity of provisions because it decreases the overall profits and shareholders. Ayaydin and Karakaya (2014) revealed that Tier-1 capital has a significantly positive effect on banking risk management. A bank's capital structure influences its ability to offer liquidity and credits (Diamond and Rajan, 2000). Capital helps the bank to cope more effectively with risk, but it also reduces the value of the deposit insurance put option (Merton, 1977). Capital adequacy is the minimum reserves of capital that the bank must have available. It encourages the strength of the bank and improves the solvency of the bank as it acts as a cushion to absorb the unexpected expenditure/ losses incurred by the banks (Noman *et al.*, 2015). Practically, adequate capital is deemed as the amount of capital that can effectively prevent the bank failure by absorbing the losses. An adequate capital will provide a protection against the insolvency and liquidation arising from the risks that the bank is facing. Therefore, the management has to work effectively on how to raise capital and maintain sufficient capital in reserves (Olalekan and Adeyinka, 2013). Furthermore, Maisel (1981) identified that the capital adequacy is essential to reduce the chances of future insolvency of an institution to some predetermined level. Capital adequacy is a central issue of prudential regulation. Capital adequacy involves setting minimum requirements for market risk in the books of banks and investment companies. This includes specifying standards, covering risk management and solvency ratio requirements (Torbira and Zaagha, 2016).

Loan loss provision has a key role to strengthen the financial position of the banks. Loan loss provision is a reserve that established by the bank to deal with the risk of losses due to investment in productive assets (Pelealu and Worang, 2017). Provisioning account is included in the credit side of the banks' financial statements in order to minimize the projected losses from the bank loan portfolio resulting in a more efficient credit management operation (Laeven and Majnoni, 2003). Loan loss provision is a policy that is followed by commercial banks by putting some money aside (reserves) to face any potential loans default, which in turn would help to protect banks' positions in terms of profitability and capital. Liquidity crises are not new phenomena and banks have endured them throughout history. There are multiple types of liquidity but, when discussed in the banking sector, liquidity is commonly described as the possibility that a bank may become unable to settle its obligations (Drehmann and Nikolaou, 2013). Liquidity refers to the relation of investment in current assets and current liabilities that are converted within the year as well as paid within the year concern so that very imported as concerned with daily operation. Alshatti (2015) argued that liquidity is the ability of banks to meet the financial needs of their increased assets and meeting ability as when they fall due without the occurrence of unforeseen losses. Liquidity is a way which is used by the bank or banking sector to transform assets into the shape of cash to made payment in cash (Diamond and Rajan, 2005). Bank size is considered as an important determinant of bank profitability. Bank size has an impact on various activities of banks including investing opportunities, portfolio diversification, reputation and access to equity capital (Zhang *et al.*, 2008).

In the context of Nepal, Bhattarai (2019) investigated the determinants of commercial banks' lending behavior with a view to explore the effect of bank specific characteristics and to identify external factors that determine commercial banks' lending behavior in Nepal. The study concluded that liquidity ratio, interest rate spread and exchange rate were significant in determining lending behavior in Nepal's commercial banks. In addition, Timsina (2017) examined the determinants of bank lending in Nepal for the period 1975 –2014. The study revealed that gross domestic product and liquidity ratio of banks have the greatest impacts on their lending behaviour. Similarly, Kisi *et al.* (2020) examined the factors affecting credit risk in Nepalese commercial banks. The study showed that credit to deposit ratio, operating inefficiency, inflation rate and capital adequacy ratio have

positive impact on non-performing loan. However, bank size, gross domestic product growth rate, and broad money supply have negative impact on the non-performing loan of Nepalese commercial banks.

The above discussion shows that empirical evidences vary greatly across the studies on the effect of capital requirements on credit growth and response. Though there are above mentioned empirical evidences in the context of other countries and in Nepal, no such findings using more recent data exist in the context of Nepal. Therefore, in order to support one view or the other, this study has been conducted.

The main purpose of the study is to analyze the relationship of credit growth and response with capital requirements of Nepalese commercial banks. Specifically, it examines the relationship of non-performing loan, Tier 1 capital ratio, capital adequacy ratio, loan loss provision, liquidity, and bank size with credit to total assets and credit to total deposit of Nepalese commercial banks.

The remainder of this study is organized as follows. Section two describes the sample, data and methodology. Section three presents the empirical results and the final sections draws conclusion and discusses the implications of the study findings.

2. Methodological aspects

The study is based on the secondary data which were gathered from 17 Nepalese commercial banks from 2012/13 to 2020/21, leading to a total of 153 observations. The main sources of data include publications and websites of Nepal Rastra Bank (NRB), Ministry of Finance (MoF), and annual reports of the selected commercial banks. This study is based on descriptive as well as causal comparative research designs. Table 1 shows the list of commercial banks selected for the study along with the study period and number of observations.

Table 1: List of commercial banks selected for the study along with study period and number of observations

S. N.	Name of the banks	Study period	Observations
1	Bank of Kathmandu Lumbini Limited	2012/13-2020/21	9
2	Citizens Bank International Limited	2012/13-2020/21	9
3	Everest Bank Limited	2012/13-2020/21	9
4	Himalayan Bank Limited	2012/13-2020/21	9
5	Kumari Bank Limited	2012/13-2020/21	9
6	Laxmi Bank Limited	2012/13-2020/21	9
7	Machhapuchchhre Bank Limited	2012/13-2020/21	9
8	Mega Bank Nepal Limited	2012/13-2020/21	9
9	Nabil Bank Limited	2012/13-2020/21	9
10	Nepal Investment Bank Limited	2012/13-2020/21	9
11	Nepal SBI Bank Limited	2012/13-2020/21	9
12	NIC Asia Bank Limited	2012/13-2020/21	9
13	NMB Bank Limited	2012/13-2020/21	9

14	Prime Commercial Bank Limited	2012/13-2020/21	9
15	Sanima Bank Limited	2012/13-2020/21	9
16	Sunrise Bank Limited	2012/13-2020/21	9
17	Siddhartha Bank Limited	2012/13-2020/21	9
Total number of observations			153

Thus, the study is based on 153 observations.

The model

The model used in this study assumes that credit growth depends on credit and capital requirement. The dependent variables selected for the study are credit to total assets and credit to total deposit. Similarly, the selected independent variables in this study are non-performing loan, Tier 1 capital ratio, capital adequacy ratio, loan loss provision, liquidity, and bank size. The following model equations are designed to test the hypothesis.

$$CTTA_{it} = \beta_0 + \beta_1 NPL_{it} + \beta_2 T_1 CR_{it} + \beta_3 CAR_{it} + \beta_4 LLP_{it} + \beta_5 LIQ_{it} + \beta_6 BS_{it} + e_{it}$$

$$CTTD_{it} = \beta_0 + \beta_1 NPL_{it} + \beta_2 T_1 CR_{it} + \beta_3 CAR_{it} + \beta_4 LLP_{it} + \beta_5 LIQ_{it} + \beta_6 BS_{it} + e_{it}$$

Where,

CTTA = Credit to total assets as measured by the ratio of total loans to total assets, in percentage.

CTTD = Credit to total deposit as measured by the ratio of total loans to total deposits, in percentage.

NPL = Non-performing loan as measured by the ratio of non-performing loan to total loan, in percentage.

TICR = Tier 1 capital ratio as measured by the ratio of tier 1 capital (core capital) to risk weighted assets, in percentage.

CAR = Capital adequacy ratio as measured by the ratio of equity to total assets, in percentage.

LLP = Loan loss provision as measured by the ratio of loan loss provision to total loans, in percentage.

LIQ = Liquidity as measured by the ratio of current assets to current liabilities, in percentage.

BS = Bank size as measured by total assets of bank, Rs in million.

The following section describes the independent variables used in this study along with hypothesis formulation.

Non-performing loan

Non-performing loans ratio (NPLR) reflects the bank's credit quality and is considered as an indicator of credit risk management. It indicates how banks manage their credit risk because it defines the proportion of loan losses amount in relation to total loan amount. Salas and Saurina (2002) found a positive relationship between NPLs and bank lending. Similarly, Beck *et al.* (2015) found a positive association between NPLs and bank lending (credit growth). Likewise, Djiogap and Ngomsa (2012) found that NPL is positively related to credit growth. Moreover, Amador *et al.* (2013) found a positive relationship between NPLs and bank lending. Similarly, Kashif *et al.* (2016) found a positive impact of NPLs on bank lending (credit growth). Based on it, this study develops the following hypothesis:

H_1 : There is a positive relationship between non-performing loan and credit growth.

Tier 1 capital ratio

Baker and Wurgler (2015) found a negative impact of tier 1 capital on loan growth due to increase in loan rates. Similarly, Francis and Osborne (2012) found a negative impact of tier 1 capital on credit growth. Likewise, Kisin and Manela (2016) found a negative impact of tier 1 capital on loan growth. Moreover, Dell'Ariccia (2017) found a negative impact of tier 1 capital on loan growth. In addition, Berrospide and Edge (2010) found a negative effect of tier 1 capital on loan growth. Similarly, Gambacorta and Marques-Ibanez (2011) found a negative impact of tier 1 capital in loan or credit growth. Based on it, this study develops the following hypothesis:

H_2 : *There is a negative relationship between Tier 1 capital and credit growth.*

Capital adequacy ratio

Capital adequacy ratio is defined as the percentage ratio of a financial institution's primary capital to its assets and used as a measure of its financial strength and stability (Asikhia and Sokefun, 2013). Aiyar *et al.* (2014) found a negative effect of higher capital requirements on banks' lending or credit growth. Similarly, Bridges *et al.* (2015) found a negative impact of capital adequacy on loan growth. Moreover, De Ramon *et al.* (2016) found a negative effect of higher capital requirements on bank lending. Likewise, De Nicolo (2015) found a negative effect of higher capital requirements on banks' lending or credit growth. Furthermore, Kim and Sohn (2017) found a negative impact of higher capital requirements on loan growth. Based on it, this study develops the following hypothesis:

H_3 : *There is a negative relationship between capital adequacy ratio and credit growth.*

Loan loss provision

Loan loss provisions measure by ratio of new loan loss provisions made by banks in the current period to total loans. Loan loss provision can be viewed as a cushioning mechanism which may ensure that banks do not unexpectedly lose their entire outstanding loan balances (Craigwell and Elliott, 2011). Bonfin (2009) found a positive impact of loan loss provision on credit growth. In addition, Hasan and Wall (2004) found that loan loss provision is dependent on credit amounts. Similarly, Oros *et al.* (2015) found a positive impact of loan loss provision on credit growth. Likewise, Bikker and Metzmakers (2005) found a positive impact of credit growth on loan loss provision specifically for US banks, reflecting prudent provisioning. Based on it, this study develops the following hypothesis:

H_4 : *There is a positive relationship between loan loss provision and credit growth.*

Liquidity

Liquidity ratio is defined as a bank capacity to see the payment responsibilities by relating the cash with the payment responsibilities (Waleed *et al.*, 2016). Acharya and Naqvi (2012) found a positive impact of liquidity on bank lending (credit). Similarly, Distinguin *et al.* (2013) suggested that sufficient capital enables banks to sustain losses from bad debts. In addition, Kim and Sohn (2017) found a positive effect of bank capital on loan growth, especially during the financial crisis. Moreover, Carlson *et al.* (2013) showed a positive effect of liquidity on credit growth. Furthermore, Dahir *et al.* (2019) showed a positive impact of funding liquidity on lending growth. Based on it, this study develops the following hypothesis:

H_5 : *There is a positive relationship between liquidity and credit growth.*

Bank size

Bank size as measured by total assets is one of the control variables used in analyzing performance of the bank system (Smirlock, 1985). Gambacorta and Marques-Ibanez (2011) found a positive impact of bank size on bank lending or credit growth. Similarly, Cole *et al.* (2004) found a positive and statistically significant relationship between commercial bank lending and bank size. Moreover, Dietrich and Wanzenried (2009) revealed a positive relationship between bank size and bank lending (credit). Likewise, Bashir (2003) asserted a positive impact of bank size on credit growth (fund mobilization). Similarly, Imran and Nishat (2013) found a positive impact of bank size on lending behavior (credit). Based on it, this study develops the following hypothesis:

H_6 : *There is a positive relationship between bank size and credit growth.*

3. Results and discussion

Descriptive statistics

Table 2 presents the descriptive statistics of the selected dependent and independent variables during the period 2012/13 to 2020/21.

Table 2: Descriptive statistics

This table shows the descriptive statistics of dependent and independent variables of 17 Nepalese commercial banks for the study period from 2012/13 to 2020/21. The dependent variables are CTTA (Credit to total assets as measured by the ratio of total loan to total assets, in percentage) and CTTD (Credit to total deposit as measured by the ratio of total loan to total deposit, in percentage). The independent variables are NPL (Non-performing loan as measured by the ratio of non-performing loan to total loan, in percentage), T1CR (Tier 1 capital ratio as measured by the ratio of tier 1 capital (core capital) to risk weighted assets, in percentage), CAR (Capital adequacy ratio as measured by the ratio of equity to total assets, in percentage), LLP (Loan loss provision as measured by the ratio of loan loss provision to total loans, in percentage), LIQ (Liquidity as measured by the ratio of current assets to current liabilities, in percentage), and BS (Bank size as measured by total assets of bank, Rs in million).

Variables	Minimum	Maximum	Mean	Std. Deviation
CTTA	29.60	89.80	70.25	6.66
CTTD	48.86	101.90	83.96	7.80
NPL	0.02	4.03	1.08	0.92
T1CR	7.36	17.28	11.27	1.79
CAR	10.63	18.06	13.16	1.52
LLP	0.04	2.95	0.74	0.56
LIQ	0.76	2.20	1.08	0.27
BS	17408.00	346147.52	100529.31	61005.99

Source: SPSS output

Correlation analysis

Having indicated the descriptive statistics, Pearson's correlation coefficients are computed and the results are presented in Table 3.

Table 3: Pearson's correlation coefficients matrix

This table shows the bivariate Pearson's correlation coefficients of dependent and independent variables of 17 Nepalese commercial banks for the study period from 2012/13 to 2020/21. The dependent variables are CTTA (Credit to total assets as measured by the ratio of total loan to total assets, in percentage) and CTTD (Credit to total deposit as measured by the ratio of total loan to total deposit, in percentage). The independent variables are NPL (Non-performing loan as measured by the ratio of non-performing loan to total loan, in percentage), T1CR (Tier 1 capital ratio as measured by the ratio of tier 1 capital (core capital) to risk weighted assets, in percentage), CAR (Capital adequacy ratio as measured by the ratio of equity to total assets, in percentage), LLP (Loan loss provision as measured by the ratio of loan loss provision to total loans, in percentage), LIQ (Liquidity as measured by the ratio of current assets to current liabilities, in percentage), and BS (Bank size as measured by total assets of bank, Rs in million).

Variables	CTTA	CTTD	NPL	T1CR	CAR	LLP	LIQ	BS
CTTA	1							
CTTD	0.588**	1						
NPL	-0.060	-0.129	1					
T1CR	0.157	0.333**	-0.060	1				
CAR	0.242**	0.483**	-0.044	0.698**	1			
LLP	0.059	-0.185*	0.494**	-0.223**	-0.207*	1		
LIQ	-0.054	0.082	-0.178*	0.005	0.120	-0.188*	1	
BS	0.089	0.422**	-0.179*	-0.057	0.227**	-0.240**	0.223**	1

Note: The asterisk signs (**) and (*) indicate that the results are significant at one percent and five percent levels respectively.

Table 3 shows that there is a negative relationship between non-performing loan and credit to total assets. It indicates that higher the non-performing loan, lower would be the credit to total assets. In contrary, there is a positive relationship between Tier 1 capital ratio and credit to total assets. It means that increase in Tier 1 capital ratio leads to increase in credit to total assets. Similarly, capital adequacy ratio has a positive relationship with credit to total assets. It means that increase in capital adequacy ratio leads to increase in credit to total assets. Furthermore, there is a positive relationship between loan loss provision and credit to total assets. It indicates that increase in loan loss provision leads to increase in credit to total assets. However, there is a negative relationship between liquidity and credit to total assets. It indicates that higher the liquidity level, lower would be the credit to total assets. In addition, bank size has a positive relationship with credit to total assets. It means that increase in bank size leads to increase in credit to total assets.

Similarly, the result also shows that there is a negative relationship between non-performing loan and credit to total deposit. It indicates that increase in the non-performing loan leads to decrease in credit to total deposit. In addition, there is a positive relationship between Tier 1 capital ratio and credit to total deposit. It means that increase in Tier 1 capital ratio leads to increase in credit to total deposit. Similarly, capital adequacy ratio has a positive relationship with credit to total deposit. It means that increase in capital adequacy ratio leads to increase in credit to total deposit. In contrary, there is a negative relationship between loan loss provision and credit to total deposit. It indicates that increase in loan loss provision leads to decrease in credit to total deposit. Furthermore, there is a positive relationship between liquidity and credit to total deposit. It indicates that increase in liquidity to increase in credit to total deposit. In addition, bank size has a positive relationship with credit to total deposit. It means that increase in bank size leads to increase in credit to total deposit.

Regression analysis

Having indicated the Pearson's correlation coefficients, the regression analysis has been carried out and results are presented in Table 4. More specifically, it shows the regression results of non-performing loan, tier 1 capital ratio, capital adequacy ratio, loan loss provision, liquidity, and bank size on credit to total assets of Nepalese commercial banks.

Table 4: Estimated regression results of non-performing loan, tier 1 capital ratio, capital adequacy ratio, loan loss provision, liquidity and bank size with credit to total assets

The results are based on panel data of 17 commercial banks with 153 observations for the period of 2012/13-2020/21 by using the linear regression model and the model is $CTTA_{it} = \beta_0 + \beta_1 NPL_{it} + \beta_2 T1CR_{it} + \beta_3 CAR_{it} + \beta_4 LLP_{it} + \beta_5 LIQ_{it} + \beta_6 BS_{it} + e_{it}$ where, the dependent variable is CTTA (Credit to total assets as measured by the ratio of total loan to total assets, in percentage). The independent variables are NPL (Non-performing loan as measured by the ratio of non-performing loan to total loan, in percentage), T1CR (Tier 1 capital ratio as measured by the ratio of tier 1 capital (core capital) to risk weighted assets, in percentage), CAR (Capital adequacy ratio as measured by the ratio of equity to total assets, in percentage), LLP (Loan loss provision as measured by the ratio of loan loss provision to total loans, in percentage), LIQ (Liquidity as measured by the ratio of current assets to current liabilities, in percentage), and BS (Bank size as measured by total assets of bank, Rs in million).

Model	Intercept	Regression coefficients of						Adj. R _{bar} ²	SEE	F-value
		NPL	T1CR	CAR	LLP	LIQ	BS			
1	70.711 (84.908)**	-0.433 (0.734)						0.003	6.665	0.539
2	63.683 (18.697)**		0.582 (1.951)					0.018	6.595	3.805
3	56.327 (12.314)**			1.058 (3.063)**				0.052	6.479	9.382
4	69.726 (77.53)**				0.699 (0.721)			0.003	6.666	0.520
5	71.684 (31.939)**					-1.334 (0.660)		0.004	6.668	0.436
6	59.754 (6.239)**						0.926 (1.097)	0.001	6.651	1.204
7	64.203 (18.274)**	-0.366 (0.625)	0.571 (1.906)					0.014	6.608	2.090
8	56.888 (12.165)**	-0.361 (0.267)	0.097 (0.235)	1.128 (2.328)*				0.042	6.513	3.240
9	53.964 (11.093)**	-1.002 (1.524)	0.011 (0.028)	1.206 (2.504)*	2.186 (1.967)*			0.060	6.451	3.444
10	55.952 (10.672)**	-1.073 (1.622)	0.067 (0.161)	1.284 (2.633)**	2.062 (1.845)	-2.059 (1.017)		0.061	6.451	2.963
11	48.443 (4.437)**	-1.035 (1.560)	0.046 (0.104)	1.139 (2.183)*	2.212 (1.948)	-2.269 (1.109)	0.726 (0.784)	0.058	6.459	2.565

Notes:

- i. Figures in parenthesis are t-values.
- ii. The asterisk signs (**) and (*) indicate that the results are significant at one percent and five percent level respectively.
- iii. Credit to total assets is the dependent variable.

Table 4 shows that the beta coefficients for non-performing loan are negative with credit to total assets. It indicates that non-performing loan has a negative impact on credit to total assets. This finding is similar to the findings of Djiogap and Ngoms (2012). Similarly, the beta coefficients for

Tier 1 capital ratio are positive with credit to total assets. It indicates that Tier 1 capital ratio has a positive impact on credit to total assets. This finding is consistent with the findings of Baker and Wurgler (2015). Likewise, the beta coefficients for capital adequacy ratio are positive with credit to total assets. It indicates that capital adequacy ratio has a positive impact on credit to total assets. This finding is inconsistent to the findings of Aiyar *et al.* (2014). In addition, the beta coefficients for loan loss provision are positive with credit to total assets. It indicates that loan loss provision has a positive impact on credit to total assets. This finding is consistent with the findings of Bonfin (2009). Moreover, the beta coefficients for bank size are positive with credit to total assets. It indicates that bank size has a positive impact on credit to total assets. This finding is consistent to the findings of Dietrich and Wanzenried (2009).

The estimated regression results of non-performing loan, tier 1 capital ratio, capital adequacy ratio, loan loss provision, liquidity and bank size with credit to total deposit of Nepalese commercial bank are presented in Table 5.

Table 5: Estimated regression results of non-performing loan, tier 1 capital ratio, capital adequacy ratio, loan loss provision, liquidity and bank size with credit to total deposit

The results are based on panel data of 17 commercial banks with 153 observations for the period of 2012/13-2020/21 by using the linear regression model and the model is $CTTD_{it} = \beta_0 + \beta_1 NPL_{it} + \beta_2 T_1CR_{it} + \beta_3 CAR_{it} + \beta_4 LLP_{it} + \beta_5 LIQ_{it} + \beta_6 BS_{it} + e_{it}$ where, the dependent variable is CTTD (Credit to total deposit as measured by the ratio of total loan to total deposit, in percentage). The independent variables are NPL (Non-performing loan as measured by the ratio of non-performing loan to total loan, in percentage), T1CR (Tier 1 capital ratio as measured by the ratio of tier 1 capital (core capital) to risk weighted assets, in percentage), CAR (Capital adequacy ratio as measured by the ratio of equity to total assets, in percentage), LLP (Loan loss provision as measured by the ratio of loan loss provision to total loans, in percentage), LIQ (Liquidity as measured by the ratio of current assets to current liabilities, in percentage), and BS (Bank size as measured by total assets of bank, Rs in million).

Model	Intercept	Regression coefficients of						Adj. R _{bar} ²	SEE	F-value
		NPL	T1CR	CAR	LLP	LIQ	BS			
1	85.136 (87.794)**	-1.095 (1.596)						0.012	7.762	2.549
2	67.617 (17.740)**		1.450 (4.340)**					0.105	7.38	18.838
3	51.395 (10.621)**			2.475 (6.773)**				0.228	6.855	45.877
4	85.875 (82.751)**				-2.586 (2.311)*			0.028	7.692	5.341
5	81.391 (30.998)**					2.378 (1.006)		0.017	7.801	1.013
6	25.545 (2.501)*						5.156 (5.727)**	0.173	7.094	32.796
7	68.939 (17.631)**	-0.928 (1.426)	1.421 (4.262)**					0.111	7.355	10.499
8	52.735 (10.726)**	-0.919 (1.516)	0.058 (0.134)	2.498 (4.904)**				0.229	6.848	16.091
9	53.619 (10.36)**	-0.726 (1.037)	0.084 (0.192)	2.474 (4.830)**	-0.661 (0.559)			0.226	6.864	12.090
10	53.632 (9.582)**	-0.726 (1.029)	0.084 (0.191)	2.475 (4.755)**	-0.662 (0.555)	0.014 (0.006)		0.221	6.887	9.607

11	7.743 (0.714)	-0.499 (0.756)	0.601 (1.380)	1.591 (3.068)**	-0.251 (0.223)	1.294 (0.637)	4.436 (4.824)**	0.323	6.418	13.097
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Notes:

- i. Figures in parenthesis are t-values.
- ii. The asterisk signs (**) and (*) indicate that the results are significant at one percent and five percent level respectively.
- iii. Credit to total deposit is the dependent variable.

Table 5 shows that the beta coefficients for non-performing loan are negative with credit to total deposit. It indicates that non-performing loan has a negative impact on credit to total deposit. This finding is similar to the findings of Salas and Saurina (2002). Similarly, the beta coefficients for Tier 1 capital ratio are positive with credit to total deposit. It indicates that Tier 1 capital ratio has a positive impact on credit to total deposit. This finding is consistent with the findings of Gambacorta and Marques-Ibanez (2011). Moreover, the beta coefficients for capital adequacy ratio are positive with credit to total deposit. It indicates that capital adequacy ratio has a positive impact on credit to total deposit. This finding is consistent to the findings of Berrospide and Edge (2010). Similarly, the beta coefficients for loan loss provision are negative with credit to total deposit. It indicates that loan loss provision has a negative impact on credit to total deposit. This finding is consistent with the findings of Laeven and Majnoni (2003). Likewise, the beta coefficients for liquidity are positive with credit to total deposit. It indicates that liquidity has a positive impact on credit to total deposit. This finding is similar to the findings of Kim and Sohn (2017).

4. Summary and conclusion

Banks largely depends on competitive marketing strategy that determines their success and growth. The modalities of the banking business have changed a lot in the new millennium compared to the way they used to be in the years bygone. Capital adequacy is the minimum reserves of capital that the bank must have available. It encourages the strength of the bank and improves the solvency of the bank as it acts as a cushion to absorb the unexpected expenditure/losses incurred by the banks.

This study attempts to analyze the relationship between credit growth and capital requirements in the context of Nepalese commercial banks. The study is based on secondary data of 17 commercial banks with 153 observations for the period from 2012/13 to 2020/21

The study showed that Tier 1 capital ratio, capital adequacy ratio, loan loss provision and bank size have positive impact on the credit to total assets. However, non-performing loan and liquidity have negative impact on the credit to total assets. The result also showed that Tier 1 capital ratio, capital adequacy ratio, liquidity and bank size have positive impact on the credit to total deposit. However, non-performing loan and loan loss provision have negative impact on the credit to total deposit. Finally, the study concluded that capital adequacy ratio is the most influencing factor that explains the changes in credit to total assets in context of Nepalese commercial banks. The study also concluded that capital adequacy ratio followed by bank size and tier 1 capital ratio is the most influencing factor that explains the changes in credit to total deposits in context of Nepalese commercial banks.

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PART 2

Marketing Management



Impact of marketing mix variables on consumer buying behavior in Kathmandu Valley

– Anita Yadav*

Abstract

This study examines the impact of marketing mix variables on consumer buying behavior in Kathmandu Valley. Consumer buying behavior is the dependent variable. The selected independent variables are price, product, promotion, personnel, place and store atmosphere. The primary source of data is used to assess the opinions of the respondents regarding the marketing mix factors and their buying behavior. The study is based on primary of 150 respondents. To achieve the purpose of the study, structured questionnaire is prepared. The correlation coefficients and regression models are estimated to test the significance and importance of impact of marketing mix variables on consumer buying behavior in Kathmandu Valley.

The study showed that price has a positive impact on consumer buying behavior. It indicates that fair price stimulates the consumer buying behavior. Similarly, product has a positive impact on consumer buying behavior. It indicates that better quality of the product drives the purchasing intention of the consumer. Likewise, promotion has a positive impact on consumer buying behavior. It indicates that attractive promotion encourages consumers to purchase more products. Furthermore, personnel have a positive impact on consumer buying behavior indicating that personnel selling stimulates the purchasing intention in the consumers. In addition, place has a positive impact on consumer buying behavior. It indicates that better place and distribution channel of products stimulates consumers buying behavior. Furthermore, store atmosphere has a positive impact on consumer buying behavior. It indicates that better store atmosphere encourages consumers to purchase more products.

Key words: Consumer buying behavior, price, product, promotion, personnel, place, and store atmosphere.

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1. Introduction

Consumer behavior refers to a series of activities directed toward the acquisition, use and disposal of goods and services occurs (Young *et al.*, 2010). It is a decision-making process of an individual physically by engaging in assessing, buying and using or disposing the goods and services. Consumer behavior is to understand how a consumer makes decision to buy a good using the available resources such as time, money, and effort for buying, using, and disposing goods and services. It facilitates a better understanding and forecasting not only of the subject of purchases but also of purchasing motives and purchasing frequency (Fasi, 2017). The market place is changing radically as a result of major environment force such as technological advances, globalization and deregulation (Kotler, 2003). The information technology revolution, globalization, increasing buying sophistication and significant demographic changes are driving forces behind these changes. An organization will only be effective and efficient if its marketing activities meet the perceived and desired benefits of its clients. Thus, it is critical for marketing and senior management in organizations to be well endowed with marketing to continue to adapt and align its resources to the ever-changing environment. Schilling (2002) pointed out that marketing, in this competitive marketplace, has become a key differentiator between corporate success and failure. Strategic marketing management formulation involves selecting a specific target market and making decisions regarding the crucial elements of product, price, promotion and distribution so as to satisfy the needs of customers in that market. They are designed to provide total integration of efforts that focus on achieving the marketing objectives (Weerawardena, 2003).

Marketing refers to the activities undertaken to promote the buying or selling of a product or service. According to Kotler and Armstrong (2012), marketing is managing profitable customer relationships. In addition, the twofold goal of marketing is to attract new customers by promising superior value and keep and grow current customers by delivering satisfaction. According to Singh (2016), marketing is a complex range of marketing mix solution variables used in the company seeking to sell their goods and services. Marketers use numerous tools to elicit the desired responses from their target markets. These tools constitute a marketing mix. Marketing mix is the set of marketing tools product, price, place, and promotion - that the firm uses to pursue its marketing objectives in the target market (Kotler, 2014). These marketing tools are often referred to as the four P's of the marketing mix. Pruskus (2015) defined marketing mix as a set of relevant factors and solutions that enable customers to meet the (national) needs and achieve the goals set by the company. Most of the times, the marketing mix influences the marketing decision process of the consumer in relation to the final purchase.

Payson and Karunanithy (2016) examined the impact of marketing mix on consumer buying behavior of motorbike buyers in Sri Lanka. The study showed that there is a positive relationship between marketing mix and buying behavior. The study also showed that there is significant impact of product, price, place and promotion on buying behavior. Likewise, Indumathi and Dawood (2016) assessed the impact of marketing mix on consumer buying behavior in organic product. The findings showed that product, price, and place and promotion factors have significant impact on purchase decision. Similarly, Deebhijarn (2016) examined the factors affecting the decision to purchase ready-to-drink green teas, among university students in Bangkok metropolitan region. The study revealed that marketing mix in terms of product, price and promotion were the significant factors that influence the purchasing behavior. According to Kinoti and Kibeh (2015), price refers to what a consumer gives up (measured in monetary terms) to obtain a desired good or service. The study suggested that price is one of the most flexible elements of the marketing mix. It can be changed quickly, unlike product features, promotion and distribution channels. Hence, it can be used as a

competitive tool. The study concluded that consumers were very sensitive to price and would easily change from one brand to another with changes in prices.

McNeill (2016) established that consumers pay great attention to sales promotion (e.g., free gift, sampling, loyalty programs, discounts, and coupon) when selecting stores. The study also showed that promotional tools such as print advertisements, direct mail, customer loyalty and discount are likely to attract consumers to retail stores, leading to their purchase. Interestingly, Maruyama and Trung (2017) found that in-store advertising (e.g., panel, billboards, and flyers) has strong potential in affecting Vietnamese consumers' purchasing decision toward food products. Furthermore, Amusat *et al.* (2013) examined the impact of sales promotion on consumer buying behavior. The study revealed that sales promotion activities such as bonus, coupons, free samples, price promotion and premiums affect buying behavior of consumers. Similarly, Jallow and Dastane (2016) revealed that coupon, premium, bonus, free samples and price promotions influences purchase quantity positively and significantly while free samples and price discounts are most influential factors for Malaysian market. Likewise, Anggraini and Melinda (2018) investigated the effects of sales promotion on purchasing decision for Dreamland Decoration. The study found that sales promotion has a significant effect and drive the buying behavior.

Ali *et al.* (2013) examined the impact of promotional strategies within retail companies in Malaysia. The study found that advertising, internet marketing, public relation and personal selling have significant effect on buying decision by the target consumers. Bohl (2012) determined the effects of store atmosphere on shopping behavior. The study established that shopping convenience (convenient location, long opening hours, accessibility and large parking area) and store atmosphere (cleanliness, color schemes, music, lighting and scents) increase consumers' purchase frequency and money spent on products. Moreover, Phan and Vu (2015) assessed the impact of marketing mix elements on food buying behavior: a study of supermarket consumers in Vietnam. The multiple regression analysis confirmed a significant positive relationship between marketing mix variables and consumers' actual purchase of frozen food. Interestingly, Vietnamese supermarket consumers are less concerned about promotion. In addition, Pacheco and Rahman (2015) revealed that use of flash sales as sales promotion strategies will enable retailers and manufactures to attract more customers and encourage them to try their products and services hence achieve their objectives. Ahmed and Ashfaq (2013) assessed the impact of advertising on consumer buying behavior. The findings revealed that creative and well executed advertisement has a significant impact on the buying trends or purchasing behaviors of the consumers. Furthermore, Chukwu *et al.* (2018) found that advertising and sales promotion together with the image of a company influence the consumer buying decision. The study also showed that the quality and price of a product also influences a consumer's purchase of a good.

In the context of Nepal, Rai (2019) assessed the factors influencing consumer behavior on television buying in Nepalese market. The result showed that there is a significant and positive influence of product quality, perceived price and social factors on consumer behavior in television buying in Nepalese market. Similarly, Adhikari and Biswakarma (2017) concluded that purchase intention is significantly associated with attitude, perceived behavior control, personal gratification, social norms, price and social influence. Likewise, Gnawali (2018) revealed that there is a positive relationship of physical environment and temporal perspective with consumer purchase decision. The study also found that there is no relationship between social environment and consumer purchase decision. Moreover, Sthapit and Sharma (2018) found that compatibility, social influence and product features would significantly influence the purchase intention of the smart-phone buyers, while price, quality and country of origin had no significant relationship with the purchase intention. In addition, Sinha and Adhikari (2017) stated that the purchase intention towards counterfeit apparels and accessories is dependent on personal gratification.

The above discussion reveals that the empirical evidences vary greatly across the studies concerning the impact of marketing mix variables on consumer buying behavior. Though there are above mentioned empirical evidences in the context of other countries and in Nepal, no such findings using more recent data exist in the context of Nepal. Therefore, in order to support one view or the other, this study has been conducted.

The main purpose of the study is to analyze the impact of marketing mix variables on consumer buying behavior in Kathmandu Valley. Specifically, it examines the impact of price, product, promotion, personnel, place, and store atmosphere on consumer buying behavior in Kathmandu Valley.

The remainder of this study is organized as follows. Section two describes the sample, data and methodology. Section three presents the empirical results and the final section draws the conclusion.

2. Methodological aspects

The study is based on the primary data. The data were gathered from 150 respondents through questionnaire. The respondents' views were collected on price, product, promotion, personnel, place, and store atmosphere. The study is based on descriptive and causal comparative research designs.

The model

The model estimated in this study assumes that consumer buying behavior depends on price, product, promotion, personnel, place, and store atmosphere. Therefore, the model takes the following form:

$$\text{CBB} = \beta_0 + \beta_1 \text{PR} + \beta_2 \text{PRD} + \beta_3 \text{PRM} + \beta_4 \text{PRS} + \beta_5 \text{PL} + \beta_6 \text{SAT} + \varepsilon$$

Where,

CBB = Consumer buying behavior

PR = Price

PRD = Product

PRM = Promotion

PRS = Personnel

PL = Place

SAT = Store atmosphere

Consumer buying behavior was measured using a 5-point Likert scale where the respondents were asked to indicate the responses using 1 for strongly disagree and 5 for strongly agree. There are 5 items and sample items include "I use time to search information about the product", "I make impulse buying decision if the price of the product is reasonable" and so on. The reliability of the items was measured by computing the Cronbach's alpha ($\alpha = 0.811$).

Price was measured using a 5-point Likert scale where the respondents were asked to indicate the responses using 1 for strongly disagree and 5 for strongly agree. There are 5 items and sample items include "The price of a product is a reflection of its status", "Price differentiations are key determinants of my purchase decision" and so on. The reliability of the items was measured by computing the Cronbach's alpha ($\alpha = 0.723$).

Product was measured using a 5-point Likert scale where the respondents were asked to indicate

the responses using 1 for strongly disagree and 5 for strongly agree. There are 5 items and sample items include “The quality of a product is a key determinant in my purchase”, “The packaging of the product influences my decision to purchase” and so on. The reliability of the items was measured by computing the Cronbach’s alpha ($\alpha = 0.832$).

Promotion was measured using a 5-point Likert scale where the respondents were asked to indicate the responses using 1 for strongly disagree and 5 for strongly agree. There are 5 items and sample items include “The display of product has a great influence on my choice of the brand to purchase”, “I purchase the products that I have heard advertised on Television/Radio” and so on. The reliability of the items was measured by computing the Cronbach’s alpha ($\alpha = 0.820$).

Personnel was measured using a 5-point Likert scale where the respondents were asked to indicate the responses using 1 for strongly disagree and 5 for strongly agree. There are 5 items and sample items include “I used the same department to purchase the product”, “I trust the department from where I make the purchase” and so on. The reliability of the items was measured by computing the Cronbach’s alpha ($\alpha = 0.855$).

Place was measured using a 5-point Likert scale where the respondents were asked to indicate the responses using 1 for strongly disagree and 5 for strongly agree. There are 5 items and sample items include “I purchased the product that is conveniently located”, “I purchase from the shop which is near from my house” and so on. The reliability of the items was measured by computing the Cronbach’s alpha ($\alpha = 0.855$).

Store atmosphere was measured using a 5-point Likert scale where the respondents were asked to indicate the responses using 1 for strongly disagree and 5 for strongly agree. There are 5 items and sample items include “I purchase the product which is placed at good atmosphere”, “I look the expiry date while I purchase the products” and so on. The reliability of the items was measured by computing the Cronbach’s alpha ($\alpha = 0.841$).

The following section describes the independent variables used in this study along with the hypothesis formulation.

Price

Al-Salamin and Al-Hassan (2016) examined the impact of pricing on consumer buying behavior in Saudi Arabia. The findings showed that there is a positive relationship between prices and consumer buying behavior. Yuan *et al.* (2019) found that there is a positive association between fair price and consumer buying behavior. Similarly, Auf *et al.* (2018) showed a direct relationship between price, motivation, perceived culture importance and consumer buying behavior. Further, Sharma (2014) showed that fair price positively stimulates the purchasing behaviour of consumers. In addition, Lichtenstein *et al.* (1993) revealed that price has a positive impact on consumer buying behaviour. Furthermore, Safitri (2018) showed that brand image and price (fair price and fixed price) simultaneously have a partial and positive effect on purchasing decision. Based on it, this study develops the following hypothesis:

H_1 : *There is a positive relationship between price and consumer buying behavior.*

Product

Pan and Zinkhan (2006) revealed that product quality shapes reputation of the retailer and influences consumer purchase decision at stores. According to Fetscherin *et al.* (2014), product quality is often

considered to be a major contributor to the development of a firm's competitive advantage. Likewise, Hitt *et al.* (2015) stated that customers increasingly expect products to be of high quality. Similarly, Saleem *et al.* (2015) found a positive direct effect of perceived quality on purchase intentions. Furthermore, Saeed *et al.* (2013) also established that product quality and labeling influences consumer purchase behavior. Based on it, this study develops the following hypothesis:

H₂: There is a positive relationship between product and consumer buying behavior.

Promotion

Shamout (2016) examined the impact of promotional tools on consumer buying behavior in retail market. The study showed that sales promotional tools have significant positive impact on consumer buying behavior. Familmaleki *et al.* (2015) analyzed the influence of sales promotion on customer purchasing behavior. The study revealed that marketing activities related to the promotion of sales increased consumer purchases behavior. Lu *et al.* (2017) showed that promotion has a significant positive impact on consumer buying behavior. Ofofu-Boateng (2020) showed a significant relationship between consumer sales promotion and consumer purchasing behavior. Rakesh and Khare (2012) examined the impact of promotions and value consciousness in online shopping behaviour in India. The study showed that there is positive impact of promotions on online shopping behaviour. Similarly, Ahmad *et al.* (2015) examined the impact of sales promotion on consumer buying behavior in Pakistan. The study showed that there is a positive influence of sales promotion on the buying behavior of Pakistani citizens. Furthermore, Nangoy *et al.* (2018) showed that there is a significant effect of advertisement and sales promotion on consumer buying decision. Khan *et al.* (2019) showed a positive impact of sales promotion on consumer buying behavior. Based on it, this study develops the following hypothesis:

H₃: There is a positive relationship between promotion and consumer buying behavior.

Personnel

Azam *et al.* (2016) revealed that salespersons' credibility, commitment to the promises, patience in dealing with customers and their appearance have a great impact on customer buying decision. Personal selling helps representatives of a company to explain to their customers how well the products can satisfy their needs. Yousif (2016) examined the impact of personal selling on the purchasing behavior towards clothes. The study showed that personal selling has a significant impact on the purchasing behavior for youth in buying clothes. Similarly, Wang *et al.* (2012) revealed that there is a positive and significant influence of emotions displayed and personal selling on customer purchasing intention. Likewise, Paesbrugge *et al.* (2018) showed that personal selling and sales management are the significant factors that explain the purchasing behavior of consumers. Based on it, this study develops the following hypothesis:

H₄: There is a positive relationship between personnel and consumer buying behavior.

Place

Phan and Vu (2015) revealed that location of the product influence consumer purchase decision. Kumar and Rajan (2012) stated that products that are convenient to buy in a variety of stores in a country increase the chances of consumers finding and buying them. Having the right product available at the right place and with the right price is important in influencing consumer buying decision. According to Onstein *et al.* (2015), marketers need to be very keen when it comes to usage

of distribution locations so as to increase the availability of their products. If the distribution channel is applied poorly, chances are very high that there will be a decrease in the availability of products. Kotler and Armstrong (2013) stated that product availability is a major factor when it comes to customers' buying decision. Based on it, this study develops the following hypothesis:

H_5 : *There is a positive relationship between place and consumer buying behavior.*

Store atmosphere

Bohl (2012) stated that shopping convenience (convenient location, long opening hours, accessibility and large parking area) and store atmosphere (cleanliness, color schemes, music, lighting and scents) increase consumers' purchase frequency and money spent on products. Ashraf *et al.* (2014) revealed that a free sample, discount rate, physical environment and the social environment played a significant role in the development of consumer buying behaviour. Hussain and Ali (2015) examined the effect of store atmosphere on consumer purchase intention. The study indicated that atmospheric variables such as cleanliness, scent, lighting, and display/layout have positive influence on consumers' purchase intention. Sherman *et al.* (1997) showed that store environment and emotional states influence various dimensions of purchase behavior. Singh *et al.* (2014) revealed that there is a positive impact of store atmospherics and store layout on consumer buying patterns. Donovan *et al.* (1994) found that experienced pleasantness of the in-store environment was a significant predictor of willingness to spend time in the store and intentions to spend more money than originally planned. The study concluded that store atmosphere has a significant impact on purchasing behaviour. Akram *et al.* (2016) explored the relationship between store atmosphere and impulse buying behavior. The study found that store atmosphere has a positive relationship and significant influence on impulse buying behavior. Based on it, this study develops the following hypothesis:

H_6 : *There is a positive relationship between store atmosphere and consumer buying behavior.*

3. Results and discussion

Correlation analysis

On analysis of data, correlation analysis has been undertaken first and for this purpose, Kendall's Tau correlation coefficients along with means and standard deviations have been computed, and the results are presented in Table 2.

Table 2: Kendall's correlation coefficients matrix

This table presents Kendall's Tau correlation coefficients between dependent variable and independent variables. The correlation coefficients are based on 150 observations. The dependent variable is CBB (Consumer buying behavior). The independent variables are PR (Price), PRD (Product), PRM (Promotion), PRS (Personnel), PL (Place) and SAT (Store atmosphere).

Variables	Mean	SD	PR	PRD	PRM	PRS	PL	SAT	CBB
PR	4.15	0.61	1						
PRD	4.05	0.73	0.51**	1					
PRM	3.99	0.78	0.42**	0.55**	1				
PRS	4.23	0.65	0.45**	0.43**	0.42**	1			

PL	3.95	0.78	0.39**	0.56**	0.58**	0.48**	1		
SAT	3.94	0.74	0.28**	0.43**	0.31**	0.41**	0.47**	1	
CBB	4.21	0.62	0.42**	0.48**	0.44**	0.52**	0.56**	0.43**	1

Notes: The asterisk signs (**) and (*) indicate that the results are significant at one percent and five percent level respectively.

The study reveals that price has a positive relationship with consumer buying behavior. It indicates that fair price stimulates the consumer buying behavior. Similarly, product has a positive relationship with consumer buying behavior. It indicates that better quality of the product drives the purchasing intention of the consumer. Likewise, promotion has a positive relationship with consumer buying behavior. It indicates that attractive promotion encourages consumers to purchase more products. Furthermore, personnel have a positive relationship with consumer buying behavior indicating that personnel selling stimulates the purchasing intention in the consumers. In addition, place has a positive relationship with consumer buying behavior. It indicates that better place and distribution channel of products stimulates consumers buying behavior. Furthermore, store atmosphere has a positive relationship with consumer buying behavior. It indicates that better store atmosphere encourages consumers to purchase more products.

Regression analysis

Having analyzed the Kendall's Tau correlation coefficients matrix, the regression analysis has been carried out and the results are presented in Table 3. More specifically, it presents the regression results of price, product, promotion, personnel, place, and store atmosphere on consumer buying behavior in Kathmandu Valley.

Table 3: Estimated regression results of price, product, promotion, personnel, place, and store atmosphere on consumer buying behavior

The results are based on 150 observations using linear regression model. The model is $CBB = \beta_0 + \beta_1 PR + \beta_2 PRD + \beta_3 PRM + \beta_4 PRS + \beta_5 PL + \beta_6 SAT + \epsilon$, where the dependent variable is CBB (Consumer buying behavior). The independent variables are PR (Price), PRD (Product), PRM (Promotion), PRS (Personnel), PL (Place) and SAT (Store atmosphere).

Model	Intercept	Regression coefficients of						Adj. R ²	SEE	F-value
		PR	PRD	PRM	PRS	PL	SAT			
1	1.707 (5.978)**	0.602 (8.856)**						0.342	0.506	78.421
2	2.195 (9.394)**		0.498 (8.759)**					0.337	0.508	76.716
3	1.189 (5.303)**			0.712 (13.620)**				0.533	0.417	185.495
4	2.187 (10.793)**				0.611 (10.163)**			0.407	0.480	103.285
5	2.262 (10.589)**					0.486 (9.281)**		0.364	0.497	86.137
6	3.125 (11.285)**						0.311 (6.391)**	0.381	0.443	72.110
7	1.374 (4.971)**	0.382 (4.817)**	0.309 (4.682)**					0.423	0.473	22.049

8	0.703 (2.822)**	0.132 (1.825)*	0.175 (3.052)**	0.531 (8.193)**				0.602	0.393	76.221
9	0.641 (2.734)**	0.159 (2.278)*	0.006 (0.079)	0.462 (7.123)**	0.235 (3.733)**			0.635	0.377	65.715
10	0.638 (2.711)**	0.161 (2.292)*	0.003 (0.034)	0.456 (6.736)**	0.225 (3.182)**	0.023 (0.317)	0.162 (4.618)**	0.632	0.378	52.266

Notes:

- i. Figures in parenthesis are t-values
- ii. The asterisk signs (**) and (*) indicate that the results are significant at one percent and five percent level respectively.
- iii. Consumer buying behavior is the dependent variable.

The regression results show that the beta coefficients for price are positive with consumer buying behavior. It indicates that price has a positive impact on consumer buying behavior. This finding is consistent with the findings of Safitri (2018). Likewise, the beta coefficients for product are positive with consumer buying behavior. It indicates that product has a positive impact on consumer buying behavior. This finding is similar to the findings of Pan and Zinkhan (2006). Likewise, the beta coefficients for promotion are positive with consumer buying behavior. It indicates that promotion has a positive impact on consumer buying behavior. The finding is similar to the findings of Khan *et al.* (2019). Similarly, the beta coefficients for personnel are positive with consumer buying behavior. It indicates that personnel has a positive impact on consumer buying behavior. This finding is consistent with the findings of Paesbrugghe *et al.* (2018). Similarly, the beta coefficients for place are positive with consumer buying behavior. It indicates that place has a positive impact on consumer buying behavior. This finding is similar to findings of Phan and Vu (2015). The result also reveals that beta coefficients for store atmosphere are positive with consumer buying behavior. It indicates that store atmosphere has a positive impact on consumer buying behavior. This finding is similar to findings of Akram *et al.* (2016).

4. Summary and conclusion

Marketing mix is the combination of strategies and activities that companies use to sell their goods and services. By focusing on the people who buy, a company can pick the right features for the product, the right price and distribution outlets, and the right words and approaches for promoting the product. The entire success of the company lies in the amount of belief and loyalty its customers are having in it. Consumer behavior analysis is an important domain for a marketing manager as it gives insight into a number of factors which affect sales and relationships that are not in the control of a company.

This study attempts to examine the impact of marketing mix variables on consumer buying behavior in Kathmandu Valley. The study is based on primary data with 150 observations.

The study showed that price, product, promotion, personnel, place, and store atmosphere have positive impact on consumer buying behavior. The study concluded that marketing mix variables play vital role in order to stimulate the consumer buying behavior. The study also concluded that promotion followed by personnel and price are the most influencing factor that explains consumer buying behavior in Kathmandu Valley.

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Advertisement avoidance behavior of Nepalese television audience

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Abstract

This study examines the determinants of advertisement avoidance behavior of Nepalese television audience. Advertisement avoidance is the dependent variable. The selected independent variables are reliability, repetition, informativeness, advertising appeals and celebrity association. The primary source of data is used to assess the opinions of the respondents regarding advertisement avoidance behavior in Nepal. The study is based on primary data which were collected from 156 respondents. To achieve the purpose of the study, structured questionnaire is prepared. The correlation coefficients and regression models are estimated to test the significance and importance of different factors on the advertisement avoidance behavior of Nepalese television audience.

The result showed that reliability of advertisement has a negative impact on ad avoidance. It implies that higher reliability in advertisement leads to decrease in advertisements avoidance behavior. The result also revealed that repetition of advertisement has a positive impact on ad avoidance. It implies that repetition of ads leads to ad avoidance. Moreover, enjoyment has a negative impact on ad avoidance. It implies that increase in enjoyment during advertisement leads to decrease in advertisement avoidance behavior. Furthermore, informativeness of ads has a negative impact on ad avoidance indicating better, innovative and informative advertisement leads to decrease in ad avoidance behavior. Similarly, the result also showed advertisement appeals has a negative impact on ad avoidance. It indicates that appealing advertisement leads to decrease in ad avoidance behavior. Moreover, celebrity association has a negative impact on ad avoidance. It indicates that involvement of famous celebrity leads to decrease in ad avoidance behavior.

Key words: *Advertisement avoidance, reliability, repetition, informativeness, advertising appeals and celebrity association.*

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1. Introduction

Advertising avoidance is considered to be one of the biggest obstacles of advertising. Digital advertising that puts advertisement on social networking sites such as Facebook, Twitter, Instagram and so on is recognized as social media advertising and social media advertising offers three main purposes which included to promote the brand of the business, to promote the social media presence of the business and of course to expose the social media users to the website of the business (Kim, 2020). However, the users modify their advertising avoidance after some time and allow to make decision whether to accept or block the online customized advertising. Subsequently, when the internet consumers are forced to watch the pop-up ads, they tend to avoid the online advertisement with the responds like shut off the pop-up windows (Edwards *et al.*, 2002). In consequence, the consumers of internet have increasingly used the tools like filtering and blocking to avoid the online advertising (Johnson, 2013). Cognitive ad avoidance is the psychological defense mechanism that results in users intentionally ignoring an ad they are exposed to (Li and Huang, 2006). Cognitive avoidance is rooted in consumers' beliefs about ads, which can lead to them deliberately ignoring an ad. Affective ad avoidance, on the other hand, involves negative feelings and the expression of emotional reactions toward an advertisement (Hughes, 2005). Behavioral avoidance is consumer avoidance actions other than lack of attendance.

Speck and Elliott (1998) defined Ad avoidance as all actions by media users that differentially reduce their exposure to ad content. Clancey (1994) found that audience avoid ads by ignoring distracting ads which is cognitive avoidance, leaving the room which is physical avoidance, changing the channel which is mechanical avoidance. In the traditional media, the factors affecting ads avoidance are demographic characteristics (gender, age, income), ads perception (advertising interruption), communication problems (search barrier) and so on. Nowadays, with the quick development of information processing and technologies advancements, many advertisers gather and track personal information of particular customer buying histories and trait to distinguish the best outlook, promotion tactics and personalized advertising; build up benefits and loyalty programs and execute profoundly targeted direct-marketing efforts (Dolnicar and Jordaan, 2007). Nevertheless, at the point when individuals exposed customized advertisement contents, they perceived that somebody are aware of their personal details and utilizing it for advertising objectives, cause users raise resistance to the advertisement contents (Obermiller *et al.*, 2005). Generally, customized advertisement contents are more effectual than unrelated advertisement contents. However, profoundly relevant advertisements not often evoke desirable results as consumers' response to customized contents (White *et al.*, 2008). Shan *et al.* (2020) examined the determinants of social media advertising avoidance in the context of university students. The results showed that goal impediment, privacy concern and negative experience are related to advertising avoidance positively whereas perceived personalization is related to advertising avoidance negatively.

Goal impediment has been considered as one of the most significant predictors of ad avoidance. The Internet is a goal-oriented medium where users are usually engaged in pursuing specific tasks that can be interrupted by exposure to unsolicited ads, which will make consumers have negative experiences and ads avoidance. Li *et al.* (2002) found that the perception about advertising interruption will result in the cognitive avoidance and behavioral avoidance directly. Speck and Elliott (1998) also found that, interrupted by advertising will directly affects consumers' advertising avoidance behavior. Consumers may also occur negative emotions because the advertising content is not consistent with the webpage they are browsing. Privacy concern is defined as the degree of consumers' concern about potential privacy was invaded. With the rapid advances of information processing

and communication technologies, most marketers collect and track personal information about specific consumer purchase histories and characteristics to identify the best prospects, customized advertising, and promotion strategies; implement highly targeted direct- marketing efforts; and establish reward and loyalty programs (Alwitt and Prabhaker, 1994). However, information privacy is a great concern to consumers. These marketing tools will make consumers to worry about their privacy has potentially exposed. Privacy concern has a negative impact to consumers' buying behavior, trust and information control (Burns and Lutz, 2006). With the intensification of privacy concern, consumers are likely to have a negative experience and avoid online behavioral advertising such as don't provide complete information, cancel or block ads, or make a very bad comments about the ads (Baek and Morimoto, 2012).

Perceived personalization refers to the process that is customizing solutions according to consumers' information. It is the personal communication on the basis of individual preference. The biggest difference between online behavioral advertising and traditional advertising is that OBA is customized. Dolnicar and Jordaan (2007) further asserted that consumer reactance to personalized messages can be determined by whether the perceived utility of the advertised products or services offsets the psychological costs of receiving inappropriate personal messages. Perceived utility (e.g., some rewards and benefits from the restricted freedom) significantly decreases consumer reactance against the loyalty program (Zenetti *et al.*, 2014). Prendergast *et al.* (2014) also found that personalized content is the most effective way to avoid the ads that are regarded as disturbing. When the ads are considered useful and valuable, consumers are inclined to have positive experience to ads and have a lower rate of ads avoidance. Consumer advertising experience also has a significant impact on consumer attitudes and behavior (Phelps *et al.*, 2000). The consumer prior experience will affect the type and manner of information processing. When consumers are contacted with the online behavioral advertising, goal impediment, privacy concerns and perceived personalization will affect the consumer experience immediately then affect consumers' attitude and behavior. For online behavioral advertising, the negative experiences may include lack of usefulness, lack of incentive, and so on. Consumers will avoid the sources generating negative experience.

Social media advertising is expected to increase in popularity. However, the consumers also being empowered by the online circumstance in which they are enabling to make decision either accept or avoid the social advertising (Johnson, 2013). As a result, consumers are continuously increasing to avoid the annoying source that refrain them from accessing the page where they are interested to. Therefore, the behavior of avoidance to social media advertising is currently regard as a major and primary impediment to social media advertising. Advertising experience by consumer also has a crucial effect on consumer attitudes and behavior (Prendergast *et al.*, 2010). Based on the learning from experience theory, people make decisions according to their previous personal experiences. Therefore, the future behavior of consumer can be explained by their past experience with an advertisement (Roberts, 2003).

In the context of Nepal, online advertising is becoming more popular because it is easier to access and less expensive. Similar to this, the regulatory limitations on the use of conventional advertising instruments for advertisements in Nepal boosted the popularity of online advertisements. Therefore, a marketer also wants their advertisement to be very efficient at getting customers to remember their products. Vaidya (2022) determined how well Nepalese online advertisements help consumers recall products. The study discovered banner ads the most preferred type of online as among the respondents. The study found that online ads helped to make online purchasing decisions and recalling products. The respondents were concerned about the value associated with the product displayed in online ads. Similarly, the Nepalese online ad viewers did not find effective in the use of

humor in online ad in recalling the products and services. Baniya (2017) investigated the direct effect of components of celebrity endorsement (physical attractiveness, source creditability and celebrity brand matchup) on brand loyalty (attitudinal loyalty and behavioral loyalty). The result showed that physical attractiveness, source credibility expertise and celebrity brand match up have positive impact on developing attitude towards the brand. However, only physical attractiveness and celebrity brand matchup are associated with purchase intention.

The above discussion reveals that the empirical evidences vary greatly across the studies concerning the determinants of advertisement avoidance behavior of television audience. Though there are above mentioned empirical evidences in the context of other countries and in Nepal, no such findings using more recent data exist in the context of Nepal. Therefore, in order to support one view or the other, this study has been conducted.

The main purpose of the study is to analyze the determinants of advertisement avoidance behavior of Nepalese television audience. Specifically, it examines the relationship of reliability, repetition, informativeness, advertising appeals and celebrity association with advertisement avoidance behavior of television audience in Nepal.

The remainder of this study is organized as follows. Section two describes the sample, data and methodology. Section three presents the empirical results and the final section draws the conclusion.

2. Methodological aspects

The study is based on the primary data. The data were gathered from 156 respondents through questionnaire. The study used convenience sampling method. The respondents' views were collected on repetition, reliability, enjoyment, informativeness of ads, advertising appeals and celebrity association. The study is based on descriptive and causal comparative research designs.

The model

The model estimated in this study assumes that ad avoidance depends on reliability, repetition, informativeness, advertising appeals and celebrity association. Therefore, the model takes the following form:

$$AD = \beta_0 + \beta_1 REB + \beta_2 REP + \beta_3 ENJ + \beta_4 INF + \beta_5 AAP + \beta_6 CLA + \varepsilon$$

Where,

AD = Ad Avoidance

REB = Reliability

REP = Repetition

ENJ = Enjoyment

INF = Informativeness of ads

AAP = Advertising appeals

CLA = Celebrity association

Enjoyment was measured using a 5-point Likert scale where the respondents were asked to indicate the responses using 1 for strongly disagree and 5 for strongly agree. There are 5 items and sample items include "TV ads are a form of entertainment", "Watching TV ads is more enjoyable than

watching few TV programs” and so on. The reliability of the items was measured by computing the Cronbach's alpha ($\alpha = 0.719$).

Informativeness of ads was measured using a 5-point Likert scale where the respondents were asked to indicate the responses using 1 for strongly disagree and 5 for strongly agree. There are 5 items and sample items include “TV ads give me up-to-date information”, “TV ads inform me about products bought by consumers whose lifestyle is like mine” and so on. The reliability of the items was measured by computing the Cronbach's alpha ($\alpha = 0.801$).

Advertisement appeal was measured using a 5-point Likert scale where the respondents were asked to indicate the responses using 1 for strongly disagree and 5 for strongly agree. There are 5 items and sample items include “The advertisement influences the feelings of the targeted customers”, “Humorous advertisements get concentration and attract audience by its capability.” and so on. The reliability of the items was measured by computing the Cronbach's alpha ($\alpha = 0.750$).

Reliability was measured using a 5-point Likert scale where the respondents were asked to indicate the responses using 1 for strongly disagree and 5 for strongly agree. There are 5 items and sample items include “TV ads are reliable source of information”, “I find TV advertising trustworthy” and so on. The reliability of the items was measured by computing the Cronbach's alpha ($\alpha = 0.780$).

Repetition was measured using a 5-point Likert scale where the respondents were asked to indicate the responses using 1 for strongly disagree and 5 for strongly agree. There are 5 items and sample items include “The more frequency of repetition ads builds positive image in the mind of viewers.”, “Repetition becomes an important way to build up the credibility among customers” and so on. The reliability of the items was measured by computing the Cronbach's alpha ($\alpha = 0.840$).

Celebrity association was measured using a 5-point Likert scale where the respondents were asked to indicate the responses using 1 for strongly disagree and 5 for strongly agree. There are 5 items and sample items include “I would see the ad if it is endorsed by my favorite celebrity”, “Presence of celebrity in a product advertisement helps me to recognize the brand” and so on. The reliability of the items was measured by computing the Cronbach's alpha ($\alpha = 0.844$).

Advertisement avoidance was measured using a 5-point Likert scale where the respondents were asked to indicate the responses using 1 for strongly disagree and 5 for strongly agree. There are 5 items and sample items include “I change the channel as soon as the ad break start”, “I leave the room during the ad break” and so on. The reliability of the items was measured by computing the Cronbach's alpha ($\alpha = 0.811$).

The following section describes the independent variables used in this study along with the hypothesis formulation.

Reliability

Khan and Lodhi (2016) revealed if the ads are reliable, the strength of the negative impact will likely be reduced. According to Malik *et al.* (2014), reliability measures stability of results over time or internal consistency of items in an attitude scale in advertisement. Consumers perceived that if ads are reliable, it is quite likely that the attitude toward ads is positive (Christian *et al.*, 2014). Organizations employ credible celebrities to ensure reliability (Saldanha *et al.*, 2018). Moreover, Brown and Stayman (1992) stated that reliability moderates the relationship between cognitive attitude and ad avoidance. The study also showed that higher level of reliability in the advertisements results in lower rate of ad avoidance. Based on it, the study develops the following hypothesis:

H_1 : *There is a negative relationship between reliability and ad avoidance.*

Enjoyment

Enjoyable advertisement plays the main and easy tool of informing, convincing, influencing and persuading to the targeted segment and plays significant role on brand choice of consumer products (Terkan, 2014). The enjoyment aromas are the larger part of many ads, particularly for those products whose major function is not one that an ad can clearly show (Bisht, 2013). Brackett and Carr (2001) examined that there is positive relationship between enjoyment and funny advertisement. The study found pulling at their heartstrings or making them laugh, makes the brand more memorable as it helps to connect audience using emotional advertisement. Kim *et al.* (2016) found that consumers' higher levels of enjoyment with native advertising may be a double-edged sword. Based on it, the study develops the following hypothesis:

H_2 : *There is a negative relationship between enjoyment and ad avoidance.*

Informativeness of TV Ads

Van den Broeck *et al.* (2018) revealed that the entertainment and informational aspects perceived by consumers in advertising have positively influence consumer attitude and behavior. According to Kim and Seo (2017), advertising aims to persuade a user to make a decision by providing facts and statistics that support the value and relevance of a product. The study found that informativeness has positive relationship towards advertisement. According to Speck and Elliott (1997), informative advertisement is strongly related to the advertising value, when it is transferred through traditional media channels. Pelsmacker and Van den Bergh (1999) revealed that informative ads are positively perceived by the television audience. Based on it, the study develops the following hypothesis:

H_3 : *There is a negative relationship between informativeness TV Ads and ad avoidance.*

Repetition

According to Lee *et al.* (2015), repetition in advertising, especially in the context of television commercials, makes the audience irritated and leads to ad avoidance. Gillan *et al.* (2014) argued that advertising repetition is essential for optimal effectiveness but that excessive repetition ultimately has negative effects. Schmidt and Maier (2022) revealed that attention duration decreases significantly with advertising repetition and thus the expected negative effects on audience attitude. Based on it, the study develops the following hypothesis:

H_4 : *There is a positive relationship between repetition and ad avoidance.*

Advertising appeals

Kelly *et al.* (2010) found that advertising appeal has a positive influence on consumers' attention and enhancing their desire to increase their product purchase intention. Similarly, Venkatraman *et al.* (1990) revealed that the advertisement appeal and product evaluations and message judgments mediated by the product attributes have a positive impact on advertisement. Albers-Miller and Gelb (1996) showed that advertisement appeal (emotional and rational) has a significant effect on the mindset of the audience. Bellman *et al.* (2012) revealed that ad avoidance has significant negative effect on ads appeal. Chandy *et al.* (2001) concluded that individuals have more negative explicit attitudes toward mid-roll video advertisements than they do toward pre-roll video advertisements. The study showed that there is negative relationship between ad avoidance and advertisement appeals. Based on it, this study develops the following hypothesis:

H_5 : *There is a negative relationship between advertising appeals and ad avoidance.*

Celebrity association

Katke (2007) stated target market companies are now using celebrities to make their brands prominent, recognizable and remember by viewers because people are more attractive towards celebrities and can easily retain their message. In addition, Kelly *et al.* (2010) found that celebrity association has a significant image of brand in the minds of consumers over competitive brands present in the market. Furthermore, Chowdhury *et al.* (2006) showed that entertainment, informativeness and celebrity association have positive and significant influence on consumer attitude toward ads. Based on it, this study develops the following hypothesis:

H_6 : There is a negative relationship between celebrity association and ad avoidance.

3. Results and discussion

Correlation analysis

On analysis of data, correlation analysis has been undertaken first and for this purpose, Kendall's Tau correlation coefficients along with means and standard deviations have been computed, and the results are presented in Table 1.

Table 11: Kendall's Tau correlation coefficients matrix

This table presents Kendall's Tau correlation coefficients between dependent variable and independent variables. The correlation coefficients are based on 156 observations. The dependent variable is AD (Ad avoidance). The independent variables are REB (Reliability), REP (Repetition), ENJ (Enjoyment), INF (Informativeness of ad), AAP (Advertisement appeals) and CLA (Celebrity association).

Variables	Mean	SD	AD	REB	REP	ENJ	INF	AAP	CLA
AD	3.798	0.863	1						
REB	3.811	0.688	-0.405**	1					
REP	3.765	0.706	0.316**	-0.314**	1				
ENJ	3.616	0.759	-0.415**	-0.330**	-0.320**	1			
INF	3.806	0.770	-0.439**	-0.324**	-0.360**	-0.341**	1		
AAP	3.844	0.649	-0.221**	-0.267**	-0.268**	-0.298**	-0.204**	1	
CLA	3.742	0.707	-0.272**	-0.187**	-0.265**	-0.302**	-0.130*	-0.326**	1

Notes: The asterisk signs (**) and (*) indicate that the results are significant at one percent and five percent level respectively.

The study reveals that reliability of advertisement is negatively correlated to ad avoidance. It implies that higher reliability in advertisement leads to decrease in advertisements avoidance behavior. The result also reveals that repetition of advertisement is positively correlated to ad avoidance. It implies that repetition of ads leads to ad avoidance. Moreover, enjoyment is negatively correlated to ad avoidance. It implies that increase in enjoyment during advertisement leads to decrease in advertisements avoidance behavior. Furthermore, informativeness of ads is negatively correlated to ad avoidance indicating better, innovative and informative advertisement leads to decrease in ad avoidance behavior. Similarly, the result also shows advertisement appeals is negatively correlated to ad avoidance. It indicates that appealing advertisement leads to decrease in ad avoidance behavior. Moreover, celebrity association is negatively correlated to ad avoidance. It indicates that involvement of famous celebrity leads to decrease in ad avoidance behavior.

Regression analysis

Having indicated the Kendall's Tau correlation coefficients, the regression analysis has been carried out and the results are presented in Table 2. More specifically, it shows the regression results of reliability, repetition, enjoyment, informativeness of ads, advertisement appeals and celebrity association on ad avoidance behavior in Nepal.

Table 2: Estimated regression results of reliability, repetition, enjoyment, informativeness of ads, advertisement appeals and celebrity association on ad avoidance behavior

The results are based on 156 observations using linear regression model. The model is $AD = \beta_0 + \beta_1 REB + \beta_2 REP + \beta_3 ENJ + \beta_4 INF + \beta_5 AAP + \beta_6 CLA + \varepsilon$, where the dependent variable is AD (Ad avoidance). The independent variables are REB (Reliability), REP (Repetition), ENJ (Enjoyment), INF (Informativeness of ad), AAP (Advertisement appeals) and CLA (Celebrity association).

Model	Intercept	Regression coefficients of						Adj. R_bar ²	SEE	F-value
		REB	REP	ENJ	INF	AAP	CLA			
1	0.397 (3.141)**	-0.735 (8.972)**						0.339	0.702	80.505
2	1.055 (3.480)**		0.729 (9.202)**					0.351	0.696	84.682
3	0.933 (3.839)**			-0.792 (12.046)**				0.514	0.547	145.114
4	0.899 (3.493)**				-0.762 (11.500)**			0.459	0.635	132.248
5	1.553 (4.137)**					-0.584 (6.069)**		0.188	0.778	36.835
6	1.284 (4.105)**						-0.672 (8.183)**	0.299	0.723	66.962
7	0.225 (0.701)		0.349 (4.176)**	-0.588 (6.946)**		-0.035 (0.396)		0.532	0.590	59.775
8	0.423 (1.307)			-0.638 (7.384)**		-0.031 (0.334)	-0.254 (2.888)**	0.506	0.607	53.844
9	0.111 (0.345)	-0.378 (4.634)**		-0.605 (7.492)**		-0.015 (0.174)		0.543	0.583	62.403
10	0.047 (0.144)	-0.490 (5.844)**	0.500 (6.123)**					0.466	0.631	68.532
11	0.759 (2.540)*	-0.271 (3.602)**	0.153 (1.930)	-0.328 (2.689)*	-0.319 (4.105)**		-0.234 (3.152)**	0.634	0.522	54.621

Notes:

- i. Figures in parenthesis are t-values.
- ii. The asterisk signs (**) and (*) indicate that the results are significant at one percent and five percent level respectively.
- iii. Ad Avoidance is the dependent variable.

The regression results show that the beta coefficients for reliability are negative with ads avoidance. It indicates that reliability has a negative impact on ads avoidance. The finding is similar to the findings of Brown and Stayman (1992). The regression results show that the beta coefficients for repetition are positive with ads avoidance. It indicates that repetition has a positive impact on ads avoidance. The finding is consistent with the findings of Brackett and Carr (2001). Likewise, the beta coefficients for enjoyment are negative with ads avoidance. It indicates that enjoyment has a negative impact on ads avoidance. The finding is similar to the findings of Kim *et al.* (2016). Moreover, the the beta coefficients

for informativeness of ads are negative with ads avoidance. It indicates that informativeness has a negative impact on ads avoidance. The finding is consistent with the findings of Pelsmacker and Van den Bergh (1999). Furthermore, the regression results show that the beta coefficients for advertisement appeal are negative with ads avoidance. It indicates that advertisement appeal has a negative impact on ads avoidance. The finding is similar to the findings of Bellman *et al.* (2012).

4. Summary and conclusion

With the development of information technology, it's possible to deliver advertising more accurately. Online behavioral advertising (OBA) is a kind of advertising which tracks individual online behavior in order to deliver advertising tailored to his or her interests. However, consumers still avoid advertising with more precise delivery. It is very difficult to find out the measures which decrease OBA avoidance unless we know about the factors that influence the avoidance.

This study attempts to analyze the determinants of advertisement avoidance behavior of Nepalese television audience. The study is based on primary data with 156 observations.

The study showed that reliability, enjoyment, informativeness of ads, advertising appeals and celebrity association have negative impact on advertisement avoidance behavior of Nepalese television audience. The study showed that repetition has a positive impact on advertisement avoidance behavior of Nepalese television audience. The study concluded that increase in enjoyment during advertisement and appealing advertisement leads to decrease in advertisements avoidance behavior. The study also concluded that enjoyment followed by informativeness of ads is the most significant factor that explains the changes in advertisement avoidance behavior of Nepalese television audiences.

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E-banking services and its impact on customer satisfaction in Nepalese commercial banks

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Abstract

This study examines the impact of e-banking services on customer satisfaction in Nepalese commercial banks. Customer satisfaction is the dependent variable. Likewise, the selected independent variables are convenience, reliability, ease of use, security, time saving and perceived benefits. The primary source of data is used to assess the opinions of the customers regarding e-banking services and level of satisfaction. The study is based on primary data with 120 respondents. To achieve the purpose of the study, structured questionnaire is prepared. The correlation coefficients and regression models are estimated to test the significance and importance of e-banking services on customer satisfaction in Nepalese commercial banks.

The study showed that convenience has a positive impact on customer satisfaction. It indicates that increase in convenience leads to increase in customer satisfaction in e-banking services of banks. Similarly, reliability has a positive impact on customer satisfaction. It indicates that increase in service reliability leads to increase in customer satisfaction in e-banking services of banks. Likewise, ease of use has a positive impact on customer satisfaction. It means that more ease of use leads to increase in customer satisfaction in e-banking services of banks. Similarly, security has a positive impact on customer satisfaction. It means that increase in security leads to increase in customer satisfaction in e-banking services of banks. Similarly, time saving has a positive impact on customer satisfaction. It means that more time saving leads to increase in customer satisfaction in e-banking services of banks. Likewise, perceived benefit has a positive impact on customer satisfaction. It indicates that increase in perceived transaction benefits leads to increase in customer satisfaction in e-banking services of banks.

Key words: *Customer satisfaction, convenience, reliability, ease of use, security, time saving and perceived benefits.*

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1. Introduction

The banking industry has been rapidly developing the use of Internet banking as an efficient and viable tool to create customer value. It is one of the popular services offered by the traditional banks to provide speedier and reliable services to online users. With the rapid development of computer technology, internet banking can be used to attract more customers to perform banking transactions in related banks. However, the main problem of internet banking faced by the providers is that a large number of the banks' customers are not willing to use the Internet banking services offered. This happened due to the services offered through Internet banking have yet to satisfy their customers. Customer satisfaction is an important factor to help banks to sustain competitive advantages (Lin *et al.*, 2016). The development of e-banking in each country is dependent on the speed of internet access, the features of new online banking, and the frequency of e-banking usage (Nupur, 2010). In the banking industry, e-banking is formed when there is a combination between the information technology and the functions of banks and financial institutions (Ahanger, 2011). Through e-banking products, banks are able to provide customize services that create long term customer relationship. Electronic banking has become important weapon for competing with rivalries that ensure sustainable growth and profitability.

Internet banking has gained higher acceptance from the customers who are highly supportive of new technology. Internet banking acts as a kind of financial intermediation which makes transaction through Internet (Ahanger, 2011). In the banking industry, internet banking is the industry which uses computer technology to provide better services to customers and help in the development of banking practices (Rahmath and Hema, 2010). Technological innovations are one of the effective ways to increase the level of service quality to satisfy customer needs. Through the advanced technology and innovation in the financial and banking sectors, Internet banking has become more familiar to the customers of traditional banks. Internet banking is offered by the retail banking in many developed countries and customers can make transactions without having to leave their homes or workplace (Munusamy *et al.*, 2010). In addition, Internet banking can help customers to manage their finances more efficiently. Wise and Ali (2009) argued that many banks want to invest in ATMs to reduce branch cost since customers prefer to use them instead of a branch to transact business. The increase translates into improved customer loyalty that will results in higher customer retention and growing organization value. Internet banking is a lower-cost delivery channel and a way to increase sales. Internet banking services has become one of the most important factors in the business economy today.

Service quality is formed when customers make a comparison between before-service expectations with their actual-service expectations and with their actual-service experience (Naik *et al.*, 2010). In Internet banking, e-service quality is important to the banks because it will affect customer satisfaction. According to Nupur (2010), a partial of the service quality dimension showed a significant relationship with customer satisfaction. Speed was an important factor to achieve the successful for e-banking. Speed had a positive significant impact on customer satisfaction (Haque *et al.*, 2009). Convenience is the main attraction and focus of the customers who use Internet banking. Kassim and Abdullah (2010) found that ease of use was positively related to customer satisfaction. Customers who used Internet banking were more focused on the easier ways to conduct banking transactions (Ainin *et al.*, 2005). Privacy is another importance element which always concerns customers. It is always the customers hope that the banks can protect their personal and financial information especially when they do transactions via Internet banking. Ling *et al.* (2016) examined the factors which influence customer satisfaction towards internet banking. The five factors which can influence customer satisfaction toward internet banking include service quality, web design and

content, security and privacy, convenience and speed. The results showed that web design and content, convenience and speed are closely linked to customer satisfaction toward internet banking. Altobishi *et al.* (2008) investigated the effects of electronic banking services on customer satisfaction in Jordan. The reviewed literature indicates that are six indicators that affect level of customer satisfaction with e-banking. The results showed a positive relationship between level of customer satisfaction and usage of e-banking among customers. The study also showed that there is positive relationship of convenience, privacy, cost, ease of use, personalization and customization and security level with customer satisfaction and usage of e-banking.

Internet bank has evolved into a “one stop service and information unit” that promises great benefit to both banks as well as consumers (Margaret and Thompson, 2000). Karim and Chowdhury (2014) analyzed the impact of service quality on customer satisfaction of private sector banks in Bangladesh. The study showed that the combination of tangibility, reliability, responsiveness, assurance and empathy together possess significant effect on customer satisfaction. Jun *et al.* (1999) revealed reliable/prompt responses, attentiveness, and ease of use have considerable impacts on both customers perceived overall service quality and satisfaction. Ray (2018) examined the customer satisfaction in public and private sectors banks operating in Dinajpur city of Bangladesh. The result showed that service quality dimensions as security, responsiveness, reliability, assurance and empathy influence the customers overall satisfaction. The tangibility dimension is found to be the most influential predictor of customer satisfaction, whereas empathy dimension is the least satisfaction influencing factor with customer satisfaction. Khatoon *et al.* (2020) investigated the relationship between the dimensions of electronic banking service quality and customer purchasing intentions with the mediating role of customer satisfaction. The study found that reliability, efficiency, responsiveness, communication, security, and privacy have a significant positive impact on customer satisfaction. Das and Ravi (2021) examined the relationship between the dimensions of e-banking service quality and customer satisfaction to determine which dimension can potentially have the strongest influence on customer satisfaction. The study found that service quality dimensions such as reliability, security and privacy, website design and responsiveness, and communications positively influence customer satisfaction in e-banking services.

In the context of Nepal, Gyawali (2020) examined the impact of online banking on customer satisfaction of Nepalese commercial bank. The study showed that reliability, responsiveness, tangibles, empathy and assurance have positive and significant effect on consumer satisfaction in Nepalese commercial banks. The study also concluded that perceived quality followed by tangibles is the major determinant of customer satisfaction towards online banking in Nepalese commercial banks. Pathak *et al.* (2022) examined the impact of internet banking service quality on customer satisfaction in Nepalese commercial banks. The study showed that speed of delivery, ease of use, reliability, privacy and security, enjoyment and control have positive impact on customer satisfaction in Nepalese commercial banks. The study also concluded that reliability followed by speed of delivery is the most influencing factor that explains the change in the level of customer satisfaction in Nepalese commercial banks. Bist (2020) examined the perceived banking security and customer satisfaction in Nepalese commercial banks. The study showed that awareness, responsiveness, reliability, ease of use, trust and privacy have positive impact on customer satisfaction. The study concluded that privacy followed by responsiveness is the most influencing factor that explains customer satisfaction towards e-banking services in Nepalese commercial banks. Similarly, Khatiwada (2022) examined the impact of e-banking service quality on customer satisfaction in Nepalese commercial banks. The study revealed that internet security and privacy, website design, responsiveness, system availability and reliability have positive impact on customer satisfaction.

The above discussion shows that empirical evidences vary greatly across the studies concerning the impact of e-banking services on customer satisfaction. Though there are above mentioned empirical evidences in the context of other countries and in Nepal, no such findings using more recent data exist in the context of Nepal. Therefore, in order to support one view or the other, this study has been conducted.

The main purpose of the study is to examine the impact of electronic banking services on customer satisfaction in the context of Nepalese commercial banks. Specifically, it examines the relationship of convenience, reliability, ease of use, security, time saving, perceived benefits on customer satisfaction in Nepalese commercial banks.

The remainder of this study is organized as follows. Section two describes the sample, data and methodology. Section three presents the empirical results and the final sections draws the conclusion.

2. Methodological aspects

The study is based on the primary data. The data were gathered from 120 respondents through questionnaire. The study employed convenience sampling method. The respondents' views were collected on convenience, reliability, ease of use, security, time saving, perceived benefits and level of satisfaction. The study is based on descriptive and causal comparative research designs. Table 1 shows the list of commercial banks selected for the study along with the number of respondents.

Table 1: List of commercial banks selected for the study along with number of respondents

S.N.	Name of commercial banks	Number of respondents
1.	Bank of Kathmandu Limited	12
2.	Everest Bank Limited	6
3.	Global IME Bank Limited	10
4.	Himalayan Bank Limited	5
5.	Kumari Bank Limited	8
6.	Laxmi Bank Limited	6
7.	Machhapuchchhre Bank Limited	12
8.	Sunrise Bank Limited	8
9.	Nabil Bank Limited	5
10.	Nepal Investment Bank Limited	8
11.	NIC Asia Bank Limited	12
12.	NMB Bank Limited	6
13.	Nepal SBI Bank Limited	4
14.	Sanima Bank Limited	10
15.	Siddhartha Bank Limited	8
Total number of respondents		120

Thus, the study is based on the 120 observations.

The model

The model used in this study assumes that customer satisfaction depends on e-banking services factors in Nepalese commercial banks. The selected dependent variable is customer satisfaction. Similarly, selected independent variables are convenience, reliability, ease of use, security, time saving and perceived benefits. Therefore, the model takes the following form:

$$CS_{it} = \beta_0 + \beta_1 C_{it} + \beta_2 R_{it} + \beta_3 E_{it} + \beta_4 S_{it} + \beta_5 TS_{it} + \beta_6 PB_{it} + e_{it}$$

Where,

CS = Customer satisfaction

C = Convenience

R = Reliability

E = Ease of use

S = Security

TS = Time saving

PB = Perceived benefits

Customer satisfaction was measured using a 5-point Likert scale where the respondents were asked to indicate the responses using 1 for strongly disagree and 5 for strongly agree. There are 6 items and sample items include “User-friendly characteristic of e- banking service of bank satisfies the customer”, “Dedicated security software gives confidence to use the service” and so on. The reliability of the items was measured by computing the Cronbach’s alpha ($\alpha = 0.837$).

Convenience was measured using a 5-point Likert scale where the respondents were asked to indicate the responses using 1 for strongly disagree and 5 for strongly agree. There are 6 items and sample items include “E-Banking enable customer to save money”, “The e-banking service of the bank is user friendly” and so on. The reliability of the items was measured by computing the Cronbach’s alpha ($\alpha = 0.803$).

Reliability was measured using a 5-point Likert scale where the respondents were asked to indicate the responses using 1 for strongly disagree and 5 for strongly agree. There are 6 items and sample items include “Contents of E-banking applications are up to date”, “Can rely on bank for not misusing information” and so on. The reliability of the items was measured by computing the Cronbach’s alpha ($\alpha = 0.864$).

Ease of use was measured using a 5-point Likert scale where the respondents were asked to indicate the responses using 1 for strongly disagree and 5 for strongly agree. There are 6 items and sample items include “E-banking Service of the bank is easy to use”, “Apps and website of the bank is properly designed” and so on. The reliability of the items was measured by computing the Cronbach’s alpha ($\alpha = 0.807$).

Security was measured using a 5-point Likert scale where the respondents were asked to indicate the responses using 1 for strongly disagree and 5 for strongly agree. There are 6 items and sample items include “The e-banking service of bank suggest for creation of strong password”, “The transaction done is confidential” and so on. The reliability of the items was measured by computing the Cronbach’s alpha ($\alpha = 0.788$).

Time saving was measured using a 5-point Likert scale where the respondents were asked to indicate the responses using 1 for strongly disagree and 5 for strongly agree. There are 6 items and sample

items include “Customer can request the cheque book without visiting the branch office”, “E-Banking has reduced the number of customers visiting branch office” and so on. The reliability of the items was measured by computing the Cronbach’s alpha ($\alpha = 0.805$).

Perceived benefit was measured using a 5-point Likert scale where the respondents were asked to indicate the responses using 1 for strongly disagree and 5 for strongly agree. There are 6 items and sample items include “E-Banking enables 24-hour accessibility to the bank service”, “Helps to perform transaction at lower cost” and so on. The reliability of the items was measured by computing the Cronbach’s alpha ($\alpha = 0.854$).

The following section describes the independent variables used in this study along with the hypothesis formulation.

Convenience

Donner and Tellez (2008) argued that mobile banking usage in various developing countries is one the greatest technological revolution of the past decade. The service offering SMS based mobile banking provides a new 24-hour banking convenience which influence the intention to use the mobile banking. In addition, Moon and Kim (2001) stated that perceived ease of use and convenience have a positive effect on users’ perception of credibility in their interaction with the e-banking systems. Moreover, Zeithaml *et al.* (2002) showed that perceived ease of use and convenience have a positive effect on behavioral intention to use the internet banking. Furthermore, Ainscough and Luckett (1996) found the provision of customer interactivity is an important criterion that attracts users in the delivery of e-banking. E-banking provides higher degree of convenience that enables customers to access internet bank at all times and places. Based on it, this study develops the following hypothesis:

H_1 : *There is a positive relationship between convenience and customer satisfaction with e-banking service.*

Reliability

Joseph *et al.* (1999) considered reliability of the service as an important factor of service quality. Yang and Jun (2002) posited that reliability is the most crucial characteristics for customers in the evaluation of service quality. Reliability also means honoring the commitments in areas such as billing accuracy, proper record maintenance and delivering the service within acceptable time limit. Saccani *et al.* (2014) revealed that the service of the banks should be risk free and error free. Their trustworthy and positive work will bring a positive feedback and customer become reliable. This is the most important for the bankers to provide reliable work to their customers. They should be able to convince them that their work is error free and ensure that work is faithful and reliable. Based on it, this study develops the following hypothesis:

H_2 : *There is a positive relationship between reliability and customer satisfaction with e-banking service.*

Ease of use

Karahanna *et al.* (1999) concluded that perceived ease of use has a significant positive effect on intention to adopt the software among the potential adopters. Similarly, bank customers are likely to adopt online banking when it is easy to use the technology (Ramayah *et al.*, 2003). Likewise, Lau (2002) concluded that perceived ease of use was significantly correlated with intention towards using the online trading system. Dixit and Datta (2010) found that rapidly growing and dynamic

revolutionized technologies have overwhelmed the world of financial institutions. Those form of technological advancement has enhanced delivery of banks' services. It has an enormous effect on development of more flexible payments methods and more user-friendly banking services. Based on it, this study develops the following hypothesis:

H₃: There is a positive relationship between ease of use and customer satisfaction with e-banking service.

Security

Security is an important dimension that may affect users' intention to accept e-based transaction systems (Chen and Barnes, 2007). The study also showed that privacy has a strong influence on customer satisfaction. Chung and Kwon (2009) argued that banking industry must provide protection to customers guarantee to prevent from virus and other security issues. Customers will use electronic media for banking transaction when system is suitable and hacking proof (Hanudin *et al.*, 2007). This will help bank to gain trust of their customers which will result into increased mobile banking transactions. The security and privacy of sensitive financial data is one of the main concerns in acceptance of the mobile banking applications (Ramos *et al.*, 2018). Based on it, this study develops the following hypothesis:

H₄: There is a positive relationship between security and customer satisfaction with e-banking service.

Time saving

Shankar and Kumari (2016) stated that technology should always be compatible with the need of the user. Similarly, mobile banking will be adopted by the consumer only if it is compatible with banking activity needs of consumer. The study also showed mobile banking leads to time saving which influence the customers to use the mobile banking service more often. Many banks are offering mobile banking services which allow bank customers to check balance in their personal account, to transfer funds between accounts and make online payments anywhere and at any time by simply using mobile banking applications (Lau, 2002). Akturan and Tezcan (2012) showed a significant relationship between time saving and intention to use mobile banking. Hoffman *et al.* (1999) found that there is a significant correlation between download speed and user satisfaction. Based on it, this study develops the following hypothesis:

H₅: There is a positive relationship between time saving and customer satisfaction with e-banking service.

Perceived benefit

Consumers generally engage in "cost-benefit" analysis when selecting a decision-making procedure. The customer considers cognitive and affective evaluation in purchasing a product and this is a part of hedonistic benefits (Kim *et al.*, 2007). Lee (2009) revealed that perceived benefit is found as an important factor in understanding online banking. The study also showed that the intention to use online banking is primarily and positively affected by perceived benefit. Furthermore, Al Khasawneh (2015) revealed perceived benefit is the most significant positive predictor of consumer attitude towards mobile banking. Based on it, the study develops the following hypothesis:

H₆: There is a positive relationship between perceived benefit and customer satisfaction with E-Banking service.

3. Results and discussion

Correlation analysis

On analysis of data, correlation analysis has been undertaken first and for this purpose, Kendall's Tau correlation coefficients along with means and standard deviations have been computed, and the results are presented in Table 2.

Table 2: Kendall's Tau correlation coefficients matrix

This table presents Kendall's Tau correlation coefficients between dependent variable and independent variables. The correlation coefficients are based on 120 observations. The dependent variable is CS (Customer satisfaction). The independent variables are C (Convenience), R (Reliability), E (Ease of use), S (Security), TS (Time saving) and PB (Perceived benefit).

Variables	Mean	SD	CS	C	R	E	S	TS	PB
CS	1.922	0.547	1						
C	2.394	0.604	0.762**	1					
R	2.333	0.533	0.476**	0.560**	1				
E	2.275	0.656	0.464**	0.660**	0.587**	1			
S	2.037	0.403	0.498**	0.367**	0.484**	0.343**	1		
TS	1.784	0.532	0.656**	0.547**	0.359**	0.582**	0.524**	1	
PB	1.793	0.607	0.673**	0.581**	0.183**	0.309**	0.301**	0.569**	1

Note: The asterisk signs (**) and (*) indicate that the results are significant at one percent and five percent levels respectively.

Table 2 shows that convenience is positively correlated to customer satisfaction. It indicates that increase in convenience leads to increase in customer satisfaction in e-banking services of banks. Similarly, reliability is positively correlated to customer satisfaction. It indicates that increase in service reliability leads to increase in customer satisfaction in e-banking services of banks. Likewise, ease of use is positively correlated to customer satisfaction. It means that more ease of use leads to increase in customer satisfaction in e-banking services of banks. Similarly, security is positively correlated to customer satisfaction. It means that increase in security leads to increase in customer satisfaction in e-banking services of banks. Similarly, time saving is positively correlated to customer satisfaction. It means that more time saving leads to increase in customer satisfaction in e-banking services of banks. Likewise, perceived benefit is positively correlated to customer satisfaction. It indicates that increase in perceived transaction benefits leads to increase in customer satisfaction in e-banking services of banks.

Regression analysis

Having analyzed the Kendall's Tau correlation coefficients matrix, the regression analysis has been carried out and the results are presented in Table 3. More specifically, it presents the regression results of convenience, reliability, ease of use, security, time saving and perceived transaction benefits on customer satisfaction towards e-banking services of Nepalese commercial banks.

Table 3: Estimated regression results of convenience, reliability, ease of use, security, time saving and perceived benefits on customer satisfaction

The results are based on 120 observations using linear regression model. The model is $CS = \beta_0 + \beta_1 C + \beta_2 R + \beta_3 E + \beta_4 S + \beta_5 TS + \beta_6 PB + \epsilon$, where the dependent variable is CS (Customer satisfaction). The independent variables are C (Convenience), R (Reliability), E (Ease of use), S (Security), TS (Time saving) and PB (Perceived benefit).

Model	Intercept	Regression coefficients of						Adj. R _{bar} ²	SEE	F-value
		C	R	E	S	TS	PB			
1	0.276 (2.083)*	0.689 (12.781)**						0.577	0.351	163.35
2	0.793 (4.038)**		0.482 (5.882)**					0.220	0.477	34.590
3	1.044 (6.527)**			0.385 (5.686)**				0.208	0.481	32.328
4	0.546 (2.434)*				0.677 (6.240)**			0.242	0.471	38.934
5	0.717 (5.401)**					0.674 (9.435)**		0.425	0.410	89.016
6	0.838 (7.280)**						0.604 (9.890)**	0.449	0.401	97.951
7	0.93 (1.235)	0.652 (10.027)**	0.072 (0.993)					0.577	0.351	82.16
8	0.204 (1.305)	0.701 (9.391)**	0.108 (1.388)	0.091 (1.300)				0.579	0.350	55.66
9	0.192 (1.100)	0.670 (9.528)**	0.001 (0.011)	0.097 (1.473)	0.361 (4.130)**			0.631	0.328	51.798
10	0.17 (1.066)	0.586 (8.887)**	0.078 (1.085)	0.217 (3.379)**	0.168 (1.901)	0.371 (5.021)**		0.695	0.298	55.204
11	0.249 (1.624)	0.460 (6.340)**	0.120 (1.72)	0.170 (2.705)**	0.161 (1.910)	0.264 (3.439)**	0.213 (3.500)**	0.722	0.285	52.621

Notes:

- i. Figures in parenthesis are t-values
- ii. The asterisk signs (**) and (*) indicate that the results are significant at one percent and five percent level respectively.
- iii. Customer satisfaction is the dependent variable.

Table 3 shows that the beta coefficients for convenience are positive with customer satisfaction. It indicates that convenience has a positive impact on customer satisfaction. This finding is similar to the findings of Saccani *et al.* (2014). Similarly, the beta coefficients for reliability are positive with customer satisfaction. It indicates that reliability has a positive impact on customer satisfaction. This finding is consistent with the findings of Joseph *et al.* (1999). Likewise, the beta coefficients of ease of use are positive with customer satisfaction. It indicates that ease of use has positive impact on customer satisfaction. This finding is similar to the findings of Dixit and Datta (2010). Likewise, the beta coefficients for security are positive with customer satisfaction. It indicates that security has a positive impact on customer satisfaction. This finding is consistent with the findings of Ramos *et al.* (2018). Similarly, the beta coefficients for time saving are positive with customer satisfaction. It indicates that time saving has a positive impact on customer satisfaction. This finding is consistent with the findings of Shankar and Kumari (2016). Furthermore, the beta coefficients for perceived benefits are positive with customer satisfaction. It indicates that perceived benefit has positive impact on customer satisfaction. This finding is similar to the findings of Al Khasawneh (2015).

4. Summary and conclusion

Today business organizations are more customers-focused than ever before since customer satisfaction is a competitive advantage which is sustainable over the long term. The business organizations to create healthy customer relationships should always focus on listening to customers' expectations, requirements, complaints and needs. Making polite suggestions, delivering promises and taking extra effort such as building an efficient customer service team are the right practices to retain them for a long period. Satisfied customers mean a long-term profitable business since they stay loyal to the business.

This study attempts to analyse the impact of e-banking service factors on customer satisfaction of Nepalese commercial banks. The study is based on secondary data of 15 commercial banks with 120 observations.

The study showed that convenience, reliability, ease of use, security, time saving and perceived transaction benefits have positive impact on customer satisfaction. The study concluded that e-banking services play vital role in order to increase the level of satisfaction. The study also concluded that convenience followed by time saving are the most influencing factor that explains customer satisfaction towards e-banking services in Nepalese commercial banks.

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Impact of online banking on the profitability of Nepalese commercial banks

– Survi Pandey*

Abstract

This study examines the impact of online banking in profitability of Nepalese commercial banks. Return of assets and return of equity are the dependent variables. Likewise, the selected independent variables are ATM banking, point of sales banking, QR code, mobile banking, internet banking and credit card. The primary source of data is used to assess the opinions of the customers regarding online banking services. The study is based on both primary and secondary data with 163 respondents. To achieve the purpose of the study, structured questionnaire is prepared. The correlation coefficients and regression models are estimated to test the significance and importance of online banking on the profitability of Nepalese commercial banks.

The study showed that internet banking has a positive effect on return on assets and return on equity indicating that better the internet banking services, higher would be the return on assets and return on equity. Likewise, ATM banking has a positive effect on return on assets and return on equity indicating that better the ATM banking service, higher would be the return on assets and return on equity. Similarly, credit card has a positive impact on return on assets and return on equity. It means that better credit card services led to increase in return on assets and return on equity. The result also shows that mobile banking has a positive impact on return on assets and return on equity. It means that better mobile banking services leads to increase in return on assets and return on equity. Likewise, point of sale has a positive effect on return on assets and return on equity. It indicates that increase in point-of-sale service in retail stores leads to increase in return on assets and return on equity. In addition, QR code has a positive impact on return on assets and return on equity. It means that better QR code service leads to increase in return on assets and return on equity.

Key words: *Automated teller machine, point of sales, mobile banking, internet banking, quick response and credit card.*

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1. Introduction

The competition is fierce in the economy and particularly in banking sector. Banks will fully exploit all factors available to help banks gain market share and retain customers, which become increasingly hard in the digital age. Consumer is shifting from tradition channels to digital ones and the multichannel model now is the popular trend in the banking industry. As the earliest-adopted digital channel, internet banking is currently the feature can be expected to find at a commercial bank (Laven, 2014). Since it was implemented, customers were able to do their banking with the speed, convenience and control more than ever. As a result, banks enhance customer satisfaction and increase their user loyalty which is the ultimate goals of all banks in current situation. On the other side, internet banking is a service with great potential. It would become a decent source of profits for banks; reduce bank's operating expenses so ultimately enhance bank performance. To date, internet banking is not just an element to compete for market share but becomes an essential service to provide, if not banks would face the chance of losing their market share or bad effects to their brand (Colapinto, 2010).

The automation of banks makes transaction and data processing very easily accessible for quick management decision making. This led to another level of benefit which ushered in what is today referred to as electronic banking. Electronic banking helps the banks to speed up their retail and wholesale banking services. The banking industry believes that by adopting the new technology i.e., e-banking, the banks will be able to improve customer service level and tie their customers closer to the bank (Yang *et al.*, 2005). According to Simpson (2002), what actually motivates the investment in electronic banking is largely the prospects of minimizing operating costs and maximizing operating revenue. Nevertheless, the adoption of electronic banking (e-banking) has brought major challenges to the banking industry in terms of risk exposure. The volume of deposits has increased as well as the fraudulent practices experienced by banks since its adoption in the economy. Increased competition in the banking sector coupled with long queues in the banking hall has necessitated the introduction of internet banking among banks. As a result, internet banking has attracted a great deal of attention from both academicians and practitioners. Kwateng *et al.* (2019) examined the effect of internet banking on the performance of banking institutions in Ghana. The findings of the study indicated that the integration of internet banking into traditional banking methods has led to superior bank performance in Ghana. The study observed that while the independent application of internet banking as a strategy to raise performance was not yielding higher returns due to the low patronage of internet services among banking consumers, its integration with possible traditional methods is widely observed among the top performers in the banking industry. Abaenewe *et al.* (2013) investigated the profitability performance of Nigerian banks following the full adoption of electronic banking system. The study revealed that the adoption of electronic banking has positively and significantly improved the returns on equity (ROE) of Nigerian banks. On the other hand, the study also revealed that e-banking has not significantly improved the returns on assets (ROA) of Nigerian banks.

Electronic banking amplifies the scale of exposure of banks to traditional risks, such as transaction, strategic, reputation and compliance risk, among others. As information systems become more connected and interdependent, the risk of computer intrusion will increase. Banks with weak physical and system security substantially increase their exposure to a plethora of risks, many of which could lead to collapse. Potential consequences include direct currency loss, change reputation, improper disclosure, and law suits or regulatory sanction (Delgado *et al.*, 2007). Hernando and Nieto (2007) found that the impact of adopting internet on the performance of banks as a delivery channel of

e-banking takes time to appear. The study holds the view that the adoption of a transactional website has a positive impact on profitability which becomes significant in terms of ROA and ROE three years after adoption. This finding actually conveyed that there is a lag period for positive profitability impact to manifest on adoption of electronic banking. Obadia and Kumungunyi (2022) examined the influence of mobile banking on financial performance of listed Tier one commercial banks in Kenya. The study found that mobile banking has a negative but insignificant relationship with financial performance. The study also found that mobile banking security levels have a negative but insignificant relationship with the financial performance of commercial banks. In addition, Bochaberi and Job (2021) assessed the mobile banking and financial performance of selected commercial banks in Kenya. The study found that mobile banking influences the financial performance of the four commercial banks in Kenya. The study also found that mobile banking is reliable to customers, enables the bank to reach the most unbanked people, is safe and affordable, it is efficient and increases the number of transactions in commercial banks. The study also found that mobile banking security does not have significant impact on financial performance of commercial banks. Moreover, Biwott *et al.* (2019) analyzed the effect of mobile banking on financial performance of small scale and medium enterprises in Kakamega county. The study found that there was a negative relationship between cost of mobile banking services and financial performance. Furthermore, Mageto *et al.* (2017) examine effect of mobile banking on financial performance of commercial banks in Kisii Town, Kenya. The study found out that perceived cost, perceived access and perceived security of mobile payments technology have a significant influence on the financial performance of commercial banks.

The change of internet technology is profound, particularly in the global banking industry. Internet as a tool can cross the traditional boundaries to define customer, market, and product. Banks act vital roles in financial intermediation, because banks need to undertake the risk of finding ways to leverage customer deposits and banks' liabilities, and the internet has opened new ways of exerting this function. Jayawardhena and Foley (2000) claimed that internet delivery is cheaper than physical branches delivery. The cost saving arises through the combined effects of reduction and better utilisation of the workforce, equipment, space and operational savings. Similarly, Cheng *et al.* (2006) argued that banks can benefit from much lower operating costs by offering internet banking services, which requires less staff and fewer physical branches. Besides, Lassar *et al.* (2005) indicated that the bank can serve more clients, because it can provide the customers with a convenient and inexpensive access to almost any type of banking transactions at the click of mouse, except the withdrawal service for 24 hours a day and seven days a week.

Mobile Banking has changed the way banks performs their operation. This has led to the introduction of new banking services that are aimed at lowering transaction costs and reaching a larger number of bank customers (Anyasi and Otubu, 2009). The application of electronic banking services to banking operations has become a subject of fundamental importance and concerns to all banks operating within Nigeria and indeed a condition for local and global competitiveness (Akingbola, 2006). The use of e-banking can contribute to improved bank performance, in terms of increased market share, expanded product range, customized products and better response to client demand. E-banking can influence banks activities and their income structure. In recent years the use of electronic and internet banking is considered the most important aspect of electronic commerce environment (Wang *et al.*, 2003). Jayawardhena and Foley (2000) demonstrated that e-banking attracts new clients and retains existing clients with new products and services. In order to cater to different demographic segments, most banks use multiple distribution channels. This may be easier to sell financial services and secure a greater number of customers.

In the context of Nepal, Pathak *et al.* (2022) examined the impact of internet banking service quality

on customer satisfaction in Nepalese commercial banks. The study showed that speed of delivery, ease of use, reliability, privacy and security, enjoyment and control have positive impact on customer satisfaction in Nepalese commercial banks. The study concluded that internet banking service quality has a significant role in enhancing the level of customer satisfaction in Nepalese commercial banks. The study also concluded that reliability followed by speed of delivery is the most influencing factor that explains the change in the level of customer satisfaction in Nepalese commercial banks. According to Bhattarai (2022), ATM services is positively correlated to banking service. It means that increase in ATM services leads to increase in banking service in Kathmandu Valley. Similarly, the electronic banking is positively correlated to banking services. It indicates that increase electronic banking leads to increase in banking services in Kathmandu Valley. Similarly, Khatiwada (2022) examined the impact of e-banking service quality on customer satisfaction in Nepalese commercial banks. The study revealed that internet security and privacy, website design, responsiveness, system availability and reliability have positive impact on customer satisfaction. However, the most important factor influencing customer satisfaction in Nepalese commercial banks is internet security and privacy followed by responsiveness.

The above discussion shows that empirical evidences vary greatly across the studies on the impact of online banking on bank profitability. Though there are above mentioned empirical evidences in the context of other countries and in Nepal, no such findings using more recent data exist in the context of Nepal. Therefore, in order to support one view or the other, this study has been conducted.

The major purpose of the study is to analyze the impact of online banking on the bank profitability in the context of Nepalese commercial banks. Specifically, it examines the impact of mobile banking, internet banking, credit card, ATM banking, POS banking and QR code on return on assets and return on equity in the context of Nepalese commercial banks.

The remainder of this study is organized as follows. Section two describes the sample, data and methodology. Section three presents the empirical results and the final sections draws conclusion.

2. Methodological aspects

The study is based on both primary and secondary data. The primary data were collected from 163 respondents through questionnaire. The respondents' views were collected on mobile banking, internet banking, credit card, ATM banking, POS banking and QR code service. The study is based on descriptive and causal comparative research designs.

The model

The model estimated in this study assumes that return on assets and return on equity depends on mobile banking, internet banking, credit card, ATM banking, POS banking and QR code. Therefore, the models take the following forms:

$$ROA = \beta_0 + \beta_1 \text{ATM} + \beta_2 \text{MB} + \beta_3 \text{IB} + \beta_4 \text{QR} + \beta_5 \text{CC} + \beta_6 \text{POS} + e$$

$$ROE = \beta_0 + \beta_1 \text{ATM} + \beta_2 \text{MB} + \beta_3 \text{IB} + \beta_4 \text{QR} + \beta_5 \text{CC} + \beta_6 \text{POS} + e$$

Where,

ROA = Return on assets as measured by the ratio of net income to total assets, in percentage.

ROE = Return on equity as measured by the ratio of net income to shareholder's equity, in percentage.

- MB = Mobile banking
- IM = Internet banking
- CDC = Credit card
- ATM = ATM banking
- POS = Point of sales banking
- QR = QR code

Mobile banking was measured using a 5-point Likert scale where the respondents were asked to indicate the responses using 1 for strongly disagree and 5 for strongly agree. There are 5 items and sample items include “I believe mobile banking is faster than tradition payment”, “I believe transaction made through mobile banking is secure” and so on. The reliability of the items was measured by computing the Cronbach’s alpha ($\alpha = 0.714$).

Internet banking was measured using a 5-point Likert scale where the respondents were asked to indicate the responses using 1 for strongly disagree and 5 for strongly agree. There are 5 items and sample items include “I feel satisfied with internet banking”, “I believe internet banking service would improve efficiency of online transaction” and so on. The reliability of the items was measured by computing the Cronbach’s alpha ($\alpha = 0.790$).

Credit card measured using a 5-point Likert scale where the respondents were asked to indicate the responses using 1 for strongly disagree and 5 for strongly agree. There are 5 items and sample items include “I believe using Credit\ card services would make it easier for me to manage and make withdrawal”, “I do not have any intention to leave this Credit card services” and so on. The reliability of the items was measured by computing the Cronbach’s alpha ($\alpha = 0.762$).

ATM banking was measured using a 5-point Likert scale where the respondents were asked to indicate the responses using 1 for strongly disagree and 5 for strongly agree. There are 5 items and sample items include “The cost of making a financial faster with ATM banking is reasonable”, “I believe transactions done through ATM banking are more reliable” and so on. The reliability of the items was measured by computing the Cronbach’s alpha ($\alpha = 0.722$).

Point of sale (POS) was measured using a 5-point Likert scale where the respondents were asked to indicate the responses using 1 for strongly disagree and 5 for strongly agree. There are 5 items and sample items include “I believe POS banking service provider will not lend my information to third party”, “I believe POS banking service provider will assist me in case of any issue” and so on. The reliability of the items was measured by computing the Cronbach’s alpha ($\alpha = 0.778$).

QR code was measured using a 5-point Likert scale where the respondents were asked to indicate the responses using 1 for strongly disagree and 5 for strongly agree. There are 5 items and sample items include “Fees and charges of QR code are nominal”, “QR code is very useful among consumer at retail store” and so on. The reliability of the items was measured by computing the Cronbach’s alpha ($\alpha = 0.745$).

The following section describes the independent variables used in this study along with the hypothesis formulation.

ATM banking

Nwankwo and Agbo (2021) found that automated teller machine stimulates banking industry growth. Similarly, Frank (2019) revealed that there is a significant relationship between ATM and

profitability of Bank of Rwanda. The study identified that location, personal response, quality of currency notes, promptness of card delivery and performance of ATM were positively and significant of profitability of bank. Jegede (2014), found that automated teller machine in banking industry significantly influence economic growth, promote trading system, national income, and general welfare of the people. According to Joseph and Stone (2003) ATMs are set up to provide 24-hour services to bank customers those results in higher banking performances. Based on it, this study develops the following hypothesis:

H_1 : *There is a positive relationship between ATM banking and bank profitability.*

QR code

Chinwoke and Victor (2021) revealed that digital banking has positive but insignificant effect on the performance of commercial banks in Nigeria. Moreover, Dwivedi (2021) found that the number of branches could have a positive impact on operational efficiency by increasing customer service through QR code. Furthermore, Madzimure (2019) assessed the influence of strategic networks and logistics integration on firm performance among small and medium enterprises. The study showed that effective use of QR code helps to improve the firm performance. Based on it, this study develops the following hypothesis:

H_2 : *There is a positive relationship between QR code and bank profitability.*

Mobile banking

Oliveira *et al.* (2014) found that facilitating conditions and behavioural intentions directly influence mobile banking adoption. The study found that there is a positive and significant relationship between the application of telephone banking, mobile banking and profitability. Similarly, Said and Kaplelach (2019) concluded that m-banking charges, m-banking products, m-banking costs and m-banking efficiency positively influences the financial performance of selected commercial banks in Kenya. In addition, perceived cost, perceived access and perceived security of mobile payments technology have a significant influence on the financial performance of commercial banks (Mahboub, 2018). Based on it, this study develops the following hypothesis:

H_3 : *There is a positive relationship between mobile banking and bank profitability.*

Internet banking

Oyewole *et al.* (2013) suggested that internet banking has a positive effect on the performance of the banking system in Turkey in terms of returns to equity. The study revealed that interest adoption improved community banks profitability, particularly through increased revenues from deposit service charges. Abdullai and Michemi (2018) stated that internet banking has a positive significant effect on operational performance of the commercial banks. Likewise, Kassim *et al.* (2006) found that there is significant positive effect of internet banking on user acceptance and bank profitability. Based on it, this study develops the following hypothesis:

H_4 : *There is a positive relationship between internet banking and bank profitability.*

POS banking

According to Boateng *et al.* (2020), POS transactions are positively related to ROE of banking industries. Similarly, Kamboh and Leghari (2016) confirmed that number of terminal branches,

ATMs, POSs, market concentration and bank size have positive effect on bank's profitability. Increase in e-banking channels increases the bank services to the customers, which lead towards increase in deposit and ultimately bank's profitability. Demaki *et al.* (2021) found that POS banking has a positive relationship with the profitability of the banks. Similarly, POS banking has a significant positive association with the profitability of the banks (Nwakoby *et al.*, 2020). Based on it, this study develops the following hypothesis:

H_5 : *There is a positive relationship between POS banking and bank profitability.*

Credit card

A credit card is a type of credit facility, provided by banks that allow customers to borrow funds within a pre-approved credit limit. It enables customers to make purchase transactions on goods and services. Okoro (2014) concluded credit card is enhancing profitability and financial positions of banks. Similarly, Montgomerie (2006) revealed the rapid expansion and growing profitability of the US banks through the credit card services. Likewise, Oyemakara (2020) disclosed that credit card enables bank customers to process financial transaction at any point in time without having the need to visit the banking hall. Similarly, Farouk *et al.* (2013) claimed that e banking has led to increase customer satisfaction, improved operational efficiency reduced transaction time, better competitive edge, reduced running cost and ushered in swift response in service delivery through credit card services. Based on it, this study develops the following hypothesis:

H_6 : *There is a positive relationship between credit card and bank profitability.*

3. Results and discussion

Correlation analysis

On analysis of data, correlation analysis has been undertaken first and for this purpose, Kendall's Tau correlation coefficients along with means and standard deviations have been computed and the results are presented in Table 1.

Table 1: Kendall's Tau correlation coefficients matrix

This table presents Kendall's Tau correlation coefficients between dependent variable and independent variables. The correlation coefficients are based on 163 observations. The dependent variables are ROA (Return on assets as measured by the ratio of net income to total assets, in percentage) and ROE (Return on equity as measured by the ratio of net income to shareholder's equity, in percentage). The independent variables are MB (Mobile banking), IB (Internet banking), CC (Credit cards), ATM (ATM banking), POS (Point of sales) and QR (QR code).

Variables	Mean	S. D.	ROA	ROE	ATM	POS	QR	IB	MB	CC
ROA	1.219	0.429	1							
ROE	12.598	3.748	0.52	1						
ATM	3.728	0.346	0.246	0.079	1					
POS	3.704	0.343	0.299	0.266	0.325**	1				
QR	3.724	0.321	0.093	0.332	0.229**	0.216**	1			
IB	3.754	0.345	0.358**	0.238**	0.364**	0.414**	0.196	1		

MB	3.692	0.443	0.041	0.432	0.274**	0.326**	0.196**	0.305	1	
CC	3.736	0.331	0.146	0.146	0.257**	0.311**	0.353**	0.305**	0.353**	1

*Notes: The asterisk signs (**) and (*) indicate that the results are significant at one percent and five percent level respectively.*

Table 2 shows that internet banking is positively related to return on assets indicating that better the internet banking services, higher would be the return on assets. Likewise, ATM banking is positively correlated to return on assets indicating that better the ATM banking service, higher would be the return on assets. Similarly, credit card is positively related to return on assets. It means that better credit card services led to increase in return on assets. The result also shows that mobile banking is positively related to return on assets. It means that better mobile banking services leads to increase in return on assets. Likewise, point of sale is positively correlated to return on assets. It indicates that increase in point-of-sale service in retail stores leads to increase in return on assets. In addition, QR code has a positive relationship with return on assets. It means that better QR code service leads to increase in return on assets.

The result also shows that internet banking is positively related to return on equity indicating that better the internet banking services, higher would be the return on equity. Likewise, ATM banking is positively correlated to return on equity indicating that better the ATM banking service, higher would be the return on equity. Similarly, credit card is positively related to return on equity. It means that better credit card services led to increase in return on equity. The result also shows that mobile banking is positively related to return on equity. It means that better mobile banking services leads to increase in return on equity. Likewise, point of sale is positively correlated to return on equity. It indicates that increase in point-of-sale service in retail stores leads to increase in return on equity. In addition, QR code has a positive relationship with return on equity. It means that better QR code service leads to increase in return on equity.

Regression analysis

Having indicated the Kendall's Tau correlation coefficients, the regression analysis has been carried out and the results are presented in Table 2. More specifically, it shows the regression results of mobile banking, internet banking, credit card banking, ATM banking, POS banking, and QR code on return on assets of Nepalese commercial banks.

Table 2: Estimated regression results of mobile banking, internet banking, credit card banking, ATM banking, POS banking, and QR code on return on assets

The results are based on 163 observations using linear regression model. The model is $ROA = \beta_0 + \beta_1 MB + \beta_2 IB + \beta_3 CC + \beta_4 ATM + \beta_5 POS + \beta_6 QR + e$, where the dependent variable is ROA (Return on assets as measured by the ratio of net income to total assets, in percentage). The independent variables are MB (Mobile banking), IB (Internet banking), CC (Credit cards), ATM (ATM banking), POS (Point of sales) and QR (QR code).

Model	Intercept	Regression coefficients of						Adj. R _{bar} ²	SEE	F-value
		MB	IB	CC	ATM	POS	QR			
1	0.773 (2.722)**	0.197 (2.890)**						0.050	0.527	8.352
2	1.780 (38.463)**		0.135 (7.662)**					0.293	0.455	58.709
3	0.178 (0.582)			0.457 (4.654)**				0.129	0.504	21.65
4	1.655 (17.243)**				0.006 (0.856)			0.002	0.541	0.733
5	1.446 (15.649)**					0.030 (1.699)		0.013	0.537	2.886
6	1.905 (13.037)**						0.049 (2.320)*	0.031	0.532	5.384
7	0.903 (3.858)*	0.214 (3.814)*	0.138 (8.167)**					0.357	0.433	39.510
8	-0.208 (0.711)	0.164 (3.166)*	0.139 (9.092)**	0.429 (5.518)**				0.470	0.393	42.149
9	0.140 (0.4510)	0.157 (2.963)*	0.139 (9.084)**	0.430 (5.516)**	0.003 (0.658)			0.468	0.394	31.588
10	0.179 (0.577)	0.171 (3.195)**	0.140 (9.159)**	0.393 (4.828)**	0.003 (0.637)	0.020 (1.474)		0.473	0.392	25.925
11	0.253 (0.639)	0.174 (3.184)**	0.141 (8.856)**	0.391 (4.748)**	0.003 (0.581)	0.025 (1.209)	0.007 (0.302)	0.469	0.394	21.473

Notes:

- i. Figures in parenthesis are t-values
- ii. The asterisk signs (**) and (*) indicate that the results are significant at one percent and five percent level respectively.
- iii. Dependent variable is return on assets.

Table 2 shows that the beta coefficients for ATM banking are positive with return on assets. It indicates that ATM banking has a positive impact on return on assets. This finding is consistent with the findings of Nwankwo and Agbo (2021). Likewise, the beta coefficients for POS banking are positive with return on assets. It indicates that POS banking has a positive impact on return on assets. This finding is similar to the findings of Demaki *et al.* (2021). Likewise, the beta coefficients for mobile banking are positive with return on assets. It indicates that mobile banking has a positive impact on return on assets. The finding is similar to the findings of Said and Kaplelach (2019). Similarly, the beta coefficients for credit card banking are positive with return on assets. It indicates that credit card banking has a positive impact on return on assets. This finding is consistent with the findings of Montgomerie (2006). Furthermore, the beta coefficients for internet banking are positive with return on assets. It indicates that internet banking has a positive impact on return on assets. This finding is consistent with the findings of Abdullai and Michemi (2018).

The regression results of mobile banking, internet banking, credit card banking, ATM banking, POS banking, and QR code on return on equity of Nepalese commercial banks have been presented in Table 3.

Table 3: Estimated regression results of mobile banking, internet banking, credit card banking, ATM banking, POS banking, and QR code on return on equity

The results are based on 163 observations using linear regression model. The model is $ROE = \beta_0 + \beta_1 MB + \beta_2 IB + \beta_3 CC + \beta_4 ATM + \beta_5 POS + \beta_6 QR + e$, where the dependent variable is ROE (Return on equity as measured by the ratio of net income to shareholder's equity, in percentage). The independent variables are MB (Mobile banking), IB (Internet banking), CC (Credit cards), ATM (ATM banking), POS (Point of sales) and QR (QR code).

Model	Intercept	Regression coefficients of						Adj. R_bar ²	SEE	F-value
		MB	IB	CC	ATM	POS	QR			
1	0.411 (2.718)*	0.571 (17.875)**						0.678	0.651	319.518
2	0.500 (3.418)**		0.500 (16.900)**					0.679	0.651	320.408
3	0.597 (3.767)**			0.452 (15.853)**				0.624	0.704	251.325
4	0.427 (2.680)*				0.493 (16.825)**			0.651	0.678	283.079
5	0.786 (4.644)**					0.444 (13.684)**		0.552	0.768	187.256
6	2.558 (10.177)**						0.283 (3.763)**	0.336	0.494	14.165
7	1.267 (2.464)*	0.556 (3.213)**	0.026 (0.119)					0.547	0.408	0.706
8	1.278 (3.927)**			0.417 (2.239)*	0.143 (0.919)			0.641	0.368	24.211
9	2.173 (7.977)**					0.314 (2.561)*	0.067 (0.619)	0.457	0.447	11.936
10	0.889 (1.875)	0.115 (0.518)	0.107 (0.54)	0.417 (2.768)**				0.646	0.361	16.783
11	0.907 (5.508)**				0.402 (10.668)**	0.19 (3.609)**	0.119 (2.615)**	0.705	0.187	83.391
12	0.197 (2.246)*	0.18 (4.811)**	0.137 (3.879)**	0.067 (1.742)	0.177 (6.459)**	0.156 (9.127)**	0.151 (10.226)**	0.799	0.059	145.560

Notes:

- i. Figures in parenthesis are t-values
- ii. The asterisk signs (**) and (*) indicate that the results are significant at one percent and five percent level respectively.
- iii. Dependent variable is return on equity.

Table 3 shows that the beta coefficients for ATM banking are positive with return on equity. It indicates that ATM banking has a positive impact on return on equity. This finding is consistent with the findings of Jayawardhena and Foley (2000). Likewise, the beta coefficients for POS banking are positive with return on equity. It indicates that POS banking has a positive impact on return on equity. This finding is similar to the findings of Anyasi and Otubu. (2009). Likewise, the beta coefficients for mobile banking are positive with return on equity. It indicates that mobile banking

has a positive impact on return on equity. The finding is similar to the findings of Mahboub (2018). Similarly, the beta coefficients for credit card banking are positive with return on equity. It indicates that credit card banking has a positive impact on return on equity. This finding is consistent with the findings of Oyemakara (2020). Furthermore, the beta coefficients for internet banking are positive with return on equity. It indicates that internet banking has a positive impact on return on equity. This finding is consistent with the findings of Montgomerie (2006).

4. Summary and conclusion

Banks have radically shifted from traditional banking to branchless mode of banking. Adoption of latest technology has enabled banks to extend their customer base, where mobile banking has proved to be the chief advancement. Mobile banking can be categorized as the latest advancement in electronic banking, which has widened customers' access to bank accounts through wireless channels. Banking industry is driven by the technological innovation, market uncertainty and competition. There has been a rapid shift from traditional banking to electronic banking. Competitive banks make significant investments in adopting new technology to align business strategies, enable innovative functional operations and provide extended customer services.

This study attempts to examine the effects of online banking on the performance of Nepalese commercial banks. The study is based on both primary and secondary data with 163 observations.

The study showed that mobile banking, internet banking, credit card, ATM banking, POS banking and QR code banking have positive impact on return on assets of Nepalese commercial banks. Similarly, mobile banking, internet banking, credit card, ATM banking, POS banking and QR code banking have positive impact on return on equity of Nepalese commercial banks. The study concluded that financial innovation and online banking in the banking sector leads to increase in the level of financial performance. The study also concluded that mobile banking is the most influencing factor that explains the changes in return on equity of Nepalese commercial banks.

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Impact of microfinance program on socio economic empowerment of women in Nepal

– Ram Krishna Joshi*

Abstract

This study examines the impact of microfinance program on socio economic empowerment of women in Nepal. Self-confidence, decision making ability, and financial independency are the dependent variables. The selected independent variables are leadership skills, self-efficacy, entrepreneurial skills, access to resources and insurance services. The primary source of data is used to assess the opinions of the respondents regarding the microfinance program on socio economic empowerment of women in Nepal. The study is based on primary of 23 micro-finance institutions with 154 respondents. To achieve the purpose of the study, structured questionnaire is prepared. The correlation coefficients and regression models are estimated to test the significance and importance of impact of microfinance programs on socio-economic empowerment of women in Nepal.

The study showed that leadership skill has a positive impact on self-confidence, decision making ability and financial independency. It means that increase in leadership skills leads to increase in self-confidence, decision making ability and financial independency. Likewise, self-efficacy has a positive impact on self-confidence, decision making ability and financial independency. It reveals that higher the self-efficacy, higher would be the self-confidence, decision making ability and financial independency. The study also revealed that entrepreneurial skill has a positive impact on self-confidence, decision making ability and financial independency which indicates that increase in entrepreneurial skills leads to increase in self-confidence, decision making ability and financial independency. Moreover, access to resources has a positive impact on self-confidence indicating that increase in access to resources leads to increase in level of self-confidence, decision making ability and financial independency. The result also showed that there is a positive impact of insurance services on self-confidence, decision making ability and financial independency. It reveals that better insurance services lead to increase in self-confidence, decision making ability and financial independency.

Key words: *Self-confidence, decision making ability, financial independency, leadership skills, self-efficacy, entrepreneurial skills and insurance services.*

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1. Introduction

Empowerment is a process of changing the power potential within an individual first and consequently a change of relationships at different groups and societal levels. Microfinance institutions offer financial services to undeserved, impoverished communities and these services include savings accounts, insurance, health care and personal development. Nowadays, microfinance has been strongly recommended as an intervention that could assist poor people to improve their quality of life by providing small amounts of money to initiate development enterprises. Microfinance has been applied as a poverty eradication strategy (Appah *et al.*, 2012). It has been used to provide low-income people with small grants, micro-credits and other microfinance services as an impetus to exploit their productivity and develop their business to help them improve their livelihoods. The empowerment, in terms of economic empowerment, increases well-being, social and political empowerment (Mudaliar and Mathur, 2015). Mayoux (2000) defined micro-finance as an important and powerful tool for gradual reduction of poverty. It helps to uplift the poor women, make them independent and make them feel that they can also do something for their family and the community besides their household work. Micro-finance enables and encourages poor people to take advantages of the existing opportunities by providing them affordable and appropriate financial services.

Women's empowerment is a process of transforming gender relations through groups or individuals by developing awareness of women's subordination and building the capacity to challenge it. The empowerment of women is an essential precondition for the alleviation of poverty and the upholding of human rights, in particular at the individual level, as it helps to build a base for social change (Sultana and Hasan, 2010). Women's limited access to markets, economic services, education, health care and politics leads to a lower wellbeing of the family that retards the developmental goals of the state and traumatize women (Parveen and Chaudhury, 2009). Ondoro and Omena (2012) argued that microfinance is the provision of financial services, either credit or savings, to a number of micro, small and medium entrepreneurs in a cost effective and sustainable manner. Microfinance is a powerful tool to self-empower the poor people especially women globally and particularly in developing countries. Reyes and Fattori (2019) asserted that microfinance is the practice of providing financial services such as micro credit, micro saving or micro insurance to poor or disadvantage individual by helping them to accumulate large sums of money thereby expanding their choice and reduce risk.

According to Omunjalu and Fondo (2014), empowering women is viewed as a vital tool for alleviating poverty. Mudaliar and Mathur (2015) analyzed the relationship between entrepreneurial skills and women empowerment. The study showed that entrepreneurship skills have a positive relationship with women empowerment. Similarly, Kodamarty and Srinivasan (2016) analyzed the relationship between microfinance and women empowerment in Gandhinagar district of Gujarat. The results showed that participation in microfinance activity improves the social status and empower the women. In addition, Rathirane and Semasinghe (2017) examined the relationship between microfinance and women empowerment in Sri Lanka. The study showed that except for savings, other variables such as credit, education and training significantly and positively affect empowerment of women entrepreneurs. The study concluded that there is a positive relationship between micro finance intervention and empowerment of women entrepreneurs. Moreover, the other factors such as self-confidence, attitude change of clients, monitoring and guiding activities, and cultural norms also have an impact on women empowerment. Addai (2017) stated that an increasing access to microfinance is more likely to lead to increased empowerment of women.

Karwati *et al.* (2018) examined the relationship between entrepreneurial skills and women empowerment in Indonesia. The findings showed that the implementation of entrepreneurial activities

as an effort to empower women can improve the level of better family economy. The results of the study concluded that empowerment and women entrepreneurship are very effective to improve self-reliance. Niaz and Iqbal (2019) examined the effect of microfinance in women empowerment in Pakistan. The results showed that exposure to microfinance has a positive impact on women empowerment, poverty alleviation and social status of women by raising their income level. The study concluded that microfinance and MFIs are considered to be an effective mechanism for attaining the sustainable development goals in Pakistan. Rahman *et al.* (2017) analyzed the relationship between microfinance and women empowerment. The results from the logistic regression indicated that microfinance has actually increased women's empowerment in Bangladesh. In contrast, Juliet and Pauline (2017) examined the relationship between the microfinance and women empowerment in Enugu State. The results showed that the women fund for economic empowerment has not made significant impact on women socio-economic development. Raphael and Mrema (2017) analyzed the role of microfinance on women empowerment. The study revealed that both microfinance services contribute 71.4 percent on women empowerment. The study showed that there is a positive relationship between women empowerment and the role of microfinance services as well as entrepreneur skills.

Khan and Noreen (2012) investigated the relationship between microfinance and women empowerment in Bahawalpur district of Pakistan. The study found that access to credit through microfinance organizations has a positive impact on social empowerment of women. Addai (2017) assessed the women empowerment through microfinance. The study found that an increasing access to microfinance is more likely to lead to higher probability of economic empowerment of women. Bhatt and Shastri (2018) analyzed the impact of microfinance on women empowerment among women of rural Gujarat. The study stated that if women have autonomy to use the loan amount, it will support empowerment of the women. Al-Mamun *et al.* (2014) investigated the impact of microcredit on women empowerment in urban peninsular Malaysia. The study found that participation in Amanah Ikhtiar Malaysia's (AIM) microcredit program generated a positive and significant impact on women's empowerment. Herath *et al.* (2015) examined the impact of microfinance on women's empowerment on two microfinance institutions in Sri Lanka. The study found that if the woman owned the loan and acted as a conduit of credit, it has a positive and significant impact on her ability to make decisions at home. Sharma (2006) observed that micro-finance has the potential to have a powerful impact on poverty reduction and women's empowerment.

In the context of Nepal, Dhakal (2007) assessed the microfinance services and its socio-economic impact on rural women. The study concluded that involvement in the micro-finance programs have empowered women. Involvement in the micro-finance programs offered opportunities for poor women to come out of their household confines, to organize themselves in group and to work in productive and social activities. Sharma (2007) analyzed the relationship between micro finance and women empowerment. The study concluded that the microfinance industry promotes the dual objectives of sustainability of services and outreach to the women and poor. Adhikari and Shrestha (2013) revealed that economic status of women has risen due to income generating activities and were socially empowered due to group solidarity created by microfinance program. Gnawali (2018) assessed the impact of microfinance institutions in women economic empowerment of Butwal Sub-Municipality. The study showed a significant and positive correlation of capacity building and insurance facilities with women empowerment.

The above discussion reveals that the empirical evidences vary greatly across the studies concerning the impact of microfinance program on socio economic empowerment of women. Though there are above mentioned empirical evidences in the context of other countries and in Nepal, no such findings using more recent data exist in the context of Nepal. Therefore, in order to support one view or the other, this study has been conducted.

The main purpose of the study is to analyze the impact of microfinance program on socio economic empowerment of women in Nepal. Specifically, it examines the impact of leadership skills, self-efficacy, entrepreneurial skills, access to resources and insurance services on self-confidence, decision making ability and financial independency of women.

The remainder of this study is organized as follows. Section two describes the sample, data and methodology. Section three presents the empirical results and the final section draws the conclusion.

2. Methodological aspects

The study is based on the primary data. The data were gathered from 154 respondents through questionnaire. The respondents' views were collected on leadership skills, self-efficacy, entrepreneurial skills, access to resources, insurance services, self-confidence, decision making ability and financial independency. The study is based on descriptive and causal comparative research designs. Table 1 shows the list of the MFIs selected for study along with the number of respondents.

Table 1: List of MFIs selected for the study along with number of observations

S.N.	Name of micro finance institutions	Number of respondents
1	Chhimek Laghibitta Bittiya Sanstha Limited	7
2	Civil Laghibitta Bittiya Sanstha Limited	7
3	First Microfinance Development Bank Limited	4
4	Ghodighoda Laghibitta Bittiya Sanstha Limited	6
5	Kishan Microfinance Laghibitta Bittiya Sanstha Limited	3
6	Laxmi Microfinance Bittiya Sanstha Limited	7
7	Mero Microfinance Laghibitta Bittiya Sanstha Limited	8
8	Nerude Laghibitta Bittiya Sanstha Limited	5
9	Nirdhan Utthan Laghibitta Bittiya Sanstha Limited	4
10	Rama Roshan Microfinance Laghibitta Bittiya Sanstha Limited	4
11	RMDC Laghibitta Bittiya Sanstha Limited	8
12	Sana Kishan Laghibitta Bittiya Sanstha Limited	8
13	Summit Microfinance Development Bank Limited	3
14	Swabalamban Laghubitta Bikash Bank	10
15	Trilok Laghibitta Bittiya Sanstha Limited	4
16	FORWARD Community Laghubitta Bittiya Sanstha Limited	8
17	NMB Laghubitta Bittiya Sanstha Limited	5
18	Mirmire Laghubitta Bittiya Sanstha Limited	7
19	Sajilo Laghubitta Bittiya Sanstha Limited	11
20	Mahila Samudayak Laghubitta Bittiya Sanstha Limited	9
21	Ganapati Laghubitta Bittiya Sanstha Limited	9
22	Grameen Bikas Laghubitta Bittiya Sanstha Limited	7
23	Unique Nepal Laghubitta Bittiya Sanstha Limited	8
Total number of observations		154

Thus, the study is based on 154 observations.

The model

The model estimated in this study assumes that socio economic empowerment of women depends on leadership skills, self-efficacy, entrepreneurial skills, access to resources and insurance services. Therefore, the model takes the following form:

$$SC = \beta_0 + \beta_1 LS + \beta_2 SE + \beta_3 ES + \beta_4 AR + \beta_5 IS + \varepsilon$$

$$DMA = \beta_0 + \beta_1 LS + \beta_2 SE + \beta_3 ES + \beta_4 AR + \beta_5 IS + \varepsilon$$

$$FIN = \beta_0 + \beta_1 LS + \beta_2 SE + \beta_3 ES + \beta_4 AR + \beta_5 IS + \varepsilon$$

Where,

SC = Self-confidence

DM = Decision making ability

FIN = Financial independency

LS = Leadership skills

SE = Self-efficacy

ES = Entrepreneurial skills

AR = Access to resources

IS = Insurance services

Leadership skills was measured using a 5-point Likert scale where the respondents were asked to indicate the responses using 1 for strongly disagree and 5 for strongly agree. There are 5 items and sample items include “I have ability to make decisions on my own without consulting others”, “I am capable of driving creativity and productivity while also improving the bottom line of business” and so on. The reliability of the items was measured by computing the Cronbach’s alpha ($\alpha = 0.859$).

Self-efficacy was measured using a 5-point Likert scale where the respondents were asked to indicate the responses using 1 for strongly disagree and 5 for strongly agree. There are 5 items and sample items include “I have the ability to perform a particular activity”, “I can support my sisters or friends morally if they decide to face a family legal action” and so on. The reliability of the items was measured by computing the Cronbach’s alpha ($\alpha = 0.824$).

Entrepreneurial skill was measured using a 5-point Likert scale where the respondents were asked to indicate the responses using 1 for strongly disagree and 5 for strongly agree. There are 5 items and sample items include “I have keen interest in trying or exploring new things to find what works best”, “I have the courage to act on my ideas and plan” and so on. The reliability of the items was measured by computing the Cronbach’s alpha ($\alpha = 0.842$).

Access to resources was measured using a 5-point Likert scale where the respondents were asked to indicate the responses using 1 for strongly disagree and 5 for strongly agree. There are 5 items and sample items include “I have ability to obtain credit at reasonable rates from traditional sources (collateral)”, “I have ability to put inputs that are used to create things or help me provide services” and so on. The reliability of the items was measured by computing the Cronbach’s alpha ($\alpha = 0.796$).

Insurance services was measured using a 5-point Likert scale where the respondents were asked to indicate the responses using 1 for strongly disagree and 5 for strongly agree. There are 5 items and sample items include “I have had my business insurance”, “Insurance company provides better option for business losses” and so on. The reliability of the items was measured by computing the Cronbach’s alpha ($\alpha = 0.811$).

Self-confidence was measured using a 5-point Likert scale where the respondents were asked to indicate the responses using 1 for strongly disagree and 5 for strongly agree. There are 5 items and sample items include “I feel that I have a number of good qualities”, “I feel I do not have much to be proud of” and so on. The reliability of the items was measured by computing the Cronbach’s alpha ($\alpha = 0.871$).

Decision making ability was measured using a 5-point Likert scale where the respondents were asked to indicate the responses using 1 for strongly disagree and 5 for strongly agree. There are 5 items and sample items include “I can make decision regarding health of family members”, “I can make decision regarding business/source of income” and so on. The reliability of the items was measured by computing the Cronbach’s alpha ($\alpha = 0.860$).

Financial independency was measured using a 5-point Likert scale where the respondents were asked to indicate the responses using 1 for strongly disagree and 5 for strongly agree. There are 5 items and sample items include “I am able to earn income for my family”, “I am involve to promote economic activities” and so on. The reliability of the items was measured by computing the Cronbach’s alpha ($\alpha = 0.814$).

The following section describes the independent variables used in this study along with the hypothesis formulation.

Leadership skills

Leadership skill refers to different types of leadership skill women possess. Yousaf *et al.* (2021) showed that leadership skills improved women empowerment and enhanced gender equality. Likewise, Iskanto *et al.* (2021) found that there is a positive and significant influence of leadership skill on women performance. Leadership skills are the strengths and abilities individuals demonstrate that help the oversee processes, guide initiatives and steer their employees toward the achievement of goals. Leadership skill affect the quality of work life of women and effective leadership skills helps to increase women empowerment (Nanjundeswaraswamy *et al.*, 2020). Furthermore, Mehta and Sharma (2014) revealed that leadership skill has a positive relationship with women empowerment. Based on it, this study develops the following hypothesis:

H_1 : *There is a positive relationship between leadership skill and women empowerment.*

Self-efficacy

Empowerment is about self-actualization and competence. Rawlett (2014) showed that self-efficacy has a positive impact on empowerment. Similarly, Postmus *et al.* (2013) found positive and significant relationship of financial literacy with economic empowerment, economic self-efficacy and economic self-sufficiency. The results also indicated that financial literacy, race, and economic self-efficacy are significant predictors of economic empowerment. Likewise, Al-Qahtani *et al.* (2021) showed that the respondent who has high self-efficacy were highly empowered. Furthermore, Veisi *et al.* (2015) indicated a significant positive correlation between women empowerment and women self-efficacy. Based on it, this study develops the following hypothesis:

H_2 : *There is a positively relationship between self-efficacy and women empowerment.*

Entrepreneurial skills

Paramanandam and Packirisamy (2015) revealed that entrepreneurial skills play significant role to empower women in marketing and production, which are keys to success and for becoming self-reliant. Similarly, Al-Dajani and Marlow (2013) revealed that marginalized subordinated women were empowered through their home-based enterprises. The result showed that entrepreneurial skill has positive impact on women empowerment. In addition, Kratzer and Kato (2013) revealed that the women who involved in MFIs has more entrepreneurial skills compared to non-members of MFIs. Based on it, this study develops the following hypothesis:

H_3 : *There is a positive relationship between entrepreneurial skills and women empowerment.*

Access to resources

According to Goetz and Gupta (1996), effect of microfinance services is higher when women actually control the resources acquired in their names. Increased control is likely to contribute to women's empowerment, facilitate women's entrepreneurship, assist women in their reproductive tasks and ease their repayment burden. Hashemi *et al.* (1996) revealed that ability of women maintains control over credit they receive and income accruing from it. Kabeer (2005) revealed that access to financial resources make positive contribution to the economic productivity and social well-being of poor women and their households. Sinha and Matin (1998) found that access to financial services and the resultant transfer of financial resources to poor women over time have led to women becoming more confident and empowered. Khandker (2005) revealed that women's access to credit and their contribution to family expenses are both seen to be necessary, but not sufficient, for achieving empowerment. Access to finance enables poor women to become economic agents of change by increasing their income and productivity, access to markets and information, and decision-making power (Sharma and Kota, 2019). Based on it, this study develops the following hypothesis:

H_4 : *There is a positive relationship between access to resources and women empowerment.*

Insurance services

According to Ledgerwood and White (2006), micro financial institutions offer financial services along with other support services like insurance, training, education etc. The study concluded that these services have significant and positive impact on empowerment the poor people. Shaheen *et al.* (2018) examined the role of microfinance in economic empowerment of women in Lahore, Pakistan. The study found that financing services and insurance services have a positive impact on economic empowerment of women. Moreover, Fwamba *et al.* (2015) investigated the impact of microfinance institutions on economic empowerment of women entrepreneurs in developing countries. The result showed that microfinance services act as a key fulcrum to women entrepreneurs' economic empowerment. The study also showed that services like finance and insurance have a positive impact on women entrepreneurs' economic empowerment. Furthermore, there are services like advisory, insurance, savings, asset financing that women entrepreneurs can be given by the MFIs to help them achieve economic empowerment (Gupta *et al.*, 2013). Based on it, this study develops the following hypothesis:

H_5 : *There is a positive relationship between insurance services and women empowerment.*

3. Results and discussion

Correlation analysis

On analysis of data, correlation analysis has been undertaken first and for this purpose, Kendall's Tau correlation coefficients along with means and standard deviations have been computed, and the results are presented in Table 2.

Table 2: Kendall's correlation coefficients matrix

This table presents Kendall's Tau correlation coefficients between dependent and independent variables. The correlation coefficients are based on 154 observations. The dependent variables are SC (Self-confidence), DM (Decision making ability) and FIN (Financial independency). The independent variables are LS (Leadership quality), SE (Self efficacy), ES (Entrepreneurial skills), AR (Access to resources), and IS (Insurance services).

Variable	Mean	SD	SC	DMA	FIN	LS	SE	ES	AR	IS
SC	3.720	0.684	1							
DMA	3.770	0.663	0.452**	1						
FIN	3.600	0.728	0.244**	0.364**	1					
LS	3.723	0.704	0.284**	0.463**	0.328**	1				
SE	3.613	0.699	0.489**	0.533**	0.436**	0.209**	1			
ES	3.571	0.719	0.331**	0.520**	0.457**	0.472**	0.409**	1		
AR	3.685	0.687	0.479**	0.476**	0.551**	0.330**	0.297**	0.393**	1	
IS	3.784	0.652	0.472**	0.521**	0.406**	0.468**	0.476**	0.330**	0.400**	1

*Notes: The asterisk signs (**) and (*) indicate that the results are significant at one percent and five percent level respectively.*

The study reveals that there is a positive relationship between leadership skill and self-confidence. It means that increase in leadership skills leads to increase in self-confidence. Likewise, self-efficacy is positively related to self-confidence. It reveals that higher the self-efficacy, higher would be the self-confidence. The study also reveals that entrepreneurial skill has a positive relationship with self-confidence which indicates that increase in entrepreneurial skills leads to increase in self-confidence. Moreover, access to resources is positively correlated to self-confidence indicating that increase in access to resources leads to increase in level of self-confidence. The result also shows that there is a positive relationship between insurance services and self-confidence. This reveals that better insurance services led to increase in self-confidence.

Likewise, leadership skill is positively correlated to decision making ability. It indicates that increase in leadership skill leads to increase in better decision-making ability. Further, self-efficacy is positively correlated to decision making ability indicating that higher the self-efficacy, better would be decision making ability. The result also shows that entrepreneurial skill is positively correlated to decision making ability. It implies that increase in entrepreneurial skill leads to better decision-making ability. Similarly, access to resources is positively correlated to decision making ability that means higher the access to resources, better would be the decision making ability. The study also reveals that insurance services is positively correlated to decision making ability. It reveals that better insurance services leads to increase in better decision-making ability.

The result shows that leadership skills have a positive relationship with financial independency. It indicates that better the leadership skills, higher would be the financial independency. Similarly, self-

efficacy is positively correlated to financial independency. It indicates that increase in self-efficacy leads to increase in financial independency. Similarly, access to resources has a positive relationship with financial independency. It indicates that increase in access to resources leads to increase in financial independency. The result also shows that entrepreneurial skill has a positive relationship with financial independency. It indicates that increase in entrepreneurial skills leads to increase in financial independency of women. In addition, insurance services is positively correlated to financial independency. This reveals that better insurance services leads to increase in financial independency.

Regression analysis

Having analyzed the Kendall's Tau correlation coefficients matrix, the regression analysis has been carried out and the results are presented in Table 3. More specifically, it presents the regression results of leadership skills, self-efficacy, entrepreneurial skills, access to resources and insurance service on self-confidence of women in Nepal.

Table 3: Estimated regression results of leadership skills, self-efficacy, entrepreneurial skills, access to resources and insurance service on self-confidence of women in Nepal

The results are based on 154 observations using linear regression model. The model is $SC = \beta_0 + \beta_1 LS + \beta_2 SE + \beta_3 ES + \beta_4 AR + \beta_5 IS + \epsilon$, where the dependent variable is SC (Self-confidence). The independent variables are LS (Leadership quality), SE (Self efficacy), ES (Entrepreneurial skills), AR (Access to resources), and IS (Insurance services).

Model	Intercept	Regression coefficients of					Adj. R _{bar} ²	SEE	F-value
		LS	SE	ES	AR	IS			
1	1.149 (5.086)**	0.682 (11.411)**					0.458	0.505	130.201
2	1.049 (4.428)**		0.699 (11.301)**				0.453	0.508	127.716
3	1.136 (6.131)**			0.708 (14.032)**			0.561	0.454	196.904
4	1.036 (5.061)**				0.712 (13.169)**		0.570	0.471	173.410
5	0.858 (4.842)**					0.783 (16.258)**	0.632	0.416	264.318
6	0.734 (3.154)**	0.395 (4.626)**	0.393 (4.459)**				0.518	0.477	83.126
7	0.476 (2.314)**	0.235 (3.019)**	0.187 (2.278)*	0.453 (7.032)**			0.635	0.415	89.682
8	0.411 (2.041)**	0.201 (2.621)*	0.076 (0.865)	0.366 (5.315)**	0.248 (3.039)**		0.654	0.404	73.264
9	0.197 (1.077)**	0.184 (2.694)**	0.038 (0.482)	0.191 (2.823)**	0.124 (1.641)	0.419 (6.280)**	0.725	0.36	81.615

Notes:

- i. Figures in parenthesis are t-values
- ii. The asterisk signs (**) and (*) indicate that the results are significant at one percent and five percent level respectively.
- iii. Self-confidence is the dependent variable.

The regression results show that the beta coefficients for leadership skills are positive with self-confidence. It indicates that leadership skills have a positive impact on self-confidence. This finding is

consistent with the findings of Yousaf *et al.* (2021). Similarly, the beta coefficients for self-efficacy are positive with self-confidence. It indicates that self-efficacy has a positive impact on self-confidence. This finding is similar to the findings of Veisi *et al.* (2015). Moreover, the beta coefficients for entrepreneurial skills are positive with self-confidence. It indicates that entrepreneurial skills have positive impact on self-confidence. This finding is similar to the findings of Paramanandam and Packirisamy (2015). Likewise, the beta coefficients for access to resources are positive with self-confidence. It indicates that access to resources has a positive impact on self-confidence. This finding is consistent with the findings of Goetz and Gupta (1996). In addition, the beta coefficients for insurance service are positive with self-confidence. It indicates that insurance service has a positive impact on self-confidence. This finding is consistent with the findings of Fwamba *et al.* (2015).

The regression results of leadership skills, self-efficacy, entrepreneurial skills, access to resources and insurance service on decision making ability of women in Nepal are presented in Table 4.

Table 4: Estimated regression results of leadership skills, self-efficacy, entrepreneurial skills, access to resources and insurance service on decision making ability of women in Nepal

The results are based on 154 observations using linear regression model. The model is $DMA = \beta_0 + \beta_1 LS + \beta_2 SE + \beta_3 ES + \beta_4 AR + \beta_5 IS + \varepsilon$, where the dependent variable is DM (Decision making ability). The independent variables are LS (Leadership quality), SE (Self efficacy), ES (Entrepreneurial skills), AR (Access to resources), and IS (Insurance services).

Model	Intercept	Regression coefficients of					Adj. R _{bar} ²	SEE	F-value
		LS	SE	ES	AR	IS			
1	1.401 (6.476)**	0.640 (11.197)**					0.448	0.484	125.365
2	1.116 (5.274)**		0.708 (12.810)**				0.516	0.453	164.098
3	1.511 (8.002)**			0.631 (12.277)**			0.495	0.463	150.717
4	1.139 (6.251)**				0.711 (14.782)**		0.587	0.419	218.518
5	1.509 (7.352)**					0.630 (11.296)**	0.453	0.482	127.595
6	1.743 (8.380)**						0.394	0.507	100.278
7	0.887 (4.171)**	0.286 (3.663)**	0.486 (6.031)**				0.553	0.436	95.461
8	0.704 (3.521)**	0.172 (2.278)*	0.340 (4.257)**	0.322 (5.135)**			0.617	0.403	83.126
9	0.615 (3.243)**	0.125 (1.739)	0.188 (2.266)*	0.203 (3.123)**	0.340 (4.423)**		0.659	0.380	74.949
10	0.554 (2.888)**	0.121 (1.682)	0.177 (2.142)*	0.153 (2.154)*	0.304 (3.848)**	0.120 (1.705)	0.663	0.378	61.308

Notes:

- i. Figures in parenthesis are t-values
- ii. The asterisk signs (**) and (*) indicate that the results are significant at one percent and five percent level respectively.
- iii. Decision making ability is the dependent variable.

The regression result shows that the beta coefficients for leadership skills are positive with decision making ability. It indicates that leadership skills have a positive impact on decision making ability.

This finding is consistent with the findings of Iskamto *et al.* (2021). Furthermore, the beta coefficients for self-efficacy are positive with decision making ability. It indicates that self-efficacy has a positive impact on decision making ability. This finding is similar to the findings of Rawlett (2014). Similarly, the beta coefficients for entrepreneurial skills are positive with decision making ability. It indicates that entrepreneurial skills have positive impact on decision making ability. This finding is similar to the findings of Al-Dajani and Marlow (2013). Likewise, the beta coefficients for access to resources are positive with decision making ability. It indicates that access to resources has a positive impact on decision making ability. This finding is consistent with the findings of Sinha and Matin (1998). In addition, the beta coefficients for insurance service are positive with decision making ability. It indicates that insurance services has a positive impact on decision making ability. This finding is consistent with the findings of Fwamba *et al.* (2015).

The regression results of leadership skills, self-efficacy, entrepreneurial skills, access to resources and insurance service on financial independency of women in Nepal are presented in Table 5.

Table 5: Estimated regression results of leadership skills, self-efficacy, entrepreneurial skills, access to resources and insurance service on financial independency of women in Nepal

The results are based on 154 observations using linear regression model. The model is $FIN = \beta_0 + \beta_1 LS + \beta_2 SE + \beta_3 ES + \beta_4 AR + \beta_5 IS + \epsilon$, where the dependent variable is FIN (Financial independency). The independent variables are LS (Leadership quality), SE (Self efficacy), ES (Entrepreneurial skills), AR (Access to resources), and IS (Insurance services).

Model	Intercept	Regression coefficients of					Adj. R_bar ²	SEE	F-value
		LS	SE	ES	AR	IS			
1	1.489 (6.32)**	0.547 (11.133)**					0.430	0.545	123.954
2	1.009 (5.318)**		0.782 (16.401)**				0.622	0.444	268.981
3	0.992 (5.088)**			0.785 (16.047)**			0.642	0.450	257.520
4	1.148 (6.341)**				0.748 (16.428)**		0.623	0.444	269.893
5	1.089 (4.97)**					0.772 (13.813)**	0.538	0.491	190.779
6	0.928 (4.613)**	0.780 (1.201)	0.708 (9.156)**				0.623	0.444	135.580
7	0.639 (3.401)**	0.350 (0.04)	0.476 (5.983)**	0.442 (6.104)**			0.692	0.401	123.165
8	0.598 (3.306)**	0.051 (0.91)	0.324 (3.741)**	0.344 (4.625)**	0.283 (3.725)**		0.715	0.385	103.275
9	0.581 (3.115)**	0.062 (0.93)	0.316 (3.551)**	0.377 (4.392)**	0.269 (3.235)**	0.037 (0.422)	0.714	0.386	82.228

Notes:

- i. Figures in parenthesis are t-values
- ii. The asterisk signs (**) and (*) indicate that the results are significant at one percent and five percent level respectively.
- iii. Financial independency is the dependent variable.

The regression result shows that the beta coefficients for leadership skills are positive with financial independency. It indicates that leadership skills have a positive impact on financial independency. This finding is consistent with the findings of Mehta and Sharma (2014). Furthermore, the beta

coefficients for self-efficacy are positive with financial independency. It indicates that self-efficacy has a positive impact on financial independency. This finding is similar to the findings of Postmus *et al.* (2013). Similarly, the beta coefficients for entrepreneurial skills are positive with financial independency. It indicates that entrepreneurial skills have positive impact on financial independency. This finding is similar to the findings of Kratzer and Kato (2013). Likewise, the beta coefficients for access to resources are positive with financial independency. It indicates that access to resources has a positive impact on financial independency. This finding is consistent with the findings of Sinha and Matin (1998). In addition, the beta coefficients for insurance service are positive with financial independency. It indicates that insurance services has a positive impact on financial independency. This finding is consistent with the findings of Shaheen *et al.* (2018).

4. Summary and conclusion

Socio-economic empowerment amongst people particularly women is a hallmark and a major indication of transformation. In order to improve the socio-economic conditions of the people of any country, it has become indispensable to empower them, by enhancing and ensuring their role to the optimal level. Micro credit is considered now not merely an instrument for credit extension to the poor borrowers but also a movement to emancipate the poor women to alleviate their poverty, improve their quality of life, build their capacity and awareness, to integrate them economically and socially into the mainstream of the economy.

This study attempts to examine the impact of microfinance program on socio economic empowerment of women in Nepal. The study is based on primary data with 154 observations.

The study showed that leadership skills, self-efficacy, entrepreneurial skills, access to resources and insurance services have positive and significant impact on self-confidence, decision making ability and financial independency of women in Nepal. The study concluded that insurance services followed by access to resources and entrepreneurial skills are the most influencing factors that explain the socio economic empowerment of women in Nepal in terms of self-confidence. The study also showed that the most dominant factors that explain the socio-economic empowerment of women in terms of decision-making ability are access to resources, self-efficacy and leadership skills. Similarly, the study also concluded that entrepreneurial skills followed by self-efficacy and insurance services are the dominant factors that explain the socio-economic empowerment of women in Nepal in terms of financial independency.

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Purchase decisions of male consumers towards buying grooming products in Kathmandu Valley

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Abstract

This study examines the purchase decisions of male consumers towards buying grooming products in Kathmandu Valley. Consumer buying behavior is the dependent variable. Likewise, the selected independent variables are branding, packaging, pricing, quality, value and celebrity endorsement. The primary source of data is used to assess the opinions of the male consumers regarding purchase decisions towards grooming products in Kathmandu Valley. The study is based on primary data with 150 respondents. To achieve the purpose of the study, structured questionnaire is prepared. The correlation coefficients and regression models are estimated to test the significance and importance of different factors on purchase decisions towards grooming products in Kathmandu Valley.

The result showed that pricing has a positive impact on consumer buying behavior. It indicates that fair price stimulates the consumer buying behavior. Similarly, quality has a positive impact on consumer buying behavior. It indicates that better quality of the product drives the purchasing intention of the consumer. Likewise, perceived value has a positive impact on consumer buying behavior. It indicates that higher product value encourages consumers to purchase more products. Furthermore, branding has a positive impact on consumer buying behavior indicating that higher brand value of the products stimulates the purchasing intention in the consumers. In addition, packaging has a positive impact on consumer buying behavior. It indicates that better packaging of products stimulates consumers buying behavior. Furthermore, celebrity endorsement has a positive impact on consumer buying behavior. It indicates that product endorsed by the favorite celebrities encourage consumers to purchase more products.

Key words: Branding, packaging, pricing, quality, value, celebrity endorsement and buying behavior.

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1. Introduction

Today's business environment is highly competitive and rapidly changing. If firm wants to succeed in its goals, then it has to do a continuous observation of the consumer behavior and their preference because consumers are the kings in the business world (Anojan and Subaskaran, 2015). In today's world, the customer's demand and the power of the retailers is tremendously growing due to competitive environment and changing business. It is vital to have a sustainable relationship with customers for the survival and success of the producers. The customer purchase decision is now becoming a complex process. Consumer's behavior, perceptions and attitudes determine their purchase intentions. To evaluate and access a specific product, purchase behavior becomes a key point for consumers. Most business firms are realizing that if they do not have competitive strength, they cannot survive. A business cannot succeed by supplying products and services that are not properly designed to serve the needs of the customers. The entire business has to be seen from the point of view of the customer. A company's business depends on its ability to create and retain its customers (Peck and Childers, 2008).

Panwar *et al.* (2019) described consumer buying behavior as the behavior that consumers display in searching for, purchasing, using, evaluating, and disposing of products, services, and ideas. It is the study of the way of buying and disposing of goods, services, and ideas. It is the study of the way of buying and disposing of goods, services, ideas or experiences by the individuals, groups and organizations in order to satisfy their needs and wants. The market place is changing radically as a result of major environment force such as technological advances, globalization and deregulation (Barmola and Srivastava, 2010). The information technology revolution, globalization, increasing buying sophistication and significant demographic changes are driving forces behind these changes. An organization will only be effective and efficient if its marketing activities meet the perceived and desired benefits of its clients. Knowledge of consumer behavior is therefore considered to be very essential if organizations seek to gain commercial success. According to Fasi (2017), it is vital to point out that marketing strategies are very important in the long run performance of an organization. The relationship between consumer behavior as well as marketing strategy is very much emphasized since the success of companies' marketing strategies depends on how well managers understand consumer behavior (Jisana, 2014).

The necessary condition for a brand to remain on the market for a long time is directly linked to the capacity to manage consumer experience. Thus, it is imperative to understand how consumers perceive brand experience provided by brands and how brand experience affects the process of building the relationship between consumers and brand. The association of brand image that consumers have in their mind about a brand includes symbolic meaning and function, which are either tangible or intangible quality aspects of the particular attributes of goods or services (Sondoh *et al.*, 2007). As such, brand image can affect how a brand is perceived by consumers in terms of quality and determine their attitudes and affection toward a brand (Kim and Chao, 2019).

Alhamdi (2020) measured the role of packaging in consumer behavior. The study found that all packaging dimensions (design, color, size and shape) have a significant impact on consumer attention. The study concluded that the shape of packaging has the most significant impact on consumer attention. Sultan *et al.* (2019) investigated the strategic approach to the consumer perception of brand on the basis of brand awareness and brand loyalty. The study revealed that brand awareness and brand loyalty have a positive relationship with various attributes of a product, such as the perceived quality of advertisement, perceived sensation of taste and the logistical attribute of availability. Yi and Jai (2019) analyzed the impact of consumer perception, their beliefs, desires and emotions, on

consumer impulse buying behavior. The study showed that hedonic and utilitarian desires have a significant effect on consumers' positive emotion, which in turn, influences consumers' impulse buying behavior. Both urge-to-buy and browsing behavior are strongly affected by positive emotion. Furthermore, the results concluded that the urge-to-buy has a significant and strong influence on impulse buying.

Waheed *et al.* (2018) analyzed the impact of product packaging on consumer purchase intentions. The results showed that all packaging dimensions (color, material, front style, design and printed information) have a significant impact on consumer purchase intentions. The study concluded that packaging material has the strongest influence on consumer purchase intentions followed by packaging color, font style, packaging design and printed information. Sumi and Kabir (2018) showed that buying intention is affected by trust, perceived price, product attributes, health consciousness and environmental concerns. The study concluded that trust and perceived price most significantly affect the buying intention of organic tea consumers in Bangladesh. Inoni (2017) analyzed the impact of product attributes and advertisement on consumer buying behavior of instant noodles. The results showed that purchase frequency has a positive and significant correlation with brand name and advertising media, while multiple regression results showed that advertising and product attributes have statistically significant influence on consumer buying behavior. The study concluded that brand image, product quality and ease of preparation are the dominant predictors of consumer behavior respectively. Suganya and Beena (2017) measured the factors influencing impulsive buying behavior among women in Thanjavur district. The results showed a positive relationship among shopping experience, brand loyalty, attitude, product value, buying decision, advertisements and impulse buying behavior. Likewise, the study showed a positive impact of price on impulse buying behavior. The study concluded that brand loyalty, attitude, values and belief most significantly affect female women's impulse buying behavior.

Sondoh *et al.* (2017) explained the effect of brand image on overall satisfaction and loyalty intention in the context of color cosmetic. Four of brand image benefits: functional, social, experiential, and appearance enhances are positively related to overall satisfaction. The results implied that marketers should focus on brand image benefits in their effort to achieve customer loyalty. The study revealed that satisfaction plays a role in enhancing loyalty. Shahid *et al.* (2017) investigated the impact of brand awareness on the consumers' purchase intention. The study concluded that consumers will prefer to buy the brand they know well. The study revealed that to keep the consumer aware of their brand and to sustain their customer a company will have to keep triggering its brand and advertise more and more to let the large number of people know about their brand. Li (2017) assessed the effects of brand image, perceived price, perceived quality, and perceived value on purchase intentions toward sports, sightseeing, and tourism products of the 2016 Taichung International Travel Fair. The study showed that brand image does not have significant effect on purchase intention and perceived price has significant effect on purchase intention. The study also found that perceived quality has significant effect on purchase intention and perceived value has significant effect on purchase intention.

In the context of Nepal, Rana (2016) found that consumers are less concern about the brand image while making a purchase decision. The findings also revealed that people are more influenced by word of mouth and opinion given by the people they know on Facebook and it substantially affects their buying behavior. Ballav and Achyut (2020) found that there is a positive relationship of perceived service quality and perceived ease of use with customer satisfaction. The study concluded that higher the perceived service quality and perceived ease of use, higher would be the customer satisfaction. Thagunna and Khanal (2013) analyzed various dimensions of buying behaviour of Nepalese women while making purchasing decisions. The study revealed that price, brand awareness and accurate

information influence their buying behaviour of Nepalese women to a certain extent. Adhikari and Biswakarma (2017) concluded the purchase intention towards counterfeit apparel and accessories is significantly determined by personal gratification, perceived behavior, control and subjective norms.

The above discussion reveals that the empirical evidences vary greatly across the studies concerning the purchase decisions of male consumers towards buying grooming products. Though there are above mentioned empirical evidences in the context of other countries and in Nepal, no such findings using more recent data exist in the context of Nepal. Therefore, in order to support one view or the other, this study has been conducted.

The major objective of the study is to determine the purchase decisions of male consumers towards buying grooming products. More specifically, it examines the impact of branding, packaging, pricing, quality, value, celebrity endorsement on consumer buying behavior in Kathmandu Valley.

The remainder of this study is organized as follows. Section two describes the sample, data and methodology. Section three presents the empirical results and the final section draws the conclusion.

2. Methodological aspects

The study is based on the primary data. The data were gathered from 150 respondents through questionnaire. The study employed convenience sampling method. The respondents' views were collected on branding, packaging, pricing, quality, value, celebrity endorsement and buying behavior. The study is based on descriptive and causal comparative research designs.

The model

The model estimated in this study assumes that buying behavior depends on branding, packaging, pricing, quality, value and celebrity endorsement. Therefore, the model takes the following form:

$$CBB = \beta_0 + \beta_1 PV + \beta_2 BRA + \beta_3 QL + \beta_4 FP + \beta_5 PK + \beta_6 CE + \varepsilon,$$

Where,

CBB = Consumer buying behavior

PV = Perceived value

BRA = Branding

QL = Quality

FP = Fair pricing

PK = Packaging

CE = Celebrity endorsement

Consumer buying behavior was measured using a 5-point Likert scale where the respondents were asked to indicate the responses using 1 for strongly disagree and 5 for strongly agree. There are 6 items and sample items include "If consumers are satisfied with the quality, then they are more likely to recommend it to the other people to buy the product", "I repeatedly buy the product that has quality and fair price" and so on. The reliability of the items was measured by computing the Cronbach's alpha ($\alpha = 0.811$).

Perceived value was measured using a 5-point Likert scale where the respondents were asked to

indicate the responses using 1 for strongly disagree and 5 for strongly agree. There are 6 items and sample items include “The image of the brand which I am using represent what I want”, “If another brand is not different from this brand in any way, it seems smarter to purchase this brand” and so on. The reliability of the items was measured by computing the Cronbach’s alpha ($\alpha = 0.832$).

Branding was measured using a 5-point Likert scale where the respondents were asked to indicate the responses using 1 for strongly disagree and 5 for strongly agree. There are 6 items and sample items include “The brand that I am using can easily be recalled by the logo of a specific product”, “The brand which I am using is one of the best brands in the sector” and so on. The reliability of the items was measured by computing the Cronbach’s alpha ($\alpha = 0.855$).

Quality was measured using a 5-point Likert scale where the respondents were asked to indicate the responses using 1 for strongly disagree and 5 for strongly agree. There are 6 items and sample items include “Quality is the prior criteria I consider when I buy any products”, “Branded product gives superior quality services” and so on. The reliability of the items was measured by computing the Cronbach’s alpha ($\alpha = 0.855$).

Fair pricing was measured using a 5-point Likert scale where the respondents were asked to indicate the responses using 1 for strongly disagree and 5 for strongly agree. There are 6 items and sample items include “Price is the important factors that determine the quality”, “I would like to pay good price for the quality products” and so on. The reliability of the items was measured by computing the Cronbach’s alpha ($\alpha = 0.723$).

Packaging was measured using a 5-point Likert scale where the respondents were asked to indicate the responses using 1 for strongly disagree and 5 for strongly agree. There are 6 items and sample items include “The material used in packaging is an important element which prevents the product from any damage”, “I prefer to buy product wrapped in unique design” and so on. The reliability of the items was measured by computing the Cronbach’s alpha ($\alpha = 0.820$).

Celebrity endorsement was measured using a 5-point Likert scale where the respondents were asked to indicate the responses using 1 for strongly disagree and 5 for strongly agree. There are 6 items and sample items include “I buy product which is endorsed by a celebrity”, “My purchase decision is based on celebrity advertisement recall” and so on. The reliability of the items was measured by computing the Cronbach’s alpha ($\alpha = 0.841$).

The following section describes the independent variables used in this study along with the hypothesis formulation.

Fair pricing

Rohani and Nazari (2012) examined the impact of dynamic pricing strategies on consumer behavior. The study found that consumers’ involvement and response to various pricing strategies dictate optimal pricing decisions. Similarly, Al-Salamin and Al-Hassan (2016) showed that there is a positive relationship between fair prices and consumer buying behavior. Briesch *et al.* (1997) revealed that consumers use reference prices of similar products to ascertain whether a perceived product has a good or bad price. Moreover, Bettman *et al.* (1998) concluded that lower price can compensate for lower quality. Likewise, D’Astous and Chnaoui (2002) found discounted price and fair price have a positive impact on consumer perception of sports apparel. Based on it, this study develops the following hypothesis:

H_1 : *There is a positive relationship between fair pricing and consumer purchase behavior.*

Branding

Brand refers to the type of product manufactured by a particular company under a particular name. Dhaliwal *et al.* (2020) examined factors influencing consumer buying behavior of luxury brands. The study showed that consumer buying behavior has a significantly positive relation with social status and brand loyalty. Furthermore, Malik *et al.* (2013) showed that brand image and advertisement have a strong positive influence and significant relationship with consumer buying behavior. Likewise, Muhammad and Bashir (2012) concluded that brand image affected consumer perception of young consumers in Bangladesh. Based on it, this study develops the following hypothesis:

H_2 : *There is a positive relationship between branding and consumer purchase behavior.*

Perceived value

Value in the business sense, refers to the psychological benefit that a consumer receives from consuming a product. Younus *et al.* (2015) analyzed the factors affecting consumer purchase intention. The study revealed that perceived value has a significant relationship with purchase intention. Likewise, perceived value has a positive correlation with purchasing intention of the consumer (Woodruff, 1997). Moreover, Suganya and Beena (2017) showed that there is a positive relationship between product value and impulse buying behavior. Furthermore, Agarwal and Teas (2001) showed that consumer perception is affected by the three core aspects of value which are quality, sacrifice and risks. Moreover, Perrea *et al.* (2015) concluded that the most important value and cost dimensions that define consumer value perceptions are reasoned and utility-related, in particular 'functional (i.e., economic) value' and 'performance (i.e., taste-related) cost'. Based on it, this study develops the following hypothesis:

H_3 : *There is a positive relationship between perceived value and consumer purchase behavior.*

Quality

High quality products have been found to capture greater share of market and maximize market value (Smith and Whan, 1992). Similarly, Rasool *et al.* (2012) revealed that consumer behavior is focused on products which are easily available and have more quality rather than quantity. Similarly, Parmar (2014) found that excellent quality of products plays a key role in influencing consumer behavior. Likewise, Rani and Krishnan (2018) found that quality has a positive impact on consumer perception of skincare products in Malaysia. Likewise, Anojan and Subaskaran (2015) revealed that there is a positive relationship between quality and consumers buying behavior. Based on it, this study develops the following hypothesis:

H_4 : *There is a positive relationship between quality and consumer purchase behavior.*

Packaging

Packaging refers to the process of designing, evaluating, and producing packages. Waheed *et al.* (2018) found that various packaging dimensions (color, material, front style, design and printed information) have a significant impact on consumer purchase intentions. Similarly, Alhamdi (2020) concluded that design, color, shape and size of packaging have a significant impact on consumer attention. Likewise, Singh (2018) revealed that the quality of packaging material of a product can create a positive consumer perception towards the product. Moreover, Kawa *et al.* (2013) concluded that there is a significant impact of packaging on customer's purchase intention. Based on it, this study develops the following hypothesis:

H_5 : *There is a positive relationship between packaging and consumer purchase behavior.*

Celebrity endorsement

Celebrity branding or celebrity endorsement is a form of advertising campaign or marketing strategy which uses a celebrity's fame or social status to promote a product, brand or service, or to raise awareness about an issue. Younus *et al.* (2015) showed that celebrity endorsement has a significant relationship with purchase intention. Similarly, various factors of celebrity endorsement such as physical attractiveness, source credibility expertise and celebrity brand match up have a positive impact on developing a positive consumer perception towards brands (Baniya, 2017). Similarly, Kamins and Gupta (1994) investigated the congruence between spokesperson and product type from a matchup hypothesis perspective. The study concluded that the match-up between a celebrity endorser and the brand endorsed also enhanced the celebrity endorser's believability and attractiveness. Likewise, attractiveness of a celebrity endorsing a particular brand/product strongly influences the consumer perception of the brand/product (Kumar and Hundal, 2015). Based on it, this study develops the following hypothesis:

H_6 : *There is a positive relationship between celebrity endorsement and consumer purchase behavior.*

3. Results and discussion

Correlation analysis

On analysis of data, correlation analysis has been undertaken first and for this purpose, Kendall's Tau correlation coefficients along with means and standard deviations have been computed, and the results are presented in Table 1.

Table 1: Kendall's Tau correlation coefficients matrix

This table presents Kendall's Tau correlation coefficients between dependent variable and independent variables. The correlation coefficients are based on 150 observations. The dependent variable is CBB (Consumer buying behavior). The independent variables are PV (Perceived value), BRA (Branding), QL (Quality), FP (Fair pricing), PK (Packaging) and CE (Celebrity endorsement).

Variables	Mean	SD	PV	BRA	QL	FP	PK	CE	CBB
PV	4.15	0.61	1						
BRA	4.05	0.73	0.51**	1					
QL	3.99	0.78	0.42**	0.55**	1				
FP	4.23	0.65	0.45**	0.43**	0.42**	1			
PK	3.95	0.78	0.39**	0.56**	0.58**	0.48**	1		
CE	3.94	0.74	0.28**	0.43**	0.31**	0.41**	0.47**	1	
CBB	4.21	0.62	0.42**	0.48**	0.44**	0.52**	0.56**	0.43**	1

*Notes: The asterisk signs (**) and (*) indicate that the results are significant at one percent and five percent level respectively.*

The correlation matrix indicates that pricing has a positive relationship with consumer buying behavior. It indicates that fair price stimulates the consumer buying behavior. Similarly, quality has a positive relationship with consumer buying behavior. It indicates that better quality of the product drives the purchasing intention of the consumer. Likewise, perceived value has a positive relationship with consumer buying behavior. It indicates that higher product value encourages consumers to purchase more products. Furthermore, branding has a positive relationship with consumer buying

behavior indicating that higher brand value of the products stimulates the purchasing intention in the consumers. In addition, packaging has a positive relationship with consumer buying behavior. It indicates that better packaging of products stimulates consumers buying behavior. Furthermore, celebrity endorsement has a positive relationship with consumer buying behavior. It indicates that product endorsed by the favorite celebrities encourage consumers to purchase more products.

Regression analysis

Having analyzed the Kendall's Tau correlation coefficients matrix, the regression analysis has been carried out and the results are presented in Table 2. More specifically, it presents the regression results of branding, packaging, pricing, quality, perceived value and celebrity endorsement on purchase decisions of male consumers towards buying grooming products in Kathmandu Valley.

Table 2: Estimated regression results of branding, packaging, pricing, quality, perceived value and celebrity endorsement on consumer buying behavior

The results are based on 150 observations using linear regression model. The model is $CBB = \beta_0 + \beta_1 PV + \beta_2 BRA + \beta_3 QL + \beta_4 FP + \beta_5 PK + \beta_6 CE + \epsilon$, where the dependent variable is CBB (Consumer buying behavior). The independent variables are PV (Perceived value), BRA (Branding), QL (Quality), FP (Fair pricing), PK (Packaging) and CE (Celebrity endorsement).

Model	Intercept	Regression coefficients of						Adj. R _{bar} ²	SEE	F-value
		PV	BRA	QL	FP	PK	CE			
1	1.707 (5.978)**	0.602 (8.856)**						0.342	0.506	78.421
2	2.195 (9.394)**		0.498 (8.759)**					0.337	0.508	76.716
3	1.189 (5.303)**			0.712 (13.620)**				0.533	0.417	185.495
4	2.187 (10.793)**				0.611 (10.163)**			0.407	0.480	103.285
5	2.262 (10.589)**					0.486 (9.281)**		0.364	0.497	86.137
6	3.125 (11.285)**						0.311 (6.391)**	0.381	0.443	72.110
7	1.374 (4.971)**	0.382 (4.817)**	0.309 (4.682)**					0.423	0.473	22.049
8	0.703 (2.822)**	0.132 (1.825)*	0.175 (3.052)**	0.531 (8.193)**				0.602	0.393	76.221
9	0.641 (2.734)**	0.159 (2.278)*	0.006 (0.079)	0.462 (7.123)**	0.235 (3.733)**			0.635	0.377	65.715
10	0.638 (2.711)**	0.161 (2.292)*	0.003 (0.034)	0.456 (6.736)**	0.225 (3.182)**	0.023 (0.317)	0.162 (4.618)**	0.632	0.378	52.266

Notes:

- i. Figures in parenthesis are t-values
- ii. The asterisk signs (**) and (*) indicate that the results are significant at one percent and five percent level respectively.
- iii. Consumer buying behavior is the dependent variable.

The regression results show that the beta coefficients for pricing are positive with consumer buying behavior. It indicates that fair pricing has a positive impact on consumer buying behavior. This

finding is consistent with the findings of Rohani and Nazari (2012). Likewise, the beta coefficients for branding are positive with consumer buying behavior. It indicates that branding has a positive impact on consumer buying behavior. This finding is similar to the findings of Muhammad and Bashir (2012). Likewise, the beta coefficients for celebrity endorsement are positive with consumer buying behavior. It indicates that celebrity endorsement has a positive impact on consumer buying behavior. The finding is similar to the findings of Kamins and Gupta (1994). Similarly, the beta coefficients for packaging are positive with consumer buying behavior. It indicates that packaging has a positive impact on consumer buying behavior. This finding is consistent with the findings of Alhamdi (2020). Similarly, the beta coefficients for value are positive with consumer buying behavior. It indicates that value has a positive impact on consumer buying behavior. This finding is similar to findings of Anojan and Subaskaran (2015).

4. Summary and conclusion

Consumer behavior is a decision-making process in which people make their purchase and other decisions keeping in view the available resources which are efforts, time and money. The purchasing behavior of consumers is determined by preferences, choices and tastes of individuals. However, there are other factors that determine the consumer behaviors, some of which marketers cannot control for example; cultural, social, personal, and psychological factors

This study attempts to examine the purchase decisions of male consumers towards buying grooming products in Kathmandu Valley. The study is based on primary data with 150 observations.

The study showed that branding, packaging, pricing, quality, value and celebrity endorsement have positive impact on consumer buying behavior. The study concluded that packaging play vital role in order to stimulate the consumer buying behavior. The study also concluded that quality followed by fair pricing are the most influencing factor that explains consumer buying behavior towards male grooming product in Kathmandu Valley.

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PART III

Human Resource Management



Employee turnover intention and its determinants in Nepalese commercial banks

– Kusum Pandey*

Abstract

This study examines the determinants of employee turnover intention in the context of Nepalese commercial banks. Employee turnover is the dependent variable. The independent variables are compensation, training and development, career growth, job satisfaction, work environment and motivation. The study is based on primary data of 18 commercial banks with 204 respondents. To achieve the purpose of the study, the structured questionnaire is prepared. The correlation coefficients and regression models are estimated to test the significance and importance of different determinants on the employee turnover intentions in the context of Nepalese commercial banks.

The study showed that compensation has a negative impact on employee turnover. This indicates that better compensation policy leads to decrease in employee turnover. Likewise, training and development have negative impact on employee turnover. It implies that training and development program leads to decrease in employee turnover in the banks. Similarly, career growth has a negative impact on employee turnover. It means that better career growth opportunities lead to decrease in employee turnover. The result also showed that job satisfaction has a negative impact on employee turnover. It indicates that higher level of job satisfaction leads to decrease in employee turnover. In addition, working environment has a negative impact on employee turnover. This means that better the working environment, lower would be the employee turnover. Furthermore, employee motivation has a negative impact on employee turnover. It indicates that higher the motivation level, lower would be the employee turnover in Nepalese commercial banks.

Key words: *Employee turnover, compensation, training and development, career growth, job satisfaction, work environment and motivation.*

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1. Introduction

Human resource is considered to be the center of all development processes of economy. However, today's competitive business scenario is deteriorating social conditions of human resources, hence causing employee turnover. Turnover intention is a crisis that challenges organizational efficiency and production. Employee engagement, cognitive flexibility and pay satisfaction are potential determinants of turnover intentions and have relevant importance in retaining best employees in the organization despite of such cut-throat competition (Liu *et al.*, 2012). Turnover of an employee also impacts on the attitudes and behaviours of the remaining members of the organization. Turnover of an employee for another position in an external organization provokes a reflective sentiment with remaining members, such as questioning their motivation to stay in the organization (Kammeyer-Mueller *et al.*, 2005). Thus, turnover can cause the additional turnover by stimulating deterioration in attitudes towards the organization. Many factors can lead to employee turnover in an organization. These factors might be related to the employer, the employees and/or the work environment (Govaerts *et al.*, 2011).

Kim *et al.* (2017) examined the associations amongst organizational justice, supervisory justice, authoritarian culture, organization-employee relationship quality and employee turnover intention. Organizational justice and supervisory justice are positively associated with organization-employee relationship quality, while authoritarian organizational culture is negatively associated with it. In addition, there is a positive association between authoritarian organizational culture and turnover intention. Organizational justice and organization-employee relationship quality are negatively associated with turnover intention. Excessive turnover causes an undue burden for a company's budget and human resources, i.e., time dedicated to employee recruiting, advertisements, interviews, initial training, supervision, motivation, evaluation, adaptation to the new job, mentoring, coaching, substitution while the position is vacant and so on (Jensen, 2003). According to Stress (1977), highly committed employees have a higher intent to remain with the company, a stronger desire to attend work, and more positive attitude about their employment. The study also concluded that commitment is significantly and inversely related to employee turnover. Employee turnover has always been a matter of concern for organizations. A large degree of employee turnover may be detrimental to both the organization as well as the employees. Turnover has an impact on the organization's costs relating to recruitment and selection, personnel process and induction, training of new personnel and above all, loss of knowledge gained by the employee while on job. Additionally, it results in understaffing which in turn lead to decreased effectiveness and productivity of the remaining staff (Jha, 2009). Abbasi and Holman (2000) identified employee turnover as a factor often jeopardizing organizational objectives as it results in monetary costs for employee replacement as well as many hidden costs and consequences.

Muogbo (2013) investigated the impact of employee motivation on organizational performance of selected manufacturing firms in Anambra State. The study revealed extrinsic motivation given to workers in an organization has a significant positive influence on the organizational performance. Similarly, Manzoor (2012) found that employee recognition and employee motivation towards organizational tasks have positive relationship and reduces turnover intention. Moreover, Vnouckova and Klupakova (2013) revealed that lack of motivational principles leads to employee dissatisfaction and disaffection and may lead to employee turnover. Sattar and Ahmed (2014) investigated factors effecting employee turnover in banking sector. The study revealed that career growth has less influence on employees' turnover. Organizations that retain their high performers are bound to be

successful in performance and at the same time avoid expenses that are incurred in advertisement of vacant positions, recruitment and selection, induction and training new employees that follow and employee lost (Okioaga, 2012). The organizations with lower employee turnover can gain advantages against their competitors by reducing overall labor costs and improving productivity. Employee retention is important to organizations, as increased turnover creates instability and puts additional workload and stress on remaining staff, increasing job dissatisfaction and hence, turnover. Hanaysha (2016) explored the effects of employee engagement, work environment, and organizational learning on organizational commitment. The study found that work environment has a significant positive impact on organizational commitment. Similarly,

Msengeti and Obwogi (2015) revealed that work environment has a strong influence on employee retention and firm performance. Susi and Jawaharrani (2011) opined that work life balance is a main reason for employee satisfaction. Many organizations feel the need of work life balance which include retention of valuable work force, reduce work family conflict and stress, job satisfaction and better life balance. Work life balance practices need to be supported and encouraged at workplace culture. Strong and supportive organizational culture increase employee intent to remain in the organization. Long working hours, excessive work pressure and handling demanding and unique customers in banks has become a take-for-granted phenomenon in the banking sector. There are many cases that suggest that work-life balance assists in retention, productivity and the recruitment of good staffs (Evans and Vernon, 2007). Furthermore, Sunarsi (2020) found that working environment and organizational culture have a positive and significant impact on the employee performance and commitment. Similarly, Danish and Usman (2010) revealed that better working environment has a significant and positive association with organizational commitment.

Calisir *et al.* (2010) found a very strong influence of job satisfaction on organizational commitment whereas job stress and role ambiguity indirectly influence the willingness of employees to leave their jobs. Chang and Lee (2006) assessed the relationships among personality traits, job characteristics, and organizational commitment. The study revealed that personality traits and job characteristics have a positive and significant influence on organizational commitment as well as job satisfaction. Moreover, Wong and Heng (2009) investigated the factors influencing job satisfaction in two Malaysian universities. The results revealed that the major sources of job satisfaction for Malaysian faculty members were policy and administration and salary. In addition, Sowmya and Panchanatham (2011) assessed factors influencing job satisfaction of banking sector employees in Chennai, India. The study concluded that perceived pay and promotion are the indispensable factor to influence the job satisfaction level. The employees have significant inclination towards optimistic supervisory behavior and pleasant organizational setup. Similarly, Pool (1999) determined the organizational culture and its relationship with job tension in measuring outcomes among business executives. The result of the study showed that a constructive culture will significantly reduce impact of role stress and thereby decrease job stress, increase job satisfaction and job commitment.

In the context of Nepal, Ghimire (2019) examined the role of reward practices on employee motivation in Nepalese commercial banks. The study showed that there is positive relationship of recognition, employee relations, empowerment, reward system, salary and benefits with employee motivation. Similarly, Gautam (2015) revealed that work life balance, incentives and reward, working environment, employer branding, career growth and organization culture have significant relationship with employee retention. Kunwar *et al.* (2022) showed that salary, flexible working hour, working environment, performance appraisal, location, training and development have positive impact on employee retention in insurance companies. The study concluded that better salary benefits and performance appraisal programs leads to higher employee retention. Similarly,

Thagunna (2020) revealed that organizational culture, physical workplace environment, work life balance, supervisory support and workplace incentives have positive relationship with employee performance in Nepalese commercial banks. Acharya *et al.* (2022) showed that recognition, flexible work hour, career development opportunities, belongingness and job security have positive impact on employee motivation among the commercial banks. Yukongdi and Shrestha (2020) examined the effect of affective commitment, job satisfaction and job stress on intention to leave among bank employees in Nepal. The study found that merit-based recruiting, competitive pay structure, timely promotion scheme based on performance, training and development programs, proper rewards and recognition for good work tend to have a positive effect on affective commitment among employees.

The above discussion reveals that the empirical evidences vary greatly across the studies concerning the determinants of employee turnover intention. Though there are above mentioned empirical evidences in the context of other countries and in Nepal, no such findings using more recent data exist in the context of Nepal. Therefore, in order to support one view or the other, this study has been conducted.

The main purpose of the study is to analyze the determinants of employee turnover intention in Nepalese commercial banks. Specifically, it examines the impact of compensation, training and development, career growth, job satisfaction, work environment and motivation on employee turnover intention in Nepalese commercial banks.

The remainder of this study is organized as follows. Section two describes the sample, data and methodology. Section three presents the empirical results and the final section draws the conclusion.

2. Methodologies aspects

The study is based on primary data. The data were gathered from 204 respondents through questionnaire. The respondents' views were collected on compensation, training and development, career growth, job satisfaction, work environment, and motivation in Nepalese commercial banks. The study is based on descriptive and causal comparative research designs. Table 1 shows the number of commercial banks along with the number of respondents selected for the study.

Table 1: List of commercial banks selected for the study along with number of respondents

S.N.	Name of commercial banks	Number of respondents
1	Century Commercial Bank Limited	4
2	Citizens Bank International Limited	18
3	Everest Bank Limited	4
4	Global IME Bank Limited	14
5	Himalayan Bank Limited	4
6	Laxmi Bank Limited	9
7	Machhapuchchhre Bank Limited	8
8	Mega Bank Nepal Limited	23
9	Nabil Bank Limited	24
10	Nepal Bank Limited	2

11	Nepal Investment Bank Limited	20
12	Nepal SBI Bank Limited	10
13	NIC Asia Bank Limited	8
14	NMB Bank Limited	11
15	Prime Commercial Bank Limited	6
16	Sanima Bank Limited	20
17	Standard Chartered Bank Nepal Limited	11
18	Sunrise Bank Limited	8
Total number of respondents		204

Thus, the study is based on 204 respondents.

The model

The model estimated in this study assumes that the employees' turnover depends on compensation, training and development, career growth, job satisfaction, work environment and motivation. Therefore, the model takes the following form:

$$ET = \beta_0 + \beta_1 \text{COM} + \beta_2 \text{TD} + \beta_3 \text{CG} + \beta_4 \text{JS} + \beta_5 \text{WE} + \beta_6 \text{M} + \varepsilon$$

Where,

ET = Employee turnover

COM = Compensation

CG = Career growth

M = Motivation

WE = Working environment

JS = Job satisfaction

TD = Training and development

Compensation was measured using a 5-point Likert scale where the respondents were asked to indicate the responses using 1 for strongly disagree and 5 for strongly agree. There are 5 items and sample items include "Pay for performance improves performance," "Compensation policy of my bank is transparent" and so on. The reliability of the items was measured by computing the Cronbach's alpha ($\alpha = 0.820$).

Training and development were measured using a 5-point Likert scale where the respondents were asked to indicate the responses using 1 for strongly disagree and 5 for strongly agree. There are 5 items and sample items include "Training needs are discussed with employee," "There is budget dedicated to training and development every year" and so on. The reliability of the items was measured by computing the Cronbach's alpha ($\alpha = 0.790$).

Career growth was measured using a 5-point Likert scale where the respondents were asked to indicate the responses using 1 for strongly disagree and 5 for strongly agree. There are 5 items and sample items include "My bank provides equal opportunity for career advancement for employees," "The performance appraisal system of my bank is regular and transparent" and so on. The reliability of the items was measured by computing the Cronbach's alpha ($\alpha = 0.775$).

Job satisfaction was measured using a 5-point Likert scale where the respondents were asked to indicate the responses using 1 for strongly disagree and 5 for strongly agree. There are 5 items and sample items include “Management believes that employees are the most important assets of the organization,” “The salary is competitive to similar organizations providing similar service” and so on. The reliability of the items was measured by computing the Cronbach’s alpha ($\alpha = 0.864$).

Work environment was measured using a 5-point Likert scale where the respondents were asked to indicate the responses using 1 for strongly disagree and 5 for strongly agree. There are 5 items and sample items include “My organization has a safe work environment,” “My organization operates in a socially responsible manner” and so on. The reliability of the items was measured by computing the Cronbach’s alpha ($\alpha = 0.768$).

Motivation was measured using a 5-point Likert scale where the respondents were asked to indicate the responses using 1 for strongly disagree and 5 for strongly agree. There are 5 items and sample items include “I feel that I am sufficiently motivated by my supervisor,” “My views and opinions are taken into account when decisions are made” and so on. The reliability of the items was measured by computing the Cronbach’s alpha ($\alpha = 0.817$).

Employee turnover intention was measured using a 5-point Likert scale where the respondents were asked to indicate the responses using 1 for strongly disagree and 5 for strongly agree. There are 5 items and sample items include “I believe employee intend to turnover because of poor working environment,” “I believe employees intend to turnover because of poor training and development policy of organization” and so on. The reliability of the items was measured by computing the Cronbach’s alpha ($\alpha = 0.730$).

The following section describes the independent variables used in this study along with the hypothesis formulation.

Compensation

Compensation is the HRM function through which employee get every type of reward in return of performing the tasks assigned by the administration (Hackett and Donald, 1999). The organizations can foster the retention of high-quality employee by valuing their knowledge and skills (Milanowski, 2002). Likewise, Lai (2011) revealed that high compensation offers by the organization to its employee’s increase organization performance and employees tends to stay longer in the organization. Similarly, Gerhart *et al.* (1995) stated that through compensation, an employer can influence the attitude of employee with reference to attraction and retention. Haider *et al.* (2015) stated that good pay is a monetary reward that an employee would look forward. The study also concluded that there is a negative relationship between compensation and employee turnover. Based on it, this study develops the following hypothesis:

H_1 : *There is a negative relationship between compensation and employee turnover.*

Training and development

Training is a systematic approach towards improving workforce skills, behaviors, attitude and knowledge necessary for effective performance. To remain competitive, employees skills are required to be updated (Banerji, 2013; Oribabor, 2000). Training facilitates the achievement of corporate strategy and improves organizational performance (Delery and Doty, 1996). The study further revealed that there is a negative impact of training on employee turnover. Training and development interventions keep employees more satisfied and efficient in their work thereby enabling them to

perform professionally (Tangthong *et al.*, 2014). Kum *et al.* (2014) concluded that training improves the quality of employee's productivity which has a positive impact on employee retention. Based on it, this study develops the following hypothesis:

H₂: There is a negative relationship between training and development and employee turnover.

Career growth

According to Weng and Hu (2009), organizational career growth can be explained by career goal progress, professional ability development, promotion speed, and remuneration growth. Merchant (2010) observed that career development program enhances employee performance and has a positive impact on organization's overall effectiveness, performance and employee retention. Perceived career opportunities outside the organization and lack of career advancement opportunities inside organization increase the employee's intentions to leave the organization (Stahl *et al.*, 2009). Moreover, Weng and McElroy (2012) revealed that there is a negative association between career growth and employee's turnover. Hess *et al.* (2012) revealed that there is a negative association between career growth and employees turnover. Based on it, this study develops the following hypothesis:

H₃: There is a negative relation between career growth and employee turnover.

Job satisfaction

Employee satisfaction may simply be perceived as the feelings of individuals about the jobs (Spector, 1997). Joseph *et al.* (2007) revealed a positive association between the job satisfaction and employee loyalty. Employee satisfaction has found to be positively related to the intent to stay in the company (Light, 2004). Moreover, Hackman and Oldham (1975) stated that higher job satisfaction is associated with increased productivity, lower absenteeism and lower employee turnover. Ali (2008) revealed that job satisfaction has a significant negative association with turnover intention. Based on it, this study develops the following hypothesis:

H₄: There is a negative relationship between job satisfaction and employee turnover.

Work environment

Spector (1997) observed that most businesses ignore the working environment within their organization resulting in an adverse effect on the performance of their employees. Different factors within the working environment such as wages, working hours, autonomy given to employees, organizational structure and communication between employees and management may affect job satisfaction (Lane *et al.*, 2010). The study found that better working environment helps in retaining good employees. Arnetz (1999) argued that in organizations where supervisors do not respect employees tends to stimulate employees to leave the organization. Moreover, Royuela *et al.* (2009) stated that the quality of work life is one of the most important factors for human motivating and influencing turnover intention. The study further concluded that better working environment reduce the turnover intention of the employees. Based on it, this study develops the following hypothesis:

H₅: There is a negative relationship between working environment and employee turnover.

Motivation

According to Guay *et al.* (2010), motivation helps in shaping employee's behavior. It reduces the turnover intentions among the employees. Motivation influences behavior, creativity and the

discretionary effort to perform better while doing job (Gardner *et al.*, 2007). The study also found a negative effect of motivational factors on employee turnover intention. Kinnear and Sutherland (2001) revealed that extrinsic factors such as (competitive salary, good interpersonal relationships, friendly working environment, and job security) were the key motivational variables that influence their retention in the organizations. Based on it, this study develops the following hypothesis:

H_6 : *There is a negative relationship between motivation on and employee turnover.*

3. Results and discussion

Correlation analysis

On analysis of data, correlation analysis has been undertaken first and for this purpose, Kendall's Tau correlation coefficients along with means and standard deviations have been computed, and the results are presented in Table 2.

Table 2: Kendall's Tau correlation coefficient matrix

This table presents Kendall's Tau correlation coefficients between dependent variable and independent variables. The correlation coefficients are based on 204 observations. The dependent variable is ET (Employee turnover). The independent variables are COM (Compensation), CG (Career growth), M (Motivation), WE (Working environment), JS (Job satisfaction) and (Training and development).

Variables	Mean	SD	ET	COM	TD	CG	JS	WE	M
ET	3.935	0.869	1						
COM	3.871	0.777	-0.468**	1					
TD	3.947	0.794	-0.573**	-0.535**	1				
CG	4.015	0.820	-0.507**	-0.431**	-0.460**	1			
JS	3.835	0.829	-0.452**	-0.558**	-0.546**	-0.525**	1		
WE	3.762	0.898	-0.653**	-0.483**	-0.495**	-0.544**	-0.658**	1	
M	3.810	0.814	-0.578**	-0.573**	-0.507**	-0.452**	-0.653**	-0.578**	1

*Notes: The asterisk signs (**) indicate that the results are significant at one percent and five percent level respectively.*

Table 2 shows that compensation is negatively correlated to employee turnover. This indicates that better compensation policy leads to decrease in employee turnover. Likewise, training and development are negatively correlated to employee turnover. It implies that training and development program leads to decrease in employee turnover in the banks. Likewise, there is a negative relationship between career growth and employee turnover. This indicates that better career growth opportunities leads to decrease in employee turnover. The result also shows that job satisfaction is negatively correlated to employee turnover. It indicates that higher level of job satisfaction leads to decrease in employee turnover. The results show that working environment is negatively correlated to employee turnover. This means that better the working environment, lower would be the employee turnover. Similarly, employee motivation is negatively correlated to employee turnover. It indicates that higher the motivation level, lower would be the employee turnover in Nepalese commercial banks.

Regression analysis

Having indicated Kendall's Tau correlation coefficients, the regression analysis has been carried out and the results are presented in Table 3. More specifically, it presents the regression results of compensation, training and development, career growth, job satisfaction, work environment, and motivation on employee turnover in Nepalese commercial banks.

Table 3: Estimated regression results of compensation, motivation, job satisfaction, training and development, and work environment on employee turnover

The results are based on 204 observations using a linear regression model. The model is $ET = \beta_0 + \beta_1 COM + \beta_2 TD + \beta_3 CG + \beta_4 JS + \beta_5 WE + \beta_6 M + \epsilon$, where the dependent variable is ET (Employee turnover). The independent variables are COM (Compensation), CG (Career growth), M (Motivation), WE (Working environment), JS (Job satisfaction) and (Training and development).

Model	Intercept	Regression coefficients of						Adj. R_bar ²	SEE	F-value
		COM	TD	CG	JS	WE	M			
1	1.490 (7.221)**	-0.590 (11.519)**						0.393	0.634	132.683
2	0.862 (4.314)**		-0.762 (15.042)**					0.526	0.560	226.264
3	1.167 (5.316)**			-0.670 (12.278)**				0.425	0.617	150.754
4	1.452 (6.292)**				-0.587 (10.436)**			0.347	0.657	108.918
5	0.840 (5.053)**					-0.775 (18.292)**		0.622	0.500	334.610
6	1.336 (7.874)**						-0.658 (15.000)**	0.525	0.561	225.014
7	0.647 (3.206)**	-0.228 (3.760)**	-0.585 (8.619)**					0.555	0.543	127.558
8	0.410 (1.990)**	-0.100 (1.463)	-0.506 (7.323)**	-0.265 (3.715)**				0.582	0.526	95.057
9	0.246 (1.162)**	-0.049 (0.701)	-0.483 (7.042)**	-0.212 (2.896)**	-0.165 (2.674)**			0.594	0.518	75.274
10	0.234 (1.264)	-0.043 (0.711)	-0.310 (4.849)	-0.110 (1.694)	-0.046 (0.763)	-0.510 (7.905)**		0.690	0.453	91.297
11	0.260 (1.440)	-0.026 (0.444)	-0.320 (5.133)	-0.095 (1.499)	-0.109 (1.772)	-0.378 (5.134)**	-0.218 (3.412)**	0.706	0.441	82.108

Notes:

- i. Figures in parenthesis are t-values
- ii. The asterisk signs (**) and (*) indicate that the results are significant at one percent and five percent level respectively.
- iii. Employee turnover is the dependent variable.

Table 3 shows that beta coefficients for compensation are negative with employee turnover. This indicates that fair compensation policy has a negative impact on turnover intention among employees. This finding is consistent with the findings of Gerhart *et al.* (1995). Similarly, the beta coefficients for training and development are negative with employee turnover in Nepalese commercial banks. This indicates that training and development programs have negative impact on employee turnover. This finding is similar to the findings of Kum *et al.* (2014). Likewise, the beta coefficients for career growth

practices are negative with employee turnover which implies that fair career growth opportunities have a negative impact on employee turnover. This finding is similar to the findings of Weng and McElroy (2012). Likewise, the result reveals that the beta coefficients for job satisfaction are negative with employee turnover. This indicates that job satisfaction among employees has a negative impact on employee turnover. This finding is consistent with the findings of Hackman and Oldham (1975). Moreover, the beta coefficients for work environment are negative with employee turnover which implies that work environment has a negative impact on employee turnover. This finding is similar with the findings of Royuela *et al.* (2009).

4. Summary and conclusion

Employee turnover has always been a matter of concern for organizations. A large degree of employee turnover may be detrimental to both the organization as well as the employees. Turnover has an impact over the organization's costs relating to recruitment and selection, personnel process and induction, training of new personnel and above all, loss of knowledge gained by the employee while on job. Additionally, it results in understaffing which in turn lead to decreased effectiveness and productivity of the remaining staff.

This study attempts to examine the determinants of employee turnover intention in the context of Nepalese commercial banks. The study is based on primary data collected from 20 commercial banks with 204 respondents.

The study showed that compensation, training and development, career growth, job satisfaction, work environment and motivation have a negative impact on employee turnover. The study concluded better compensation policy, training to the employees, career growth opportunities, suitable working environment and job satisfaction and motivation among the employees leads to decrease in employee turnover in Nepalese commercial banks. The study also concluded that employee working environment followed by training and development are the most dominant factors that explain the changes in employee turnover in Nepalese commercial banks.

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Effect of job environment on employee satisfaction in Nepalese commercial banks

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Abstract

This study examines the effect of job environment on employee satisfaction in Nepalese commercial banks. Employee satisfaction is dependent variable. The selected independent variables are job safety and security, incentives and recognition, training and development, supervisor's support, co-worker's relation and working hour's flexibility. The primary source of data is used to assess the opinions of the respondents regarding job environment and level of satisfaction in Nepalese commercial banks. The study is based on primary data of 20 commercial banks with 160 respondents. To achieve the purpose of the study, structured questionnaire is prepared. The correlation coefficients and regression models are estimated to test the significance and importance of job environment on employee satisfaction in Nepalese commercial banks.

The result showed that job safety and security have positive impact on employee satisfaction. It implies that increase in job safety and security leads to increase in employee satisfaction. The result also revealed that incentives and recognition have positive impact on employee satisfaction. It implies that fair incentives and recognition in the organization leads to increase in employee satisfaction. Moreover, training and development have positive impact on employee satisfaction. It implies that increase in training and development facilities leads to increase in employee satisfaction. Furthermore, supervisor's support has a positive impact on employee satisfaction indicating that supportive supervisor in the organization leads to increase in employee satisfaction. Similarly, the result also showed that co-worker's relationship has a positive impact on employee satisfaction. It indicates that better co-worker's relationship leads to increase in employee satisfaction. Moreover, working hour's flexibility has a positive impact on employee satisfaction. It implies that working hour's flexibility leads to increase in employee satisfaction.

Key words: Job safety and security, incentives and recognition, supervisor's support, training and development, co-worker's relation and working hour's flexibility.

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1. Introduction

Satisfied employees seem to be highly creative and dedicated to work. They engage and absorb themselves with the goals and objectives of the organizations. George and Jones (2008) stated that job satisfaction is the collection of feeling and beliefs that human resources have about their current job. The degree of job satisfaction can be ranged from extreme dissatisfaction to extreme satisfaction. Aziri (2011) argued that satisfying employee on the job is a determinant of individual well-being, as it enables employees to make an informed decision regarding leaving or gluing to a particular firm. Employee satisfaction is the combined reactions based on psychological, physiological and environmental orders or disorders which makes an employee to say that he or she is satisfied or not. Stephen and Timothy (2009) argued that job satisfaction is a positive feeling about a job resulting from an evaluation of its characteristics. Job satisfaction is a worker's sense of achievement and success on the job. It is generally perceived to be directly linked to productivity as well as to personal well-being. Job satisfaction implies doing a job one enjoys, doing it well and being rewarded for one's efforts. Job satisfaction further implies enthusiasm and happiness with one's work. Job satisfaction is the key ingredient that leads to recognition, income, promotion, and the achievement of other goals that lead to a feeling of fulfillment (Kaliski,2007). Job satisfaction represents one of the most complex areas facing today's managers when it comes to managing their employees. Job satisfaction can be considered as one of the main factors when it comes to efficiency and effectiveness of business organizations (Armstrong, 2006).

Job satisfaction is associated with increased output, efficiency of the organization, loyalty with the organization, and reduced absenteeism. According to Wright and Davis (2003), job satisfaction positively affects the ability, effort and capability of the employees. In contrast, if employees are not satisfied with the job, then it may lead to turnover intentions, increased costs, decreased profits and ultimately unhappy customers with the organization (Zeffane *et al.*, 2008). Shahzad *et al.* (2018) showed a strong positive relationship between employee participation in decision-making and employee job satisfaction. Employees with the opportunity to participate in decision-making seem to be more satisfied with their work compared to employees who are not given the opportunity to participate in decision making. According to Bouwmans *et al.* (2017), participation in decision-making can be associated with an increase in the level of task interdependence of team members. Meanwhile, Ding and Shen (2017) showed that a support and job involvement are two organizational variables that greatly affect job satisfaction. Mohamed (2005) found that, when there is a significant positive change in compensation, promotions and benefits, workers become satisfied and increases productivity. According to Leshabari *et al.* (2008), supportive work environments help workers to perform normal duties more effectively, making best use of their knowledge, skills and competences and the available resources in order to provide high-quality services. Employees are keen interested on skill variety, task identity, task significance, freedom and flexibility, autonomy and feedback etc. Core job dimensions enhance the enthusiasm of employees and result in job satisfaction and high performance and productivity.

A working environment is an environment where people work together for achieving organizational objectives. It means systems, processes, structures, tools, and all those things which interact with employees and affect in positive or negative ways on employees' performance. Muhammad and Ahmed (2015) assessed the impact of work environment on teachers' job satisfaction of private business universities of Pakistan. The study concluded that the work environment has a significant positive impact on job satisfaction. Similarly, Chieze *et al.* (2017) analyzed the association between working environment and employees' job satisfaction in Nigerian banks. The results showed the

positive impact of the work environment on career progress and job satisfaction. Mabaso and Dlamini (2017) concluded that compensation has a significant positive impact on job satisfaction. In addition, the result showed that there was a direct positive impact of compensation and empowerment on job satisfaction. Furthermore, proper leadership can create employee satisfaction so as to create conducive atmosphere for employees in improving quality of service to customers or the public. Danish and Usman (2010) investigated the impact of rewards and recognition on job satisfaction. The results showed that there is positive relationship between rewards, recognition and job satisfaction.

Creating and maintaining employee job satisfaction is important that give an impact on the survival of the company, because satisfied employees give a positive influence on the company, such as increasing efficiency and productivity (Rahimic, 2013). Noah and Steve (2012) found that better working environment in an organization increases level of job satisfaction that ultimately leads to achievement of organization goals. Attractive work atmosphere and supportive environment give increase to the circumstances in which employees put together their preeminent use of skills, competences, and knowledge to execute efficiently (Mbembati *et al.*, 2008). If organization environment does not attract the employees and they have a negative perception of different workplace environment elements like absenteeism, performance, stress-related illness and productivity, then eventually their obligation reduced to a low level which in turn affects the organization productivity and augmentations (Hafeez *et al.*, 2019). However, if the organization environment is friendly, safe and trusted, then it has positive impact on employee's performance, creativity, productivity, commitment which influences the organization augmentations. The management of work and family responsibilities is an increasing problem in today's society due to dramatic changes in the nature of families and the workforce such as increases in the participation of women in the workforce and the number of dual-earner families (McElwain *et al.*, 2005). Kazmi *et al.* (2008) examined the effects of stressful work environment on the performance of medical house officers. The study concluded that there is negative impact of stressful work environment on the performance of medical house officers. Mcguire and McLaren (2007) found that a working environment has a strong impact on employees' well-being and develops interaction, collaboration and innovation and increase job satisfaction. Raziq and Maulabakhsh (2015) found a positive relationship between working environment and employee job motivation. Musriha (2013) showed that teamwork and work environment were significantly correlated to job satisfaction and job performance.

In the context of Nepal, Yukongdi and Shrestha (2020) examined the effect of affective commitment, job satisfaction and job stress on intention to leave among bank employees in Nepal. The study found that merit-based recruiting, competitive pay structure, timely promotion scheme based on performance, training and development programs, proper rewards and recognition for good work tend to have a positive effect on affective commitment among employees. In addition, Neupane (2019) concluded that the major influencing factors for job satisfaction were salary, followed by training and promotion, working environment, and cooperation among them. The study also concluded that an increase in level of financial benefits, performance appraisal system, promotional strategies, training, and development program improves the overall satisfaction of employees. Paudel and Sthapit (2021) examined the impact of work-family balance (WFB) practices on employee performance in Nepalese commercial banks including private and foreign joint venture banks. The study discovered that WFB practices (measured in terms of flexible time, job sharing, telework/telecommuting and leave policy) have significant influence on employee performance in Nepalese commercial banks. Manandhar (2016) examined the influence of flexibility policies, welfare policies, leave provision and job design on employee job satisfaction and employee performance. The study showed that all the factors of work life balance policies have positive impact on the employee job satisfaction and

employee performance. Pathak (2018) analyzed the link between working hour, income level and organizational support with work-life balance of employees working in selected commercial banks of Nepal. The study found the inverse relationship between the work life balance and number of children in the banking sector of Nepal. Adhikari (2019) explored the impact of quality of work-life balance on job satisfaction in Nepalese commercial banks. The study concluded that there is positive relationship of working environment with job satisfaction which indicates that better the working environment, higher would be the job satisfaction.

The above discussion reveals that the empirical evidences vary greatly across the studies concerning the effect of job environment on employee satisfaction. Though there are above mentioned empirical evidences in the context of other countries and in Nepal, no such findings using more recent data exist in the context of Nepal. Therefore, in order to support one view or the other, this study has been conducted.

The main purpose of the study is to analyze the effect of job environment on employee satisfaction in Nepalese commercial banks. Specifically, it examines the impact of job safety and security, incentives and recognition, supervisor's support, training and development, co-worker's relation and working hour's flexibility on employee satisfaction in Nepalese commercial banks.

The remainder of this study is organized as follows. Section two describes the sample, data and methodology. Section three presents the empirical results and the final section draws the conclusion.

2. Methodological aspects

The study is based on the primary data. The data were gathered from 160 respondents through questionnaire. The study employed convenience sampling method. The respondents' views were collected on job safety and security, incentives and recognition, supervisor's support, training and development, co-worker's relation, working hour's flexibility, and employee satisfaction. The study is based on descriptive and causal comparative research designs. Table 1 shows the list of commercial banks selected for the study along with the number of the respondents.

Table 1: List of commercial banks selected for the study along with the number of respondents

S.N.	Name of the commercial banks	Number of respondents
1	Agricultural Development Bank Limited	9
2	Civil Bank Limited	4
3	Nabil Bank Limited	13
4	Nepal Investment Bank Limited	4
5	Nepal SBI Bank Limited	5
6	Global IME Bank Limited	6
7	Century Commercial Bank Limited	5
8	Prabhu Bank Limited	11
9	Himalayan Bank Limited	10
10	Mega Bank Nepal Limited	11
11	Bank of Kathmandu Limited	8

12	Prime Commercial Bank Limited	6
13	Siddhartha Bank Limited	11
14	Sanima Bank Limited	5
15	Sunrise Bank Limited	11
16	NMB Bank Limited	5
17	Machhapuchchhre Bank Limited	14
18	Nepal Bangladesh Bank Limited	10
19	Rastriya Banijya Bank Limited	4
20	Kumari Bank Limited	8
Total number of respondents		160

Thus, the study is based on 160 respondents

The model

The model estimated in this study assumes that employee satisfaction depends on job safety and security, incentives and recognition, supervisor's support, training and development, co-worker's relation and working hour's flexibility. Therefore, the model takes the following form:

$$ES = \beta_0 + \beta_1 JS + \beta_2 IR + \beta_3 TD + \beta_4 SS + \beta_5 CR + \beta_6 WH + e$$

Where,

- ES = Employee satisfaction
- JS = Job safety and security
- IR = Incentives and recognition
- TD = Training and development
- SS = Supervisory support
- CR = Co-worker's relationship
- WH = Working hours flexibility

Employee satisfaction was measured using a 5-point Likert scale where the respondents were asked to indicate the responses using 1 for strongly disagree and 5 for strongly agree. There are 5 items and sample items include "I am satisfied with the career development opportunity provided by bank", "I enjoy working at my bank and intend to stay for the foreseeable future" and so on. The reliability of the items was measured by computing the Cronbach's alpha ($\alpha = 0.836$).

Job safety and security was measured using a 5-point Likert scale where the respondents were asked to indicate the responses using 1 for strongly disagree and 5 for strongly agree. There are 5 items and sample items include "Employees will get a security guarantee as long as he/she is working at the company", "There is very few chances of you getting terminated once you enrolled until big bad" and so on. The reliability of the items was measured by computing the Cronbach's alpha ($\alpha = 0.772$).

Incentive and recognition were measured using a 5-point Likert scale where the respondents were asked to indicate the responses using 1 for strongly disagree and 5 for strongly agree. There are 5 items and sample items include "A good incentive and rewards plan help me play a role to develop a good environment in the organization", "Management gives recognition for job performance" and so

on. The reliability of the items was measured by computing the Cronbach's alpha ($\alpha = 0.772$).

Supervisor's support was measured using a 5-point Likert scale where the respondents were asked to indicate the responses using 1 for strongly disagree and 5 for strongly agree. There are 5 items and sample items include "I think that my productivity level is increased with the help of my supervisor," "I frequently meet with my supervisor about my personal development." and so on. The reliability of the items was measured by computing the Cronbach's alpha ($\alpha = 0.790$).

Training and development were measured using a 5-point Likert scale where the respondents were asked to indicate the responses using 1 for strongly disagree and 5 for strongly agree. There are 5 items and sample items include "There are a lot of skill development opportunities in my bank", "The organization is committed to professional development" and so on. The reliability of the items was measured by computing the Cronbach's alpha ($\alpha = 0.740$).

Co-worker's relation was measured using a 5-point Likert scale where the respondents were asked to indicate the responses using 1 for strongly disagree and 5 for strongly agree. There are 5 items and sample items include "The meetings that I have with my co-workers and supervisors help me to get my job done", "I and the co-workers cooperate to get the work done" and so on. The reliability of the items was measured by computing the Cronbach's alpha ($\alpha = 0.743$).

Working hour's flexibility were measured using a 5-point Likert scale where the respondents were asked to indicate the responses using 1 for strongly disagree and 5 for strongly agree. There are 5 items and sample items include "Working hours in my office create a stressful environment", "There is a negative perception of working at banks due to hectic working hours" and so on. The reliability of the items was measured by computing the Cronbach's alpha ($\alpha = 0.834$).

The following section describes the independent variables used in this study along with the hypothesis formulation.

Job safety and security

According to Valletta (1999), job security is an important variable that significantly affects employee satisfaction and level of commitment. Rosenblatt *et al.* (1999) found out that if an organization fails to provide job security to its employees whether they are on contract or permanent member, then the level of motivation and organizational commitment in them decreases and both these things directly affect their job performance. Anwar *et al.* (2011) observed that those employees who are hired on contract basis are less motivated than permanent employees and it is mainly because of lack of job security. Monte (2012) showed that job insecurity is harmful for welfare, having repercussions on mental health of employees and their families. Basak and Govender (2015) assessed the determinants of job satisfaction and showed that job security significantly increases the individual's job satisfaction. Based on it, this study develops the following hypothesis:

H_1 : *There is a positive relationship of job safety and security with employee satisfaction.*

Incentives and recognition

Arokiasamy *et al.* (2013) investigated the effect of rewards system and motivation on job satisfaction in education industry in Malaysia. The results indicated that there is positive relationship of rewards and motivation with job satisfaction. Similarly, Rafiq *et al.* (2012) assessed the impact of extrinsic and intrinsic rewards on job satisfaction in employees of call centers of telecom organizations in Pakistan. The results indicated that rewards have positive relation with job satisfaction. Moreover, Ali and

Ahmed (2009) analyzed the impact of rewards and recognition programs on employee's motivation and satisfaction. This study showed that there is positive relation of rewards and recognition with job satisfaction. Furthermore, Jehanzeb *et al.* (2012) assessed the impact of rewards and motivation on job satisfaction in both the public and private banks of Saudi Arabia. The results indicated that rewards and motivation have positive relationship with job satisfaction. Based on it, this study develops the following hypothesis:

H_2 : *There is a positive relationship of incentives and recognition with employee satisfaction.*

Supervisor's support

According to Eisenberger *et al.* (2002), supportive supervisor provides guidance, assistance and feedback to their employees that are crucial to employee's adaptation in the workplace. Qureshi *et al.* (2018) analyzed the influence of supportive supervisors on job satisfaction of nurses. The study revealed that nurse's degree of job satisfaction was positively influenced by their supervisor's support. Similarly, Ahmad *et al.* (2019) also reported that supervisor support has a significant positive influence on employee's job satisfaction. Anderson *et al.* (2002) investigated the association between supportive supervisors and workers job satisfaction. The study found that supportive supervisors played a crucial role in determining the degree of job satisfaction of employees. Parvin and Kabir (2011) revealed that support of supervisor and co-worker relation are the most important factors contributing to job satisfaction. Further, Karatepe (2010) showed that supervisory support reduces the effect of emotional exhaustion on job satisfaction and positively influence the job satisfaction. Based on it, this study develops the following hypothesis:

H_3 : *There is a positive relationship between supervisor's support and employee satisfaction.*

Training and development

Shelton (2001) assessed the effects of employee development programs on job satisfaction and employee's retention aiming on business success. The study found that training and development increase employee level of satisfaction. Sahinidis and Bouris (2007) examined the relationship between perceived employee training effectiveness and job satisfaction, motivation and commitment in five Greek companies. The study found that there is a significant positive correlation between the employee perceived training effectiveness and their commitment, job satisfaction and motivation. Owens (2006) explored that there is a strong link between training and various outcomes of organization such as job satisfaction, training, and organizational commitments. Moreover, Tabvuma *et al.* (2015) stated that orientation training exerts a significant positive effect on newcomer male employees' job satisfaction in both the private and public sectors. Similarly, Hanaysha and Tahir (2016) revealed that employees training has a significant positive effect on job satisfaction. Based on it, this study develops the following hypothesis:

H_4 : *There is a positive relationship between training and development and employee satisfaction.*

Co-worker's relation

Betra (2005) found a sound relationship with co-workers enhances job satisfaction among the employees in the organization. When cohesion exists within a work group it usually leads effectiveness within a group and makes the job more enjoyable. Similarly, Chou and Robert (2008) revealed that the co-worker's relation and emotional support help to increase the level of job satisfaction. Okediji *et al.* (2011) examined the influence of perceived co-worker involvement and supervisory

support on job satisfaction. The study showed a positive association between perceived co-worker involvement, supervisory support and job satisfaction. Moreover, Babin and Boles (1996) assessed the effects of perceived co-worker involvement and supervisor support on service provider role stress, performance and job satisfaction. The study found positive effects of perceived co-worker involvement and supervisor support on performance and job satisfaction. Based on it, this study develops the following hypothesis:

H_5 : *There is a positive relationship between co-worker's relation and employee satisfaction.*

Working hour's flexibility

Flexible schedule is associated with increased job commitment, work satisfaction and performance, organizational citizenship behaviors, improved group dynamics, decreased turnover intent, home-family enrichment, home satisfaction, and reduced work-home conflict (Allen, 2001). According to McNamara *et al.* (2013), employees with work schedule flexibility seems to be more satisfied than the employees on regular schedule. Due to this work schedule flexibility, employees shall have more control and independence in their working life and their work life and private life can be improved (Ahmad *et al.*, 2013). Similarly, Scandura and Lankau (1997) revealed that flexible work schedule organization can get benefit through employee's job satisfaction, organizational commitment, increased level of productivity and lesser absenteeism and lower turnover. According to Ballard and Seibold (2006), when there is flexibility in the work time in an organization then the performance of the workers can be improved which are helpful to fulfill the organization goals. Based on it, this study develops the following hypothesis:

H_6 : *There is a positive relationship between working hour's flexibility and employee satisfaction.*

3. Results and discussion

Correlation analysis

On analysis of data, correlation analysis has been undertaken first and for this purpose, Kendall's Tau correlation coefficients along with means and standard deviations have been computed and the results are presented in Table 2.

Table 2: Kendall's Tau correlation coefficients matrix

This table presents Kendall's Tau correlation coefficients between dependent variable and independent variables. The correlation coefficients are based on 160 observations. The dependent variable is JS (employee satisfaction). The independent variables are JS (Job safety and security), IS (Incentives and recognition), TD (Training and development), SS (Supervisor's support), CR (Co-worker's relation) and WH (Working hours flexibility).

Variables	Mean	SD	JS	IR	TD	SS	CR	WH	ES
JS	4.285	0.558	1						
IR	3.983	0.550	0.176**	1					
TD	3.853	0.529	0.205**	0.481**	1				
SS	3.96	0.557	0.150*	0.569**	0.601**	1			
CR	3.939	0.549	0.208**	0.426**	0.489**	0.538**	1		

WH	3.17	0.896	0.134*	0.224**	0.259**	0.287**	0.255**	1	
ES	3.831	0.622	0.182**	0.501**	0.534**	0.518**	0.442**	0.159**	1

*Notes: The asterisk sign (**) indicates that the results are significant one percent level.*

Table 2 shows that job safety and security are positively correlated to employee satisfaction. It implies that increase in job safety and security leads to increase in employee satisfaction. The result also reveals that incentives and recognition are positively correlated to employee satisfaction. It implies that fair incentives and recognition in the organization leads to increase in employee satisfaction. Moreover, training and development are positively correlated to employee satisfaction. It implies that increase in training and development facilities leads to increase in employee satisfaction. Furthermore, supervisor's support is positively correlated to employee satisfaction indicating that supportive supervisor in the organization leads to increase in employee satisfaction. Similarly, the result also shows that co-worker's relationship is positively correlated to employee satisfaction. It indicates that better co-worker's relationship leads to increase in employee satisfaction. Moreover, working hour's flexibility is positively correlated to employee satisfaction. It implies that working hour's flexibility leads to increase in employee satisfaction.

Regression analysis

Having indicated the Kendall's Tau correlation coefficients, the regression analysis has been carried out and the results are presented in Table 3. More specifically, it shows the regression results of job safety and security, incentives and recognition, training and development, supervisor's support, co-worker's relation, working hours flexibility with employee satisfaction in Nepalese commercial banks.

Table 3: Estimated regression results of job safety and security, incentives and recognition, training and development, supervisor's support, co- worker's relation, working hours flexibility with employee satisfaction

The results are based on 160 observations using linear regression model. The model is $ES = \beta_0 + \beta_1 JS + \beta_2 IR + \beta_3 TD + \beta_4 SS + \beta_5 CR + \beta_6 WH + e$, where the dependent variable is ES (Employee satisfaction). The independent variables are JS (Job safety and security), IR (Incentives and recognition), TD (Training and development), SS (Supervisor's support), CR (Co-worker's relation) and WH (Working hours flexibility).

Model	Intercept	Regression coefficients of						Adj. R _{bar} ²	SEE	F-value
		JS	IR	TD	SS	CR	WH			
1	2.160 (6.018)**	0.390 (4.694)**						0.117	0.584	22.030
2	0.983 (3.511)**		0.715 (10.280)**					0.396	0.483	105.431
3	1.021 (3.577)**			0.729 (9.937)**				0.381	0.489	98.753
4	1.015 (3.702)**				0.711 (10.378)**			0.402	0.481	107.706
5	1.150 (4.014)**					0.681 (9.454)**		0.357	0.499	89.375
6	3.402 (19.084)**						0.135 (2.503)**	0.032	0.612	6.265
7	0.606 (1.767)	0.138 (1.872)*						0.406	0.479	55.303
8	0.156 (0.466)	0.076 (1.087)	0.436 (5.164)**	0.418 (4.789)**				0.479	0.449	49.663
9	0.074 (0.224)	0.079 (1.131)	0.339 (3.597)**	0.290 (2.791)**	0.241 (2.230)			0.492	0.443	39.439
10	0.127 (0.383)	0.060 (0.887)	0.281 (3.000)**	0.247 (2.415)*	0.158 (1.443)	0.255 (2.992)**		0.516	0.432	34.960
11	0.033 (0.099)	0.009 (0.123)	0.293 (3.150)**	0.289 (2.797)**	0.189 (1.733)	0.284 (3.319)**	0.097 (2.057)*	0.526	0.428	30.450

Notes:

- i. Figures in parenthesis are t-values.
- ii. The asterisk signs (**) and (*) indicate that the results are significant at one percent and five percent level of significance respectively.
- iii. Employee satisfaction is dependent variable.

The regression results show that the beta coefficients for job safety and security are positive with employee satisfaction. It indicates that job safety and security have a positive impact on employee satisfaction. This finding is similar to the findings of Rosenblatt *et al.* (1999). Likewise, the beta coefficients for incentives and recognition are positive with employee satisfaction. It indicates that incentives and recognition have a positive impact on employee satisfaction. This finding is consistent with the findings of Jehanzeb *et al.* (2012). Moreover, the beta coefficients for training and development are positive with employee satisfaction. It indicates that training and development have a positive impact on employee satisfaction. This finding is similar to the findings of Hanaysha and Tahir (2016). Furthermore, the beta coefficients for supervisor's support are positive with job satisfaction. It indicates that supervisor's support has a positive impact on employee satisfaction. This finding is consistent with the findings of Parvin and Kabir (2011). In addition, the beta coefficients for co-worker's relation are positive with employee satisfaction. It indicates that co-worker's relation has a positive impact on employee satisfaction. This finding is similar to the findings of Wainaina *et al.* (2014). Similarly, the beta coefficients for working hour's flexibility are positive with employee satisfaction. It indicates that working hour's flexibility has a positive impact on employee satisfaction. This finding is similar with the findings of Krausz *et al.* (2000).

4. Summary and conclusion

Employee satisfaction is very crucial for any organization. The majority of commercial banks have been focusing in different determinants that affect the satisfaction of the employees. Employee satisfaction helps organization to perform effectively and efficiently and achieve organization goal. Enhancing employee satisfaction creates and fosters an environment which help organization to grow and sustain.

This study attempts to examine the effect of job environment on employee satisfaction in Nepalese commercial banks. The study is based on primary data with 160 observations.

The study showed that job safety and security, incentives and recognition, supervisor's support, training and development, co-worker's relation and working hour's flexibility have positive impact on employee satisfaction in Nepalese commercial banks. The study concluded that better incentive and more training opportunities leads to increase in the level of motivation and satisfaction. The study also concluded that supervisor's support followed by incentives and recognition is the most influencing factor that explains the employee job satisfaction in Nepalese commercial banks.

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Factors affecting women participation in leadership position in Nepalese manufacturing companies

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Abstract

This study examines the factors affecting women participation in Nepalese manufacturing companies. Women participation is the dependable variable. The independent variables are personal factors, societal factors, organizational factors, cultural factors and glass ceiling factors. The primary source of data is used to assess the opinions of the respondents regarding level of women participation, personal factors, societal factors, organizational factors, cultural factors and glass ceiling factors in manufacturing companies. The study is based on primary data with 154 respondents. To achieve the purpose of the study, structured questionnaire is prepared. The regression model is estimated to test the significance and importance of different factors on the women participation in Nepalese manufacturing companies.

The result shows that cultural factors have positive impact on women participation. It indicates that cultural factors stimulate the women participation in managerial role. Likewise, organizational factors have positive impact on women participation. It indicates that organizational factors stimulate the women participation in managerial role. Similarly, societal factors have positive impact on women participation. It means that societal factors encourage women to participate in managerial role. Furthermore, the result shows that personal factors have positive impact on women participation. It indicates that the influence of personal factors drives women to participate in managerial role. In addition, glass ceiling factors have negative impact on women participation. It indicates that increase in glass ceiling factors leads to decrease in the level of women participation in managerial role in Nepalese manufacturing companies.

Key words: *Women participation, personal factors, societal factors, organizational factors, cultural factors and glass ceiling factors.*

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1. Introduction

Women's participation in the workforce contributes to economic development, empowerment, gender equality and helps to uplift society. Women's participation in the labor force is imperative for the economic development of the country (Dogan & Akyuz, 2017). Women are less participated and low represented in decision making positions in developing countries. Women's low access to information and media, less employment opportunity, organizational barriers coupled by cultural factors reduce their decision-making power in the society in general and in organizations in particular. Gender inequality can be considered as universal problem in developing countries. Women in developed countries are relatively empowered economically and have power to struggle for their equality with men. On the other hand, women in developing countries are voiceless because of economic and cultural factors (Jimoh *et al.*, 2016). These economic and cultural factors dictate the gender-based division of labour, rights, responsibilities, opportunities and access and control over resources. Education opportunity, access to media, employment status, participation in decision making positions, involvement in political activities among other things, are some areas of gender inequality. Gender disparity in education makes women to be underrepresented in the formal sector of employment (Lumadi, 2012).

Women involvement is a process for empowering women to participate in managerial decision-making and improvement activities appropriate to their levels in the organization. Ademe & Singh (2015) investigated the factors that facilitate or constrain women to participate in leadership and management in pursuit of scrutinizing the issue of under-representation of women in selected public higher education institutions in Amhara region using a mixed research approach. Self-confidence, networking opportunities, self-esteem, conducive organizational working environment, and assertiveness are found to be the most important factors pulling women into leadership. To other end, stereotyping, patriarchy, lack of support system at work, low academic qualification and lack of role model are the major barriers stifling women to assume leadership positions. Emeka *et al.* (2011) examined the barriers to women leadership and managerial aspirations in Lagos, Nigeria. The study identified the barriers to the career advancement of women to top management positions as lack of mentoring, fewer opportunities for training and development of women, low aspiration level of women managers and gender stereotypes. Baker and Cangemi (2000) identified personal factors such as, assertiveness, confidence, resourceful creativeness, loyalty and trustworthiness which could help women to ascend to senior management positions. On the other hand, Chen *et al.* (2021) listed glass ceiling, gender discrimination and sexual harassment, organizational culture, and work and family conflict as major barriers. The glass ceiling refers to invisible, generally artificial, barriers that prevent qualified individuals, e.g., women, from advancing within their organizations and reaching their full potential (Elmuti *et al.*, 2009).

Women involvement has been conceptualized as the process of developing a feeling of psychological ownership among organizational members and has been implemented through the participation of women in information processing, decision-making and problem solving. Women managers are often found in lower management positions that gave them little access to power and meaningful challenges. Lack of education, sexual harassment, lack of mentor, lack of role model, in adequate knowledge/competence, lack of work support, family responsibility, and lack of equity in pay and training as are identified major barriers (Maheshwari and Nayak, 2022). Carter & Peters (2016) also noted that nepotism, political affiliation, networking, ethnicity, qualification, administration experience, willingness to take position, assertiveness, self-confidence, and self-esteem are the major factors affecting women to advance in their career ladder. Michailidis *et al.* (2012) also identified

several obstacles that prevent women from advancing to senior management positions. The study indicated the socio-cultural beliefs as the major barriers in this regard. These beliefs emphasize the superiority of men and the inferiority of women. They form an integral part of the socialization process and the gender education and training most men and women are exposed to from childhood. Afza & Newaz (2008) examined the existence of glass ceiling in different industries and service sectors in Bangladesh. This study also assessed the contributing factors which create the glass ceiling effects and women career advancement in an organization. The analysis of this study indicated that five factors responsible for glass ceiling effects which eventually restricts women career opportunity and progression at a certain stage. The identified factors are: management perception, work environment, work life conflict, sexual harassment and organizational policy.

Hora (2014) assessed the status of women in Bedele town administration, as well point out factors hindering women from the participating in public and forward some possible recommendations for solving the problems identified through study. The study revealed that, in public institutions existed in Bedele Town, the majority of women were having an educational status of diploma and lower, holding lower non decision making and leadership positions, and observed major barriers hindering women from public leadership and decision-making positions include: Socio-cultural attitudes and lack of acquisition of the necessary experience for taking part in public decision-making, over burden of domestic responsibilities continuation of the negative attitudes regarding women's ability to lead and govern, lack of role models of women leaders for young women and girls. According to Tharenou (2005), lack of adequate childcare has been a barrier to women managers and threatens their career advancement. Women may be at disadvantage in terms of family responsibility where high commitments to organization are expected (Mavin, 2001). Hossain *et al.* (2009) examined the factors that influence women entrepreneurship development in Bangladesh. The results revealed that women face problems in establishing their own businesses in every step that they take. The desire for financial independence and decision making, market and informational network, availability of a start-up capital, knowledge and skills, and responsibility towards children are the main factors that impact women's decision to become self-entrepreneurs. The regression analysis, however, revealed that participation in women associations, advocacy, and decision making (self-fulfillment) and knowledge are the main factors that affect women's decision to develop their business.

De Alwis & Bombuwela (2013) analyzed the effect of glass ceiling on women career development with regard to female executive level employees who are working in private sector organizations. The findings revealed that the glass ceiling and women career development have a moderate negative relationship, and also showed that individual factors, organizational factors and cultural factors have a significant effect on women career development. However, family factor has effects on the glass ceiling. The study concluded that there are significant effects of the glass ceiling on women career development of executive level female employees working in private sector organizations in Sri Lanka. It is commonly believed that women have less career advancement opportunities than do men. Some of the reasons of this problem for women in their career are clearly connected to the idea of a glass ceiling. Glass ceiling refers to invisible barriers that impede the career advancement of women. It also refers to situations where the advancement of a qualified person within the hierarchy of an organization is halted at a particular level because of some form of discrimination, most commonly sexism or racism (Afza & Newaz, 2008).

In the context of Nepal, Adhikary (2016) examined the barriers that influence career progression of Nepal women workers. The study showed that individual, organizational and societal structure have significant influence on career progress of women workers. However, Acharya and Padmavathy (2018) found that organizational initiatives are necessary to help employees achieve a better work life balance.

The above discussion shows that empirical evidences vary greatly across the studies on the effect of different factors on women participation in managerial role. Though there are above mentioned empirical evidences in the context of other countries and in Nepal, no such findings using more recent data exist in the context of Nepal. Therefore, in order to support one view or the other, this study has been conducted.

The major objective of the study is to examine the factors affecting women participation in managerial positions in Nepalese commercial banks. More specifically, it examines the relationship of personal factors, societal factors, organizational factors, cultural factors and glass ceiling factors with women participation in leadership positions in Nepalese commercial banks.

The remainder of this study is organized as follows: section two describes the sample, data, and methodology. Section three presents the empirical results and final section draws the conclusion and discuss the implication of the study findings.

2. Methodological aspects

The study is based on the primary data. The data were gathered from 154 respondents through questionnaire. The respondents' views were collected on personal factors, societal factors, organizational factors, cultural factors and glass ceiling factors and level of women participation in Nepalese manufacturing organizations.

The model

The study assumes that the women participation depends upon different variables. The dependent variable selected for the study is women participation. Similarly, the selected independent variables are personal factors, societal factors, organizational factors, cultural factors and glass ceiling factors. Therefore, the model takes the following form:

$$WP = \beta_0 + \beta_1 PF + \beta_2 SF + \beta_3 OF + \beta_4 CF + \beta_5 GCF + e$$

Where,

WP = Women participation

PF = Personal factors

SF = Societal factors

OF = Organizational factors

CF = Cultural factors

GCF = Glass ceiling factors

Personal factors were measured using a 5-point Likert scale where the respondents were asked to indicate the responses using 1 for strongly disagree and 5 for strongly agree. There are 5 items and sample items include "Family restricts women from going fieldwork and taking risk which hampers their career development", "The irrational feeling that women have of failing in task assigned acts as a barrier to advance to upper level" and so on. The reliability of the items was measured by computing the Cronbach's alpha ($\alpha = 0.748$).

Societal factors were measured using a 5-point Likert scale where the respondents were asked to indicate the responses using 1 for strongly disagree and 5 for strongly agree. There are 5 items and

sample items include “Men are seen as decision makers than female in the society”, “Women in Nepal don’t have access to the same kind of connection as men do” and so on. The reliability of the items was measured by computing the Cronbach’s alpha ($\alpha = 0.779$).

Organizational factors were measured using a 5-point Likert scale where the respondents were asked to indicate the responses using 1 for strongly disagree and 5 for strongly agree. There are 5 items and sample items include “Gender preference of managers to delegate authority is a barrier to women who aspires to advance to higher position”, “Strict rules and schedule about working hours or inflexible working practice pose a challenge” and so on. The reliability of the items was measured by computing the Cronbach’s alpha ($\alpha = 0.773$).

Cultural factors were measured using a 5-point Likert scale where the respondents were asked to indicate the responses using 1 for strongly disagree and 5 for strongly agree. There are 5 items and sample items include “Gender stereotyping that is a strict rule for what each gender should do”, “Religious beliefs that assume men as superior than women hold back women from participating in office works” and so on. The reliability of the items was measured by computing the Cronbach’s alpha ($\alpha = 0.840$).

Glass ceiling factors was measured using a 5-point Likert scale where the respondents were asked to indicate the responses using 1 for strongly disagree and 5 for strongly agree. There are 5 items and sample items include “There is an intangible barrier within a hierarchy that prevents women to obtain upper-level positions in the bank”, “Through equally competent, women leaders are generally more preferred in work” and so on. The reliability of the items was measured by computing the Cronbach’s alpha ($\alpha = 0.718$).

Women participation was measured using a 5-point Likert scale where the respondents were asked to indicate the responses using 1 for strongly disagree and 5 for strongly agree. There are 5 items and sample items include “Equal information sharing positively influence women participation”, “Power sharing to women enhances involvement in the job” and so on. The reliability of the items was measured by computing the Cronbach’s alpha ($\alpha = 0.916$).

The following section describes the independent variables used in this study along with the hypothesis formulation.

Cultural factors

Azeez and Priyadarshini (2018) found that there is significant positive impact of cultural factors on women career advancement. Further, Organization culture is among the factors that are central to promote a supportive work environment (Lobel, 1999). Organizations are based on norms, beliefs, attitudes, and assumptions, which in turn influence organizational practices, tacit norms, and values (Vianen and Fisher, 2002). Bajdo and Dickson (2001) found that organizations that maintain cultures that promote gender equity are more likely to have an increasing number of women in management positions. Based on it, this study develops the following hypothesis:

H_1 : *There is a positive relationship between cultural factors and women participation in managerial position.*

Societal factors

Azeez and Priyadarshini (2018) found that negative societal factors contribute more hindrance to the women in advancing their careers. Similarly, Hora (2014) observed that the major barriers hindering

women from public leadership and decision-making positions include negative socio-cultural attitudes and lack of acquisition of the necessary experience for taking part in public decision-making and over burden of domestic responsibilities. Subramaniam *et al.* (2014) found that demographic factors (job level, age, marital statuses and education) and family related barrier have a significant and positive influence on career development. Based on it, this study develops the following hypothesis:

H₂: There is a positive relationship between societal factors and women participation in leadership position.

Organizational factors

Bajdo and Dickson (2001) found that organizations that maintain cultures that promote gender equity are more likely to have an increasing number of women in management positions. Organization culture is among the factors that are central to promote a supportive work environment (Lobel, 1999). Organizations are based on norms, beliefs, attitudes, and assumptions, which in turn influence organizational practices, tacit norms, and values (Vianen and Fisher, 2002). Based on it, this study develops the following hypothesis:

H₃: There is a positive relationship between organizational factors and women participation in leadership position.

Personal factors

Subramaniam *et al.* (2014) examined the influence of demographic and family related barrier on women managers' career development in Malaysia. The study found that demographic factors (job level, age, marital statuses and education) and family related barrier have a significant positive influence on career development in Malaysia. Further, Linge (2015) found that organizational factor, individual factor and family factor have significant positive influence on women career development. However, Yusuff (2014) found that gender differentials have no statistical relationship with career advancement of academic staff. Based on it, this study develops the following hypothesis:

H₄: There is a positive relationship between personal factors and women participation in leadership position.

Glass ceiling factors

Azeez and Priyadarshini (2018) found that there is significant negative impact of glass ceiling factors on women career advancement. Rai and Srivastava (2010) argued that glass ceiling is one of the main obstacles for women career development making them difficult to reach in the higher position. Artificial barriers like glass ceiling have significant effect on minority career development and increasing severity of inequality over the life course (Maume, 2004). Based on it, this study develops the following hypothesis:

H₅: There is a negative relationship between glass ceiling factors and women participation in leadership position.

3. Results and discussion

Correlation analysis

On analysis of data, correlation analysis has been undertaken first and for this purpose, Kendall's Tau correlation coefficients along with mean and standard deviation has been computed and the results are presented in Table 1.

Table 1: Kendall's Tau correlation coefficients matrix

This table presents Kendall's Tau correlation coefficients between dependent variable and independent variables. The correlation coefficients are based on 154 observations. The dependent variable is WP (Women participation). The independent variables are CF (Cultural factors), OF (Organizational factors), SF (Social factors), PF (Personal factors), and GCF (Glass ceiling factors).

Variables	Mean	SD	PF	SF	OF	CF	GCF	WP
PF	3.907	1.013	1					
SF	3.018	1.017	0.226**	1				
OF	3.261	1.005	0.150*	0.392**	1			
CF	3.210	0.972	0.110	0.361**	0.395**	1		
GCF	3.224	0.929	0.115	0.233**	0.188**	0.454**	1	
WP	3.162	0.888	0.186**	-0.019	0.223**	0.050	-0.170**	1

Notes: The asterisk signs (**) and (*) indicate that the results are significant at one percent and five percent level respectively.

Table 1 shows that there is a positive relationship between cultural factors and women participation. It means that cultural factors stimulate the women participation in leadership position. Likewise, organizational factors are positively related to women participation. It indicates that supportive organizational factors stimulate the women participation in leadership position. Similarly, societal factors are positively correlated to women participation. It means that societal factors encourage women to participate in leadership position. Furthermore, the result shows that there is a positive relationship between personal factors and women participation. It indicates that the influence of personal factors drives women to participate in leadership position. In addition, there is a negative relationship between glass ceiling factors and women participation. It indicates that increase in glass ceiling factors leads to decrease in the level of women participation in leadership position.

Regression analysis

Having indicated the Kendall's Tau correlation coefficients, the regression analysis has been carried out and the results are presented in Table 3. More specifically, it shows the regression results of cultural factors, organizational factors, societal factors, personal factors and glass ceiling factors on women participation of Nepalese manufacturing companies.

Table 2: Estimated regression results of cultural factors, organizational factors, societal factors, personal factors and glass ceiling factors on women participation

The results are based on 154 observations using linear regression model. The model is $WP = \beta_0 + \beta_1 PF + \beta_2 SF + \beta_3 OF + \beta_4 CF + \beta_5 GCF + \epsilon$, where the dependent variable is WP (Women participation). The independent variables are CF (Cultural factors), OF (Organizational factors), SF (Social factors), PF (Personal factors), and GCF (Glass ceiling factors).

Model	Intercept	Regression coefficients of					Adj. R _{bar} ²	SEE	F-value
		PF	SF	OF	CF	GCF			
1	4.764 (33.140)**	0.165 (3.453)**					0.167	0.464	11.920
2	4.563 (21.788)**		0.076 (1.353)				0.005	0.479	1.830
3	4.936 (21.488)**			0.173 (2.876)**			0.145	0.469	8.270
4	4.275 (21.289)**				0.003 (0.049)		0.007	0.482	0.002
5	3.925 (20.638)**					-0.102 (1.931)	0.018	0.476	3.727
6	4.807 (22.084)**	0.160 (3.159)**	0.015 (0.265)				0.061	0.465	5.959
7	5.109 (20.309)**	0.150 (2.978)**	0.059 (0.900)	0.161 (2.300)*			0.087	0.459	5.849
8	4.999 (19.721)**	0.143 (2.880)**	0.025 (0.377)	0.243 (3.088)**	0.141 (2.181)*		0.109	0.453	5.656
9	4.785 (18.681)**	0.155 (3.192)**	0.041 (0.622)	0.259 (3.376)**	0.025 (0.338)	-0.195 (3.080)**	0.157	0.441	6.706

Notes:

- i. Figures in parenthesis are t-values
- ii. The asterisk signs (**) and (*) indicate that the results are significant at one percent and five percent level respectively.
- iii. Women participation is the dependent variable.

Table 2 shows that the beta coefficients for organizational factors are positive with women participation. It indicates that organizational factors have a positive impact on women participation. This finding is consistent with the findings of Bajdo and Dickson (2001). Similarly, the beta coefficients for societal factors are positive with women participation. It indicates that societal factors have a positive impact on women participation. This finding is consistent with the findings of Azeez and Priyadarshini (2018). Further, the beta coefficients for personal factors are positive with women participation. It indicates that personal factors have a positive impact on women participation. This finding is consistent with the findings of Adhikary (2016). In addition, the beta coefficients for cultural factors are positive with women participation. It indicates that cultural factors have a positive impact on women participation. This finding is similar to the findings of Vianen and Fisher (2002). Likewise, the beta coefficients for glass ceiling factors are negative with women participation. It indicates that glass ceiling factors have negative impact on women participation. This finding is similar to the findings of Rai and Srivastava (2010).

4. Summary and conclusion

Women in developed countries are relatively empowered economically and have power to struggle for their equality with men. On the other hand, women in developing countries are voiceless because of economic and cultural factors. These economic and cultural factors dictate the gender-based division of labor, rights, responsibilities, opportunities and access and control over resources. Education opportunity, access to media, employment status, participation in decision making positions, involvement in political activities among other things, are some areas of gender inequality. There are different factors that hinders women participation in managerial positions.

This study attempts to examine the factors affecting women participation in Nepalese manufacturing companies. The study is based on primary data with 154 respondents.

The study shows that cultural factors, organizational factors, societal factors and personal factors have positive impact on women participation in managerial positions. However, glass ceiling factors have negative impact on women participation in managerial positions in Nepalese manufacturing companies. The study concludes that organizational factors and cultural factors leads to higher women participation in leadership position. The study also concludes that personal factors followed by organizational factors is the most influencing factor that explains the women participation in leadership positions in Nepalese manufacturing companies.

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Impact of work life balance on employee job satisfaction in Nepalese insurance companies

– Sital Bastola*

Abstract

This study examines the impact of work life balance on employee job satisfaction in Nepalese insurance companies. Job satisfaction is the dependent variable. The selected independent variables are working hour, salary, job design, supervisory support, organizational culture, reward and recognition. The primary source of data is used to assess the opinions of the respondents regarding work life balance and level of job satisfaction in Nepalese insurance companies. The study is based on primary data with 147 respondents. To achieve the purpose of the study, structured questionnaire is prepared. The correlation coefficients and regression models are estimated to test the significance and importance of work life balance on employee job satisfaction in Nepalese insurance companies.

The result showed that reward and recognition have positive impact on job satisfaction. It implies that increase in reward and recognition leads to increase in job satisfaction. The result also showed that working environment has a positive impact on job satisfaction. It implies that better the working environment, higher would be the job satisfaction. Moreover, working hour has a positive impact on job satisfaction. It implies that increase in working hour flexibility leads to increase in job satisfaction in the organization. Furthermore, organization culture has a positive impact on job satisfaction indicating that supportive organization culture leads to increase in job satisfaction. Similarly, the result also showed that supervisory support has a positive impact on job satisfaction in the organization. It indicates that increase in supervisory support leads to increase in job satisfaction. Moreover, job design has a positive impact on job satisfaction. It implies that better job design leads to increase in job satisfaction.

Key words: *Women participation, personal factors, societal factors, organizational factors, cultural factors and glass ceiling factors.*

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1. Introduction

The rapid economic growth and development in the world has created new activities and open new doors for all the business organizations. The globalization trend has put the organizations hard to retain their competitive advantage (Stonehouse & Snowdon, 2007). This trend has also affected the banking and insurance sector. Banking and insurance sector become more competitive. The changes in business activities bring change in culture and perception of the employees. Organizational changes due to downsizing, mergers/ acquisitions and radical changes in technology have changed the work setups. The employees in present are more involved in their jobs than in the last decade. The long working hours, work pressure, high demanding jobs, use of sophisticated technology made it difficult for employees to keep a balance between their job and work commitments (Nadeem and Abbas 2009).

Banking and insurance activities are engaged in managing financial and non-financial products that are known to have a high employee turnover rate. The high level of employee turnover is influenced by various things, including work autonomy, work-life balance, and job satisfaction. Novianti and Fuadiputra (2021) examined the effect of work autonomy, work-life balance, and job satisfaction on turnover intention in the banking sector of Malang City. The results showed that work autonomy significantly affected job satisfaction, work-life balance, and turnover intention. Work-life balance also has a significant effect on turnover intention. However, job satisfaction has no significant effect on turnover intention. In terms of mediating effects, work-life balance can mediate the effect of job autonomy on turnover intention. Meanwhile, job satisfaction has no mediating effect between work autonomy and turnover intention. Arief *et al.* (2021) analysed the effect of quality work and work-life balance on job satisfaction through employee engagement. The study showed that the quality of work-life variable has a positive and significant effect on job satisfaction. It proves that if the quality of work-life perceived by employees is good, it will increase job satisfaction. Similarly, work-life balance variable has a positive and significant effect on employee job satisfaction. It indicates that work-life balance can increase employee job satisfaction. Kazmi *et al.* (2008) examined the effects of stressful work environment on the performance of medical house officers. The study concluded that there is negative impact of stressful work environment on the performance of medical house officers. Mcguire and McLaren (2007) found that a working environment has a strong impact on employees' well-being and develops interaction, collaboration and innovation and increase job satisfaction. Raziq and Maulabakhsh (2015) found a positive relationship between working environment and employee job motivation. Furthermore, Musriha (2013) showed that teamwork and work environment were significantly correlated to job satisfaction and job performance.

Hasan *et al.* (2021) examined the organizational commitment in the assessment of work-life balance, person-job fit, work condition, and the mediation of job satisfaction. The study revealed that work-life balance, person-job fit, and job satisfaction have a positive influence on organizational commitment. Job satisfaction intervenes complementarily with the relationship of work-life balance and person-job fit with organizational commitment, while full mediation of job satisfaction was found for work conditions. Similarly, Azmi *et al.* (2021) examined the mediating impact of job satisfaction on the effect of work life balance and work passion on turnover intention. The results of the study indicated that work-life balance and work passion have a positive and significant direct effect on job satisfaction. The study also showed that job satisfaction can significantly mediate the effect between work-life balance and work passion for turnover intention. Organizations deemed as a positive place to work have a competitive edge since they are in a better position to attract and retain highly skilled employees. A positive workplace environment is likely to result in less employee turnover, fewer cases of fraud, better safety practices, easier to attract and retain qualified employees and improved

employees' wellbeing. According to Ramay (2012), a healthy and friendly work environment may enhance an employee's commitment towards his work and organization. The study also showed that work environment is significantly and positively related to organizational commitment.

Aranki *et al.* (2019) examined the relationship between organizational culture and organizational commitment. The study indicated that there is a positive and significant relationship between organizational culture and organizational commitment. Lund (2003) showed that there is a positive relationship between organizational culture and job satisfaction. Scandura and Lankau (1997) observed that flexible work hours lead to higher job satisfaction and organizational commitment for female employees and for employees with family responsibilities. According to Johari *et al.* (2018), flexible work schedules lead to enhanced productivity, decreased absenteeism, improved commitment, and better recruiting. In addition, Nadeem and Abbas (2009) assessed the relationship between work life conflict and job satisfaction of Pakistani employees. The study revealed a negative relationship between work life conflict and job satisfaction. Arif and Farooqi (2014) explored the impact of work life balance on job satisfaction and organizational commitment among teaching employees of university of Gujrat. The result showed a significant positive relationship between work life balance and job satisfaction of university teachers in Gujrat, India. Companies that have implemented the work life balances programs recognize that employee welfare affects the bottom line of the business. In today's competitive world, organizations are spending lot of time and money on employee satisfaction in an effort to improve productivity, and also to help the organization needs. Employees feel more satisfaction with their work and family when they enjoy the benefits of work life balance programs provided by their employers (Ueda, 2012).

In the context of Nepal, Acharya *et al.* (2022) examined the impact of non-monetary reward on employee motivation in Nepalese commercial banks. The study showed that recognition, flexible work hour, career development opportunities, belongingness and job security have positive impact on employee motivation among the commercial banks. The study concluded that better career development opportunities and flexible working hour leads to higher employee motivation and commitment. The study also concluded that belongingness followed by job security and recognition is the most influencing factor that explains the change in the level of employee motivation in Nepalese commercial banks. Similarly, Rawal *et al.* (2022) examined the impact of workplace environment on employee performance in Nepalese insurance companies. The study showed that supervisor support, flexible working environment, job aids, physical working environment and teamwork have positive effect on employee performance. The study concluded that better workplace environment system leads to increase in employee performance in insurance companies. The study also concluded that team work followed by physical working environment and supervisor support is the most significant factor that explains the changes in employee performance in Nepalese insurance companies. Kunwar *et al.* (2022) examined the factors influencing employee retention in Nepalese insurance companies. The study showed that salary, flexible working hour, working environment, performance appraisal, location, training and development have positive impact on employee retention in insurance companies. The study concluded that better salary benefits and performance appraisal programs leads to higher employee retention. The study also concluded that location followed by working environment and flexible working hour is the most significant factor that explains the changes in employee retention in Nepalese insurance companies.

The above discussion reveals that the empirical evidences vary greatly across the studies concerning the impact of work life balance on employee job satisfaction. Though there are above mentioned empirical evidences in the context of other countries and in Nepal, no such findings using more recent data exist in the context of Nepal. Therefore, in order to support one view or the other, this study has been conducted.

The main purpose of the study is to analyze the impact of work life balance on employee job satisfaction in Nepalese insurance companies. Specifically, it examines the impact of working hour, salary, job design, supervisory support, organizational culture, and reward and recognition on employee job satisfaction in Nepalese insurance companies.

The remainder of this study is organized as follows. Section two describes the sample, data and methodology. Section three presents the empirical results and the final section draws the conclusion.

2. Methodological aspects

The study is based on the primary data. The data were gathered from 147 respondents through questionnaire. The respondents' views were collected on working hour, salary, job design, supervisory support, organizational culture, reward and recognition. The study is based on descriptive and causal comparative research designs. Table 1 shows the list of insurance companies along with the number of the respondents selected for the study.

Table 1: List of insurance companies selected for the study along with the number of respondents

S.N.	Name of the insurance companies	Number of respondents
1	Prabhu Life Insurance Company Limited	9
2	Siddhartha Insurance Company Limited	3
3	Sagarmatha Insurance Company Limited	7
4	National Insurance Company Limited	5
5	Reliable Nepal Life Insurance Limited	10
6	NLG Insurance Company Limited	5
7	Mahalaxmi Life Insurance Company Limited	7
8	Neco insurance company Limited	7
9	Nepal Life Insurance Company Limited	10
10	Himalayan General Insurance Company Limited	8
11	Premier Insurance Company Limited	9
12	Shikhar Life Insurance Company Limited	7
13	Reliance Life Insurance Limited	7
14	Jyoti Life Insurance Company Limited	8
15	Prime Insurance Company Limited	12
16	Asian Life Insurance Company Limited	4
17	Gurans Life Insurance Company Limited	6
18	Sanima Life Insurance Company Limited	11
19	Everest Insurance Company Limited	5
20	Surya Life Insurance Company Limited	7
Total number of respondents		147

Thus, the study is based on 147 respondents.

The model

The model estimated in this study assumes that job satisfaction depends on working hour, salary, organizational support, job design, supervisory support, organizational culture and reward and recognition. Therefore, the model takes the following form:

$$JS = \beta_0 + \beta_1 WH + \beta_2 S + \beta_3 JD + \beta_4 OC + \beta_5 SS + \beta_6 RR + e$$

Where,

JS = Job satisfaction

WH = Working hour

S = Salary

JD = Job design

OC = Organizational culture

SS = Supervisory support

RR = Reward and recognition

Working hour was measured using a 5-point Likert scale where the respondents were asked to indicate the responses using 1 for strongly agree and 5 for strongly disagree. There are 5 items and sample items include "I am paid well for my overtime work", "My insurance company encourages force leave to increase job satisfaction through work life balance" and so on. The reliability of the items was measured by computing the Cronbach's alpha ($\alpha = 0.882$)

Salary was measured using a 5-point Likert scale where the respondents were asked to indicate the responses using 1 for strongly agree and 5 for strongly disagree. There are 5 items and sample items include "I am being paid the fair amount for the work I do", "I am satisfied with my salary" and so on. The reliability of the items was measured by computing the Cronbach's alpha ($\alpha = 0.908$).

Job design was measured using a 5-point Likert scale where the respondents were asked to indicate the responses using 1 for strongly agree and 5 for strongly disagree. There are 5 items and sample items include "My company uses concept of job rotation and job enlargement practically", "I have never been to the situation where I have to compromise my personal life and family's safety" and so on. The reliability of the items was measured by computing the Cronbach's alpha ($\alpha = 0.909$).

Organizational culture was measured using a 5-point Likert scale where the respondents were asked to indicate the responses using 1 for strongly agree and 5 for strongly disagree. There are 5 items and sample items include "Changes suggested by employees are usually implemented", "I am satisfied with working culture of insurance companies" and so on. The reliability of the items was measured by computing the Cronbach's alpha ($\alpha = 0.915$).

Supervisory support was measured using a 5-point Likert scale where the respondents were asked to indicate the responses using 1 for strongly agree and 5 for strongly disagree. There are 5 items and sample items include "My supervisor is open to constructive criticism", "There is open communication system with supervisor" and so on. The reliability of the items was measured by computing the Cronbach's alpha ($\alpha = 0.936$).

Reward and recognition were measured using a 5-point Likert scale where the respondents were asked to indicate the responses using 1 for strongly agree and 5 for strongly disagree. There are 5 items and sample items include "I am satisfied with the reward system of my company", "Insurance company provides fair reward and recognition on time" and so on. The reliability of the items was measured by computing the Cronbach's alpha ($\alpha = 0.941$).

Job satisfaction was measured using a 5-point Likert scale where the respondents were asked to indicate the responses 1 for strongly agree and 5 for strongly disagree. There are 5 items and sample items include “I am satisfied with the amount of pay I receive from insurance company”, “I am satisfied with the leadership of my supervisor” and so on. The reliability of the items was measured by computing the Cronbach’s alpha ($\alpha = 0.933$).

The following section describes the independent variables used in this study along with the hypothesis formulation.

Working hour

Putra *et al.* (2020) examined impact of flexible working hours, remote working, and work life balance to employee satisfaction in banking industry during covid-19 pandemic period. The study found that flexible working hours and remote working have positive effects on the employee job satisfaction. Similarly, Davidescu *et al.* (2020) analyzed the work flexibility, job satisfaction, and job performance among Romanian employees. The study found a positive association between work flexibility, flexible working hours, job satisfaction, and job performance among Romanian employees. In addition, working hour has a positive relationship between working hours and employee job satisfaction. Raziq & Maulabakhsh (2015). Furthermore, Pagan (2017) found that all workers suffering from working time mismatch are more likely to report lower levels of job satisfaction compared to those who actually work their desired hours. Based on it, this study develops following hypothesis:

H₁ : There is a positive relationship between working hour and job satisfaction.

Salary

Khalid and Irshad (2010) found that salary plays a significant role in influencing employee perception and level of job satisfaction in Punjab, Pakistan. Salary or pay is considered as a significant reward to motivate the workers and their behavior towards the goals of employer (Oshagbemi, 2000). Chaudhry *et al.* (2017) found that salary is positively related to employee job satisfaction. Moreover, McCausland *et al.* (2005) revealed that performance pay has a positive effect on the employee job satisfaction. Similarly, Ali and Ahmad (2017) found that pay has a positive and significant impact on job satisfaction. Further, Karim *et al.* (2014) found that salary significantly influence the level of job satisfaction of employees. Likewise, Card *et al.* (2012) stated that there is a direct positive impact of pay on employee job satisfaction. Based on it, this study develops following hypothesis:

H₂ : There is a positive relationship between salary and job satisfaction.

Organizational culture

Pawirosumarto *et al.* (2017) found that supportive organizational culture has a positive and significant impact on employee job satisfaction in Parador Hotels and Resorts, Indonesia Sabri *et al.* (2011) stated that organizational culture has a positive and significant on job satisfaction of teachers of higher education institutes and universities in Lahore. Moreover, MacIntosh and Doherty (2010) concluded that element of organizational culture influenced both job satisfaction and intention to leave in the fitness industry. Habib *et al.* (2014) stated that nature of organization significantly affects the job satisfaction and turnover intentions. The result indicates that good and supportive culture within the organization has positive relationship with employee job satisfaction and negative relationship with turnover intention. Further, Soomro and Shah (2019) revealed that there is a positive and significant impact of organizational culture on employee’s performance and job satisfaction.

In addition, Ahamed and Mahmood (2015) showed a positive and significant relationship between organizational culture and job satisfaction in Bangla lion communication Ltd. Likewise, Qazi *et al.* (2017) found that there is a significant positive correlation between organizational culture and employee job satisfaction. Based on it, this study develops following hypothesis:

H₃: There is positive relationship between organizational culture and job satisfaction.

Supervisory support

According to Griffin *et al.* (2001), the supervisor support refers to support and encouragement to employees within their work groups. The support and consideration of supervisor are the strong determinant of the job satisfaction in a wide variety of work setting. McGilton *et al.* (2007) found that supervisory support is important and influencing variable that enhance the level of employee job satisfaction. Okediji *et al.* (2011) stated that supervisory support is positively associated with the employee job satisfaction. Moreover, Mazumder *et al.* (2016) showed a positive significant correlation between supervisory support and job satisfaction. Parvin and Kabir (2011) revealed that support of supervisor and co-worker relation are the most important factors contributing to employee job satisfaction. Further, Karatepe (2010) showed that supervisory support reduces the effect of emotional exhaustion on job satisfaction and positively influence the job satisfaction. Likewise, Qureshi and Hamid (2017) stated that coworker relationship and supervisor support can enhance the level of employee job satisfaction. Similarly, Bibi *et al.* (2018) concluded that sound supervisor relationship and support have a significant relationship with the retention of employees and job satisfaction. Based on it, this study develops following hypothesis:

H₄: There is a positive relationship between supervisory support and job satisfaction.

Reward and recognition

Danish and Usman (2010) assessed the impact of reward and recognition on job satisfaction and motivation in the context of Pakistan. The study found that rewards and recognition have a positive impact on employee work motivation. Alonso and Lewis (2001) found that recognition has a significant positive impact on employee satisfaction and motivation. According to Wayne *et al.* (1995), employees who are able to experience and receive recognition for their work are also able to have a better perception of their work, their workplace and the people they work for. Similarly, Ndungu (2017) examined the effects of rewards and recognition on employee performance in public educational institutions of Kenyatta University. The study revealed that there is a significant positive relationship of reward and recognition with employee performance. In addition, Baskar and Rajkumar (2015) found that there is a direct and positive relationship of rewards and recognition with employee job satisfaction and motivation. Based on it, this study develops the following hypothesis:

H₅: There is a positive relationship between reward and recognition and job satisfaction.

Job design

Ali & Zia-ur-Rehman (2014) measured the effect of job design on employee performance and job satisfaction in the context of FMCG's sector in Pakistan. Organizations always have quest of finding the unique ways in order to enhance the performance of the employees, this study would help to analyze that how an adequate job design would help to increase the employee performance. The result showed a positive relationship between job design, employee performance and job satisfaction. Wood *et al.* (2012) found a positive association between enriched job design, high involvement

management and organizational performance. The study also showed a positive impact of job design on employee job satisfaction. In addition, job design includes perceived work demands, job control and social support that led to higher output and higher job satisfaction (Love & Edwards, 2005). Certain jobs and goals setting can enhance the level of performance and the design job can increase the satisfaction as well as the quality of performance (Garg & Rastogi, 2005). Based on it, this study develops the following hypothesis:

H_6 : *There is a positive relationship between job design and job satisfaction.*

3. Results and discussion

Correlation analysis

On analysis of data, correlation analysis has been undertaken first and for this purpose, Kendall's Tau correlation coefficients along with means and standard deviations have been computed and the results are presented in Table 2.

Table 2: Kendall's Tau correlation coefficients matrix

This table presents Kendall's Tau correlation coefficients between dependent variable and independent variables. The correlation coefficients are based on 147 observations. The dependent variable is JS (Job satisfaction). The independent variables are WH (Working hour), S (Salary), JD (Job design), OC (Organizational culture), SS (Supervisory support), and RR (Reward and recognition).

Variables	Mean	SD	WH	S	JD	OC	SS	RR	JS
WH	1.484	0.733	1						
S	1.536	0.787	0.876**	1					
JD	1.547	0.790	0.876**	0.914**	1				
OC	1.535	0.795	0.856**	0.863**	0.857**	1			
SS	1.484	0.788	0.833**	0.830**	0.825**	0.858**	1		
RR	1.551	0.820	0.853**	0.890**	0.849**	0.845**	0.807**	1	
JS	1.543	0.817	0.859**	0.871**	0.855**	0.855**	0.825**	0.855**	1

*Notes: The asterisk signs (**) and (*) indicate that the results are significant at one percent and five percent level respectively.*

The study reveals that reward and recognition are positively correlated to job satisfaction. It implies that increase in reward and recognition leads to increase in job satisfaction. The result also shows that working environment is positively correlated to job satisfaction. It implies that better the working environment, higher would be the job satisfaction. Moreover, working hour is also positively correlated to job satisfaction. It implies that increase in working hour flexibility leads to increase in job satisfaction in the organization. Furthermore, organization culture is positively correlated to job satisfaction indicating that supportive organization culture leads to increase in job satisfaction. Similarly, the result also shows that supervisory support is positively correlated to job satisfaction in the organization. It indicates that increase in supervisory support leads to increase in job satisfaction. Moreover, job design is also positively correlated to job satisfaction. It implies that better job design led to increase in job satisfaction.

Regression analysis

Having analyzed the Kendall's Tau correlation coefficients matrix, the regression analysis has been carried out and the results are presented in Table 3. More specifically, it presents the regression results of working hour, salary, job design, organization culture, supervisory support, reward and recognition on job satisfaction in Nepalese insurance companies.

Table 3 Estimated regression results of working hour, salary, job design, supervisory support, organizational culture and reward and recognition on job satisfaction in Nepalese insurance companies

The results are based on 147 observations using linear regression model. The model is $JS = \beta_0 + \beta_1 WH + \beta_2 S + \beta_3 JD + \beta_4 OC + \beta_5 SS + \beta_6 RR + e$, where the dependent variable is JS (Job satisfaction). The independent variables are WH (Working hour), S (Salary), JD (Job design), OC (Organizational culture), SS (Supervisory support), and RR (Reward and recognition).

Model	Intercept	Regression coefficients of						Adj. R _{bar} ²	SEE	F-value
		WH	S	JD	OC	SS	RR			
1	0.101 (1.348)	0.890 (21.461)**						0.759	0.401	460.560
2	0.101 (1.595)		0.909 (25.621)**					0.818	0.349	656.455
3	0.161 (2.144)*			0.863 (20.663)**				0.745	0.413	426.967
4	0.095 (1.633)				0.913 (27.893)**			0.842	0.325	778.152
5	0.226 (3.018)**					0.807 (19.914)**		0.730	0.424	396.580
6	0.113 (2.067)*						0.922 (29.449)**	0.856	0.310	867.227
7	0.031 (0.502)	0.344 (4.079)**	0.651 (8.283)**					0.836	0.331	371.955
8	0.031 (0.495)	0.339 (3.428)**	0.646 (6.694)**	0.110 (0.101)				0.834	0.332	246.269
9	0.014 (0.250)	0.183 (1.990)*	0.361 (3.669)**	0.057 (0.592)	0.515 (6.051)**			0.867	0.297	239.852
10	0.007 (0.133)	0.149 (1.608)	0.379 (3.875)**	0.102 (1.045)	0.439 (4.763)**	0.145 (1.996)*		0.870	0.294	196.712
11	0.012 (0.236)	0.043 (0.494)	0.067 (0.620)	0.030 (0.319)	0.376 (4.407)**	0.028 (0.401)	0.451 (5.266)**	0.891	0.270	199.621

Notes:

- i. Figures in parenthesis are t-values
- ii. The asterisk signs (**) and (*) indicate that the results are significant at one percent and five percent level respectively.
- iii. Job satisfaction is the dependent variable.

The regression results show that the beta coefficients for reward and recognition are positive with job satisfaction. It indicates that reward and recognition have a positive impact on the employee job satisfaction. This finding is consistent with the findings of Terera and Ngirande (2014). Likewise, the result also shows that the beta coefficients for working environment are positive with job satisfaction. It reveals that working environment has a positive impact on employee job satisfaction. This finding is similar to the findings of Ornetzeder *et al.* (2016). Similarly, the beta coefficients for salary are

positive with job satisfaction. It indicates that there is a positive impact of salary on the employee job satisfaction. This finding is consistent with the findings of Mitchell *et al.* (2001). Likewise, the result also shows that the beta coefficients for supervisory support are positive with employee job satisfaction. It reveals that supervisory support have a positive impact on employee job satisfaction. The finding is similar to the findings of Martensen and Gronholdt (2001). Similarly, the beta coefficients for job design are positive with job satisfaction. It indicates that there is a positive impact of job design on the employee job satisfaction. This finding is consistent with the findings of Bordin *et al.* (2007).

4. Summary and conclusion

In the current competitive, global business-environment, organizations were continuously triggered by social-developments and economic-advancements, which consequently passed pressures to the labour-market. Retaining talented employees will not only boost the competitiveness of companies, but will also reduce the cost of companies alleviating costly recruiting-cycles. Organizations need individuals who perform well and choose to remain as their employees. The key to job satisfaction is the fit between the objective conditions of the job and the worker's expectations. The better the fit between expectations and job reality, the greater the satisfaction and vice versa

This study attempts to examine the impact of work life balance on employee job satisfaction in Nepalese insurance companies. The study is based on primary data with 147 observations.

The study showed that working hour, salary, job design, supervisory support, Organizational culture and reward and recognition have positive impact on job satisfaction of employees in Nepalese insurance companies. The study concluded that better work life balance leads to higher level of employee job satisfaction. The study also concluded that reward and recognition followed by organizational culture are the most influencing factor that explains the employee job satisfaction in Nepalese insurance companies.

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Factors influencing job satisfaction and its impact on job loyalty of Nepalese commercial banks

– Pramita Limbu*

Abstract

This study examines the factors influencing job satisfaction and its impact on job loyalty in the context of Nepalese commercial banks. Job loyalty is the dependent variable. Likewise, the selected independent variables are rewards and recognition, training and development, workplace environment, team work, employee empowerment, employee participation and job satisfaction. The primary source of data is used to assess the opinions of the respondents regarding job satisfaction and job loyalty in Nepalese commercial banks. The study is based on primary data with 161 respondents. To achieve the purpose of the study, structured questionnaire is prepared. The correlation coefficients and regression models are estimated to test the significance and importance of different factors on job satisfaction and its impact on job loyalty in the context of Nepalese commercial banks.

The study showed that reward and recognition have positive impact on job loyalty. It implies that increase in reward and recognition leads to increase in job loyalty. The result also showed that workplace environment has a positive impact on job loyalty. It implies that better the workplace environment, higher would be the job loyalty. Moreover, team work has a positive impact on job loyalty. It implies that increase in teamwork leads to increase in job loyalty in the organization. Furthermore, employee empowerment has a positive impact on job loyalty indicating that better employee empowerment activities lead to increase in job loyalty. Similarly, the result also showed that employee participation has a positive impact on job loyalty in the organization. It indicates that increase in employee participation leads to increase in job loyalty. Moreover, training and development programs have positive impact on job loyalty. It implies that increase in training and development activities lead to increase in job loyalty. The result also indicated job satisfaction has a positive impact on job loyalty. It implies that higher the level of job satisfaction, higher would be the job loyalty in the organization.

Key words: *Job loyalty, job satisfaction, reward and recognition, training and development, workplace environment, team work, employee participation and employee empowerment.*

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1. Introduction

In the current competitive, global business-environment, organizations were continuously triggered by social-developments and economic-advancements, which consequently passed pressures to the labour-market (Burke and Ng, 2006). Retaining talented employees will not only boost the competitiveness of companies, but will also reduce the cost of companies alleviating costly recruiting-cycles. Organizations need individuals who perform well and choose to remain as their employees. The key to job satisfaction is the fit between the objective conditions of the job and the worker's expectations. The better the fit between expectations and job reality, the greater the satisfaction and vice versa (Munoz and Fernandez, 2005). Job satisfaction further implies enthusiasm and happiness with one's work. Job satisfaction is the key ingredient that leads to recognition, income, promotion, and the achievement of other goals that lead to a feeling of fulfillment (Kaliski, 2007). Many studies showed that loyal employees represent value to a company and loyal employees are more committed to the continuous improvement of service quality (Jun *et al.*, 2006; Hart and Thompson, 2007). Job loyalty is often viewed as the attitude towards a particular organization. Employees' loyalty is the eagerness to stay touched with the organization. An employee is loyal to his or her organization when he/she shows commitment and believes that it is the best option for him or her to work for the organization.

Turkyilmaz *et al.* (2011) examined the level of satisfaction and loyalty among the employees working in public sector. The study showed that there is a positive linear relationship between employee satisfaction and employee loyalty. The study also showed that the most determining factors of employee satisfaction and loyalty are training and personnel development, working conditions, reward and recognition, empowerment and participation and teamwork. Marič *et al.* (2011) investigated the job satisfaction and loyalty of employees to the organization. The study revealed that job satisfaction has a statistically significant effect on the loyalty to the organization. The study concluded that the elements that construct job satisfaction can lead to decrease in the turnover of good employees. Pandey and Kharel (2012) assessed the impact of job satisfaction and organizational commitment on employee loyalty. The study found that there is a significant impact of job satisfaction and organizational commitment on employee loyalty in manufacturing industry. Further, the study concluded that in case of service industry, job satisfaction has an impact on employee loyalty but organizational commitment has no impact on employee loyalty. Mafini *et al.* (2013) examined the relationship between job satisfaction and job loyalty among municipal sports officers. The result revealed a positive relationship between the five job satisfaction factors and job loyalty. Further, the study found a positive relationship between the five job satisfaction factors and job loyalty where ability utilization contributed the highest and autonomy contributed the lowest to the job loyalty of municipal sports officers.

Waqas *et al.* (2014) examined the factors influencing job satisfaction and its impact on job loyalty. The study revealed that there is a positive relation between job satisfaction and job loyalty. The study also showed that the most determining factors to job satisfaction are reward and recognition, work place environment and empowerment. Khuong and Tien (2013) examined the factors influencing employee loyalty directly and indirectly through job satisfaction. The study revealed that the high levels of satisfaction, supervisor support, fringe benefits, teamwork, working environment, and training have positive impact on organizational loyalty. Noor and Jamil (2014) investigated the factor affecting employee's satisfaction and effect of employee's satisfaction towards employee's loyalty in public sector organizations of Pakistan. The results of the study revealed a positive relationship between employees' loyalty and employee's satisfaction. The results further concluded that training,

career development, pay and flexible working environment have significantly and positively affected the employee's satisfaction.

Aghajani and Ahmadian (2015) examined the influential factors of employee satisfaction and loyalty. The results showed that there is a direct and positive correlation between employee satisfaction and their loyalty. Rajput *et al.* (2016) examined the association between job satisfaction and employee loyalty. The study concluded that there is a significant impact of job satisfaction on employee loyalty among academicians. Mokaddem *et al.* (2017) examined the impact of job satisfaction on organizational loyalty in gas and electricity firms in Algeria. The study revealed that there is a positive relationship between job satisfaction and organizational loyalty. Frempong *et al.* (2018) examined the impact of job satisfaction on employee's loyalty and commitment. The study showed a significant and positive relationship between rewards/recognitions, employees' participation in decision making, workplace environment, employees' empowerment and job loyalty.

Gagnon and Michael (2004) indicated that employees who perceive themselves to be in a supportive relationship with their supervisor tend to have higher performance, job satisfaction and organizational commitment. John (2017) concluded that that organizations become more productive and efficient if the flexible working hour practices are implemented at a strategic level and more importantly if due consideration is given to the preferences and needs of the employees. Furthermore, Kamarulzaman *et al.* (2011) stated that several factors of environments such as the effects of workplace design, indoor temperature, color, noise and also interior plants towards employee's well-being positively influence the employee performance in an organization. Sanyal and Hisam (2018) revealed that there is a strong positive and significant connection between the independent variables such as teamwork, climate of trust, leadership and structure, performance evaluation and rewards and the performance of the faculty members of Dhofar University in Sultanate of Oman. Similarly, Tohidi (2011) concluded that good activity often relies upon the ability of cross functional team to create a shared understanding of the task, the process and the respective roles of its members. The study also revealed that team work and good coordination between the employees leads to increase in employee productivity.

In the context of Nepal, Kunwar *et al.* (2022) examined the factors influencing employee retention in Nepalese insurance companies. The study showed that salary, flexible working hour, working environment, performance appraisal, location, training and development have positive impact on employee retention in insurance companies. The study concluded that better salary benefits and performance appraisal programs leads to higher employee retention. The study also concluded that location followed by working environment and flexible working hour is the most significant factor that explains the changes in employee retention in Nepalese insurance companies. Gyawali (2020) examined the factors influencing employees' loyalty. The study also examined the important factors influencing employees' loyalty towards pay benefits, work environment, organization culture and value and training and development opportunities. The results showed that higher employee loyalty is related to their nature of work, career advancement and recognition, relationship with their supervisors and working environment.

Rawal *et al.* (2022) examined the impact of workplace environment on employee performance in Nepalese insurance companies. The result showed that supervisor support has positive impact on employee performance. It indicates that increase in supervisory support leads to increase in employee performance in Nepalese insurance companies. Likewise, flexible working environment has positive impact on employee performance. It indicates that flexible working environment leads to increase in employee performance. Similarly, job aids have positive impact on employee performance. It indicates that increase in the job aids leads to increase in employee performance in Nepalese

insurance companies. Furthermore, the result showed that physical working environment has positive impact on employee performance. It indicates that better the physical working environment, higher would be the employee performance in insurance companies. Sharma (2016) examined the impact of human resource practices on employee motivation, satisfaction and loyalty of Nepalese commercial banks. The study revealed that there is a positive relationship between recruitment and selection, training and development, compensation, empowerment, career counselling and appraisal system with employee motivation, satisfaction and loyalty in Nepalese commercial banks.

The above discussion reveals that the empirical evidences vary greatly across the studies concerning the factors influencing job satisfaction and its impact on job loyalty. Though there are above mentioned empirical evidences in the context of other countries and in Nepal, no such findings using more recent data exist in the context of Nepal. Therefore, in order to support one view or the other, this study has been conducted.

The major objective of the study is to determine the factors influencing job satisfaction and its impact on job loyalty in the context of Nepalese commercial banks. More specifically, it examines the impact of rewards and recognition, training and development, workplace environment, team work, employee participation, employee empowerment and job satisfaction on job loyalty in the context of Nepalese commercial banks.

The remainder of this study is organized as follows. Section two describes the sample, data and methodology. Section three presents the empirical results and the final section draws the conclusion.

2. Methodological aspects

The study is based on the primary data. The data were gathered from 161 respondents through questionnaire. The respondents' views were collected on reward and recognition, training and development, workplace environment, team work, employee empowerment and employee participation. The study is based on descriptive and causal comparative research designs.

The model

The model estimated in this study assumes that job loyalty depends on reward and recognition, training and development, workplace environment, team work, employee participation, employee empowerment and job satisfaction. Therefore, the model takes the following form:

$$JS = \beta_0 + \beta_1 RR + \beta_2 WE + \beta_3 TW + \beta_4 EP + \beta_5 EE + \beta_6 TD + e$$

$$JL = \beta_0 + \beta_1 RR + \beta_2 WE + \beta_3 TW + \beta_4 EP + \beta_5 EE + \beta_6 TD + \beta_7 JS + e$$

Where,

RR = Reward and recognition

TW = Team work

EM = Employee empowerment

TD = Training and development

EP = Employee participation

WE = Workplace environment

JS = Job satisfaction

JL = Job loyalty

Reward and recognition were measured using a 5-point Likert scale where the respondents were asked to indicate the responses using 1 for strongly disagree and 5 for strongly agree. There are 5 items and sample items include “I enjoy working in a place who provides rewards and recognition often”, “My workplace provides rewards and recognition to employees timely” and so on. The reliability of the items was measured by computing the Cronbach’s alpha ($\alpha = 0.770$).

Training and development was measured using a 5-point Likert scale where the respondents were asked to indicate the responses using 1 for strongly disagree and 5 for strongly agree. There are 5 items and sample items include “Training and development provides opportunities to widen my knowledge and abilities”, “Training and development programs are conducted timely in my workplace” and so on. The reliability of the items was measured by computing the Cronbach’s alpha ($\alpha = 0.731$).

Workplace environment was measured using a 5-point Likert scale where the respondents were asked to indicate the responses using 1 for strongly disagree and 5 for strongly agree. There are 5 items and sample items include “I love working in a place which has a large workspace”, “I share good relationship with my co- workers” and so on. The reliability of the items was measured by computing the Cronbach’s alpha ($\alpha = 0.701$).

Teamwork was measured using a 5-point Likert scale where the respondents were asked to indicate the responses using 1 for strongly disagree and 5 for strongly agree. There are 5 items and sample items include “Teamwork makes the working environment more communicative and cordial”, “The office I work has good team spirit between employees” and so on. The reliability of the items was measured by computing the Cronbach’s alpha ($\alpha = 0.788$).

Employee empowerment was measured using a 5-point Likert scale where the respondents were asked to indicate the responses using 1 for strongly disagree and 5 for strongly agree. There are 5 items and sample items include “Employee empowerment enhances my knowledge, facts and authority”, “My workplace makes me feel empowered” and so on. The reliability of the items was measured by computing the Cronbach’s alpha ($\alpha = 0.773$).

Employee participation was measured using a 5-point Likert scale where the respondents were asked to indicate the responses using 1 for strongly disagree and 5 for strongly agree. There are 5 items and sample items include “I am involved in making decisions that affect my work”, “I am given the opportunity to suggest improvements” and so on. The reliability of the items was measured by computing the Cronbach’s alpha ($\alpha = 0.745$).

Job satisfaction was measured using a 5-point Likert scale where the respondents were asked to indicate the responses using 1 for strongly disagree and 5 for strongly agree. There are 5 items and sample items include “I feel encouraged to come up with new and innovative ideas”, “I am happy with team and company culture” and so on. The reliability of the items was measured by computing the Cronbach’s alpha ($\alpha = 0.776$).

Job loyalty was measured using a 5-point Likert scale where the respondents were asked to indicate the responses using 1 for strongly disagree and 5 for strongly agree. There are 5 items and sample items include “Prioritizing job satisfaction factors leads to gain job loyalty”, “I am quite satisfied so I am loyal towards my job” and so on. The reliability of the items was measured by computing the Cronbach’s alpha ($\alpha = 0.809$).

The following section describes the independent variables used in this study along with the hypothesis formulation.

Employee empowerment

Ugboro and Obeng (2000) indicated that empowered employees have higher levels of job satisfaction and performance primarily because of their involvement in goal setting and in making decisions that affect their work. Sternberg (1992) recognized that empowerment positively influences employee attitude and behavior. The empowerment program provides employees with a positive job experience and leads to higher employee satisfaction (Koberg *et al.*, 2004). The study also showed that increase in employee authority has a reflection in his intrinsic motivation which leads to the level of employee job satisfaction. Bordin *et al.* (2007) also found that employee empowerment has positive impact on employee job satisfaction. Based on it, this study develops the following hypothesis:

H_1 : *There is positive relationship between employee empowerment and job satisfaction.*

Work place environment

Physical working conditions consist different factors about the job such as comfortable workplace, ventilation, lighting and temperature, bigger, better and cleaner work spaces, and office spaces. These factors positively increase the level of employee job satisfaction since employees want a work environment that provides more physical comfort (Bluyssen *et al.*, 2016). When this is provided by the firm, employee satisfaction increases. Similarly, high job-satisfaction level is positively associated with good physical working conditions (Rorong, 2016). Ornetzeder *et al.* (2016) also indicated that environmental conditions of air and temperature affect a person's perception of comfort. Hongisto *et al.* (2016) measured that disorder by noise from combined sources correlate inversely with composite measures of both environmental and job satisfaction. Based on it, this study develops the following hypothesis:

H_2 : *There is positive relationship between workplace environment and job satisfaction.*

Reward and recognition

Terera and Ngirande (2014) explored the impact of rewards on job satisfaction and employee retention among nurses. The study revealed that employee rewards lead to employee retention and job satisfaction. Maurer (2001) suggested that rewards and recognition have positive association with organizational success and employee job satisfaction. They are frequently considered as one of the key factors influencing employee satisfaction. Employee compensation has a positive influence on employee job satisfaction (Brown and Mitchell, 1993; Oliver and Anderson, 1994). One way through which employers can retain the workforce is through offering a good compensation package. An organization can only be successful in its retention strategy if it offers competitive, market-related pay and benefits because this motivates employees to become committed to the organization (Simeone, 2020). Based on it, this study develops the following hypothesis:

H_3 : *There is positive relationship between reward and recognition and job satisfaction*

Employee participation

Boon *et al.* (2006) found a positive association between employee's participation and affective commitment. According to Chao *et al.* (1994), employees' understanding of goals, values and politics of their companies and involvement in decision making were positively and significantly related to job satisfaction. Bhatti and Qureshi (2007) suggested that employee participation in organization events may improve job-satisfaction level. Employee participation as taking part in the common decision making has shown a positive link with positive task attitude and employee commitment

(Cassar, 1999). Participation can affect employee's job satisfaction directly or indirectly. Based on it, this study develops the following hypothesis:

H₄: There is positive relationship between employee participation and job satisfaction.

Teamwork

Teamwork has a significant positive association with job satisfaction (Khuong and Tien, 2013). Moreover, effective teamwork can motivate an organization's employees and increase their performance and self-efficacy. An increase in employee motivation and self-efficacy as a result of teamwork can be a source to job satisfaction (Griffin *et al.*, 2001). Effective teamwork can motivate employees and improve employee performance and self-efficacy. Teamwork is a source of employee autonomy, meaningfulness, bonding with team members, and satisfaction (Denison and Hart, 1996; Mitchell *et al.*, 2001). An effective team working together towards a common goal can enhance the motivational properties of work and increase job satisfaction. Based on it, this study develops the following hypothesis:

H₅: There is positive relationship between teamwork and job satisfaction.

Training and development

Employee training provides opportunities to employees widen their knowledge and abilities for more efficient teamwork and achieve individual development (Jun *et al.*, 2006). When workers receive self-development training, the level of their job satisfaction is higher than those without such training (Saks, 1996). Moreover, Martensen and Gronholdt (2001) found that the development of individual competencies through various training programs has a positive influence on employee satisfaction. Costen and Salazar (2011) found that employee job satisfaction is influenced when they have an opportunity for advancement of individual competencies through various training programs. Vasudevan (2014) also found that training and development positively and significantly influence organizational commitment and job satisfaction. Moreover, Adesola *et al.* (2013) reported that training and development have positive effects of job satisfaction. Based on it, this study develops the following hypothesis:

H₆: There is positive relationship between training and development and job satisfaction.

Job satisfaction

Employee satisfaction and loyalty are seen as critical to the capability of service organizations to respond effectively to customer needs (Silvestro, 2002). Al-Aameri (2000); Fang (2001) stated that there is a strong relationship between employees' loyalty and employee job satisfaction. In contrast, low job satisfaction may influence employees to switch jobs, make a change in their current jobs and careers in order to seek for better job satisfaction. In addition, employees who are satisfied with their jobs have greater organizational loyalty than unsatisfied employees (Kim *et al.*, 2005). Employee job satisfaction has a positive impact on organizational loyalty of employees (Fletcher and Williams, 1996). According to Martensen and Gronholdt (2001), employee satisfaction is positively related to employees' loyalty to their companies. When employee job satisfaction increased, the degree of organizational loyalty of employee is higher. Based on it, this study develops the following hypothesis:

H₇: There is positive relationship between employee satisfaction and job loyalty.

3. Results and discussion

Correlation analysis

On analysis of data, correlation analysis has been undertaken first and for this purpose, Kendall's Tau correlation coefficients along with means and standard deviations have been computed, and the results are presented in Table 1.

Table 1: Kendall's correlation coefficients matrix

This table presents Kendall's Tau correlation coefficients between dependent variable and independent variables. The correlation coefficients are based on 161 observations. The dependent variable is JL (Job loyalty). The independent variables are RR (Reward and Recognition), TD (Training and development), TW (Teamwork), WE (workplace environment) And EE (Employee empowerment), EP (Employee participation) and JS (Job satisfaction).

Variables	Mean	SD	RR	WE	TW	EE	EP	TD	JS	JL
RR	3.826	0.501	1							
WE	3.710	0.491	0.461**	1						
TW	4.026	0.536	0.385**	0.321**	1					
EE	3.956	0.516	0.418**	0.425**	0.455**	1				
EP	3.544	0.522	0.397**	0.385**	0.314**	0.447**	1			
TD	3.768	0.513	0.449**	0.439**	0.324**	0.489**	0.404**	1		
JS	3.501	0.545	0.412**	0.517**	0.301**	0.509**	0.522**	0.458**	1	
JL	4.059	0.555	0.227**	0.207**	0.359**	0.373**	0.251**	0.231**	0.255**	1

*Notes: The asterisk signs (**) and (*) indicate that the results are significant at one percent and five percent level respectively.*

The study reveals that reward and recognition are positively correlated to job loyalty. It implies that increase in reward and recognition leads to increase in job loyalty. The result also shows that workplace environment is positively correlated to job loyalty. It implies that better the workplace environment, higher would be the job loyalty. Moreover, team work is also positively correlated to job loyalty. It implies that increase in teamwork leads to increase in job loyalty in the organization. Furthermore, employee empowerment is positively correlated to job loyalty indicating that better employee empowerment activities lead to increase in job loyalty. Similarly, the result also shows that employee participation is positively correlated to job loyalty in the organization. It indicates that increase in employee participation leads to increase in job loyalty. Moreover, training and development programs are also positively correlated to job loyalty. It implies that increase in training and development activities lead to increase in job loyalty. The result also indicates there is positive relationship between job satisfaction and job loyalty. It implies that higher the level of job satisfaction, higher would be the job loyalty in the organization.

Regression analysis

Having analyzed the Kendall's Tau correlation coefficients matrix, the regression analysis has been carried out and the results are presented in Table 2. More specifically, it presents the regression results of reward and recognition, workplace environment, teamwork, training and development, employee empowerment and employee participation on job satisfaction in Nepalese commercial banks

Table 2: Estimated regression results of reward and recognition, workplace environment, teamwork, training and development, employee empowerment and employee participation on job satisfaction

The results are based on 161 observations using linear regression model. The model is $JS = \beta_0 + \beta_1 RR + \beta_2 WE + \beta_3 TW + \beta_4 EP + \beta_5 EE + \beta_6 TD + e$, where the dependent variable is JS (Job satisfaction). The independent variables are RR (Reward and recognition), WE (Workplace environment), TW (Team work), EE (Employee empowerment), EP (Employee participation) and TD (Training and development).

Model	Intercept	Regression coefficients of						Adj. R _{bar} ²	SEE	F-value
		RR	WE	TW	EE	EP	TD			
1	1.421 (4.936)**	0.544 (7.290)**						0.246	0.473	53.147
2	0.906 (3.546)**		0.700 (10.249)**					0.394	0.424	105.038
3	1.803 (6.055)**			0.422 (5.753)**				0.167	0.497	33.103
4	0.811 (3.179)**				0.680 (10.629)**			0.412	0.418	112.969
5	1.168 (5.078)**					0.658 (10.248)**		0.394	0.424	105.027
6	1.330 (4.943)**						0.576 (8.141)**	0.290	0.459	66.270
7	0.671 (2.398)*	0.172 (1.970)*	0.586 (6.594)**					0.405	0.420	55.410
8	0.635 (2.140)*	0.161 (1.758)	0.574 (6.040)**	0.031 (0.381)				0.402	0.421	36.788
9	0.389 (1.407)	0.60 (0.694)	0.423 (4.617)**	0.165 (2.007)*	0.500 (0.474)			0.493	0.387	39.963
10	0.172 (0.648)	0.056 (0.686)	0.342 (3.879)**	0.188 (0.2418)	0.361 (3.925)**	0.332 (4.552)**		0.550	0.365	40.156
11	0.138 (0.513)	0.042 (0.501)	0.315 (3.377)**	0.188 (2.423)*	0.342 (3.613)**	0.330 (4.521)**	0.072 (0.864)	0.550	0.365	33.533

Notes:

- i. Figures in parenthesis are t-values
- ii. The asterisk signs (**) and (*) indicate that the results are significant at one percent and five percent level respectively.
- iii. Job satisfaction is the dependent variable.

The regression results show that the beta coefficients for reward and recognition are positive with job satisfaction. It indicates that reward and recognition have a positive impact on the employee job satisfaction. This finding is consistent with the findings of Terera and Ngirande (2014). Likewise, the result also shows that the beta coefficients for workplace environment are positive with job satisfaction. It reveals that workplace environment has a positive impact on employee job satisfaction. This finding is similar to the findings of Ornetzeder *et al.* (2016). Similarly, the beta coefficients for teamwork are positive with job satisfaction. It indicates that there is a positive impact of teamwork on the employee job satisfaction. This finding is consistent with the findings of Mitchell *et al.* (2001). Likewise, the result also shows that the beta coefficients for training and development are positive with employee job satisfaction. It reveals that training and development have a positive impact on employee job satisfaction. The finding is similar to the findings of Martensen and Gronholdt (2001). Similarly, the beta coefficients for employee empowerment are positive with job satisfaction. It

indicates that there is a positive impact of employee empowerment on the employee job satisfaction. This finding is consistent with the findings of Bordin *et al.* (2007).

Table 3 shows the estimated regression results of reward and recognition, workplace environment, teamwork, employee empowerment, employee participation, training and development and job satisfaction on job loyalty in the context of Nepalese commercial banks.

Table 3: Estimated regression results of reward and recognition, workplace environment, teamwork, employee empowerment, employee participation, training and development and job satisfaction on job loyalty

The results are based on 161 observations using linear regression model. The model is $JL = \beta_0 + \beta_1 RR + \beta_2 WE + \beta_3 TW + \beta_4 EP + \beta_5 EE + \beta_6 TD + \beta_7 JS + e$, where the dependent variable is JL (Job loyalty). The independent variables are RR (Reward and recognition), WE (Workplace environment), TW (Team work), EE (Employee empowerment), EP (Employee participation), TD (Training and development) and JS (Job satisfaction).

Model	Intercept	Regression coefficients of							Adj. R _{bar} ²	SEE	F-value
		RR	WE	TW	EE	EP	TD	JS			
1	2.456 (7.831)**	0.419 (5.157)**							0.138	0.515	26.591
2	2.586 (8.235)**		0.397 (4.731)**						0.118	0.521	22.385
3	2.034 (6.976)**			0.503 (7.009)**					0.231	0.486	49.123
4	2.082 (6.914)**				0.500 (6.620)**				0.211	0.493	43.829
5	2.755 (9.718)**					0.368 (4.652)**			0.114	0.522	21.637
6	2.870 (9.190)**						0.316 (3.845)**		0.079	0.532	14.784
7	2.861 (10.608)**							0.342 (4.495)**	0.107	0.524	20.206
8	2.192 (6.439)**	0.288 (2.719)**	0.206 (1.909)*						0.152	0.511	15.339
9	1.713 (5.024)**	0.150 (1.425)	0.043 (0.389)	0.401 (4.351)**					0.238	0.484	17.698
10	1.595 (4.666)**	0.101 (0.952)	0.030 (0.261)	0.308 (3.031)**	0.239 (2.105)*				0.255	0.479	14.672
11	1.554 (4.463)**	0.101 (0.942)	0.045 (0.387)	0.303 (2.977)**	0.213 (1.766)	0.063 (0.653)			0.252	0.480	11.780
12	1.601 (4.547)**	0.120 (1.104)	0.008 (0.066)	0.304 (2.983)**	0.240 (1.929)*	0.065 (0.680)	0.100 (0.914)		0.251	0.480	9.945
13	1.591 (4.507)**	0.117 (1.073)	0.032 (0.247)	0.318 (3.057)**	0.214 (1.653)	0.041 (0.398)	0.105 (0.959)	0.074 (0.701)	0.249	0.481	8.567

Notes:

- i. Figures in parenthesis are t-values
- ii. The asterisk signs (**) and (*) indicate that the results are significant at one percent and five percent level respectively.
- iii. Job loyalty is the dependent variable.

The regression results show that the beta coefficients for employee job satisfaction are positive with

job loyalty. It indicates that employee job satisfaction has a positive impact on the employee job loyalty. This finding is consistent with the findings of Fang (2001). Likewise, the result also shows that the beta coefficients for workplace environment are positive with job loyalty. It reveals that workplace environment has a positive impact on employee job loyalty. This finding is similar to the findings of Rorong (2016). Similarly, the beta coefficients for teamwork are positive with job loyalty. It indicates that there is a positive impact of teamwork on the employee job loyalty. This finding is consistent with the findings of Denison and Hart (1996). Likewise, the result also shows that the beta coefficients for training and development are positive with employee job loyalty. It reveals that training and development have a positive impact on employee job loyalty. The finding is similar to the findings of Costen and Salazar (2011). Similarly, the beta coefficients for employee empowerment are positive with job loyalty. It indicates that there is a positive impact of employee empowerment on the employee job loyalty. This finding is consistent with the findings of Sternberg (1992).

4. Summary and conclusion

Employee is one of the key factors of the organization success. No organization can succeed without a certain level of satisfaction and effort from its employees. For the success of banking, it is very important to manage human resource effectively and to find whether its employees are satisfied or not. Employee of any bank is responsible to a large extent for its productivity and profitability. Efficient human resource management and maintaining higher job satisfaction level in banks determine not only the performance of the bank but also affect the growth and performance of the entire economy.

This study attempts to examine the factors influencing job satisfaction and its impact on job loyalty of Nepalese commercial banks. This study is based on primary data with 161 observations.

The study showed that reward and recognition, workplace environment, teamwork, employee empowerment, employee participation, training and development and job satisfaction have positive impact on employee job loyalty in Nepalese commercial banks. The study also showed reward and recognition, workplace environment, teamwork, employee empowerment, employee participation, training and development have positive effect on employee job satisfaction. The study concluded that higher level of job satisfaction leads to increase in job loyalty among employees in Nepalese commercial banks. The study also concluded that team work followed by employee empowerment is the most influencing factor that explains the change in the level of employee loyalty in Nepalese commercial banks.

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Perception of MBA students towards civil services as a career path in Nepal

– Jharana Chataut*

Abstract

This study examines the perception of MBA students towards civil service as a career path in Nepal. Career path in civil service is selected as dependent variable. The selected independent variables are salary package, job security, status and prestige, family background, chances of promotion and meaningful work. The primary source of data is used to assess the opinions of the respondents regarding the civil service as a career path in Nepal. The study is based on primary data of 153 respondents. To achieve the purpose of the study, structured questionnaire is prepared. The correlation coefficients and regression models are estimated to test the significance and importance of different factors affecting civil service as a career path in Nepal.

The study showed that good salary package has a positive impact on career path in civil service. It indicates that good salary package motivates the students to make career choice in civil service. Similarly, job security has a positive impact on career path in civil service. It indicates that higher level of job security motivates the students to make career choice in civil service. Likewise, status and prestige have a positive impact on career path in civil service. It indicates that higher status and prestige encourage the students to make career choice in civil service. The result also showed that family background has a positive impact on career path in civil service. It indicates that family background from civil service motivates the students to make career choice in civil service. In addition, chances of promotion have a positive impact on career path in civil service. It indicates that better chances of promotion encourage the students to make career choice in civil service. Furthermore, meaningful work has a positive impact on career path in civil service. It indicates that meaningful work motivates the students to make career choice in civil service.

Key words: Career path, salary package, job security, status and prestige, family background, chances of promotion and meaningful work.

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1. Introduction

Career choice has been a difficult decision for secondary students since it determines the kind of profession that a student intends to pursue in their life. Students face problems when trying to make choice on which career to major by matching their preferences with their abilities in academic performance and in most cases the choice of career subjects, courses of study and the subsequent career path to follow are nightmare for future, students more often choosing the right subjects combination leading to the right professional can make a difference between enjoying and hating the career in future (Koech *et al.*, 2016). Newton and Grayson (2003) defined career as a series of job position, duties, task, and working experience gathered by an individual. Career decision refers to a condition where individual find difficulties in selecting a particular occupation (Burns *et al.*, 2013). It is critical decision made by selecting the professional or occupation which meets the needs of individual. Proper decision on career decision making provide innovative structure that serve as effective solution to future challenges among adolescence. Career choice is very much influenced by opportunities associated with a particular career. Students can show ambition and ability in pursuing a particular career, however, if they were not guided on making the right choices at the right time, their dreams will end being unrealistic (Koech *et al.*, 2016). Having an exposure towards the opportunities available would make student have a good chance in selecting the best career that match their abilities. The opportunities may be in form of academic entry qualification settings, job shadowing, and practical field attachment. However, the highest potential opportunity would be employment opportunity (Mncayi and Dunga, 2016).

Career choice is complex and multifaceted by nature. Choosing a career is perhaps the most important decision for an individual and has far reaching effects on one's future in terms of income, lifestyle, status, and job satisfaction (Albugamy, 2014). Accordingly, the attractiveness of public sector relies on certain institutional values and extrinsic incentives such as high-job security, relatively decent salary level, career progression and pension schemes. Gabris and Simo (1995) argued that individuals make conscious career choices, and those choices represent the sum of multiple inputs and experiences such as education, experience, access, connections, and luck. Extrinsic motivation, especially in the form of salary and financial benefits, is an important motivator in making career-related decisions (Rynes *et al.*, 2009). Income counts most in choice of career especially students who are independent of their parents as they take care of their financial responsibilities (Ngozika *et al.*, 2020). Opportunities for promotion is another key aspect that influences the decision of students to choose a career in the public sector. People value promotion because it can increase income and prestige and present fresh challenges. Many people chose to work in the public sector given that they aim to do meaningful work and contribute to society. Similarly, Bright (2005) opined that one of the most important features of those with high levels of public service motivation is their driving need to contribute meaningfully to the public good. Likewise, Ritz and Christian (2011) concluded that students consider the public sector to be an attractive employer. The study also concluded that students are especially attracted by safety, promotion opportunities, and meaningful work.

The influence of career choice has a lasting impact on an individual. It serves to be a predictor and determinant of their prospective level of income, nature of work and consequently leaves a mark on the personality, demeanour and outlook of an individual. Thus, one wrong decision can change the fate of an individual. It is difficult for everyone to make a decision regarding their career. Lent *et al.* (2002) argued that youths need to be provided with support in developing their abilities and self-awareness towards selecting careers that could cope with the challenging situation in their future. The decision of selecting career is critical as it affects the social and economic impact in the

students' future. Thus, information on new challenges and employment opportunities are essential for individuals to make a right choice (Raveenther, 2017). The role of parents is crucial to inspire and guide the students on selecting the appropriate course (Cramer, Herr, and Niles, 2004). While there is no uniform formula for choosing career, it is suggested that students should recognize their personal traits and relate to the most compatible career (Perger and Takács, 2016).

Global economic changes have influenced universities to expand their coverage through establishment of different courses to cope with the market demand. Applicants are now exposed to different alternatives in selecting their career. Since there is a demand in the global economic world, university graduates are valuable assets needed by both public and private institutions for sustainable performance (Agarwala, 2008). However, the challenging issue for them is selecting the right career that match with their personality. In an attempt to solve this challenge, some students relied on some people such as their family members or their peer as guides on selecting an appropriate field of study (Helyer, 2011). Unfortunately, they may end on either wrong or right choice depending on the expertise of their peers and family members. Choosing a professional career over the other is a sensitive decision which may determine the success of an individual in the future. It is a decision that every student would need to make, an action that would impact their life after graduation. According to Albion and Fogarty (2002), the right career choice can be attained when students are exposed to realistic information on market trends, employment opportunity, and overall job profile and practice of different sectors. In order to attain good career planning, the selected career should match the personality of the students, job opportunity and expectation from the parents (Alkhelil, 2016).

Hellman (2014) examined social and psychological factors influencing the career exploration process of young adults in USA. The results indicated that secure maternal attachment predicted secure peer attachment and high self-efficacy in young adults. The result also showed that higher level of self-efficacy was positively correlated to environmental exploration and negatively correlated to career indecision. This implies that maternal attachment has an indirect influence on young adults' career exploration and decision making. Likewise, Olamide and Olawaiye (2013) assessed the factors determining the choice of career among secondary school students in Nigeria. The study found a significant differences on personality factors, opportunity factors and environmental factors. The results also showed that both factors affect student's career choice in different ways. A crucial influence in decision making regarding career is the home environment as it lays the foundation of a child's personality. It's the parent's upbringing which is the basis of the outcome of the personality. The values of the parents are transferred into the child. Moreover, Obiunu and Ebinu (2011) investigated the factors affecting career development of senior secondary school students in Ethiopia East Local Government Area, Delta State, Nigeria. The study revealed that career development psychological factors such as interests, self-esteem, personality, values, norms and prestige, social factors such as peer groups, role models, mentors, social networks, social economic status of parents and family influences, educational factors such as skills, experiences, knowledge, information play significant role in career decision making process. Furthermore, Shumbal and Naong (2012) examined the factors influencing students career choice and aspiration in South Africa. The study found that the family influences, peers, the ability of the learner self to identify his/her preferred career choice and teachers were significant factors that influence the career choice and aspiration of students.

In the context of Nepal, Gautam *et al.* (2016) revealed high school education as it plays a major role in influencing the career choice of a student. The study indicated that gender does not play a major role in determining the career graph of an MBA graduate. The social standing/ status of a management student does not influence the career choices. Furthermore, individuals are flexible to alter their career choices in case of any family/financial issues. An individual's environment, talents, skills, and

academic achievement exert an influence on career choice. In case of a wrong choice, it may lead to resultant failure and disappointment.

The above discussion shows that empirical evidences vary greatly across the studies on the perception of MBA students towards civil service as a career path. Though there are above mentioned empirical evidences in the context of other countries and in Nepal, no such findings using more recent data exist in the context of Nepal. Therefore, in order to support one view or the other, this study has been conducted.

The main purpose of the study is to analyse the perception of MBA students towards civil service as a career path in Nepal. Specifically, it examines the relationship of salary package, job security, status and prestige, family background, chances of promotion and meaningful work with perception of MBA students towards civil service as a career path in Nepal.

The remainder of this study is organized as follows. Section two describes the sample, data and methodology. Section three presents the empirical results and the final sections draws the conclusion.

2. Methodological aspects

The study is based on the primary data. The data were gathered from 153 respondents through questionnaire. The respondents' views were collected on salary package, job security, status and prestige, family background, chances of promotion and meaningful work. This study is based on convenience sampling method. The study is based on descriptive and causal comparative research designs. Table 1 shows the list of insurance companies selected for the study along with the number of the respondents.

The model

The model used in this study assumes that the perception of MBA students towards civil service as a career path depends upon the several factors. The dependent variables selected for the study is career path. Similarly, the selected independent variables are salary package, job security, status and prestige, family background, chances of promotion and meaningful work. Therefore, the model takes the following form:

Career path = f (good salary package, job security, status and prestige, family background, meaningful work and chances of promotion)

More specifically,

$$CP = \beta_0 + \beta_1 \text{GSP} + \beta_2 \text{JS} + \beta_3 \text{SP} + \beta_4 \text{FB} + \beta_5 \text{COP} + \beta_6 \text{MFW} + \epsilon_{it}$$

Where,

GSP = Good salary package

JS = Job security

SP = Status and prestige

FB = Family background

COP = Chances of promotion

MFW = Meaningful work

CP = Career path

Good salary package was measured using a 5-point Likert scale where the respondents were asked to indicate the responses using 1 for strongly disagree and 5 for strongly agree. There are 5 items and sample items include “Salary is better as compared to other sectors”, “The compensation and benefits are justifiable in proportion to job responsibility” and so on. The reliability of the items was measured by computing the Cronbach’s alpha ($\alpha = 0.788$).

Job security was measured using a 5-point Likert scale where the respondents were asked to indicate the responses using 1 for strongly disagree and 5 for strongly agree. There are 5 items and sample items include “I expect long term contract from civil service”, “I expect I would not be fired from job easily” and so on. The reliability of the items was measured by computing the Cronbach’s alpha ($\alpha = 0.859$).

Status and prestige were measured using a 5-point Likert scale where the respondents were asked to indicate the responses using 1 for strongly disagree and 5 for strongly agree. There are 5 items and sample items include “This job increases my prestige within my society”, “The public recognition is comparatively practiced more in civil services” and so on. The reliability of the items was measured by computing the Cronbach’s alpha ($\alpha = 0.854$).

Family background was measured using a 5-point Likert scale where the respondents were asked to indicate the responses using 1 for strongly disagree and 5 for strongly agree. There are 5 items and sample items include “My family members are working in civil services”, “My family members encourage me to work in civil services” and so on. The reliability of the items was measured by computing the Cronbach’s alpha ($\alpha = 0.745$).

Chances of promotion was measured using a 5-point Likert scale where the respondents were asked to indicate the responses using 1 for strongly disagree and 5 for strongly agree. There are 5 items and sample items include “The basis on which the organization promotes its people is reasonable”, “Civil service provides timely promotion as per performance” and so on. The reliability of the items was measured by computing the Cronbach’s alpha ($\alpha = 0.858$).

Meaningful work was measured using a 5-point Likert scale where the respondents were asked to indicate the responses using 1 for strongly disagree and 5 for strongly agree. There are 5 items and sample items include “Civil service gives me an opportunity to serve the society”, “Serving society gives me a sense of achievement” and so on. The reliability of the items was measured by computing the Cronbach’s alpha ($\alpha = 0.839$).

Career path was measured using a 5-point Likert scale where the respondents were asked to indicate the responses using 1 for strongly disagree and 5 for strongly agree. There are 5 items and sample items include “I would recommend others to join Civil services”, “I find civil service as a prestigious job” and so on. The reliability of the items was measured by computing the Cronbach’s alpha ($\alpha = 0.875$).

The following section describes the independent variables used in this study along with hypothesis formulation.

Good salary package

Financial reward is one of the most important motivating factors for individuals to accept or reject a job. Chou (2007) investigated the relationships between a range of extrinsic and intrinsic regulations and intent to work in the public sector. The study revealed better compensation has a positive impact on career choice in public sector. Camilleri (2006) concluded that salary has a positive and significant

relationship with career choice in public sector. Similarly, Artanti *et al.* (2018) examined the influence of socio-demographic and work motivation on student career choices in the private sector, public (government), and entrepreneurial intentions. The study concluded that work motivation such as salary can affect a person's work preference especially in public sector work. In addition, Maxwell and Knox (2009) stated that rewards such as salary are highly attractive factors while pursuing career in public sector. Based on it, this study develops the following hypothesis.

H_1 : *There is a positive relationship between good salary package and career path in civil service.*

Job security

Government careers are generally more stable than those in the private sector. The intent to work in the public sector is often associated with such intrinsic factors as job security. Brewer and Selden (1998) examined the existence and importance of service-related motives linked to the public interest. The study revealed that job security has a positive impact on public service career choice. Similarly, Iles *et al.* (2012) stated that many job seekers in the Arab world prefer public sector jobs due to job security, even if it requires waiting for a long time to get the job. Van de Walle *et al.* (2015) examined the extrinsic motivation, PSM and labour market characteristics with a view to analyse the determinants of why people choose a public sector job. The study found that there is a positive impact of job security on public sector as a career choice. Similarly, Kim (2008) found that there is a positive relationship between job security and career path in civil service. Moreover, Baldwin (1987) found a positive relationship between job security and career choice in public sector. Based on it, this study develops the following hypothesis.

H_2 : *There is a positive relationship between job security and career path in civil service.*

Status and prestige

Barsoum (2016) found that public-service motivation in the federal sector is positively related to status and prestige. Moreover, Baruch (2004) examined the beliefs of aspiring top civil servants towards the private sector. The study revealed that status and prestige as a public service motivation has a positive and relationship with career choice in public sector. Khan and Din (2008) found that a majority of students indicated the civil service as their preferred occupation choice because of the prestige and status it offers. In addition, Hojgaard (2002) stated that students place high importance to social status while choosing a career path in government organization. Based on it, this study develops the following hypothesis.

H_3 : *There is a positive relationship between status and prestige and career path in civil service.*

Family background

Family influence is categorized as direct and indirect influence of the father, mother, and siblings. Ferry (2006) examined the influential factors on career choice of adolescents in Pennsylvania. The study revealed that family was an important factor for career decision. Similarly, Shumba and Naong (2012) found that the family is a significant factor in determining children's career choice. Moreover, Fischer and Schott (2022) examined the effect of parental socialization and interest in politics on entering and staying in public service careers. The study concluded that family background serves as a stronger predictor of public sector choice. Likewise, Chen *et al.* (2018) found that family background positively influences career choice in public sector. In addition, the study also showed that family impact on career development of their children is more powerful even than the influence of teachers,

faculty and career counsellors who know better about the career development. Based on it, this study develops the following hypothesis.

H_4 : *There is a positive relationship between family background and career path in civil.*

Chances of promotion

Promotion is valued by individuals because it can improve earnings and status, and provide new challenges. Agrawal and Sajid (2017) examined the job satisfaction, organizational commitment and turnover intention among public and private sector employees. The study concluded that chances of promotion have a positive relationship with public sector career choice. Santinha *et al.* (2021) revealed that the most salient features related to the public sector are the promotion and job security. Likewise, French and Emerson (2014) found that individuals choose the public sector as a place for work for the promotion opportunities. Moreover, Dunsire (1995) stated that people choose public service because of the promotion opportunities it provides. Based on it, this study develops the following hypothesis.

H_5 : *There is a positive relationship between chances of promotion and career path in civil.*

Meaningful work

Meaningful work occurs when one perceives their work as being, worthwhile, important, or valuable. Bullock *et al.* (2015) investigated the international comparison of public and private employees' work motives, attitudes, and perceived rewards. The study concluded that meaningful work as a public service motivation has a positive and significant impact on career choice in public sector. Moreover, Kim (2008) found that meaningful work as a public service motivation has a positive and significant impact on career choice in public sector. Similarly, Brewe and Selden (1998) found that individuals are more attracted towards civil service because the government provides civil servants with superior opportunities to perform meaningful public service. In addition, Gabris and Simo (1995) stated that meaningful work has a positive impact on career choice in public sector. Based on it, this study develops the following hypothesis.

H_6 : *There is a positive relationship between meaningful work and career path in civil.*

3. Results and discussion

Correlation analysis

On analysis of data, correlation analysis has been undertaken first and for this purpose, Kendall's Tau correlation coefficients along with means and standard deviations have been computed, and the results are presented in Table 1.

Table 1: Kendall's Tau correlation coefficients matrix

This table presents Kendall's Tau correlation coefficients between dependent variable and independent variables. The correlation coefficients are based on 153 observations. The dependent variable is CP (Career path). The independent variables are GSP (Good salary package), JS (Job security), SP (Status and prestige), FB (Family background), COP (Chances of promotion) and MFW (Meaningful work).

Variables	Mean	S.D.	CP	GSP	JS	SP	FB	COP	MFW
CP	3.498	0.693	1						
GSP	3.616	0.669	0.234**	1					
JS	3.686	0.703	0.362**	0.343**	1				
SP	3.586	0.768	0.360**	0.237**	0.441**	1			
FB	3.456	0.712	0.547**	0.305**	0.353**	0.393**	1		
COP	3.412	0.697	0.512**	0.212**	0.433**	0.472**	0.521**	1	
MFW	3.571	0.691	0.532**	0.175**	0.385**	0.448**	0.432**	0.484**	1

*Notes: The asterisk signs (**) and (*) indicate that the results are significant at one percent and five percent level respectively.*

Table 1 reveals that good salary package has a positive relationship with career path in civil service. It indicates that good salary package motivates the students to make career choice in civil service. Similarly, job security has a positive relationship with career path in civil service. It indicates that higher level of job security motivates the students to make career choice in civil service. Likewise, status and prestige have a positive relationship with career path in civil service. It indicates that higher status and prestige encourage the students to make career choice in civil service. The result also shows that family background has a positive relationship with career path in civil service. It indicates that family background from civil service motivates the students to make career choice in civil service. In addition, chances of promotion have positive relationship with career path in civil service. It indicates that better chances of promotion encourage the students to make career choice in civil service. Furthermore, meaningful work has a positive relationship with career path in civil service. It indicates that meaningful work motivates the students to make career choice in civil service.

Regression analysis

Having indicated the Kendall's correlation coefficients, the regression analysis has been carried out and results are presented in Table 2. More specifically, it shows the regression results of salary package, job security, status and prestige, family background, chances of promotion and meaningful work with civil service as a career path.

Table 2: Estimated regression results of good salary package, job security, status and prestige, family background, chances of promotion and meaningful work on civil service as a career path

The results are based on 153 observations using linear regression model. The model is, $CP = \beta_0 + \beta_1 GSP + \beta_2 JS + \beta_3 SP + \beta_4 FB + \beta_5 COP + \beta_6 MFW + \epsilon_{it}$, where the dependent variable is CP (Career path). The independent variables are GSP (Good salary package), JS (Job security), SP (Status and prestige), FB (Family background), COP (Chances of promotion) and MFW (Meaningful work).

Model	Intercept	Regression coefficients of						Adj. R _{bar} ²	SEE	F-value
		GSP	JS	SP	FB	COP	MFW			
1	1.990 (7.022)**	0.417 (5.410)**						0.157	0.636	29.268
2	1.619 (6.284)**		0.510 (7.420)**					0.262	0.595	55.055
3	1.829 (7.926)**			0.465 (7.393)**				0.261	0.596	54.658
4	1.188 (5.857)**				0.668 (11.626)**			0.469	0.505	135.159
5	1.289 (6.037)**					0.648 (10.565)**		0.421	0.527	111.626
6	1.161 (5.166)**						0.654 (10.587)**	0.422	0.527	112.075
7	1.236 (4.172)**	0.203 (2.491)*	0.415 (5.343)**					0.287	0.585	31.580
8	1.251 (4.763)**		0.324 (4.032)**	0.294 (3.992)**				0.329	0.568	38.217
9	0.906 (4.112)**			0.181 (2.916)*	0.562 (8.399)**			0.494	0.493	75.187
10	0.748 (3.594)**				0.445 (6.378)**	0.356 (4.999)**		0.542	0.469	90.814
11	0.650 (2.939)*					0.405 (5.864)**	0.411 (5.891)**	0.527	0.477	85.624
12	0.970 (3.305)**	0.163 (2.062)*	0.261 (3.061)*	0.273 (3.714)**				0.343	0.562	27.448
13	0.640 (2.698)*		0.191 (2.702)*	0.103 (1.529)	0.517 (7.638)**			0.514	0.483	54.662
14	0.678 (3.129)*			0.073 (1.130)	0.424 (5.896)**	0.320 (4.113)**		0.552	0.469	61.080
15	0.591 (2.289)*	0.034 (0.486)	0.180 (2.417)*	0.102 (1.506)	0.508 (7.249)**			0.512	0.484	40.846
16	0.463 (1.845)	0.044 (0.649)	0.112 (1.518)	0.031 (0.462)	0.398 (5.360)**	0.285 (3.562)**		0.548	0.466	37.794
17	0.225 (0.928)	0.044 (0.690)	0.058 (0.823)	0.054 (0.811)	0.352 (4.979)**	0.215 (2.787)**	0.321 (4.466)**	0.599	0.439	38.877

Notes:

- i. Figures in parenthesis are t-values.
- ii. The asterisk signs (**) and (*) indicate that the results are significant at one percent and five percent level respectively.
- iii. Career path is the dependent variable.

Table 2 shows that the beta coefficients for good salary package are positive with career path in civil service. It indicates that good salary package has a positive impact on career path in civil service. This finding is similar to the findings of Artanti *et al.* (2018). Likewise, the beta coefficients for job security are positive with career path in civil service. It indicates that job security has a positive impact on career path in civil service. This finding is consistent with the findings of Van de Walle *et al.* (2015). Similarly, the beta coefficients for status and prestige are positive with career path in civil service. It indicates that status and prestige has a positive impact on career path in civil service.

This finding is consistent with the findings of Barsoum (2016). Furthermore, the beta coefficients for family background are positive with career path in civil service. It indicates that family background has a positive impact on career path in civil service. This finding is similar to the findings of Fischer and Schott (2022). Likewise, the beta coefficients for chances of promotion are positive with career path in civil service. It indicates that chances of promotion have a positive impact on career path in civil service. This finding is consistent with the findings of Santinha *et al.* (2021). Moreover, the beta coefficients for meaningful work are positive with career path in civil service. It indicates that meaningful work has a positive impact on career path in civil service. This finding is similar to the findings of Kim (2008).

4. Summary and conclusion

Career can be defined as something that someone is passionate about. Career selection is one of the many important choices students will make in determining future plans. An individual's choice of career is likely to be influenced by several factors, including personal and cultural values, family background, career expectations, etc. Attracting the best and brightest to work for the public sector requires an insight into why people prefer public over private sector employment.

The study attempts to examine the perception of MBA students towards civil service as a career path in Nepal. This study is based on the primary data with 153 respondents.

The study showed that good salary package, job security, status and prestige, family background, chances of promotion and meaningful work have positive impact on career path in civil service. The study concluded that perceived importance of good salary package, job security, status and prestige, family background, chances of promotion and meaningful work motivates the students to make career choice in civil service. Similarly, the study also concluded that family background followed by meaningful work and chances of promotion is the most influencing factor that explains the career choice of MBA students in civil service.

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Impact of training and development of employees' performance in Nepalese commercial banks

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Abstract

This study examines the impact of training and development of employees' performance in Nepalese commercial banks. Employee performance is the dependent variable. Likewise, the selected independent variables are on-the-job training, off-the-job training, trainer knowledge, employee developmental program, job rotation and coaching. The primary source of data is used to assess the opinions of the employees regarding training and development and level of performance in Nepalese commercial banks. The study is based on primary data with 173 respondents. To achieve the purpose of the study, structured questionnaire is prepared. The correlation coefficients and regression models are estimated to test the significance and importance of training and development on employee performance in the context of Nepalese commercial banks.

The study showed that on-the-job training has a positive impact on employee performance. It implies that better on-the-job training programs leads to increase in employee performance. The result also revealed that off-the-job training program has a positive impact on employee performance. It implies that better the off-the-job training program in the organization, higher would be the employee performance. Moreover, trainer knowledge has a positive impact on employee performance. It implies that adequate and innovative trainer knowledge leads to increase in employee performance. Furthermore, employee development program has a positive impact on employee performance indicating that better employee development programs in the banks leads to increase in employee performance. Similarly, the result also showed that job rotation has a positive impact on employee performance. It indicates that increase in job rotation system leads to increase in employee performance. Moreover, coaching has a positive impact on employee performance. It indicates that better coaching leads to increase in employee performance.

Key words: *Employee performance, on-the-job training, off-the-job training, trainer knowledge, employee developmental program, job rotation and coaching.*

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1. Introduction

Human capital is the engine of organizational growth and a catalyst for economic development for every country. Human resource development has a vital role in stimulating human capital within an organization (Manresa *et al.*, 2019). Training and development mainly constitute the broader realm of human resource development practices, which is considered the most influential factor in improving employee performance. Training and development programs are prominent activities within organizations to make employees competent, boost motivation, retention, awareness from emerging tools and techniques (Arwab *et al.*, 2022). Training and development refer to the degree of training received by employees to develop their skills from the organization. Training and development are human resource management practice that helps organizations to gain a competitive edge. Generally, it helps to increase the employees' levels of commitment and loyalty. This helps them to stay for longer with the organization, hence it decreases turnover and enhances retention (Samuel and Chipunza, 2009). Training and development programs are considered a very influential factor for improving employee's performance and organizational development (Otoo and Mishra, 2018). Training is a significant instrument to enhance employees' abilities and capabilities. According to human capital theory, companies usually invest in developing the efficiency of employees with the help of training to make them compatible with the market needs (Nafukho *et al.*, 2004). By investing in human resources, companies can reap the benefits at the individual and organizational level in the form of higher productivity and profitability. Moreover, training can update job-related knowledge and skills to handle rapidly changing market demands and emerging technology (Saira *et al.*, 2020).

Every organization should focus on providing training and skills development programs to their employees because it not only boosts the employee performance but also increases the productivity and competitiveness of the organization. Employee performance refers to how effectively employee carry out their job responsibilities and how well employee performance compared to the assigned to them (Dyer, 2017). According to Wanyama and Mutsotso (2010), employee performance depends on the amount of time and individual physically present at a job and also the degree to which he or she is mentally present or efficiently functioning while present at a job. The success and failure of the firm depends on the performance of employee (Hameed and Waheed, 2011). Employees are most precious asset for any company as they can build up or destroy the reputation of company (Elnaga and Imran, 2013). Berge *et al.* (2002) revealed that training and development as critical mean to learning in the organizations which enhance knowledge, skill and attitude of the employees to become effective performers required to gain competitive edge. Training and development are important for survival of every organization. According to Kulkarni (2013), training is the nerve that suffices the need of fluent and smooth functioning of work which helps in enhancing the quality of work life of employees and organizational development too. Training and development programs help everyone to learn something new or improve current skills. In addition to that, the requirements of job can be meet by providing employees proper training. Training and development help businesses to adapt to new technology by increased efficiency of employees (Kennedy *et al.*, 2009).

Hanif (2013) examined the impact of training on employee's development and performance in hotel industry of Lahore, Pakistan. The study found that performance of employees has a strong link with employee training. The study further concluded that training is a very important part of the industry and without training employee cannot achieve the task in a good and efficient manner. Falola *et al.* (2014) examined the effectiveness of training and development on employee performance and organization competitiveness in the Nigerian banking industry. The study showed a strong relationship between training and development, employees' performance and competitive advantage. Likewise,

Khan (2012) analyzed the impact of training and motivation on performance of employees. The study showed that training and development have a positive impact on performance of employees. The study concluded that organization having good training plans for employees enhance the performance of employees and motivate employees to achieve higher performance levels. Mohd *et al.* (2020) examined the impact of training and development on employees' performance in a property management corporation. The study concluded that employees believe that needs assessment should be done prior to deciding trainings and proper and suitable techniques are to be used to deliver trainings. In addition, Rashid *et al.* (2020) examined the relationship between on-the-job training and off-the-job training towards employee performance in Franchise Restaurants' staffs in Klang Valley. The study found that both on-the-job training and off-the-job training have a positive and significant relationship with employee performance.

Khan *et al.* (2015) investigated on how employee performance can affect the development of business in banking sector of Pakistan. The study revealed that training, incentive, job involvement and motivation ultimately upgrade not only the efficiency of employees but also of the organization. Hameed *et al.* (2014) concluded that training and development programs remove performance deficiencies in employees and esteemed resource of the bank and success or failure of the bank operation relay on the performance of employees. Similarly, Imran and Tanveer (2015) analyzed the impact of training and development on employees' performance in banks of Pakistan. The study found that training and development have positive impact on their job knowledge, work quality and quantity and functional skills. The study concluded that training and development positively affects the employees' performance in the banks of Pakistan. Moreover, Amoah-Mensah and Darkwa (2016) examined the training and development process and its relationship with employees' performance in the chop bar industry. The study showed that training and development influence employees' performance. In addition, Kumar and Siddika (2017) examined the benefits of training and development program on employees' performance in Bangladesh banking sector. The study concluded that training and development program increase the skill, ability and intellectuality of the bank employees. Furthermore, Sandamali *et al.* (2018) investigated the relationship between training and development and employee performance of executive level employees in apparel industry. The study concluded that there is a strong positive relationship between the training and development and the executive level employees' performance in the Apparel industry in Sri Lanka. Chand and Srivastava (2020) investigated the impact of employee's satisfaction towards training and development programs. The study concluded that more than 50 percent of the employees are satisfied and benefited from the training program and overall productivity level has been increased leading to the organization's effectiveness. Dipa *et al.* (2021) analyzed the impact of training and development and communication on organizational commitment based on the private bank employees of Bangladesh. The study revealed a positive and significant relationship of training and development and communication with organizational commitment.

In the context of Nepal, Gautam (2018) examined the training culture and employee's performance in Nepali banking industry. The study revealed that performance of the employees can be sustained with training and employee are satisfied through the skills acquired from training. According to Pandey (2017), training is one of the dominant techniques of management development program in modern organizations. The study also revealed that the formal training is more significantly associated with performance than informal training. Chapagain *et al.* (2022) analyzed the relationship between training effectiveness and work performance. The study showed a positive association of training effectiveness, job performance, workplace environment, with employee performance. The study concluded that the more effective the training, the better the employees' work performance.

Nepalese organizations should provide practical training and create a favorable work environment for better work performance. In addition, Sigdel (2016) analyzed the effectiveness of training and development towards human resource practices on performance and job satisfaction in commercial bank of Nepal. The study stated that training is the nerve that suffices the need of fluent and smooth functioning of work which helps in enhancing the performance of employees and organizational development too. The study concluded that training increase employee ability to perform better and develop strong commitment within the organization.

The above discussion reveals that the empirical evidences vary greatly across the studies concerning the training and development and its impact on employee performance. Though there are above mentioned empirical evidences in the context of other countries and in Nepal, no such findings using more recent data exist in the context of Nepal. Therefore, in order to support one view or the other, this study has been conducted.

The major objective of the study is to determine the impact of training and development of employees' performance in Nepalese commercial banks. More specifically, it examines the impact on-the-job training, off-the-job training, trainer knowledge, employee development program, job rotation and coaching on employee performance in the context of Nepalese commercial banks.

The remainder of this study is organized as follows. Section two describes the sample, data and methodology. Section three presents the empirical results and the final section draws the conclusion.

2. Methodological aspects

The study is based on the primary data. The data were gathered from 173 respondents through questionnaire. The respondents' views were collected on on-the-job training, off-the-job training, trainer knowledge, employee developmental program, job rotation and coaching in Nepalese commercial banks. The study is based on descriptive and causal comparative research designs.

The model

The model estimated in this study assumes that employee performance depends on of on-the-job training, off-the-job training, trainer knowledge, employee developmental program, job rotation and coaching. Therefore, the model takes the following form:

$$EP = \beta_0 + \beta_1 OJT + \beta_2 OFJT + \beta_3 TK + \beta_4 EDP + \beta_5 JR + \beta_6 C + e$$

Where,

EP = Employee performance

OJT = On-the job training

OFJT = Off-the job training

TK = Trainer knowledge

EDP = Employee development program

JR = Job rotation

C = Coaching

On-the-job training was measured using a 5-point Likert scale where the respondents were asked to indicate the responses using 1 for strongly disagree and 5 for strongly agree. There are 5 items

and sample items include “Effectiveness of on-the-job training is evaluated regularly”, “Time of the training sessions is suitable to the working hours” and so on. The reliability of the items was measured by computing the Cronbach’s alpha ($\alpha = 0.832$).

Off-the-job training was measured using a 5-point Likert scale where the respondents were asked to indicate the responses using 1 for strongly disagree and 5 for strongly agree. There are 5 items and sample items include “Training and development session conduct in your bank are useful”, “Enough practice is given for us during training session” and so on. The reliability of the items was measured by computing the Cronbach’s alpha ($\alpha = 0.840$).

Trainer knowledge was measured using a 5-point Likert scale where the respondents were asked to indicate the responses using 1 for strongly disagree and 5 for strongly agree. There are 5 items and sample items include “The trainer have good communication skills”, “Trainer teaching methods and materials encouraged me to gain new knowledge and skills” and so on. The reliability of the items was measured by computing the Cronbach’s alpha ($\alpha = 0.871$).

Employee development program was measured using a 5-point Likert scale where the respondents were asked to indicate the responses using 1 for strongly disagree and 5 for strongly agree. There are 5 items and sample items include “Everyone is given a chance to take part in the development programs”, “The training programs at commercial bank are of high quality and are very effective” and so on. The reliability of the items was measured by computing the Cronbach’s alpha ($\alpha = 0.870$).

Job rotation was measured using a 5-point Likert scale where the respondents were asked to indicate the responses using 1 for strongly disagree and 5 for strongly agree. There are 5 items and sample items include “I believe job rotation is an excellent system”, “It helps to create professional competitiveness among staff” and so on. The reliability of the items was measured by computing the Cronbach’s alpha ($\alpha = 0.801$).

Coaching was measured using a 5-point Likert scale where the respondents were asked to indicate the responses using 1 for strongly disagree and 5 for strongly agree. There are 5 items and sample items include “Coaching enhanced employee performance”, “The coaching was a tool for personal development skills and performance” and so on. The reliability of the items was measured by computing the Cronbach’s alpha ($\alpha = 0.804$).

Employee performance was measured using a 5-point Likert scale where the respondents were asked to indicate the responses using 1 for strongly disagree and 5 for strongly agree. There are 5 items and sample items include “I feel the organization values me more as its employee after training”, “Employees feel happy to work in teams and are more productive that way” and so on. The reliability of the items was measured by computing the Cronbach’s alpha ($\alpha = 0.874$).

The following section describes the independent variables used in this study along with the hypothesis formulation.

On-the-job training

On-the-job-training plays a positive significant role in the development of organizations, enhance employee performance as well as increase productivity. Bafaneli and Setibi (2015) found that on-the-job training has a positive and significant effect on performance of the employees. The study also showed that on-the-job training is the most effective training method as it gives immediate feedback to both trainers and trainees. Similarly, Besley and Ghatak (2007) found a positive relationship between on the job training programs maintained by a firm and employee performance. Moreover, Jagero *et*

al. (2012) found that on-the-job training programs positively influence employee performance. The study also showed that employees who have taken such trainings were more capable in performing different task and vice versa. Likewise, Khan *et al.* (2011) concluded that on the job training, training design along with the style of its delivery have a significant positive effect on the organizational performance. Furthermore, Barzegar and Farjad (2011) examined the impact of on-the-job training courses on the performance of the employees. The study found positive impact of on-the-job training courses on the performance of the trainees. Based on it, this study develops the following hypothesis:

H_1 : *There is a positive relationship between on-the-job training and employee performance.*

Off-the-job training

Asiki and Picho (2015) revealed that off-the-job-training programs positively influence employee performance. Onyango and Wanyoike (2014) examined the effect of the training on the employee performance. The study showed that there is a strong positive relationship between off-the-job training and employee's performance. Shem and Ngussa (2015) stated that off-the-job training is important in improving job performance which can lead to improve productivity of the employees. The study revealed that there is a positive relationship between off-the-job training and employee performance. Mahadevan and Yap (2019) concluded that off-the-job training provides a more conducive environment to employee for better learning and concentration. Anam and Lodhi (2013) stated that training and development are continuous process in improving the caliber of employees. The study revealed that off-the-job training has a positive and strong correlation with job performance. Rashid *et al.* (2020) analyzed the relationship between on-the-job training and off-the-job training towards employee performance at Franchise restaurants in Klang valley. The study found that employee performance is significantly influenced by both on-the-job training and off-the-job training. Moreover, off-the-job training had stronger positive impact towards employee performance. Hanif (2013) showed that off-the-job training has a direct influence on the employee performance and it tends to increase the overall performance of the employees. Based on it, this study develops the following hypothesis:

H_2 : *There is a positive relationship between off-the-job training and employee performance.*

Trainer knowledge

Burke and Hutchins (2008) found that trainer knowledge and skills are recognized as important factors to increase the performance of employees as well as the overall productivity of organization. Similarly, Hafeez and Akbar (2015) revealed that knowledge of trainer has a significant positive relation with the productivity and performance of employees. The study also showed that good training programs lead to increased employee job satisfaction. According to Salas *et al.* (2012), professional trainers share their idea and skills in dynamic way which directly affect employees to enhance and develop specific competencies that are required for their current or future tasks. Moreover, Cardoso *et al.* (2012) found that trainer knowledge has a direct effect on performance of employees. Likewise, Verkasalo and Lappalainen (1998) showed that trainer strengthen employees' skills and capabilities through training courses. Employee apply their learned knowledge in their daily activities which increased performance efficiency. Based on it, this study develops the following hypothesis:

H_3 : *There is a positive relationship between trainer knowledge and employee performance.*

Employee development program

Al-Karim (2019) examined the impact of training and development programs on employee performance. The study found that development programs have a positive impact on employee performance and productivity. It is essential for the organizations to maintain the ambient environment which involves continuous training process. Arthur (1994) stated that employee's development, opportunities provided by an organization, are not only helpful in shaping employees mindsets in accordance with strategic objective of firm but also have a potential positive impact on organization outcomes. Similarly, Rosti and Shipper (1998) found employee development for managerial skills is positively related to employee promotion that encourages employees for the greater performance. Moreover, Yamoah and Maiyo (2013) found that employee development programs have a positive effect on performance. The study showed that improvement in the skills and abilities of workers results in improved employee performance. Akter (2016) investigated employee training and employee development as the predictors of employee performance. The study found a positive significant impact between employee training, employee development and employee performance. Based on it, this study develops the following hypothesis:

H_4 : *There is a positive relationship between employee development program and employee performance.*

Job rotation

Saravanan (2017) found that job rotation has a significant positive effect on performance of employees. It helps in increasing the competency, motivation, department co-operation, skills, etc. of employees. Similarly, Khan *et al.* (2014) found positive relationship between job rotation, job performance and organizational commitment among the employees. The study also showed that job rotation increases the motivation level of the employee therefore the performance is also increased. According to Ravikumar *et al.* (2020), job rotation is considered as one of the most important predictors of empowering employees towards enhanced motivation, commitment and job involvement that is pre-requisite for effective organizational performances. Twei and Saina (2015) examined the effect of job rotation on employee performance in Kenya. The study showed that job rotation has a strong positive effect on performance. Furthermore, Akbari and Maniei (2017) showed that job rotation within the organization increases the performance of their employees. The study found a positive and significant relationship between job rotation and employee performance. Based on it, this study develops the following hypothesis:

H_5 : *There is a positive relationship between job rotation and employee performance.*

Coaching

Achi and Sleilati (2016) examined the effect of coaching on employee performance in the Lebanese banking sector. The study found that coaching has a positive impact on employee performance. Pousa and Mathieu (2014) found that coaching positively affects the level of employee performance. It is a key managerial behavior that can be used in organizational settings to develop subordinates and help them achieve increasing levels of performance. Sidhu and Nizam (2020) examined the impact of workplace coaching on employees' performance in Malaysia mediated by rewards and recognition. The study showed that coaching has a positive impact on employee performance which is also statistically significant. Furthermore, Kalkavan and Katrinli (2014) showed that behavioral managerial coaching in the insurance sector has a positive effect on better understanding of the roles of employees, job satisfaction, career commitment, employee performance in the workplace. Based on it, this study develops the following hypothesis:

H_6 : *There is a positive relationship between coaching and employee performance.*

3. Results and discussion

Correlation analysis

On analysis of data, correlation analysis has been undertaken first and for this purpose, Kendall's Tau correlation coefficients along with means and standard deviations have been computed, and the results are presented in Table 1.

Table 1: Kendall's correlation coefficients matrix

This table presents Kendall's Tau correlation coefficients between dependent variable and independent variables. The correlation coefficients are based on 173 observations. The dependent variable is EP (Employee performance). The independent variables are OJT (On-the-job training), OFJT (Off-the-job training), TK (Trainer knowledge), EDP (Employee development program), JR (Job rotation) and C (Coaching).

Variables	Mean	SD	EP	OJT	OFJT	TK	EDP	JR	C
EP	3.780	0.902	1						
OJT	3.760	0.799	0.431**	1					
OFJT	3.721	0.818	0.441**	0.464**	1				
TK	3.790	0.836	0.473**	0.427**	0.402**	1			
EDP	3.870	0.839	0.498**	0.407**	0.420**	0.523**	1		
JR	3.537	0.320	0.209**	0.282**	0.270**	0.341**	0.240**	1	
C	3.544	0.800	0.274**	0.238**	0.265**	0.331**	0.204**	0.413**	1

*Notes: The asterisk signs (**) and (*) indicate that the results are significant at one percent and five percent level respectively.*

The correlation matrix indicates that on-the-job training is positively correlated to employee performance. It implies that better on-the-job training programs leads to increase in employee performance. The result also reveals that off-the-job training program is positively correlated to employee performance. It implies that better the off-the-job training program in the organization, higher would be the employee performance. Moreover, trainer knowledge is positively correlated to employee performance. It implies that adequate and innovative trainer knowledge leads to increase in employee performance. Furthermore, employee development program is positively correlated to employee performance indicating that better employee development programs in the banks leads to increase in employee performance. Similarly, the result also shows that job rotation is positively correlated to employee performance. It indicates that increase in job rotation system leads to increase in employee performance. Moreover, coaching is positively correlated to employee performance. It indicates that better coaching leads to increase in employee performance.

Regression analysis

Having analyzed the Kendall's Tau correlation coefficients matrix, the regression analysis has been carried out and the results are presented in Table 2. More specifically, it presents the regression results of on-the-job training, off-the-job training, trainer knowledge, employee development program, job rotation and coaching on employee performance in Nepalese commercial banks.

Table 2: Estimated regression results of on-the-job training, off-the-job training, trainer knowledge, employee development program, job rotation and coaching on employee performance in Nepalese commercial banks

The results are based on 173 observations using linear regression model. The model, $EP = \beta_0 + \beta_1 OJT + \beta_2 OFJT + \beta_3 TK + \beta_4 EDP + \beta_5 JR + \beta_6 C + e$, where the dependent variable is EP (Employee performance). The independent variables are OJT (On-the-job training), OFJT (Off-the-job training), TK (Trainer knowledge), EDP (Employee development program), JR (Job rotation) and C (Coaching).

Model	Intercept	Regression coefficients of						Adj. R _{bar} ²	SEE	F-value
		OJT	OFJT	TK	EDP	JR	C			
1	0.832 (3.482)**	0.784 (12.623)**						0.479	0.650	159.347
2	1.050 (4.381)**		0.734 (11.671)**					0.440	0.675	136.209
3	0.692 (3.298)**			0.815 (15.069)**				0.568	0.592	227.068
4	0.673 (3.112)**				0.803 (14.707)**			0.556	0.601	216.287
5	2.077 (7.695)**					0.482 (6.483)**		0.193	0.810	42.031
6	1.424 (5.635)**						0.665 (9.554)**	0.344	0.730	91.281
7	0.399 (1.675)	0.507 (6.393)**	0.396 (5.109)**					0.546	0.607	104.415
8	0.731 (2.761)**		0.647 (9.228)**					0.459	0.663	73.936
9	0.112 (0.512)	0.237 (2.850)**	0.246 (3.342)**	0.491 (6.375)**				0.632	0.547	99.390
10	0.218 (0.928)		0.336 (4.723)**		0.577 (8.055)**	0.182 (2.634)**		0.607	0.565	89.444
11	0.023 (0.103)		0.236 (3.362)**	0.335 (3.623)**	0.328 (3.793)**		0.095 (1.363)	0.647	0.535	79.943
12	0.110 (0.053)	0.168 (2.017)*	0.206 (2.842)**	0.328 (3.645)**	0.291 (3.279)**	0.022 (0.356)		0.652	0.532	81.531

Notes:

- i. Figures in parenthesis are t-values.
- ii. The asterisk signs (**) and (*) indicate that the results are significant at one percent and five percent level respectively.
- iii. Employee performance is the dependent variable.

The regression results show that the beta coefficients for on-the-job training are positive with employee performance. It indicates that on-the-job training has a positive impact on employee performance. This finding is similar to the findings of Khan *et al.* (2011). Likewise, the beta coefficients for off-the-job training are positive with employee performance. It indicates that off-the-job training has a positive impact on employee performance. This finding is consistent with the findings of Asiki and Picho (2015). Moreover, the beta coefficients for trainer knowledge are positive with employee performance. It indicates that trainer knowledge has a positive impact on employee performance. This finding is similar to the findings of Hafeez and Akbar (2015). Furthermore, the beta coefficients for employee development program are positive with employee performance. It indicates that employee development program has a positive impact on employee performance. This finding is consistent

with the findings of Akter (2016). In addition, the beta coefficients for job rotation are positive with employee performance. It indicates that job rotation has a positive impact on employee performance. This finding is similar to the findings of Saravanan (2017). Similarly, the beta coefficients for coaching are positive with employee performance. It indicates that coaching has a positive impact on employee performance. This finding is similar with the findings of Kalkavan and Katrinli (2014).

4. Summary and conclusion

Training and development are one of the most essential parts in a company's development and success. The nature of the training program is reciprocal within an organization. Employees who believe that the training program shall benefit them in enriching their skills and personal development; willingly participate in the training program. Consequently, such training programs yield high performing workforce. The magnitude of learning skills and acquiring knowledge from training programs depend upon how much an employee is motivated to participate in training programs.

This study attempts to examine impact of training and development of employee performance in the context of Nepalese commercial banks. The study is based on primary data with 173 observations.

The major conclusion of the study is that on-the-job training, off-the-job training, trainer knowledge, employee development program, job rotation and coaching have a positive impact on employee performance in Nepalese commercial banks. The study concluded that better training and development practices in Nepalese commercial banks directed towards the employees leads to higher level of performance. The study also concluded that trainer knowledge followed by employee development program and on-the-job training are the most influencing factor that explains the changes in employee performance in Nepalese commercial banks.

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Impact of human resource management practices on employee performance in Nepalese commercial banks

– Rojee Jaiswal*

Abstract

This study examines the impact of human resource management practices on employee performance in the context of Nepalese commercial banks. Employee performance is the dependent variable. The selected independent variables are compensation practices, training and development, performance evaluation, promotion practices and employee relation. The primary source of data is used to assess the opinions of the respondents regarding human resource management practices in Nepalese commercial banks. The study is based on primary data of 27 commercial banks with 150 respondents. To achieve the purpose of the study, structured questionnaire is prepared. The correlation coefficients and regression models are estimated to test the significance and importance of human resource management practices on employee performance in the context of Nepalese commercial banks.

The study showed that compensation practices have positive effect on employee performance. It implies that better compensation practices lead to increase in employee performance. The result also showed that training and development have positive impact on employee performance. It implies that increase in training and development programs lead to increase in employee performance. Moreover, performance evaluation has a positive effect on employee performance. It implies that fair performance evaluation leads to increase in employee performance in the organization. Furthermore, promotion practices have positive effect on employee performance indicating that better promotion practices lead to increase in employee performance. Similarly, the result also showed that employee relation has a positive effect on employee performance in the organization. It indicates that good relations among the employees leads to increase in the level of performance.

Key words: *Employee perceived performance, compensation practices, training and development, performance evaluation, promotion practices and employee relation.*

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1. Introduction

Human resources are the most valuable and inseparable assets for business organizations. The existence of an organization depends upon its human resources as they manage other resources of an organization (Efendi, 2020). Human resources add value to the organization and provide competitive advantage if they are nurtured and properly guided. Thus, human resources are considered as center for all developmental processes of an economy. Good human resource practices help organization to increase their key performance indicators by creating more employee satisfaction which automatically translate into customer satisfaction and create good image of organization in the industry (Markos and Sridevi, 2010). Every organization strives to improve its performance but it is only possible with efficient employee performance (Renwick *et al.*, 2013). HR practices play an important role in the performance of employees as well as organization. Necessary and effective HRM policies can bind employees to the firm and result in reduced turnover, absenteeism and grievances, increased commitment and improved job performance by employees. Employee outcomes provide a conceptual mechanism through which HR practices may affect firm performance (Coopers and Schindler, 2006). Human resources play a vital role in the achievement of organizational objectives by maximizing employee's performance. Effective human resources practices increase the level of employee performance and employees feel more comfortable and secured where HR practices are implemented. Therefore, HR practices play an important role in the performance of employees as well as an organization (Rastogi and Srivastava, 2017).

HRM can be defined as the policies and practices required to perform the routines of human resources in an organization, such as employee staffing, staff development, performance management, compensation management, and encouraging employee involvement in decision-making (Alsafadi and Altahat, 2021). Hence, the banks are required to activate the role of HRM through the utilization of human resource management practices (HRMP). HRM plays an important role in the creation of better human resources (who are the main assets of the organization), and retention of such resources, and provide flexibility and the ability to adapt to achieve a sustainable competitive advantage. Effective HRMP such as including sophisticated methods to recruitment and selection, orientation, appraisal, and training envisage organizational innovation in products and services (Shipton *et al.*, 2005). In line with the changing business environment and the rising demands and desires of the employees, companies need to constantly change their HRM practices. Employee engagement will be fostered by this, which in turn leads to improved performance for the organization and also improved well-being and development for employees to influence employee behavior and thus promote business goals. Companies must create a bundle of internally consistent HRM practices (Jimenez and Valle, 2005). Training and development in organizations positively affect the employee and improves his/her performance and development. As for evaluation, it gives the individual the ability to work better to reach the highest levels. (Abdullah *et al.*, 2009). Employee's behavior is shaped through a bundle of distinct but interrelated HRM practices. HRMP is used to measure the performance of the individual working within the organization and raising the performance of workers by motivating them and creating competition among them (Ahmad and Schroeder, 2003).

Employee performance is one of the most important factors that influence the performance of the organization. The successful organization understands the importance of HR as a critical factor directly affects and contributes on the performance. Caliskan (2010) noted that human resource practices are the most important source of any company to build a strong competitive advantage in the market. Furthermore, organizations should continuously improve their HRM practices if they want to remain viable in this diverse environment. Maier *et al.* (2014) stated that HR practices

are one of the core sources that facilitate an organization to fabricate its strong competitive advantage. Organizations undertake their activity according to environment size and nature of the operation. However, employees can easily achieve the goals and objectives of the organization if the management makes soft decisions and positive behaviour for the betterment of employees. In today's world due to increasing competitive environment, organizations are continuously improving their employee's performances by improving their human resource practices (Horgan and Muhlau, 2006). Employees become more motivated and work hard when they receive reward from organizations in terms of money and promotion (Caruth and Handlogten, 2001). The growth of those companies who focuses on their long-term incentive plans is extremely high than those who ignore this plan (Leonard, 1990). Al Qudah *et al.* (2014) examined the effect of HRM practices towards employee performance in Malaysian Skills Institute (MSI). The results indicated that recruitment and selection and compensation are significantly correlated to the employee performance in MSI.

Training and development, performance appraisal, compensation, job analysis, labor relations, human resource planning, and orientation are included in HR practices. These practices work as a mediator among policies and strategies of an organization (Dessler, 2009). To keep a regular check and balance on the employees, organization use performance evaluation instrument and through this tool administration of an organization can increase employee productivity and performance. According to Brown and Heywood (2005), performance appraisal system can influence individual performance in a better way through which they become loyal and committed towards organizational goals and objectives, and productivity of employee automatically increases. An effective system of performance appraisal substantially increases the productivity. Shahzad *et al.* (2008) found a very weak correlation between performance evaluation practices and perceived performance of the employee. The study stated ineffective evaluation practice could lead to poor performance. Organizations cannot get their desired output from their employee without effective performance appraisal practices. Compensation is an integral part of human resource management which helps in motivating the employees and improving organizational effectiveness. Sugiono and Efendi (2020) showed that situational leadership and compensation have a positive effect on employee performance. Compensation, therefore, is a critical tool in assisting the organization to reach its strategic objectives. Compensation helps in running an organization effectively and accomplishing its goals. Good employer-employee relations are essential to the organization because it inspires employees to work better and produce more results.

In the context of Nepal, Kunwar (2022) analyzed the effect of work environment on employee performance and productivity in Nepalese commercial banks. The study showed that training and development, work life balance, supervisory support, compensation and physical work environment have a positive relationship with employee performance and productivity. The study concluded that compensation followed by physical work environment and supervisory support are the most influencing factors that explain the employee performance of Nepalese commercial banks. Similarly, Dahal (2022) found that working condition, supervisor support, working hours, team work and nature of work have positive impact on employee's productivity. This study concluded that supervisor support is the most influencing factor followed by working hours, nature of work and team work that explains the changes in employee's productivity in Nepalese commercial banks. Moreover, Rawal *et al.* (2022) examined the impact of workplace environment on employee performance in Nepalese insurance companies. The study showed that supervisor support, flexible working environment, job aids, physical working environment and teamwork have positive effect on employee performance. The study concluded that better workplace environment system leads to increase in employee performance in insurance companies. The study also concluded that team work followed by physical

working environment and supervisor support is the most significant factor that explains the changes in employee performance in Nepalese insurance companies.

The above discussion reveals that the empirical evidences vary greatly across the studies concerning the impact of human resource management practices on employee performance. Though there are above mentioned empirical evidences in the context of other countries and in Nepal, no such findings using more recent data exist in the context of Nepal. Therefore, in order to support one view or the other, this study has been conducted.

The main purpose of the study is to analyze the impact of human resource management practices on employee performance in Nepalese commercial banks. Specifically, it examines the impact of compensation practices, training and development, performance evaluation, promotion practices and employee relation on employee performance in Nepalese commercial banks.

The remainder of this study is organized as follows. Section two describes the sample, data and methodology. Section three presents the empirical results and the final section draws the conclusion.

2. Methodological aspects

The study is based on primary data. The data were gathered from 150 respondents through questionnaire. The respondents' views were collected on compensation practices, training and development, performance evaluation, promotion practices and employee relation in Nepalese commercial banks. The study is based on descriptive and causal comparative research designs. Table 1 shows the list of commercial banks along with the number of respondents selected for the study.

Table 1: List of commercial banks selected for the study along with number of respondents

S.N.	Name of the banks	Number of respondents
1	Agricultural Development Bank Limited	3
2	Bank of Kathmandu Limited	2
3	Citizens Bank International Limited	11
4	Everest Bank Limited	5
5	Global IME Bank Limited	1
6	Kumari Bank Limited	6
7	Nepal Bank Limited	3
8	Machhapuchchhre Bank Limited	4
9	Mega Bank Nepal Limited	3
10	Nabil Bank Limited	4
11	Nepal Bangladesh Bank Limited	2
12	Nepal Bank Limited	24
13	Nepal Investment Bank Limited	2
14	Nepal SBI Bank Limited	7
15	NIC Asia Bank Limited	4

16	NMB Bank Nepal Limited	9
17	Prabhu Bank Limited	4
18	Prime Commercial Bank Limited	2
19	Rastriya Banijya Bank Limited	6
20	Sanima Bank Limited	5
21	Siddhartha Bank Limited	5
22	Nepal Credit and Commercial Bank Limited	7
23	Civil Bank Limited	7
24	Century Bank Limited	6
25	Sunrise Bank Limited	4
26	Standard Chartered Bank Nepal Limited	11
27	Himalayan Bank Limited	3
Total number of respondents		150

Thus, the study is based on 150 respondents.

The model

The model estimated in this study assumes that the employee performance depends on compensation practices, training and development, performance evaluation, promotion practices and employee relation. Therefore, the model takes the following form:

$$EPP = \beta_0 + \beta_1 CP + \beta_2 TD + \beta_3 PE + \beta_4 PP + \beta_5 ER + \varepsilon$$

Where,

EPP = Employee performance

CP = Compensation practices

TD = Training and development

PE = Performance evaluation

PP = Promotion practices

ER = Employee relation

Compensation practices was measured using a 5-point Likert scale where the respondents were asked to indicate the responses using 1 for strongly disagree and 5 for strongly agree. There are 7 items and sample items include “The compensation policy of my bank is fair and transparent,” “The compensation practices are competitive with other banks” and so on. The reliability of the items was measured by computing the Cronbach’s alpha ($\alpha = 0.859$).

Training and development was measured using a 5-point Likert scale where the respondents were asked to indicate the responses using 1 for strongly disagree and 5 for strongly agree. There are 7 items and sample items include “My bank provides adequate training opportunities to achieve better performance,” “My bank conducts training program in regular interval” and so on. The reliability of the items was measured by computing the Cronbach’s alpha ($\alpha = 0.828$).

Performance evaluation was measured using a 5-point Likert scale where the respondents were asked to indicate the responses using 1 for strongly disagree and 5 for strongly agree. There are 6 items and

sample items include “The performance appraisal system has helped improve my job performance,” “Performance evaluation fair and satisfactory in your organization” and so on. The reliability of the items was measured by computing the Cronbach’s alpha ($\alpha = 0.859$).

Promotion practices was measured using a 5-point Likert scale where the respondents were asked to indicate the responses using 1 for strongly disagree and 5 for strongly agree. There are 7 items and sample items include “The promotion practice of the bank is fair and impartial,” “The promotion practice of the bank considers employee’s performance” and so on. The reliability of the items was measured by computing the Cronbach’s alpha ($\alpha = 0.821$).

Employee relation was measured using a 5-point Likert scale where the respondents were asked to indicate the responses using 1 for strongly disagree and 5 for strongly agree. There are 5 items and sample items include “Fair treatment among employees is adopted in my bank”, “There is open communication for free flow of information in my bank” and so on. The reliability of the items was measured by computing the Cronbach’s alpha ($\alpha = 0.751$).

Employee performance was measured using a 5-point Likert scale where the respondents were asked to indicate the responses using 1 for strongly disagree and 5 for strongly agree. There are 6 items and sample items include “Human resource management practices adopted by my organization are more satisfactory;” “Promotion motivates me to perform my job effectively” and so on. The reliability of the items was measured by computing the Cronbach’s alpha ($\alpha = 0.781$).

The following section describes the independent variables used in this study along with the hypothesis formulation.

Compensation practices

The importance of recruiting, retaining and managing human resources (HR) to increase competitiveness of organizations has become a crucial factor in the success of the banking industry. Compensation and better reward practice plays crucial role in attracting and retaining highly skilled employees (Kim *et al.*, 2018). Tessema and Soeters (2006) stated that there is a significant positive correlation between compensation practices and employee performance. Employees are more motivated towards their goals and objectives if financial rewards are given based on their performances (Altarawmneh and Al-Kilani, 2010). Furthermore, Shahzad *et al.* (2008) examined the association between compensation and perceived performance of university teachers. The study found positive relationship between compensation and teacher performance. The study argued that compensation practice through attractive packages can enhance teacher’s performance. Based on it, this study develops the following hypothesis:

H_1 : *There is a positive relationship between compensation practices and employee performance.*

Promotion practices

Better reward system is an important determinant of employees’ satisfaction. A good compensation package and promotion opportunities are important to motivate the employees to increase the organizational productivity. Zeb *et al.* (2018) assessed the influence of compensation and benefits and employee’s involvement on employee’s outcomes. The study showed the relationship between employee job performance and compensation are statistically significant and positive. Acharya *et al.* (2022) examined the impact of non-monetary reward on employee motivation in Nepalese commercial banks. The study showed that recognition, flexible work hour, career development opportunities, promotion, belongingness and job security have positive impact on employee motivation among

the commercial banks. Nguyen *et al.* (2015) showed that earning, work environment and promotion opportunities positively influence employee performance. Similarly, compensation, job promotions, and job satisfaction have a positive effect on employee performance (Rinny *et al.*, 2020). Based on it, this study develops the following hypothesis:

H₂ : There is a positive relationship between promotion practices and employee performance.

Training and development

Training and development deals with the acquisition of understanding, knowhow, techniques and practices. In fact, training and development is one of the imperatives of human resource management as it can improve performance at individual, collegial and organizational levels (Ngcobo, 2022). Sandamali *et al.* (2018) examined the relationship between training and development and employee performance of executive level employees of apparel organizations in Sri Lanka. The study revealed that training and development is positively related to employee performance of executive level employees. Training involves designing and supporting learning activities that result in a desired level of performance (Hameed and Waheed, 2011). Roehl and Swerdlow (1999) revealed that there is a positive and significant relationship between employees training and their commitment to the organizations. Based on it, this study develops the following hypothesis:

H₃ : There is a positive relationship of training and development with employee performance.

Performance evaluation

Most modern organizations rely upon some form of performance appraisal system to provide employees with feedback about their performance and to help the organization make decisions about such things as pay increases and promotions (DeNisi and Pritchard, 2006). Kuvaas (2006) examined the relationships between performance appraisal and employee outcomes in the form of self-reported work performance, affective organizational commitment and turnover intention. The study showed that performance appraisal satisfaction was directly related to affective commitment and turnover intention. The study also showed a positive effect of performance appraisal satisfaction on employee commitment and performance. Muriuki and Wanyoike (2021) revealed that there is a positive relationship between sound performance appraisal system and employee performance. Moreover, Al-Jedaia and Mehrez (2020) found that there was a low-moderate positive relationship between management style, performance appraisal and employee development. Employee performance is significantly and positively related to performance appraisal and training and development (Onyije, 2015). Based on it, this study develops the following hypothesis:

H₄ : There is a positive relationship between performance evaluation and employee performance.

Employee relation

Employees should work together and share good relationship with their employers. Hence, employee relationship management plays a crucial role for the achievement of organizational goals. Brhane and Zewdie (2018) examined the basic concepts employee relation and its effects on employee performance. The study revealed that that good relations among the employees leads to increase in the level of performance. Performance of employee depends upon job satisfaction, compensation and benefits structure, reward plans, promotions, motivation, conducive working environment, training and succession planning. Along with this, modern tools, techniques and sophisticated technology used by organizations for employee relations create competitive advantage over competitors (Kuzu

and Ozilhan, 2014). Employee relationship management includes various activities on which an organization implemented by the management so as to develop friendly cooperative relationship with its employees. It helps to create cohesive work environment in which all employees work together in collaboration to ensure the realization of its goals. Besides, it promotes commitment, facilitates employees in achievement of organizational objectives minimizes workplace conflict and increases trust (Bajaj *et al.*, 2013). Trust promotes cooperative behavior, minimize conflict and develop employees' positive perceptions to their managers which in turn enhance employee job satisfaction and higher level of performance in the organization (Rana *et al.*, 2019). Based on it, this study develops the following hypothesis:

H_5 : *There is a positive relationship between employee relation and employee performance.*

3. Results and discussion

Correlation analysis

On analysis of data, correlation analysis has been undertaken first and for this purpose, Kendall's Tau correlation coefficients along with means and standard deviations have been computed and the results are presented in Table 2.

Table 2: Kendall's Tau correlation coefficients matrix

This table presents Kendall's Tau correlation coefficients between dependent variable and independent variables. The correlation coefficients are based on 150 observations. The dependent variables EPP (Employee performance). The independent variables are CP (Compensation practice), TD (Training and development), PE (Performance evaluation), PP (Promotion practice) and ER (Employee relation).

Variables	Mean	SD	CP	TD	PE	PP	ER	EPP
CP	3.292	0.766	1					
TD	3.165	0.765	0.675**	1				
PE	3.185	0.804	0.667**	0.671**	1			
PP	3.244	0.699	0.619**	0.638**	0.672**	1		
ER	3.201	0.777	0.665**	0.652**	0.620**	0.635**	1	
EPP	3.274	0.596	0.187**	0.149*	0.167**	0.174**	0.159**	1

*Notes: The asterisk signs (**) and (*) indicate that the results are significant at one percent and five percent level respectively.*

The study reveals that compensation practices are positively correlated to employee performance. It implies that better compensation practices lead to increase in employee performance. The result also shows that training and development is positively correlated to employee performance. It implies that increase in training and development programs lead to increase in employee performance. Moreover, performance evaluation is also positively correlated to employee performance. It implies that fair performance evaluation leads to increase in employee performance in the organization. Furthermore, promotion practices are positively correlated to employee performance indicating that better promotion practices lead to increase in employee performance. Similarly, the result also shows that employee relation is positively correlated to employee performance in the organization. It indicates that good relations among the employees leads to increase in the level of performance.

Regression analysis

Having indicated the Kendall's Tau correlation coefficients, the regression analysis has been carried out and the results are presented in Table 3. More specifically, it presents the regression results of compensation practices, training and development, performance evaluation, promotion practices and employee relation on employee performance in Nepalese commercial banks.

Table 3: Estimated regression results of compensation practices, training and development, performance evaluation, promotion practices and employee relation on employee performance

The results are based on 150 observations using linear regression model. The model is $EPP = \beta_0 + \beta_1 CP + \beta_2 TD + \beta_3 PE + \beta_4 PP + \beta_5 ER + \epsilon$, where the dependent variable is EPP (Employee performance). The independent variables are CP (Compensation practice), TD (Training and development), PE (Performance evaluation), PP (Promotion practice) and ER (Employee relation).

Model	Intercept	Regression coefficients of					Adj. R _{bar} ²	SEE	F-value
		CP	TD	PE	PP	ER			
1	2.051 (8.466)**	0.520 (7.970)**					0.296	0.619	63.513
2	1.659 (8.343)**		0.646 (11.754)**				0.479	0.532	108.513
3	1.246 (6.368)**			0.735 (14.049)**			0.569	0.484	113.370
4	1.518 (5.559)**				0.637 (9.012)**		0.350	0.594	81.215
5	0.627 (4.577)**					0.867 (24.646)**	0.803	0.327	167.407
6	1.681 (7.813)**	0.106 (1.177)	0.305 (2.849)**				0.486	0.534	68.683
7	1.356 (6.900)**	0.267 (2.932)**	0.224 (2.109)*	0.754 (6.516)**			0.591	0.471	72.858
8	1.258 (5.749)**	0.312 (3.082)**	0.210 (1.964)	0.728 (6.145)**	0.106 (1.015)		0.591	0.472	54.192
9	0.423 (2.908)**	0.055 (0.848)	0.180 (2.727)**	0.180 (2.209)*	0.052 (0.799)*	0.686 (15.382)**	0.844	0.291	162.630

Notes:

- i. Figures in parenthesis are t-values
- ii. The asterisk signs (**) and (*) indicate that the results are significant at one percent and five percent level respectively.
- iii. Employee performance is dependent variable.

Table 3 shows that the beta coefficients for compensation practices are positive with employee performance. It indicates that compensation practices have positive impact on employee performance. This finding is consistent with the findings of Altarawmneh and Al-Kilani (2010). Likewise, the beta coefficients for training and development are negative with employee performance. It indicates that training and development have positive impact on employee performance. This finding is similar to the findings of Sandamali *et al.* (2018). Likewise, the beta coefficients for performance evaluation are positive with employee performance. It indicates that performance evaluation has a positive impact on employee performance. The finding is similar to the findings of Muriuki and Wanyoike (2021). Similarly, the beta coefficients for promotion practices are positive with employee performance. It indicates promotion practices has a positive impact on employee performance. This finding is consistent with the findings of Acharya *et al.* (2022). Furthermore, the beta coefficients for employee

relation are positive with employee performance. It indicates that employee relation has a positive impact on employee performance. This finding is consistent with the findings of Brhane and Zewdie (2018).

4. Summary and conclusion

The success or failure of an organization depends on the quality of human resources. Nowadays, organizations are experiencing a balance of power shifting from employers to employees. Employees can be retained and satisfied within those organizations which keep on learning that how to keep their employee satisfaction at the highest level. HRM practices play a significant role in influencing the performance of employees. However, in the case of developing countries like Nepal, there are some challenges specific to these countries which restrict and affect the role that HR practices in influencing employee and organizational performance.

This study attempts to examine the impact of human resources management practices on employee performance in Nepalese commercial banks. The study is based on primary data with 150 respondents.

The study showed that compensation practices, training and development, performance evaluation, promotion practices and employee relation have positive impact on employee performance in Nepalese commercial banks. The study showed that better practice of human resource management lead to higher level of employee performance in Nepalese commercial banks. The study concluded that employee relation followed by performance evaluation are the most influencing factors that explain the employee performance in Nepalese commercial banks.

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PART IV

Economy Environment & Policy



Impact of macroeconomic factors on credit risk of Nepalese commercial banks

– Saroj Pachhaldangaya and Dr. Nar Bahadur Bista*

Abstract

This study examines the impact of macro-economic factors on the credit risk of Nepalese commercial banks. Non-performing loan and loan loss provision are selected as the dependent variables. Similarly, gross domestic product, inflation, broad money growth, interest rate, exchange rate, and bank size are selected as the independent variables. This study is based on secondary data of 20 commercial banks with 160 observations for the study period from 2013/14 to 2020/21. The data were collected from Banking and Financial Statistics published by Nepal Rastra Bank, annual reports of the selected commercial banks and reports published by Ministry of Finance. The correlation coefficients and regression models are estimated to test the significance and impact of macro-economic factors on credit risk of Nepalese commercial banks.

The study showed that gross domestic product has a negative impact on non-performing loan and loan loss provision. It means that increase in gross domestic product leads to decrease in non-performing loan and loan loss provision. Similarly, exchange rate has a negative impact on non-performing loan and loan loss provision. It means that increase in exchange rate leads to decrease in non-performing loan and loan loss provision. However, board money supply growth has a positive impact on non-performing loan and loan loss provision. It shows that increase in the broad money supply growth leads to increase in non-performing loan and loan loss provision. Furthermore, interest rate has a negative impact on non-performing loan and loan loss provision. It indicates that higher interest rate leads to decrease in non-performing loan and loan loss provision. Similarly, bank size has a negative impact on non-performing loan. It indicates that larger the bank size, lower would be the non-performing loan and loan loss provision.

Key words: *Nonperforming loan, loan loss provision, gross domestic product, inflation, broad money growth, interest rate, exchange rate, and bank size.*

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1. Introduction

Credit risk is identified as one of the oldest and major risk factors that banks and other financial institutions have been facing from time to time. Commercial banks play a crucial role in the economic resource's allocation of countries by basically channeling funds from depositors to investors continuously (Ongore and Kusa, 2013). Banks strengthen economic activities and growth by making efficient use and mobilization of funds. Banking systems with sound profitable grounds makes economy more stable and endurable (Obstfeld, 2009). The risk of non-performing loans mainly arises as the external economic environment becomes worse off such as when there are economic depressions. Controlling non-performing loans is very important for both the performance of an individual bank and the economy's financial environment (Banna *et al.*, 2017).

The macroeconomic indicators are determinant factors that influence bank credit risk-taking decisions. Indeed, the coefficients of rapid growth of GDP, inflation, exchange rate, interest rate and other are statistically significant with bank credit risk (Nabila and Younes, 2011). Zhang and Waemustafa and Sukri (2015) analyzed the impact of bank specific and macroeconomics dynamic determinants of credit risk in Islamic banks and conventional banks. The study found that banks with extensive branch networks across the nation could have the advantage over their counterparts as they may attract more fixed and saving deposit. Mileris (2012) analyzed bank-specific and macroeconomic determinants of profitability in Middle East Banking. The study found that economic activity affects the supply and demand of loans and deposits and taxes and other variables can affect interest rates as well as the volume of loans and deposits. Furthermore, exchange rate influences deposits when confidence in domestic currency is low. The role of credit is widely regarded as crucial to economic growth and financial stability. Financial institutions are widely acknowledged to play an important part in the development process, primarily through their involvement in allocating resources to their most productive uses. In other words, banks provide loans and advances to individuals, businesses, and governments in order to enable them to engage in investment and development activities, thereby assisting their own growth or contributing to the overall economic development of a country. Commercial banks have been at the middle of driving the economy as evidenced through the incredible growth in the private sector credit over time (Olokoyo, 2011). By this role, bank acts as intermediary who channels financial wealth of the lender (surplus unit) to the borrower (deficit unit) who seeks loans to finance assorted expenditures, including productive and investment activities (Rahman *et al.*, 2015). Credit risk is one of the most important areas of risk management. It plays an important role mainly for banking institution, which try to develop their own credit risk models in order to increase bank portfolio quality. At present, minimizing and investigating the degree of systemic risk in banking is major concern of policymakers (Demirguc-Kunt and Detragiache, 1998). Among the various risk in bank, credit risk is the primary cause of bank failure. Saba *et al.* (2012) found that real GDP per capita has a significant impact on non-performing loan ratio.

The most important risk that banks are exposed to is credit risk, which involves loans that are not paid back. Credit risk mainly refers to the possibility of loss for a bank due to the inability of loan debtors to fulfill on time or completely their obligations they have assumed as part of their contracts with the bank (these obligations usually involve the repayment of principal debt and interest to the bank on predetermined dates). Credit risk that banks are exposed to has two primary components, which are systematic and unsystematic credit risks. The credit risk management in banks requires assessing the credit risk level of every credit applicant. The bank credit is deliberated as one of the vital functions executed by banks, where it adds to the arrangement of the essential financing for all the sectors in the country, comprising the sectors of the household, business and government.

The credit granted to those sectors is considered to be important for exercising their tasks in business, operations and investments, which helps them to achieve a real growth in output, which will reflect positively on the economy as a whole (Rababah, 2015). Bakri *et al.* (2017) examined the determinants of Islamic bank financing in Malaysia. The study asserted that inflation, money supply, industrial capacity utilization, employment level, exchange rate, and interest rate and GDP growth rate have significant effect on bank financing and assets quality. Better performance of these financial institutions plays a significant role for the economic prosperity of any country and poor performance of these institutions result the slowdown of economic growth and affects badly to the region of the world. Osunnaiye and Alymkulova (2022) concluded that there exists bivariate co-integration between non-performing loan, money supply and interest rates. Anita *et al.* (2022) found that non-performing loan has the significant positive association with the government budget balance and a significant inverse relationship with gross domestic product (GDP), sovereign debt, inflation rate, and money supply. Szarowska (2018) confirmed a negative influence of inflation and exchange rate on non-performing loans.

According to Farhan *et al.* (2012), interest rate is one of the primary economic determinants of bad loans. An increase in interest rate affects the performing assets in banks as it increases the cost of loans charged on the borrowers and reduces the borrower's capacity to pay (Ombaba, 2013). Touny and Shehab (2015) confirmed that macroeconomic conditions are the main source of the systematic risk that reflects on the growth of or decline of loan default. In addition, Ahmad and Bashir (2013) explained that during depression, asset price kept as collateral will decline and results in growth of NPL. In order to prevent this kind of situation, it is important for government policy makers identify the macroeconomic factors to keep the bank's stability by ratio NPL and NPF. Tahir *et al.* (2015) examined the association among bank credit to private sector and economic growth in Pakistan. The study concluded that gross domestic product has a significant positive relationship with bank credit. Adeleke and Awodumi (2018) examined the short-run dynamic and long-run effects of bank credit supply determinants in Nigeria. The study revealed that exchange rate, money supply, net foreign liabilities and real GDP have a positive long-run impact on bank credit of private sector in Nigeria. Shingjergji (2012) examined the impact of macroeconomic variables on the non-performing loans in the Albanian banking system. The study found that GDP growth has a positive relationship with non-performing loans ratio. Similarly, Anjom and Karim (2015) investigated the relationship between nonperforming loans and macroeconomic factors with bank specific factors in SAARC countries. The study found that GDP and interest rate have a positive relationship with non-performing loan. In contrast, inflation and public debt have a negative relationship with non-performing loan.

In the context of Nepal, Thagunna and Poudel (2013) investigated the macroeconomic determinants of credit risk. The study concluded that inflation and foreign exchange have significant influence on credit risk. Likewise, Pradhan *et al.* (2016) investigated the effect of bank specific and macroeconomic variables on non-performing loans. The study showed that loans to total deposit ratio has a positive and significant impact on non-performing loans which means that increase in loans to total deposit would increase the non-performing loans. Moreover, Bhattarai (2018) found that gross domestic product (GDP) is positively associated with non-performing loans (NPLs). It indicates that increase in gross domestic product leads to increase in non-performing loans (NPLs). In addition, Chaudhary and Pandit (2019) examined the degree of elasticity of sectoral lending with lending rate in Nepalese context undertaking panel regression analysis covering all 28 commercial banks in operation in Nepal. The results showed a positive and inelastic relationship between sectoral lending and lending rate. Goet *et al.* (2021) investigated the effect of determinants of lending behavior on loan and advances in joint venture commercial banks in Nepal. The study found that total deposit and inflation rate have

significant impact on total loans and advances but cash reserve ratio and interest rate spread do not give any significant influence on total loans and advances.

The above discussion shows that empirical evidences vary greatly across the studies on the effect of macroeconomic factors on credit risk. Though there are above mentioned empirical evidences in the context of other countries and in Nepal, no such findings using more recent data exist in the context of Nepal. Therefore, in order to support one view or the other, this study has been conducted.

The main purpose of the study is to analyze the impact of macro-economic factors on credit risk of Nepalese commercial banks. Specifically, it examines the relationship of gross domestic product, inflation, broad money growth, interest rate, exchange rate, and bank size with non-performing loan and loan loss provision of Nepalese commercial banks.

The remainder of this study is organized as follows. Section two describes the sample, data and methodology. Section three presents the empirical results and the final sections draws the conclusion.

2. Methodological aspects

The study is based on the secondary data which were gathered from 20 commercial banks for the period from 2013/14 to 2020/21, leading to a total of 160 observations. The study employed stratified sampling method. The main sources of data include Banking and Financial statistics published by Nepal Rastra Bank, reports published by Ministry of Finance, the annual report of respective banks and World Bank database. This study is based on descriptive as well as causal comparative research designs. Table 1 shows the list of commercial banks selected for the study along with the study period and number of observations.

Table 1: List of commercial banks selected for the study along with study period and number of observations

S.N.	Name of the banks	Study Period	Observations
A. Public Banks			
1	Agricultural Development Bank Limited	2013/14-2020/21	8
2	Nepal Bank Limited	2013/14-2020/21	8
B. Joint Venture Banks			
1	Everest Bank Limited	2013/14-2020/21	8
2	Himalayan Bank Limited	2013/14-2020/21	8
3	Nabil Bank Limited	2013/14-2020/21	8
4	Nepal SBI Bank Limited	2013/14-2020/21	8
5	NMB Bank Limited	2013/14-2020/21	8
6	Standard Chartered Bank Nepal Limited	2013/14-2020/21	8
C. Private Banks			
1	Bank of Kathmandu Limited	2013/14-2020/21	8
2	Century Commercial Bank Limited	2013/14-2020/21	8
3	Citizens Bank International Limited	2013/14-2020/21	8

4	Global IME Bank Limited	2013/14-2020/21	8
5	Kumari Bank Limited	2013/14-2020/21	8
6	Laxmi Bank Limited	2013/14-2020/21	8
7	Machhapuchchhre Bank Limited	2013/14-2020/21	8
8	Mega Bank Nepal Limited	2013/14-2020/21	8
9	Nepal Investment Bank Limited	2013/14-2020/21	8
10	Prime Commercial Bank Limited	2013/14-2020/21	8
11	Siddhartha Bank Limited	2013/14-2020/21	8
12	Sunrise Bank Limited	2013/14-2020/21	8
Total number of observations			160

Thus, the study is based on the 160 observations.

The model

The model used in this study assumes that the credit risk depends upon macroeconomic variables. The dependent variables selected for the study are non-performing loan and loan loss provision. Similarly, the selected independent variables are gross domestic product, inflation, broad money growth, interest rate, exchange rate and bank size. Therefore, the model takes the following form:

$$\text{Credit risk} = f(\text{GDP, XR, BM, INF, IR, BS})$$

More specifically,

$$\text{NPL}_{it} = \beta_0 + \beta_1 \text{GDP}_{it} + \beta_2 \text{XR}_{it} + \beta_3 \text{BM}_{it} + \beta_4 \text{INF}_{it} + \beta_5 \text{IR}_{it} + \beta_6 \text{BS}_{it} + e_{it}$$

$$\text{LLP}_{it} = \beta_0 + \beta_1 \text{GDP}_{it} + \beta_2 \text{XR}_{it} + \beta_3 \text{BM}_{it} + \beta_4 \text{INF}_{it} + \beta_5 \text{IR}_{it} + \beta_6 \text{BS}_{it} + e_{it}$$

Where,

NPL = Nonperforming loans as measured by the ratio of non-performing loans to total loans, in percentage.

LLP = Loan loss provision is measured by loan loss provision to total loans, in percentage.

GDP = Gross domestic product as measured by the sum of consumption, investment, government spending and net exports, USD in billions.

XR = Exchange rate as measured by the price of country's money in relation to another country's money, in NPR/USD.

BMS = Broad money supply growth rate in economy in percent in yearly basis, in percentage.

INF = Inflation as measured by the rate of increase in prices over the period of time, in percentage.

IR = Interest rate as measured by the rate that banks charge on lending, in percentage.

BS = Bank size as measured by the total deposits of commercial bank, Rs in billions.

The following section describes the independent variables used in this study along with hypothesis formulation.

Gross domestic product (GDP)

Messai and Jouini (2013) investigated the micro and macro determinants of non-performing loan in

Tunisia. The study showed that problem loans vary negatively with growth rate of GDP. Moreover, Anjom and Karim (2015) found that GDP has a negative impact on non-performing loan. Likewise, Khemraj and Pasha (2009) concluded that there is an inverse relationship between real GDP and non-performing loan. In addition, Kastrati (2011) concluded that GDP growth has a significant negative impact on non-performing loan. Similarly, Lin *et al.* (2016) asserted that there is a negative impact of GDP on non-performing loans. Based on it, this study develops the following hypothesis:

H_1 : *There is a negative relationship of gross domestic product with non-performing loan and loan loss provision.*

Inflation rate

Inflation refers to the sustained increase in the general prices of goods and services in an economy over time. Upadhyaya and Roy (2017) analyzed the determinants of macro-economic variables on the non-performing loan of domestic private commercial banks in India. The study found that the inflation has a direct impact on non-performing loans. The study suggested that the increase in inflation rate will decrease non-performing loans because higher inflation can enhance the loan capacity of borrower by reducing the real value of outstanding debt. Ombaba (2013) found that there is a significant negative relationship between inflation rate and non-performing loans. In addition, Wozabal and Hochreiter (2012) found that inflation rate has a significant negative impact on non-performing loan. Based on it, this study develops the following hypothesis:

H_2 : *There is a negative relationship of inflation rate with non-performing loan and loan loss provision.*

Broad money supply growth

Money supply has a positive relationship with non-performing loans (Badar *et al.*, 2013). Similarly, Zhang *et al.* (2016) concluded that there is a positive relationship between money supply and non-performing loan. Moreover, Syahyunan *et al.* (2017) found that the coefficient of money supply is positive meaning that increase in money supply leads to increase in non-performing loan. Furthermore, money supply has a positive and very significant relationship with non-performing loan (Morakinyo and Sibanda, 2016). In addition, Osunnaiye and Alymkulova (2022) found that money supply has a positive effect in determining non-performing loan. Based on it, this study develops the following hypothesis:

H_3 : *There is a positive relationship of broad money supply growth with non-performing loan and loan loss provision.*

Interest rate

Interest rate is one of the primary economic determinants of NPLs/bad loans (Farhan *et al.*, 2012). An increase in interest rate affects the performing assets in banks as it increases the cost of loans charged on the borrowers and reduces the borrower's capacity to pay (Ombaba, 2013). Similarly, Ekanayake and Azeez (2015) showed that interest rate has a significant positive long-term effect on credit risk. Likewise, Eng and Nabar (2007) found that non-performing loan has a positive associated with real interest rate. Moreover, Fanta *et al.* (2013) confirmed that real interest rate has a positive relationship with non-performing loan. Based on it, this study develops the following hypothesis:

H_4 : *There is a negative relationship of interest rate with non-performing loan and loan loss provision.*

Exchange rate

The exchange rate is the exchange between two different currencies, which is a comparison of the value or price between the two currencies (Chong and Liu *et al.*, 2019). Foreign exchange rates are very dependent on market conditions. Furthermore, Farhan *et al.* (2012) concluded that exchange rate has a positive relationship with non-performing loan which indicates that increase exchange rate leads to increase in non-performing loan. In addition, Waemustafa and Sukri (2015) showed that exchange rate has a positive and significant impact on non-performing loans. Based on it, this study develops the following hypothesis:

H_5 : *There is a positive relationship of exchange rate with non-performing loan and loan loss provision.*

Bank size

Eng and Nabar (2007) showed that bank size has positive and insignificant impact on loan loss provision. Staikouras *et al.* (2007) analyzed the effect of board size and composition on European bank performance. The study found that bank size has a positive relationship with the loan loss provision. Moreover, Eng and Nabar (2007) showed that size has positive and insignificant impact on loan loss provision. Furthermore, Sinaga *et al.* (2020) found that there is positive and significant relationship between bank size and non-performing loans. Based on it, this study develops the following hypothesis.

H_6 : *There is a positive relationship of bank size with non-performing loan and loan loss provision.*

3. Results and discussion

Descriptive statistics

Table 2 presents the descriptive statistics of the selected dependent and independent variables during the period 2013/14 to 2020/21.

Table 2: Descriptive statistics

This table shows the descriptive statistics of dependent and independent variables of 20 Nepalese commercial banks for the study period of 2013/14 to 2020/21. The dependent variables are NPL (Nonperforming loans as measured by the ratio of non-performing loans to total loans, in percentage) and LLP (Loan loss provision is measured by loan loss provision to total loans, in percentage). The independent variables are GDP (Gross domestic product as measured by the sum of consumption, investment, government spending and net exports, USD in billions), XR (Exchange rate as measured by the price of country's money in relation to another country's money, in NPR/USD), BMG (Broad money supply growth rate in economy in percent in yearly basis, in percentage), INF (Inflation as measured by the rate of increase in prices over the period of time, in percentage), IR (Interest rate as measured by the rate that banks charge on lending, in percentage), and BS (Bank size as measured by the total deposits of commercial bank, Rs in billions).

Variable	Minimum	Maximum	Mean	Std. Deviation
NPL	0.10	5.46	1.48	1.13
LLP	0.20	8.46	2.22	1.14
GDP	20.00	34.27	28.81	5.66
XR	97.93	117.73	107.58	6.96
BMG	15.50	21.80	18.64	1.98

INF	3.60	9.93	6.15	2.23
IR	8.43	12.47	10.44	1.38
BS	20.57	345.42	108.08	58.09

Correlation analysis

Having indicated the descriptive statistics, Pearson's correlation coefficients are computed and the results are presented in Table 3.

Table 3: Pearson's correlation coefficients matrix

This table shows the bivariate Pearson's correlation coefficients of dependent and independent variables of 20 Nepalese commercial banks for the study period from 2013/14 to 2020/21. The dependent variables are NPL (Nonperforming loans as measured by the ratio of non-performing loans to total loans, in percentage) and LLP (Loan loss provision is measured by loan loss provision to total loans, in percentage). The independent variables are GDP (Gross domestic product as measured by the sum of consumption, investment, government spending and net exports, USD in billions), XR (Exchange rate as measured by the price of country's money in relation to another country's money, in NPR/USD), BMG (Broad money supply growth rate in economy in percent in yearly basis, in percentage), INF (Inflation as measured by the rate of increase in prices over the period of time, in percentage), IR (Interest rate as measured by the rate that banks charge on lending, in percentage), and BS (Bank size as measured by the total deposits of commercial bank, Rs in billions).

Variables	NPL	LLP	GDP	XR	BMG	INF	IR	BS
NPL	1							
LLP	0.904**	1						
GDP	-0.304**	-0.242**	1					
XR	-0.228**	-0.163*	0.848**	1				
BMG	0.067	0.090	-0.169*	0.002	1			
INF	0.239**	0.193*	-0.80	-0.532**	0.170*	1		
IR	-0.094	-0.121	0.277**	-0.200*	-0.670**	-0.391**	1	
BS	-0.06	-0.004	0.681**	0.744**	0.13	-0.525**	-0.14	1

Note: The asterisk signs (**) and (*) indicate that the results are significant at one percent and five percent levels respectively.

Table 3 shows that gross domestic product is negatively correlated to non-performing loan. It indicates that increase in gross domestic product leads to decrease in non-performing loan. Similarly, exchange rate has a negative relationship with non-performing loan. It indicates that increase in exchange rate leads to decrease in non-performing loan. Moreover, broad money growth has a positive relationship with non-performing loan. It indicates that increase in money supply leads to increase in non-performing loan. Furthermore, there is a positive relationship between inflation and non-performing loan. It indicates that increase in inflation leads to increase in non-performing loan. In addition, interest rate has a negative relationship with non-performing loan. It means that increase the interest rate leads to decrease in non-performing loan. Similarly, bank size has a negative relationship with non-performing loan. It indicates that increase the bank size leads to decrease in non-performing loan of Nepalese commercial banks.

Similarly, the result also shows that there is a negative relationship between gross domestic product and loan loss provision. It indicates that increase the gross domestic product leads to decrease in loan loss provision. Similarly, exchange rate is negatively correlated to loan loss provision. It indicates that increase the exchange rate leads to decrease in loan loss provision. Moreover, broad money

growth has a positive relationship with loan loss provision. It leads to increase in money supply leads to increase in loan loss provision. Furthermore, inflation has a positive relationship with loan loss provision. It means increase in inflation leads to increase in loan loss provision. In addition, interest rate has a positive relationship with loan loss provision. It indicates that increase in interest rate leads to increase in loan loss provision. Similarly, there is a negative relationship between bank size and loan loss provision. It leads to increase in bank size leads to decrease in loan loss provision of Nepalese commercial banks.

Regression analysis

Having indicated the Pearson's correlation coefficients, the regression analysis has been carried out and results are presented in Table 4. More specifically, it shows the regression results of gross domestic product, exchange rate, broad money growth, inflation rate, interest rate, and bank size with non-performing loan of Nepalese commercial banks.

Table 4: Estimated regression results of gross domestic product, exchange rate, broad money growth, inflation rate, interest rate, and bank size with non-performing loan

The results are based on panel data of 20 commercial banks with 160 observations for the period of 2013/14-2020/21 by using the linear regression model and the model is $NPL_{it} = \beta_0 + \beta_1 GDP_{it} + \beta_2 XR_{it} + \beta_3 BMG_{it} + \beta_4 INF_{it} + \beta_5 IR_{it} + \beta_6 BS_{it} + e_{it}$ where, the dependent variable is NPL (Nonperforming loans as measured by the ratio of non-performing loans to total loans, in percentage). The independent variables are GDP (Gross domestic product as measured by the sum of consumption, investment, government spending and net exports, USD in billions), XR (Exchange rate as measured by the price of country's money in relation to another country's money, in NPR/USD), BMG (Broad money supply growth rate in economy in percent in yearly basis, in percentage), INF (Inflation as measured by the rate of increase in prices over the period of time, in percentage), IR (Interest rate as measured by the rate that banks charge on lending, in percentage), and BS (Bank size as measured by the total deposits of commercial bank, Rs in billions).

Model	Intercept	Regression coefficients of						Adj. R_bar ²	SEE	F-value
		GDP	XR	BMG	INF	IR	BS			
1	3.22 (7.28)**	-0.06 (4.014)**						0.08	1.07	16.12
2	5.44 (4.03)**		-0.37 (2.94)**					0.04	1.11	8.64
3	0.77 (0.92)			0.04 (0.84)				0.002	1.13	0.71
4	0.74 (2.90)**				0.12 (3.10)**			0.51	1.11	9.55
5	2.28 (3.35)**					-0.08 (1.19)		0.003	1.12	1.42
6	1.62 (8.56)*						-0.001 (0.81)	0.002	1.12	0.66
7	1.86 (1.01)	-0.08 (2.76)**	-0.02 (0.76)					0.08	1.08	8.32
8	0.47 (0.56)			0.02 (0.34)	0.12 (2.98)**			0.04	1.11	4.81
9	2.55 (3.48)**					-0.09 (1.32)	-0.002 (0.93)	0.003	1.12	1.20
10	-0.05 (0.04)				0.16 (2.83)**	-0.03 (0.44)	-0.002 (1.02)	0.04	1.11	3.51

11	-0.94 (0.43)			0.03 (0.51)	0.16 (2.86)**	-0.06 (0.65)	-0.002 (1.04)	0.04	1.10	2.68
12	-11.50 (1.33)	-0.27 (2.73)*	-0.13 (1.72)	0.11 (1.30)	-0.05 (0.71)	-0.47 (1.96)*	-0.006 (2.44)*	0.52	1.05	4.69

Notes:

- i. Figures in parenthesis are t-values.
- ii. The asterisk signs (**) and (*) indicate that the results are significant at one percent and five percent level respectively.
- iii. Non-performing loans is the dependent variable.

Table 4 shows that the beta coefficients for gross domestic product are negative with non-performing loan. It indicates that gross domestic product has a negative impact on non-performing loan. This finding is similar to the findings of Kastrati (2011). Similarly, the beta coefficients for exchange rate are negative with non-performing loan. It indicates that exchange rate has a negative impact on non-performing loan. This finding is consistent with the findings of Upadhyaya and Roy (2017). However, the beta coefficients for broad money growth are positive with non-performing loan. It indicates that broad money growth has a positive impact on non-performing loan. This finding is similar to the findings of Morakinyo and Sibanda (2016). Likewise, the beta coefficients for inflation are positive with non-performing loan. It indicates that inflation has a positive impact on non-performing loan. This finding is consistent with the findings of Ombaba (2013). Similarly, the beta coefficients for interest rate are negative with non-performing loan. It indicates that interest rate has a negative impact on non-performing loan. This finding is similar to the findings of Eng and Nabar (2007). Likewise, the beta coefficients for bank size are negative with non-performing loan. It indicates that bank size has a negative impact on non-performing loan. This finding is consistent with the findings of Staikouras *et al.* (2007).

Table 5 shows the estimated regression results of gross domestic product, exchange rate, broad money growth, inflation, interest rate, and bank size on loan loss provision of Nepalese commercial banks.

Table 5: Estimated regression results of gross domestic product, exchange rate, broad money growth, inflation, interest rate, and bank size with loan loss provision

The results are based on panel data of 20 commercial banks with 160 observations for the period of 2013/14-2020/21 by using the linear regression model and the model is $LLP_{it} = \beta_0 + \beta_1 GDP_{it} + \beta_2 XR_{it} + \beta_3 BMG_{it} + \beta_4 INF_{it} + \beta_5 IR_{it} + \beta_6 BS_{it} + e_{it}$ where, the dependent variable is LLP (Loan loss provision is measured by loan loss provision to total loans, in percentage). The independent variables are GDP (Gross domestic product as measured by the sum of consumption, investment, government spending and net exports, USD in billions), XR (Exchange rate as measured by the price of country's money in relation to another country's money, in NPR/USD), BMG (Broad money supply growth rate in economy in percent in yearly basis, in percentage), INF (Inflation as measured by the rate of increase in prices over the period of time, in percentage), IR (Interest rate as measured by the rate that banks charge on lending, in percentage), and BS (Bank size as measured by the total deposits of commercial bank, Rs in billions).

Model	Intercept	Regression coefficients of						Adj. R_bar ²	SEE	F-value
		GDP	XR	BMG	INF	IR	BS			
1	3.62 (7.93)**	-0.05 (3.13)**						0.05	1.11	9.81
2	5.1 (3.67)**		-0.03 (2.10)*					0.02	1.13	4.31
3	1.25 (1.47)			0.05 (1.14)				0.002	1.14	1.10
4	1.61 (6.10)**				0.10 (2.50)*			0.031	1.12	6.13
5	3.30 (4.75)**					-0.10 (1.54)		0.009	1.14	2.40
6	2.24 (11.64)**						-8.53 (0.05)	0.005	1.14	0.003
7	1.71 (0.89)	-0.10 (2.53)*	-0.03 (1.03)					0.05	1.11	5.44
8	1.01 (1.19)			0.03 (0.74)	0.10 (2.31)*			0.02	1.12	3.33
9	3.34 (4.52)**					-0.10 (1.55)	-0.15 (0.27)	0.003	1.14	1.21
10	1.09 (0.93)				0.13 (2.24)*	-0.001 (0.01)	-0.003 (1.32)	0.03	1.12	2.76
11	0.21 (0.09)			0.03 (0.48)	0.14 (2.44)*	-0.031 (0.31)	-0.003 (1.33)	0.027	1.13	2.12
12	-5.54 (0.62)	-0.202 (1.95)*	-0.081 (1.06)	0.074 (0.83)	-0.036 (0.45)	-0.32 (1.19)	-0.006 (2.56)*	0.58	1.09	3.33

Notes:

- i. Figures in parenthesis are t-values.
- ii. The asterisk signs (**) and (*) indicate that the results are significant at one percent and five percent level respectively.
- iii. Loan loss provision is the dependent variable.

Table 5 shows that the beta coefficients for gross domestic product are negative with loan loss provision. It indicates that gross domestic product has a negative impact on loan loss provision. This finding is similar to the findings of Anjom and Karim (2015). Similarly, the beta coefficients for exchange rate are negative with loan loss provision. It indicates that exchange rate has a negative impact on loan loss provision. This finding is consistent with the findings of Waemustafa and Sukri (2015). However, the beta coefficients for broad money growth are positive with loan loss provision. It indicates that money supply has a positive impact on loan loss provision. This finding is similar to the findings of Zhang *et al.* (2016). Likewise, the beta coefficients for inflation are positive with loan loss provision. It indicates that inflation has a positive impact on loan loss provision. This finding is consistent with the findings of Ombaba (2013). Similarly, the beta coefficients for interest rate are negative with loan loss provision. It indicates that interest rate has a negative impact on loan loss provision. This finding is similar to the findings of Farhan *et al.* (2022). Likewise, the beta coefficients for bank size are negative with loan loss provision. It indicates that bank size has a negative impact on loan loss provision. This finding is consistent with the findings of Sinaga *et al.* (2020).

4. Summary and conclusion

Commercial banks play a significant and energetic role in the development of the economy of a country. When the banking sector in a country is functioning in an efficient, effective, and disciplined way, it leads to bring a rapid growth in the various sectors in the country. Banks play an important role for the economic development by channelizing the funds from depositors to borrowers. Credit management systems ensures putting into place systems, procedures and controls that are aimed at ensuring efficient collection of loans made to clients in order to minimize credit risk. Economies that have a profitable banking sector are better able to withstand negative shocks and contribute to the stability of the financial system.

This study attempts to analyze the impact of macro-economic factors on credit risk of Nepalese commercial banks. The study is based on secondary data of 20 commercial banks with 160 observations for the period from 2013/14 to 2020/21.

The study showed that broad money growth and inflation have a positive impact on non-performing loan. However, gross domestic product, exchange rate, and bank size have a negative impact on non-performing loan. Likewise, broad money growth independence, and inflation have a positive impact on loan loss provision. However, gross domestic product, exchange rate, and bank size have a negative impact on loan loss provision. Likewise, the study also concluded that gross domestic product followed by inflation is the most influencing factor that explains the changes in non-performing loan of Nepalese commercial banks. Similarly, the study also concluded that gross domestic product followed by inflation and exchange rate is the most influencing factor that explains the changes in loan loss provision in the context of Nepalese commercial banks.

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Impact of macro-economic variables on the profitability of Nepalese commercial banks

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Abstract

This study examines the impact of macro-economic variables on the profitability of Nepalese commercial banks. Return on assets and return on equity are selected as the dependent variables. Similarly, inflation, money supply, unemployment rate, gross domestic product, exchange rate and interest rate are selected as the independent variables. This study is based on secondary data of 16 commercial banks with 128 observations for the study period from 2013/14 to 2020/21. The data were collected from Banking and Financial Statistics published by Nepal Rastra Bank, annual reports of the selected commercial banks and reports published by Ministry of Finance. The correlation coefficients and regression models are estimated to test the significance and importance of macro-economic variables on the profitability of Nepalese commercial banks.

The study showed that exchange rate has a negative impact on return on assets and return on equity. It indicates that increase in exchange rate leads to decrease in return on assets and return on equity. Similarly, interest rate has a positive impact on return on assets and return on equity. It indicates that increase in interest rate leads to increase in return on assets and return on equity. In addition, money supply has a negative impact on return on assets and return on equity. It shows that increase in money supply leads to decrease in return on assets and return on equity. Likewise, the study showed that unemployment rate has a negative impact on return on assets and return on equity. It means that increase in unemployment rate leads to decrease in return on assets and return on equity.

Key words: *Return on assets, return on equity, gross domestic product, inflation rate, exchange rate, money supply, bank rate and unemployment rate.*

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1. Introduction

A strong and profitable banking system can contribute significantly to the stability of the entire financial system by holding back the possibility of negative shock (Masood *et al.*, 2015). The existence, growth and survival of a business organization mostly depend upon the profit which it is able to earn. At the macro level, a profitable banking sector is better able to endure negative shocks and contribute to the stability of the financial system (Menicucci and Paolucci, 2016). Banking systems with sound profitable grounds makes economy more stable and enduring (Asif *et al.*, 2017). The banking industry contributes significantly to the effectiveness of the entire financial system. The banking institutions offer an efficient institutional mechanism through which resources can be mobilized and directed from less essential uses to more productive investments (Wilner, 2000). Some of the major corporate goals include the need to maximize profit, maintain high level of liquidity, and attain the highest level of owner's net worth. An efficient banking sector contributes positively to economic development by promoting capital accumulation through supply of credit. The sector mobilizes and allocates savings, supports trade, helps in diversification and hedging of risk, and contributes to overall economic growth of a country through provision of credit to the private sector (Levine, 1997).

The financial system is an important ingredient in any economic environment of a country (Abeba and Kapur, 2011). Financial intermediaries as a component of the financial system provide a payment mechanism, match supply and demand in the financial markets, deal with complex financial instruments and markets, provide market transparency, and perform risk transfer and risk management functions. Banks have largely become dependent on the competitive marketing strategies that determine their success and growth. Consequently, the modalities of the banking business have changed a lot in the new millennium compared to the way they used to be in the previous years (Bhatti and Haroon, 2010). Banks play a crucial role in the operation of most economies. The efficiency of financial intermediation can also affect economic growth. Besides, banks insolvencies can result in systemic crisis. Economies that have a profitable banking sector are better able to withstand negative shocks and contribute to the stability of the financial system. Therefore, it is important to understand the determinants of banking sector profitability (Athanasoglou *et al.*, 2005).

Ali *et al.* (2022) evaluated how bank profitability affects economic growth across six countries from GCC region from 2000 to 2019. Using the Generalized Method of Moments (GMM), the study found that the profitability of the banks has a positive short- and long-term relationship with economic growth. Wulandari and Harjito (2021) examined the influence of interest rates, exchange rates and capital structure on profitability in state-owned and private banks in Indonesia. The results showed that the interest rate has a positive and significant effect on banking profitability. Similarly, exchange rate has a negative and significant effect on banking profitability. Moreover, capital structure has a positive and significant effect on banking profitability. Furthermore, interest rate, exchange rate, and capital structure simultaneously have a positive and significant effect on banking profitability. Hussain *et al.* (2021) explored the interaction effect of macroeconomics indicators, and working capital flows on financial performance in a developing economy. By using the static and dynamic approach of panel analysis, the study showed that exchange rate and interest rate have a significant role in changing the firm performance. Petria *et al.* (2015) examined the effects of banking intrinsic, industry factors, and macro factors on bank profits for 1098 banks from 27 EU countries from 2004 to 2011. The results indicated that liquidity risk, credit risk, governance efficiency, income diversification, industry concentration/competition, and GDP have significant impact on bank profits. Noor and Hayati (2012) examined the relationship between Islamic banking profitability and determinants of efficiency. The study revealed that GDP has positive impact on Islamic banks

efficiency. Similarly, Sharma and Mani (2012) assessed the impact of macroeconomic and financial market indicators on the banking sector of India. The study found that GDP is positively related to ROA and ROE.

Ozili and Ndah (2021) found a significant negative relationship between the financial system deposits to GDP ratio and the non-interest income of Nigerian banks. This indicates that higher financial system deposits to GDP depresses the non-interest income of Nigerian banks. The result implies that the larger the size of the Nigerian financial system, the lower the profitability of banks in Nigeria. Moreover, the study observed that bank concentration, nonperforming loans, cost efficiency and the level of inflation are significant determinants of the profitability of Nigerian banks. Similarly, Yakubu and Bunyaminu (2022) showed a negative significant effect of financial and trade globalization on bank profitability, signifying the intense competition of banks in Sub-Saharan Africa accelerated by globalization. The negative effect of economic globalization holds irrespective of the indicator of bank profitability. Syafri (2012) investigated the factors affecting bank profitability in Indonesia in the period 2002 to 2011 using fixed effect panel data regression model. The empirical analysis revealed that inflation has negative effect on banks' profitability. Moreover, Sufian and Kamarudin (2012) assessed the impact of bank specific characteristics and macroeconomic determinants on the profitability in the Bangladesh's banking sector. The study found that growth in GDP, inflation and concentration significantly influence profitability. In addition, Huybens and Smith (1999) argued that an increase in the rate of inflation have negative consequences on banking financial sector performance through credit market frictions before affecting economic growth. Azariadis and Smith (1996) found that the importance of threshold level of inflation in the relationship between inflation and financial sector performance which shows the negative consequence of inflation on banking performance.

Horobet *et al.* (2021) investigated the determinants of banking profitability in the CEE banking sectors based on a Generalized Method of Moments (GMM) approach using data between 2009 and 2018. The study revealed that unemployment rate, inflation, budget balance, non-governmental credit, non-performing loan rates, concentration rate and capitalization rate have negative impact on the banking profitability in the CEE banking sectors. Likewise, Sayedi (2014) examined the effects credit risk, market power, exchange rate on the profitability of banks in Nigeria. The empirical results showed that market power has significant positive effect on profitability (ROA) while exchange rate has insignificant positive effect on profitability (ROA). Besides, credit risk has insignificant negative effect on profitability. The results also revealed that market power has significant positive effect on profitability (ROE). Exchange rate has significant negative effect on profitability (ROE) while credit risk has insignificant negative effect on profitability. Furthermore, Batsinda and Shukla (2019) stated that inflation has a positive relationship with profitability. In addition, Islam and Nishiyama (2016) examined the determinants of bank profitability using dynamic panel evidence from South Asian countries. The study revealed that inflation positively affect bank profitability. Moreover, Azmi *et al.* (2022) found that inflation has a significant positive effect on the profitability measured by ROA. Likewise, Muraina (2018) analyzed the determinants of listed deposit money banks' profitability in Nigeria. The study stated that inflation is positively related to profitability. However, Kanwal and Nadeem (2013) assessed the effect of macroeconomic variables on the profitability of listed commercial banks in Pakistan. The study stated inflation rate has negative impact on profitability.

In the context of Nepal, Humagain *et al.* (2022) analyzed the impact of internal and external factors on the profitability of Nepalese commercial banks. The study showed that GDP growth rate, equity to total assets, total loan to total assets, and bank size have positive impact on return on assets. Kisi *et al.* (2020) examined the determinants of credit risk in Nepalese commercial banks. The study showed

that bank size, gross domestic product growth rate, and broad money supply have negative impact on the non-performing loan of Nepalese commercial banks. Moreover, Mainali *et al.* (2020) assessed the impact of economic openness and inflation on profitability of Nepalese commercial banks. The result showed that higher the inflation, higher would be the return on equity. However, the result showed that financial openness has negative impact on return on equity. It means higher the value of financial openness, lower would be the return on equity.

The above discussion shows that empirical evidences vary greatly across the studies on the impact of macroeconomic variables on the profitability of banks. Though there are above mentioned empirical evidences in the context of other countries and in Nepal, no such findings using more recent data exist in the context of Nepal. Therefore, in order to support one view or the other, this study has been conducted.

The main purpose of the study is to analyze the impact of macroeconomic variables on the profitability of Nepalese commercial banks. Specifically, it examines the relationship of inflation, money supply, unemployment, gross domestic product, exchange rate and interest rate with return on assets and return on equity of Nepalese commercial banks.

The remainder of this study is organized as follows. Section two describes the sample, data and methodology. Section three presents the empirical results and the final sections draws the conclusion.

2. Methodological aspects

The study is based on the secondary data which were gathered from 16 commercial banks for the period from 2013/14 to 2020/21, leading to a total of 128 observations. The main sources of data include Banking and Financial statistics published by Nepal Rastra Bank, reports published by Ministry of Finance and the annual report of respective banks. This study is based on descriptive as well as causal comparative research designs. Table 1 shows the list of commercial banks selected for the study along with the study period and number of observations.

Table 1: List of commercial banks selected for the study along with study period and number of observations

S. N.	Name of the banks	Study period	Observations
Public Banks			
1	Nepal Bank Limited	2013/14 - 2020/21	8
2	Rastryia Banijya Bank Limited	2013/14 - 2020/21	8
Joint Venture Banks			
3	Nabil Bank Limited	2013/14 - 2020/21	8
4	NMB Bank Limited	2013/14 - 2020/21	8
5	Everest Bank Limited	2013/14 - 2020/21	8
6	Himalayan Bank Limited	2013/14 - 2020/21	8
Private Banks			
7	NIC Asia Bank Limited	2013/14 - 2020/21	8
8	Global IME Bank Limited	2013/14 - 2020/21	8

9	Prime Commercial Bank Limited	2013/14 - 2020/21	8
10	Nepal Investment Bank Limited	2013/14 - 2020/21	8
11	Siddhartha Bank Limited	2013/14 - 2020/21	8
12	Mega Bank Nepal Limited	2013/14 - 2020/21	8
13	Prabhu Bank Limited	2013/14 - 2020/21	8
14	Kumari Bank Limited	2013/14 - 2020/21	8
15	Sanima Bank Limited	2013/14 - 2020/21	8
16	Citizens Bank International Limited	2013/14 - 2020/21	8
Total number of observations			128

Thus, the study is based on the 128 observations.

The model

The model used in this study assumes that the bank's profitability depends upon macro-economic variables. The dependent variables selected for the study are return on assets and return on equity. Similarly, the selected independent variables are inflation, money supply, unemployment, gross domestic product, exchange rate and interest rate. Therefore, the model takes the following form:

Profitability = f (INF, MS, UMR, GDP, ER and INT)

More specifically, the given model has been segmented into the following models:

$$ROA_{it} = \beta_0 + \beta_1 INF_{it} + \beta_2 MS_{it} + \beta_3 UMR_{it} + \beta_4 GDP_{it} + \beta_5 ER_{it} + \beta_6 INT_{it} + e_{it}$$

$$ROE_{it} = \beta_0 + \beta_1 INF_{it} + \beta_2 MS_{it} + \beta_3 UMR_{it} + \beta_4 GDP_{it} + \beta_5 ER_{it} + \beta_6 INT_{it} + e_{it}$$

Where,

ROA = Return on assets as measured by the ratio of net income to total assets, in percentage.

ROE = Return on equity as measured by the ratio of net income to its shareholders' equity, in percentage.

GDP = Gross domestic product as measured by the total goods and services produced within the country in a year, USD in billion.

INF = Inflation rate as measured by the change in consumer price index, in percentage.

ER = Exchange rate as measured by the rate of last day of each reporting fiscal year, in NPR/ USD.

MS = Money supply as measured by the broad money, USD in billion.

UMR = Annual unemployment rate, in percentage.

INT = Interest rate as measured by the lending rate of the bank, in percentage.

The following section describes the independent variables used in this study along with hypothesis formulation.

Inflation

Inflation occurs when there is a general and continuous rise in the prices of goods and services in the economy (Gbadebo *et al.* 2015). Ben Khediri and Ben-Khedhiri (2009) indicated that bank

profitability is positively associated with inflation. Likewise, Wasiuzzaman and Tarmizi (2010) found a positive relationship between inflation rate and bank profitability. Furthermore, Al-Jafari and Mohammad (2014) revealed that inflation rate is significantly associated with bank profitability. In addition, Sufian (2009) revealed inflation rate has a positive impact on Malaysian banks' profitability. However, Rahman *et al.* (2015) indicated inflation has a negative and significant impact on ROA and ROE. In the same way, Vong and Chan (2009) showed a positive relationship between inflation and bank profitability. Furthermore, Anbar and Alpher (2011) indicated real inflation rate affects the ROA and ROE of banks positively. Based on it, this study develops the following hypothesis:

H_1 : *There is a positive relationship of inflation with return on assets and return on equity.*

Money supply

Money supply refers to the quantity of money available and it depends on the monetary policy that is being followed. Sufian and Habibullah (2009) revealed growth in money supply is negatively related to the profitability levels. Similarly, Lemi *et al.* (2020) showed statistically significant negative impacts of broad money supply on bank profitability. Likewise, Gyamerah and Amoah (2015) revealed that money supply has a significant relationship with bank profitability. Furthermore, Sihotang *et al.* (2022) indicated that money supply has a significant effect on ROA. However, Omankhanlen *et al.* (2021) found that there exists a positive long run relationship between money supply (M2) and bank's profitability. In addition, Seemule *et al.* (2017) revealed that money supply has a significant negative relationship with bank profitability. Moreover, Sufian and Chong (2008) revealed growth in money supply has a negative relationship with profitability. Based on it, this study develops the following hypothesis:

H_2 : *There is a negative relationship of money supply with return on assets and return on equity.*

Unemployment rate

Unemployment means the proportion of unemployed labor. Horobet *et al.* (2021) stated that unemployment rate has a negative impact on the banking profitability in the CEE banking sectors. Similarly, Samhan and Al-Khatib (2015) revealed significant negative relationship between ROE and unemployment rate. Moreover, Mohamad *et al.* (2019) revealed that unemployment rate has a negative impact on the banking profitability. In the same way, Jadah *et al.* (2020) stated unemployment has a significant negative influence on bank profitability. In addition, Bekeris (2012) concluded that unemployment has a negative impact on the firm profitability. Furthermore, Ghurtskaia (2018) revealed that unemployment has a weak negative relationship with bank profitability. Finally, Zampara *et al.* (2017) revealed that unemployment rate has a negative impact on bank profitability. Based on it, this study develops the following hypothesis:

H_3 : *There is a negative relationship of unemployment rate with return on assets and return on equity.*

Gross domestic product

Gross domestic product (GDP) is the value of final goods and services produced in the country in over a particular period of time. Tan and Floros (2012) indicated that there is negative relationship between gross domestic product and profitability in China. Similarly, Saeed (2014) found that GDP has a negative impact on bank profitability. Furthermore, Yakubu (2016) revealed that GDP growth and inflation rate are negatively related to profitability. In addition, Seemule *et al.* (2017) found a significant negative relationship of GDP with bank profitability. Moreover, Rolle *et al.* (2020) found

that GDP has a significant negative impact on the profitability of conventional banks of Pakistan. In the same way, Ayadi (2012) revealed that GDP growth are not significant and has a negative relationship with the bank profitability. Furthermore, Al-Jafari and Alchami (2014) found that macroeconomic variables (inflation rate and real gross domestic product growth rate) affect bank profitability significantly. Based on it, this study develops the following hypothesis:

H_4 : *There is a negative relationship of gross domestic product with return on assets and return on equity.*

Exchange rate

The exchange rate is the exchange between two different currencies, which is a comparison of the value or price between the two currencies. Neupane (2020) revealed that exchange rate has a negative and significant impact on profitability of Nepalese commercial banks as measured by return on assets. Similarly, Topak and Nimet (2017) revealed that exchange rate has a negative impact on bank profitability. Likewise, Al-Homaidi *et al.* (2018) stated that the exchange rate has a significant negative impact on the profitability of Indian commercial banks. Furthermore, Ozgur and Muhammed (2016) revealed that exchange rate has statistically significant and negative effect on bank profitability. Moreover, Katusiime (2021) showed that exchange rate significantly and negatively affects bank profitability. In the same way, Widarjono (2020) stated that exchange rate has a negative impact on Islamic bank profit. Based on it, this study develops the following hypothesis:

H_5 : *There is a negative relationship of exchange rate with return on assets and return on equity.*

Interest rate

Shuremo (2016) showed that interest rate spread is statistically significant and positive relationship with banks' profitability. Likewise, Katusiime (2021) showed that interest rate significantly and positively affects bank profitability. Moreover, Saeed (2014) revealed a positive and significant relationship between profitability and interest rate. In the same way, Sufian and Chong (2008) portrayed a positive impact of macroeconomic conditions including interest rate on commercial banks profitability. Finally, Rolle *et al.* (2020) revealed a positive relation between interest rate and profits of commercial banks. Based on it, this study develops the following hypothesis:

H_6 : *There is a positive relationship of interest rate with return on assets and return on equity.*

3. Results and discussion

Descriptive statistics

Table 2 presents the descriptive statistics of the selected dependent and independent variables during the period 2013/14 to 2020/21.

Table 2: Descriptive statistics

This table shows the descriptive statistics of dependent and independent variables of 16 Nepalese commercial banks for the study period of 2013/14 to 2020/21. The dependent variables are ROA (Return on assets as measured by the ratio of net income to total assets, in percentage) and ROE (Return on equity as measured by the ratio of net income to its shareholders' equity, in percentage). The independent variables are GDP (Gross domestic product as measured by the total goods and services produced within the country in a year, USD in billion), INF (Inflation rate as measured by the change in consumer price index, in percentage), ER

(Exchange rate as measured by the rate of last day of each reporting fiscal year, in NPR/USD), IR(Interest rate as measured by the lending rate of the bank, in percentage), MS (Money supply as measured by the broad money, USD in billion) and UMR (Annual unemployment rate, in percentage).

Variable	Minimum	Maximum	Mean	Std. Deviation
ROA	0.55	2.89	1.63	0.46
ROE	7.57	55.31	18.00	6.50
INF	3.60	9.93	6.15	2.23
MS	75.36	135.76	98.82	17.83
UNR	2.63	4.44	3.10	0.53
GDP	20.00	34.27	28.81	5.67
ER	98.30	118.20	107.78	6.93
INT	8.43	12.47	10.44	1.38

Correlation analysis

Having indicated the descriptive statistics, Pearson's correlation coefficients are computed and the results are presented in Table 3.

Table 3: Pearson's correlation coefficients matrix

This table shows the bivariate Pearson's correlation coefficients of dependent and independent variables of 16 Nepalese commercial banks for the study period from 2013/14 to 2020/21. The dependent variables are ROA (Return on assets as measured by the ratio of net income to total assets, in percentage) and ROE (Return on equity as measured by the ratio of net income to its shareholders' equity, in percentage). The independent variables are GDP (Gross domestic product as measured by the total goods and services produced within the country in a year, USD in billion), INF (Inflation rate as measured by the change in consumer price index, in percentage), ER (Exchange rate as measured by the rate of last day of each reporting fiscal year, in NPR/USD), IR(Interest rate as measured by the lending rate of the bank, in percentage), MS (Money supply as measured by the broad money, USD in billion) and UMR (Annual unemployment rate, in percentage).

Variables	ROA	ROE	INF	MS	UNR	GDP	ER	INT
ROA	1							
ROE	0.443**	1						
INF	0.088	0.346**	1					
MS	-0.371**	-0.315**	-0.530**	1				
UNR	-0.240**	-0.196*	-0.472**	-0.810**	1			
GDP	-0.160	-0.374**	-0.802**	-0.734**	-0.438**	1		
ER	-0.293**	-0.321**	-0.540**	-0.906**	-0.616**	-0.848**	1	
INT	0.259**	0.086	0.390**	0.428**	0.538**	0.277**	0.203*	1

Note: The asterisk signs (**) and (*) indicate that the results are significant at one percent and five percent levels respectively.

Table 3 shows that inflation rate is positively correlated to return on assets. It means that increase in inflation rate leads to increase in return on assets. Similarly, money supply has a negative relationship with return on assets. It shows that increase in money supply leads to decrease in return on assets. Likewise, the study shows that there is a negative relationship between unemployment rate and return on assets. It means that increase in unemployment rate leads to decrease in return on assets. In contrast, there is a negative relationship between gross domestic product and return on assets. It

means that increase in gross domestic product leads to decrease in return on assets. Furthermore, there is a negative relationship between exchange rate and return on assets. It indicates that increase in exchange rate leads to decrease in return on assets. Moreover, interest rate has a positive relationship with return on assets. It indicates that increase in interest rate leads to increase in return on assets.

Similarly, the result shows that inflation rate is positively correlated to return on equity. It indicates that increase in inflation rate leads to increase in return on equity. On the other hand, there is a negative relationship between money supply and return on equity. It indicates that increase in money supply leads to decrease in return on equity. In addition, unemployment rate is negatively related to return on equity. It shows that increase in unemployment rate leads to decrease in return on equity. In contrast, there is a negative relationship between gross domestic product and return on equity. It indicates that increase in gross domestic product leads to decrease in return on equity. Besides, exchange rate has a negative relationship with return on equity. It means that increase in exchange rate leads to decrease in return on equity. However, there is a positive relationship between interest rate and return on equity. It means that increase in interest rate leads to increase in return on equity of Nepalese commercial banks.

Regression analysis

Having indicated the Pearson's correlation coefficients, the regression analysis has been carried out and results are presented in Table 4. More specifically, it shows the regression results of inflation, money supply, unemployment rate, gross domestic product, exchange rate and interest rate with return on assets of Nepalese commercial banks.

Table 4: Estimated regression results of inflation, money supply, unemployment rate, gross domestic product, exchange rate and interest rate with return on assets of Nepalese commercial banks

The results are based on panel data of 16 commercial banks with 128 observations for the period of 2013/14-2020/21 by using the linear regression model and the model is $ROA_{it} = \beta_0 + \beta_1 INF_{it} + \beta_2 MS_{it} + \beta_3 UMR_{it} + \beta_4 GDP_{it} + \beta_5 ER_{it} + \beta_6 INT_{it} + e_{it}$ where the dependent variable is ROA (Return on assets as measured by the ratio of net income to total assets, in percentage). The independent variables are GDP (Gross domestic product as measured by the total goods and services produced within the country in a year, USD in billion), INF (Inflation rate as measured by the change in consumer price index, in percentage), ER (Exchange rate as measured by the rate of last day of each reporting fiscal year, in NPR/USD), IR (Interest rate as measured by the lending rate of the bank, in percentage), MS (Money supply as measured by the broad money, USD in billion) and UMR (Annual unemployment rate, in percentage).

Model	Intercept	Regression coefficients of						Adj. R _{bar} ²	SEE	F-value
		INF	MS	UNR	GDP	ER	INT			
1	3.008 (6.774)**	0.018 (0.989)						0.001	0.457	0.979
2	2.565 (12.059)**		-0.009 (4.479)**					0.130	0.426	20.059
3	2.272 (9.640)**			-0.208 (2.773)*				0.050	0.445	7.690
4	1.998 (9.604)**				-0.013 (1.814)			0.018	0.453	3.292
5	3.709 (6.123)**					-0.019 (3.443)**		0.079	0.438	11.854

6	0.733 (2.445)*						0.086 (3.009)**	0.067	0.443	9.051
7	2.958 (9.985)**	0.031 (1.556)	-0.012 (4.644)**					0.140	0.423	11.352
8	2.833 (8.160)**	0.029 (1.456)	-0.015 (3.921)**	-0.137 (1.122)				0.142	0.423	8.003
9	1.367 (2.165)*	0.048 (1.401)	-0.028 (4.617)**	-0.421 (2.670)*	-0.051 (2.748)*			0.185	0.412	8.207
10	1.312 (1.036)	0.047 (1.214)	-0.028 (3.755)**	-0.420 (2.659)**	-0.049 (2.046)*	-0.001 (0.050)		0.178	0.414	5.601
11	8.905 (2.530)*	0.016 (0.351)	-0.057 (3.927)**	-0.221 (1.245)	-0.156 (2.996)**	-0.024 (1.096)	0.397 (2.306)*	0.206	0.407	6.506

Notes:

- i. Figures in parenthesis are t-values.
- ii. The asterisk signs (**) and (*) indicate that the results are significant at one percent and five percent level respectively.
- iii. Return on assets is the dependent variable.

Table 4 shows that the beta coefficients for inflation rate are positive with return on assets. It indicates that the inflation rate has a positive impact on return on assets. This finding is similar to the findings of Vong and Chan (2009). Similarly, the beta coefficients for money supply are negative with return on assets. It indicates that money supply has a negative impact on return on assets. This finding is consistent with the findings of Sihotang *et al.* (2022). Likewise, the beta coefficients for unemployment rate are negative with return on assets. It indicates that unemployment has a negative impact on return on assets. This finding is similar to the findings of Mohamad *et al.* (2019). Likewise, the beta coefficients for gross domestic product are negative with return on assets. It indicates that gross domestic product has a negative impact on return on assets. This finding is consistent to the findings of Saeed (2014). Similarly, the beta coefficients for exchange rate are negative with return on assets. It indicates that exchange has a negative impact on return on assets. This finding is consistent with the findings of Widarjono (2020). However, the beta coefficients for interest rate are positive with return on assets. It indicates that interest rate has a positive impact on return on assets. This finding is consistent with the findings of Rolle *et al.* (2020).

Table 5 shows the estimated regression results of inflation, money supply, unemployment rate, gross domestic product, exchange rate and interest rate with return on equity of Nepalese commercial banks.

Table 5: Estimated regression results of inflation, money supply, unemployment rate, gross domestic product, exchange rate and interest rate with return on equity

The results are based on panel data of 16 commercial banks with 128 observations for the period of 2013/14-2020/21 by using the linear regression model and the model is $ROE_{it} = \beta_0 + \beta_1 INF_{it} + \beta_2 MS_{it} + \beta_3 UMR_{it} + \beta_4 GDP_{it} + \beta_5 ER_{it} + \beta_6 INT_{it} + e_{it}$ where the dependent variable is ROE (Return on equity as measured by the ratio of net income to its shareholders' equity, in percentage). The independent variables are GDP (Gross domestic product as measured by the total goods and services produced within the country in a year, USD in billion), INF (Inflation rate as measured by the change in consumer price index, in percentage), ER (Exchange rate as measured by the rate of last day of each reporting fiscal year, in NPR/USD), IR (Interest rate as measured by the lending rate of the bank, in percentage), MS (Money supply as measured by the broad money, USD in billion) and UMR (Annual unemployment rate, in percentage).

Model	Intercept	Regression coefficients of						Adj. R _{bar} ²	SEE	F-value
		INF	MS	UNR	GDP	ER	INT			
1	11.802 (7.413)**	1.009 (4.140)**						0.113	6.120	17.138
2	29.349 (9.488)**		-0.115 (3.728)**					0.092	6.191	13.895
3	25.476 (7.520)**			-2.412 (2.238)*				0.031	6.397	5.007
4	30.341 (10.907)**				-0.428 (4.520)**			0.133	6.051	20.434
5	50.384 (5.901)*					-0.301 (3.801)**		0.096	6.178	0.942
6	22.237 (0.406)						5.052 (0.971)	0.001	6.498	0.942
7	20.141 (4.275)**	0.726 (2.551)*	-0.067 (1.878)*					0.130	6.059	10.505
8	17.825 (3.600)**	0.761 (2.678)*	-0.125 (2.344)*	-2.539 (1.460)				0.138	6.031	7.777
9	18.363 (1.979)*	0.733 (1.469)	-0.120 (1.351)	-2.435 (1.054)	-0.018 (0.069)			0.131	6.062	5.787
10	13.977 (0.751)	0.622 (1.173)	-0.138 (1.250)	-2.443 (1.053)	-0.081 (0.229)	-0.077 (0.272)		0.124	6.081	4.614
11	79.367 (1.513)	0.119 (0.172)	-0.387 (1.785)	-0.730 (0.276)	-0.846 (1.087)	-0.137 (0.422)	3.432 (1.333)	0.130	6.010	4.162

Notes:

- i. Figures in parenthesis are t-values.
- ii. The asterisk signs (**) and (*) indicate that the results are significant at one percent and five percent level respectively.
- iii. Return on equity is the dependent variable.

Table 5 shows that the beta coefficients for inflation rate are positive with return on equity. It indicates that the inflation rate has a positive impact on return on equity. This finding is similar to the findings of Al-Jafari and Mohammad (2014). Similarly, the beta coefficients for money supply are negative with return on equity. It indicates that money supply has a negative impact on return on equity. This finding is consistent with the findings of Seemule *et al.* (2017). Likewise, the beta coefficients for unemployment rate are negative with return on equity. It indicates that unemployment has a negative impact on return on equity. This finding is similar to the findings of Samhan and Al-Khatib (2015). Likewise, the beta coefficients for gross domestic product are negative with return on equity. It indicates that gross domestic product has a negative impact on return on equity. This finding is

consistent to the findings of Yakubu (2016). Similarly, the beta coefficients for exchange rate are negative with return on equity. It indicates that exchange has a negative impact on return on equity. This finding is consistent with the findings of Al-Homaidi *et al.* (2018). However, the beta coefficients for interest rate are positive with return on equity. It indicates that interest rate has a positive impact on return on equity. This finding is consistent with the findings of Katusiime (2021).

4. Summary and conclusion

One of the most important factors influencing cohesive economic development of any country is effective performance and reliability of its banks. The evaluation of soundness and stability of the commercial banks and the stability of the financial system of a country are closely related. The performance of commercial banks can be affected by internal and external factors which can be classified into bank specific (internal) and macroeconomic variables and the internal factors are individual bank characteristics which affect the bank's performance. These factors are basically influenced by the internal decisions of management and board. The external factors are sector wide or country wide factors which are beyond the control of the company and affect the profitability of banks.

This study attempts to analyze the impact of macroeconomic variables on the profitability of Nepalese commercial banks. The study is based on secondary data of 16 commercial banks with 128 observations for the period from 2013/14 to 2020/21.

The study showed that inflation and interest rate have positive impact on return on assets. However, money supply, unemployment rate, gross domestic product and exchange rate have negative impact on return on assets. In addition, inflation and interest rate have positive impact on return on equity. However, money supply, unemployment rate, gross domestic product and exchange rate have negative impact on return on equity. The study also concluded that money supply followed by exchange rate is the most influencing factor that explains the changes in return on assets of Nepalese commercial banks. Similarly, the study also concluded that gross domestic product followed by inflation rate is the most influencing factor that explains the changes in return on equity in context of Nepalese commercial banks.

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Bank efficiency, financial depth and economic growth: A case of Nepal

– Kritima Rimal*

Abstract

This study examines the impact of bank efficiency and financial depth on the economic growth of Nepal. Gross domestic product and per capita disposable income are selected as the dependent variables. Similarly, return on assets, capital adequacy ratio, broad money supply, stock market capitalization, bank credit and trade openness are selected as the independent variables. This study is based on secondary data of 16 commercial banks with 128 observations for the study period from 2013/14 to 2020/21. The data are collected from Bank Supervision Report published by Nepal Rastra Bank, annual reports of the selected commercial banks, Economic Survey, Monetary policy, and Nepal Trade Portal. The correlation coefficients and regression models are estimated to test the significance and impact of bank efficiency and financial depth on the economic growth of Nepal.

The study showed that return on assets has a positive impact on gross domestic product and per capita disposable income. It indicates that the increase in return on assets leads to increase in gross domestic product and per capita disposable income of Nepal. Similarly, the study showed that capital adequacy ratio has a positive impact on gross domestic product and per capita disposable income. It indicates that the higher the capital adequacy ratio of the banks, higher would be the gross domestic product and per capita disposable income. Moreover, the study also showed that broad money supply has a positive impact on gross domestic product and per capita disposable income. It indicates that the increase in broad money supply leads to increase in gross domestic product and per capita disposable income. Furthermore, the study also showed that stock market capitalization has a positive impact on gross domestic product and per capita disposable income. It implies that the increase in stock market capitalization leads to increase in gross domestic product and per capita disposable income.

Key words: *Gross domestic product, per capita disposable income, return in assets, capital adequacy ratio, broad money supply, stock market capitalization, bank credit and trade openness.*

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1. Introduction

A well-developed and functional financial system performs crucial roles in enhancing the efficiency of financial intermediation by minimizing transactions and information costs as well as pool risks. A modern financial system mobilizes savings from the surplus sector of the economy and promotes investment by granting massive credits to the deficit sector of the economy (Yartey, 2007). A well-developed financial market provides higher profits for investors and entrepreneurs, which in turn promotes economic development. Financial development is defined as the growth of the range and the size of financial activities. Stock market is an indicator of an economy financial health. It indicates the mood of investors in a country. As such, stock market development is an important ingredient for growth. Financial deepening is to improve economic conditions through increased competitive efficiency within financial markets thereby indirectly benefiting non-financial sectors of the economy (Nwana and Chinwudu, 2016). Financial deepening also helps in increasing the provision and choices of financial services which would come through its financial infrastructure. Nzotta and Okereke (2009) ascertained that financial deepening is the ability of financial institutions in an economy to effectively mobilize savings for investment purposes. Financial deepening vigorously attracts the reservoir of savings and idle funds and allocates same to entrepreneurs, business, households and government for investments projects and other purposes with a view of returns which forms the basis for economic growth

Unalmis (2002) investigated the direction of the causality between financial depth and economic growth in Turkey using Granger non-causality in the context of VEC model. The study revealed that in the short run, causality runs from financial development to economic growth in the short-run. The study also found that in the long run there exists bidirectional causality between financial deepening and economic growth. Similarly, Kar and Pentecost (2000) examined the causal relationship between financial development and economic growth in Turkey. The results showed that the direction of causality between financial development and growth is highly sensitive to the choice of proxy used for financial development. The study concluded that economic growth seems to lead financial sector development in Turkey. In addition, Wadud (2005) examined long-run causal relationship between financial development and economic growth for 3 South Asian countries namely India, Pakistan and Bangladesh. The study concluded long-run relationship between financial development and economic growth. Moreover, Calderon and Liu (2002) examined the direction of causality between financial development and economic growth by using decomposition test on pooled data of 109 developing and industrial countries from 1960 to 1994. The study found that financial development generally leads to economic growth. The study concluded that financial deepening contributes more to the causal relationships in developing countries than in industrial countries. Furthermore, Azege (2004) employed data on aggregate deposit money bank credit over time and gross domestic product to establish that a moderate positive relationship exists between financial deepening and economic growth. Guryay *et al.* (2007) empirically examined the relationship between financial development and economic growth. The study showed that financial development has an insignificant positive effect on economic growth for Northern Cyprus. The study also concluded that causality runs from economic growth to financial development, without feedback.

Hondroyannis *et al.* (2004) empirically assessed the relationship between the development of the banking system and stock market and economic performance for the case of Greece over the period 1986-1999. Using VAR model, the empirical results showed that a bi-directional causality exists between finance and growth in the long-run. The empirical findings, using error correction models suggested that both bank and stock market financing can promote economic growth. Mohammed

and Sidiropoulos (2006) investigated the effect of financial development on economic performance in Sudan from 1970 to 2004. The study indicated a weak relationship between financial development and economic growth in Sudan due to the inefficient allocation of resources by banks, along with the absence of an appropriate investment climate required to foster significant private investment and promote growth in the long run, and to the poor quality of credit disbursal of the banking sector in Sudan. Similarly, Odiambho (2004) analyzed the role of financial development on economic growth in South Africa. The study employed the Johansen and Juselius cointegration approach and vector error correction model to empirically revealed overwhelming demand-following response between financial development and economic growth. The study totally rejects the supply-leading hypothesis. However, Odiambho (2005) empirically revealed a bi-directional causality between financial development and economic growth. Moreover, Waqabaca (2004) examined the causal relationship between financial development and growth in Fiji using time series data from 1970 to 2000. The study revealed a positive relationship between financial development and economic growth for Fiji, with the direction of causality running from economic growth to financial development. The study posited that this outcome is consistent with results found for countries with less sophisticated financial systems.

Tursoy and Faisal (2018) examined the relationship between financial development which is total banking sector's deposits with the economic growth in North Cyprus. The results revealed that both methods of cointegration provided robust evidence for a long-run relationship between financial debt and growth. The ARDL long-run and short-run coefficients showed the positive impact of depth and the negative impact of inflation on economic growth, thereby confirming the strength of the finance-growth and inflation-growth connections. Moreover, financial depth had a larger coefficient than the inflation rate. Finally, the VECM Granger causality test provided evidence for unidirectional causality from the total deposits and inflation rate to economic growth in North Cyprus. Similarly, Fethi *et al.* (2013) provided evidence for the financial sector's investment contributions to the output level of the North Cyprus economy in both the short-run and long-run. The study suggested a unidirectional causality from finance to growth.

Aali-Bujari *et al.* (2017) examined the impact of the stock market capitalization and the banking spread on growth and development in Latin American. The study revealed that economic growth in the countries is positively influenced by the stock market. In contrast, Alajekwu and Achugbu (2012) investigated the role of stock market development on economic growth of Nigeria. The study showed that market capitalization has a very weak negative correlation with economic growth. Ogunmuyiwa and Ekone (2010) analysed the association between money supply and economic growth in Nigeria. The study documented that the aggregate money supply is positively related to economic growth and development. Musila and Yiheyis (2015) investigated the impact of trade openness on growth in Kenya. The study showed that aggregate trade openness has positive effect on the rate of economic growth. Zahonogo (2016) examined trade and economic growth in developing countries in sub-Saharan Africa. The results explained that trade openness has a positive and significant effect on economic growth only up to a threshold, above which the effect declines. Bakang (2015) analysed the effects of financial deepening on economic growth in Kenya over the period 2000-2013. The study found a high positive correlation among financial deepening indicators confirming the cointegrating relationship between GDP and financial deepening.

In the context of Nepal, Bist and Bista (2018) examined the relationship between financial development and economic growth. The study showed long-run causality relationship between financial development and economic growth in Nepal. In addition, Gnawali (2019) assessed association between money supply and economic growth of Nepal. The study showed that money

supply is positively related to economic growth and foreign assistance is negatively related to the economic growth of Nepal. Similarly, Maharjan (2020) analysed the empirical relationship between financial development and economic growth in Nepal. The result of the study revealed that there is a co-integrating relationship between market capitalization and economic development, with short-run causality running from market capitalization to GDP. Moreover, Shreezal (2020) investigated the relationship between trade openness, financial development and economic growth of Nepal. The results showed that gross fixed capital formation, population and financial development have a significant and positive impact on economic growth of Nepal in the long run.

The above discussion shows that empirical evidences vary greatly across the studies on the impact of bank efficiency and financial depth on economic growth. Though there are above mentioned empirical evidences in the context of other countries and in Nepal, no such findings using more recent data exist in the context of Nepal. Therefore, in order to support one view or the other, this study has been conducted.

The major objective of the study is to examine the impact of bank efficiency and financial depth on the economic growth of Nepal. Specifically, it examines the impact of return on assets, capital adequacy ratio, broad money supply, stock market capitalization, bank credit and trade openness on gross domestic product and per capita disposable income of the Nepalese economy.

The remainder of this study is organized as follows. Section two describes the sample, data, and methodology. Section three presents the empirical results and the final section draws the conclusion.

2. Methodological aspects

The study is based on the secondary data which were gathered from 16 commercial banks for the study period from 2013/14 to 2020/21, leading to a total of 128 observations. The main sources of data include Banking and Financial statistics published by Nepal Rastra Bank, reports published by Ministry of Finance, annual report of respective banks, and the reports published by Nepal Trade Portal. This study is based on descriptive as well as causal comparative research designs. Table 1 shows the list of commercial banks selected for the study along with the study period and number of observations.

Table 1: List of commercial banks selected for the study along with study period and number of observations

S. N.	Name of the banks	Study period	Observations
Public banks			
1	Agricultural Development Bank Limited	2013/14 - 2020/21	8
2	Nepal Bank Limited	2013/14 - 2020/21	8
Joint venture banks			
3	Everest Bank Limited	2013/14 - 2020/21	8
4	Himalayan Bank Limited	2013/14 - 2020/21	8
5	Nabil Bank Limited	2013/14 - 2020/21	8
6	NMB Bank Limited	2013/14 - 2020/21	8
Private banks			
7	Global IME Bank Limited	2013/14 - 2020/21	8

8	NIC Asia Bank Limited	2013/14 - 2020/21	8
9	Citizens Bank International Limited	2013/14 - 2020/21	8
10	Kumari Bank Limited	2013/14 - 2020/21	8
11	Mega Bank Nepal Limited	2013/14 - 2020/21	8
12	Nepal Investment Bank Limited	2013/14 - 2020/21	8
13	Prabhu Bank Limited	2013/14 - 2020/21	8
14	Prime Commercial Bank Limited	2013/14 - 2020/21	8
15	Sanima Bank Limited	2013/14 - 2020/21	8
16	Siddhartha Bank Limited	2013/14 - 2020/21	8
Total number of observations			128

Thus, the study is based on the 128 observations.

The model

The model used in this study assumes that the economic growth depends upon bank efficiency and financial depth. The dependent variables selected for the study are gross domestic product and per capita disposable income. Similarly, the selected independent variables are return on assets, capital adequacy ratio, broad money supply, stock market capitalization, bank credit and trade openness. Therefore, the model takes the following form:

$$\text{GDP} = f(\text{ROA}, \text{CAR}, \text{BMS}, \text{SMC}, \text{BCR}, \text{and TRO})$$

$$\text{PCDI} = f(\text{ROA}, \text{CAR}, \text{BMS}, \text{SMC}, \text{BCR}, \text{and TRO})$$

More specifically, the given model has been segmented into the following models:

$$\text{GDP} = \beta_0 + \beta_1 \text{ROA} + \beta_2 \text{CAR} + \beta_3 \text{BMS} + \beta_4 \text{SMC} + \beta_5 \text{BCR} + \beta_6 \text{TRO} + e_{it}$$

$$\text{PCDI} = \beta_0 + \beta_1 \text{ROA} + \beta_2 \text{CAR} + \beta_3 \text{BMS} + \beta_4 \text{SMC} + \beta_5 \text{BCR} + \beta_6 \text{TRO} + e_{it}$$

Where,

GDP = Gross domestic product as measured by the total goods and services produced within the country in a year, USD in billion.

PCDI = Per capita disposable income as measured by the amount of money earned per person in a nation after deduction of direct tax, USD in billion.

ROA = Return on assets as measured by ratio of net income to average total assets, in percentage.

CAR = Capital adequacy ratio as measured by ratio of total capital to risk weighted assets, in percentage.

BMS = Money supply as measured by all the currency and other liquid instruments, USD in billion.

SMC = Stock market capitalization as measured by the total market value of shares of publicly listed companies at a particular point of time, NPR in billion.

BCR = Bank credit as measured by total credit of a bank, NPR in billion

TRO = Trade openness as measured by ratio of sum of total import and export to GDP, in percentage.

The following section describes the independent variables used in this study along with hypothesis formulation.

Return on assets

ROA is an indication of the operational efficiency of the bank. ROA explains what earnings were generated from invested capital (assets) (Ogbodo and Akabuogu, 2018). Wum *et al.* (2007) examined the impact of financial development and bank characteristics on the operational performance of commercial banks in the Chinese transitional economy. The study revealed that ROA has a positive relationship with per capita GDP. Similarly, Baker *et al.* (2005) found a positive association of ROA with GDP and per capita income. Likewise, Jamal *et al.* (2012) examined the determinants of commercial banks' return on asset in Malaysia. The study found that return on assets has a positive association with gross domestic product. Additionally, Moussa and Hdidar (2019) investigated the effect of economic growth on bank profitability in Tunisia. The study found that there is a positive and significant relationship between ROA and GDP. Based on it, this study develops the following hypothesis:

H_1 : *There is a positive relationship between return on assets and economic growth.*

Capital adequacy ratio

Capital adequacy ratio is an important measure of safety and soundness for banks and depository institutions because it serves as a cushion for absorbing losses. Thus, it has become one of the major benchmarks for financial institutions (Bateni *et al.*, 2014). Aktas *et al.* (2015) analyzed the determinants of banks capital adequacy ratio in South Eastern European Countries. The study found that the capital adequacy ratio has a strong positive relationship with per capita income and gross domestic product. Likewise, Teglio *et al.* (2012) examined the impact of banks' capital adequacy regulation on the economic system. The study found that the capital adequacy ratio has a significant positive impact on per capita income. Additionally, Shehzad *et al.* (2010) analysed the impact of bank ownership concentration on impaired loans and capital adequacy. The study found that capital ratio growth supports future real GDP growth over and above its effect of credit growth. Based on it, this study develops the following hypothesis:

H_2 : *There is a positive relationship between capital adequacy ratio and economic growth.*

Broad money supply

Money supply can be defined as the total volume of currency held by the public at a particular point in time (Uwazie and Aina, 2015). There is excess money supply when the amount of money in circulation is higher than the level of total output of the economy. Broad money can conceal the real effects of finance on growth since not all the money is channelled or used for investment (Ang, 2008). Galadima and Ngada (2017) examined the effect of money supply on economic growth in Nigeria. The study confirmed a long run positive relationship between money supply and economic growth. Moreover, Sulikova *et al.* (2019) investigated effect of inflation on the relationship between broad money and economic growth. The study found that the broad money growth has a positive relationship with economic growth. Similarly, Ogunmuyiwa and Ekone (2010) analysed money supply-economic growth nexus in Nigeria. The study documented that aggregate money supply is positively related to economic growth and development. Likewise, Dingela and Khobai (2017) examined dynamic impact of money supply on economic growth in South Africa. The study revealed that there is a statistically significant positive relationship between money supply and economic growth. Based on it, this study develops the following hypothesis:

H_3 : *There is a positive relationship between money supply and economic growth.*

Stock market capitalization

The stock market capitalization is a major indicator for economic growth (Rioja and Valev, 2014). It is a strategic goal aspired by managers and the reason for increasing the wealth of owners and increase the size of the company (Pavone, 2019). Aali-Bujari *et al.* (2017) examined the impact of the stock market capitalization and the banking spread in growth and development in Latin American. The study found that economic growth in the countries is positively influenced by the stock market capitalization. Likewise, Ogbuji *et al.* (2020) investigated dynamic linkage between money market, capital market and economic growth in Ghana. The results confirmed a strong positive link between market capitalization and GDP growth. In addition, Olusegun (2009) analysed linkages between market capitalization and economic growth in the case of emerging markets. The study found a positive and statistically significant association between market capitalization and economic growth. Based on it, this study develops the following hypothesis:

H_4 : *There is a positive relationship between stock market capitalization and economic growth.*

Bank credit

Bank credit is crucial not only for the development of the standard of living but also for the development of the economy. Thierry *et al.* (2016) examined the causal relationship between bank credit and economic growth in Cameroon. The study found that banking credit has a positive impact on economic growth. Likewise, Ugoani (2013) confirmed that bank credit has a significant positive relationship with economic growth. Similarly, Yakubu and Affoi (2014) carried out analysis of commercial banks' credit on economic growth in Nigeria. The result showed that commercial bank credit has a significant positive effect on the economic growth in Nigeria. Moreover, Ananzeh (2016) analysed the relationship between bank credit and economic growth in Jordan. The study claimed that bank credit has a positive long-term relationship with the development of economy. Likewise, Oluitan (2012) investigated bank credit and economic growth in Nigeria. The study showed that bank credit is inextricably linked to the opening of the economy. Similarly, Hacievliyagil and Eksi (2019) examined the bank credit and economic growth in manufacturing sub-sectors. The study found that lending to high value-added and high-productivity sectors contributes to the growth of GDP. Based on it, this study develops the following hypothesis:

H_5 : *There is a positive relationship between bank credit and economic growth.*

Trade openness

Trade openness is measured as total imports and exports as a fraction of economic activity. Musila and Yiheyis (2015) examined the impact of trade openness on growth in Kenya. The study showed that aggregate trade openness has positive effect on the rate of economic growth in Kenya. Similarly, Yeboah *et al.* (2012) examined effects of trade openness on economic growth in African countries. The study found that trade openness has positive relationship with GDP. In addition, Zahonogo (2016) asserted that trade openness has a positive and significant effect on economic growth. Furthermore, Al-Shayeb and Hatemi (2016) investigated trade openness and economic development in the UAE. The study revealed that a positive permanent shock in the trade openness results in a significant positive effect on GDP per capita. Based on it, this study develops the following hypothesis:

H_6 : *There is a positive relationship between trade openness and economic growth.*

3. Results and discussion

Descriptive statistics

Table 2 presents the descriptive statistics of the selected dependent and independent variables during the period 2013/14 to 2020/21.

Table 2: Descriptive statistics

This table shows the descriptive statistics of dependent and independent variables of 16 Nepalese commercial banks for the study period of 2013/14 to 2020/21. The dependent variables are GDP (Gross domestic product as measured by the total goods and services produced within the country in a year, USD in billion) and PCDI (Per capita disposable income as measured by the total amount of money earned per person in a nation after deduction of direct tax, USD in billion). The independent variables are ROA (Return on assets as measured by ratio of net income to average total assets, in percentage), CAR (capital adequacy ratio as measured by the ratio of capital of bank to its risk, in percentage), BMS (Broad money supply as measured by all the current and other liquid instruments, USD in billion), SMC (Stock market capitalization as measured by the total market value of shares of publicly listed companies at a particular point of time, NPR in billion), BCR (Bank credit as measured by total credit of a bank, NPR in billion) and TRO (Trade openness as measured by ratio of sum of total import and export to GDP, in percentage).

Variables	Minimum	Maximum	Mean	S. D.
GDP	20.00	34.27	28.81	6.03
PCDI	1069	1486	1306.13	169.66
ROA	0.55	2.79	1.67	0.53
CAR	4.55	20.41	13.289	1.09
BMS	75.36	135.76	98.82	18.99
SMC	989.4	4010.74	1824.95	947.92
BCR	10884	263059	83473.61	6.93
TRO	30.75	44.02	37.70	4.60

Source: SPSS output

Correlation analysis

Having indicated the descriptive statistics, Pearson's correlation coefficients are computed and the results are presented in Table 3.

Table 3: Pearson's correlation coefficients matrix

This table showed the bivariate Pearson's correlation coefficients of dependent and independent variables for the study period from 2013/14 to 2020/21. The dependent variables are GDP (Gross domestic product as measured by the total goods and services produced within the country in a year, USD in billion) and PCDI (Per capita disposable income as measured by the total amount of money earned per person in a nation after deduction of direct tax, USD in billion). The independent variables are ROA (Return on assets as measured by ratio of net income to average total assets, in percentage), CAR (capital adequacy ratio as measured by the ratio of capital of bank to its risk, in percentage), BMS (Broad money supply as measured by all the current and other liquid instruments, USD in billion), SMC (Stock market capitalization as measured by the total market value of shares of publicly listed companies at a particular point of time, NPR in billion), BCR (Bank credit as measured by total credit of a bank, NPR in billion) and TRO (Trade openness as measured by ratio of sum of total import and export to GDP, in percentage).

Variables	GDP	PCDI	ROA	CAR	BMS	SMC	BCR	TRO
GDP	1							
PCDI	0.985**	1						

ROA	0.124	0.146	1					
CAR	0.422**	0.413**	0.207*	1				
BMS	0.734**	0.734**	-0.349**	0.338**	1			
SMC	0.534**	0.541**	-0.246**	0.269**	0.871**	1		
BCR	0.671**	0.677**	-0.306**	0.013	0.738**	0.621**	1	
TRO	0.360**	0.418**	-0.217*	0.164	0.219*	-0.140	0.265**	1

Note: The asterisk signs (**) and (*) indicate that the results are significant at one percent and five percent levels respectively.

Table 3 shows that return on assets is positively correlated to gross domestic product. It means that higher the return on assets, higher would be the gross domestic product. Likewise, there is a positive relationship between capital adequacy ratios and gross domestic product. It means that the higher the capital adequacy ratio, higher would be the gross domestic product. Similarly, there is a positive relationship between money supply and gross domestic product. It means that an increase in money supply in the market leads to increase in gross domestic product. Likewise, stock market capitalization is positively correlated to gross domestic product. It means that an increase in stock market capitalization leads to an increase in gross domestic product of the country. Furthermore, there is a positive relationship between bank credit and gross domestic product. It indicates that higher the lending capacity of the banks, higher would be the gross domestic product. In addition, trade openness has a positive relationship with gross domestic product. It shows that liberal trade openness policy leads to increase in gross domestic product in context of the Nepalese economy.

Similarly, the result also shows that return on assets is positively correlated to per capita disposable income. It means that the higher the return on assets, higher would be the per capita disposable income. Likewise, there is a positive relationship between capital adequacy ratios and per capita disposable income. It means that higher the capital adequacy ratio, the higher would be the per capita disposable income. Similarly, there is a positive relationship between money supply and per capita disposable income. It means that increase in money supply in the market leads to an increase in per capita disposable income. Likewise, stock market capitalization is positively correlated to per capita disposable income. It means that increase in stock market capitalization leads to increase in an individual's income of the country. Furthermore, there is a positive relationship between bank credit and per capita disposable income. It indicates that higher the lending capacity of the banks, higher would be the per capita disposable income. In addition, trade openness has a positive relationship with per capita disposable income. It shows that liberal trade openness policy leads to increase in per capita disposable income in context of the Nepalese economy.

Regression analysis

Having indicated the Pearson's correlation coefficients, the regression analysis has been carried out and results are presented in Table 4. More specifically, it shows the regression results of return on assets, capital adequacy ratio, broad money supply, stock market capitalization, bank credit and trade openness with gross domestic product of Nepal.

Table 4: Estimated regression results of return on assets, capital adequacy ratio, broad money supply, stock market capitalization, bank credits and trade openness on gross domestic product of Nepal

The results are based on panel data of 16 commercial banks with 128 observations for the period of 2013/14 to 2020/21 by using the linear regression model and the model is $GDP = \beta_0 + \beta_1 ROA + \beta_2 CAR + \beta_3 BMS + \beta_4 SMC + \beta_5 BCR + \beta_6 TRO + e_{it}$ where,

the dependent variable is GDP (Gross domestic product as measured by the total goods and services produced within the country in a year, USD in billion). The independent variables are ROA (Return on assets as measured by ratio of net income to average total assets, in percentage), CAR (capital adequacy ratio as measured by the ratio of capital of bank to its risk, in percentage), BMS (Broad money supply as measured by all the current and other liquid instruments, USD in billion), SMC (Stock market capitalization as measured by the total market value of shares of publicly listed companies at a particular point of time, NPR in billion), BCR (Bank credit as measured by total credit of a bank, NPR in billion) and TRO (Trade openness as measured by ratio of sum of total import and export to GDP, in percentage).

Model	Intercept	Regression coefficients of						Adj. R _{bar} ²	SEE	F-value
		ROA	CAR	BMS	SMC	BCR	TRO			
1	31.233 (17.295)**	1.451 (1.398)						0.550	5.641	29.954
2	14.832 (5.468)**		1.052 (5.226)**					0.502	5.166	27.314
3	5.756 (2.982)**			0.233 (12.134)**				0.495	3.867	147.247
4	22.603 (23.24)**				0.003 (7.091)**			0.280	4.811	50.276
5	22.93 (33.304)**					0.758 (10.153)**		0.446	4.224	103.09
6	11.018 (2.666)**						0.47 (4.33)**	0.123	5.317	18.762
7	17.648 (6.218)**	2.588 (2.738)**	1.165 (5.81)**					0.212	5.036	18.108
8	-0.689 (-0.249)	1.064 (1.355)	0.407 (2.453)**	0.226 (10.224)**				0.569	3.721	56.915
9	-8.454 (2.601)**	1.538 (2.047)**	0.338 (2.143)**	0.359 (9.136)**	0.003 (4.001)**			0.616	3.515	51.856
10	-3.618 (1.16)	1.239 (1.8)	0.636 (4.09)**	0.232 (5.305)**	0.003 (3.827)**	0.461 (5.05)**		0.679	3.217	54.85
11	-4.562 (1.249)	1.294 (1.851)	0.62 (3.891)**	0.22 (4.339)**	0.002 (2.468)*	0.451 (4.808)**	0.05 (0.500)	0.678	3.221	45.469

Notes:

- i. Figures in parenthesis are t-values.
- ii. The asterisk signs (**) and (*) indicate that the results are significant at one percent and five percent level respectively.
- iii. Gross domestic product is the dependent variable.

Table 4 shows that the beta coefficients for return on assets are positive with gross domestic product. It indicates that return on assets has a positive impact on gross domestic product. This finding is similar to the findings of Jamal *et al.* (2012). Similarly, the beta coefficients for capital adequacy ratio are positive with gross domestic product. It indicates that capital adequacy ratio has a positive impact on gross domestic product. This finding is similar to the findings of Aktas *et al.* (2015). The beta coefficients for money supply are positive with gross domestic product. It indicates that money supply has a positive impact on gross domestic product. This finding is similar to the findings of Galadima and Ngada (2017). Likewise, the beta coefficients for stock market capitalization are positive with gross domestic product. It indicates that stock market capitalization has a positive impact on gross domestic product. This finding is consistent with the findings of Aali-Bujari *et al.* (2017). On the other hand, the beta coefficients for bank credit are positive with gross domestic product. It indicates that bank credit has a positive impact on gross domestic product. This finding is similar to the findings

of Ugoani (2013). Similarly, the beta coefficients for trade openness are positive with gross domestic product. It indicates that bank credit has a positive impact on gross domestic product. This finding is consistent with the findings of Zahonogo (2016).

Table 5 shows the estimated regression results of return on assets, capital adequacy ratio, broad money supply, stock market capitalization, bank credit, and trade openness on per capita income of Nepal.

Table 5: Estimated regression results of return on assets, capital adequacy ratio, broad money supply, stock market capitalization, bank credit, and trade openness on per capita disposable income of Nepal

The results are based on panel data of 16 commercial banks with 128 observations for the period of 2013/14 to 2020/21 by using the linear regression model and the model is $PCDI = \beta_0 + \beta_1 ROA + \beta_2 CAR + \beta_3 BMS + \beta_4 SMC + \beta_5 BCR + \beta_6 TRO + e_i$ where, the dependent variable is PCDI (Per capita disposable income as measured by the total amount of money earned per person in a nation after deduction of direct tax, USD in billion). The independent variables are ROA (Return on assets as measured by ratio of net income to average total assets, in percentage), CAR (capital adequacy ratio as measured by the ratio of capital of bank to its risk, in percentage), BMS (Broad money supply as measured by all the current and other liquid instruments, USD in billion), SMC (Stock market capitalization as measured by the total market value of shares of publicly listed companies at a particular point of time, NPR in billion), BCR (Bank credit as measured by total credit of a bank, NPR in billion) and TRO (Trade openness as measured by ratio of sum of total import and export to GDP, in percentage).

Model	Intercept	Regression coefficients of						Adj. R _{bar} ²	SEE	F-value
		ROA	CAR	BMS	SMC	BCR	TRO			
1	1386.799 (27.393)**	48.26 (1.658)						0.564	158.239	28.749
2	921.468 (12.025)**		28.945 (5.092)**					0.554	145.668	25.932
3	657.954 (12.121)**			6.559 (12.132)**				0.535	108.632	147.185
4	1129.36 (41.514)**				0.097 (7.224)**			0.287	134.509	52.186
5	1139.328 (59.299)**					0.002 (10.327)**		0.454	117.719	106.639
6	725.188 (6.407)**						15.408 (5.166)**	0.168	145.306	26.69
7	1008.439 (12.652)**	0.79.924 (3.010)**	32.454 (5.762)**					0.214	141.22	18.326
8	499.067 (6.379)**	21.525 (0.967)	11.385 (2.423)*	6.272 (10.022)**				0.562	105.391	55.416
9	298.381 (3.204)**	33.678 (1.57)	9.6 (2.127)*	9.716 (8.629)**	0.075 (3.609)**			0.601	100.623	48.851
10	439.498 (4.94)**	25.051 (1.276)	18.319 (4.127)**	6.015 (4.814)**	0.064 (3.404)**	0.001 (5.168)**		0.67	91.512	52.592
11	313.153 (3.073)**	32.395 (1.661)	16.151 (3.623)**	4.236 (3.062)**	0.023 (0.925)	0.001 (4.625)**	6.508 (2.404)*	0.683	89.77	46.507

Notes:

- i. Figures in parenthesis are t-values.
- ii. The asterisk signs (**) and (*) indicate that the results are significant at one percent and five percent level respectively.
- iii. Per capita disposable income is the dependent variable.

Table 5 shows that the beta coefficients for return on assets are positive with per capita disposable income. It indicates that return on assets has a positive impact on per capita disposable income. This finding is similar to the findings of Moussa and Hdidar (2019). Similarly, the beta coefficients for capital adequacy ratio are positive with per capita disposable income. It indicates that capital adequacy ratio has a positive impact on per capita disposable income. This finding is similar to the findings of Shehzad *et al.* (2010). The beta coefficients for money supply are positive with per capita disposable income. It indicates that the money supply has a positive impact on per capita disposable income. This finding is similar to the findings of Dingela and Khobai (2017). Likewise, the beta coefficients for stock market capitalization are positive with per capita disposable income. It indicates that stock market capitalization has a positive impact on per capita disposable income. This finding is consistent with the findings of Ogbuji *et al.* (2020). On the other hand, the beta coefficients for bank credit are negative with per capita disposable income. It indicates that bank credit has a negative impact on per capita disposable income. This finding is similar to the findings of Yakubu and Affoi (2014).

4. Summary and conclusion

Economic growth is the increase in goods and services produced by an economy over a period of time. It is an ability of an economy to an increase its productive capacity by producing additional units of goods and services. GDP is important because it gives information about the size of the economy and how an economy is performing. The growth rate of real GDP is often used as an indicator of the general health of the economy. Along with that, per capita disposable income is the average available money per person after income taxes have been accounted for. It is an indicator of the overall state of an economy. Forecasting per capita disposable income is necessary as it may help government assess country's economic condition.

This study attempts to examine the impact of bank efficiency and financial depth on economic growth in Nepalese context. This study is based on secondary data of 16 commercial banks with 128 observations for the study period from 2013/14 to 2020/21.

The study showed that return on assets, capital adequacy ratio, broad money supply, stock market capitalization, bank credit, and trade openness have a positive impact on gross domestic product. Likewise, the study also showed that return on assets, capital adequacy ratio, broad money supply, stock market capitalization, bank credit, and trade openness have a positive impact on per capita disposable income. The study concluded that bank credit followed by money supply is the most influencing factor that explain the changes in gross domestic product of Nepal. The study also concluded that bank credit followed by money supply and capital adequacy ratio is the most influencing factor that explain the changes in per capita disposable income of Nepal.

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Sectoral allocation of banks credit and economic growth in Nepal

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Abstract

This study examines the relationship between sectoral allocation of banks credit and economic growth in Nepal. Real GDP growth and per capita income growth are selected as the dependent variables. Similarly, credit to agriculture sector, credit to manufacturing sector, credit to construction sector, credit to energy sector, credit to tourism sector and credit to deprived sector are selected as the independent variables. This study is based on the secondary source of data for the study period from 1999/2000 to 2020/21. The data were collected from Bank supervision report, Economic Survey published by Ministry of Finance and reports published by World Bank. The correlation coefficients and regression models are estimated to test the significance and importance of sectoral allocation of banks credit on the economic growth of Nepal.

The study showed credit to agriculture sector has a positive impact on real gross domestic product growth and per capita income growth. It means that increase in credit to agriculture sector leads to increase in real gross domestic product growth and per capita income growth. Similarly, credit to manufacturing sector has a positive impact on real gross domestic product growth and per capita income growth. It means that increase in credit to manufacturing sector leads to increase in real gross domestic product growth and per capita income growth. Furthermore, credit to construction sector has a positive impact on real gross domestic product growth and per capita income growth. It shows that increase in credit to construction sector leads to increase in real gross domestic product growth and per capita income growth. Similarly, credit to energy sector has a positive impact on real gross domestic product growth and per capita income growth. It indicates that increase in credit to energy sector leads to increase in real gross domestic product growth and per capita income growth. In addition, credit to tourism sector has a positive impact on real gross domestic product growth and per capita income growth. It indicates that increase in credit to tourism sector leads to increase in real gross domestic product growth and per capita income growth. Further, this study showed that credit to deprived sector has a positive impact on real gross domestic product growth and per capita income growth. It means that increase in credit to deprived sector leads to increase in real gross domestic product growth and per capita income growth of Nepal.

Key words: Credit to agriculture sector, credit to manufacturing sector, credit to construction sector, real GDP growth and per capita income growth.

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1. Introduction

Economic growth is one of the major objectives of macroeconomic policy. It is the crucial means of uplifting living standards as well as achieving economic development. Economic growth is the increase in goods and services produced by an economy over a period of time. It is an ability of an economy to increase its productive capacity by producing additional units of goods and services. Economic development is not possible without the intervention of banking sector contributions. In developing economies, banking sector credit plays a major role in the growth of the real economy. Bank credit is important for the development of the standard of living and also for the development of the economy (Ubesie *et al.*, 2019). Bank credit to private sector promotes economic growth through capital accumulation and technological progress by increasing the savings rate, mobilizing and pooling savings, producing information about investment, facilitating and encouraging the inflows of foreign capital, as well as optimizing the allocation of capital. Lending being the primary function of commercial banks can have strong implication for private sector growth. It will probably be impeded in times of crisis by the riskiness of the business environment that often accompany economic contraction (Ojeaga *et al.*, 2013). The key function of banks in an economy is to facilitate operation of credit extension in efficient manner that will ensure increase in investments and enhance output growth in an economy (Korkmaz, 2015).

Oladapo and Adefemi (2015) investigated the impact of sectoral allocation of Deposit Money Banks' loans and advances on economic growth in Nigeria during intensive regulation, deregulation and guided deregulation regimes. The results showed that only the credit allocated to government, personal and professional have significant positive contributions on economic growth during the intensive regulation. However, bank credits generally do not contribute significantly to economic growth during deregulation. Similarly, Ananzeh (2016) examined the relationship between bank credit and economic growth in Jordan at different sectors for the period that span from 1993 to 2014. The Granger causality test reported that causality runs from economic development, measured as bank credit for agriculture and construction sectors in Jordan economy. The results reported bi-directional causality observed among economic development and bank credit to construction. Overall, the underdevelopment of credit and stock markets with no financial depth remains one of the main obstacles faced by this economy. As a result, banking with different sectors has played a positive role in enhancing the growth of the Jordanian economy. Moreover, Eatjaz and Malik (2009) investigated the role of financial development on the growth of economy for the sample which covered thirty-five developing countries through using GMM approach. The study concluded that if the domestic bank credit to the private sector increased then this will lead to increase in per workers output (productivity of workers) and consequently increases the economic growth.

Plamen and Khamis (2009) argued that bank credit could help in the provision of funds for productive investment. This is particularly important in developing countries where capital markets are not fully developed. Besides, the study contended that bank credit availability could positively affect consumption, investment and thus aggregate output and employment. Murphy *et al.* (2012) examined the impact of bank credit on economic growth in Ethiopia over the period 1971 –2011. The results from Johansen multivariate cointegration showed that bank credit to private sector positively impact economic growth through its role in efficient allocation of resources and domestic capital accumulation. Onuorah and Ozurumba (2013), for the period 1980-2012, examined the impact of bank credit on economic growth. The results from co-integration VAR and Causality showed that various measures of bank credit namely total production bank credit and total general commerce bank credit have significant positive effect on economic growth in Nigeria over the study period. In

the same vein, Aliero *et al.* (2013), over the period 1974-2010, examined the impact of bank credit on economic growth. The result from Autoregressive distributed lag bound approach showed that private sector has significant positive effect on economic growth in Nigeria.

Agbanike *et al.* (2018) examined the impact of bank lending on economic growth, specifically to ascertain whether different sector-level bank lending impact on Nigeria's economic growth differently. The study found strong evidence that bank lending to agriculture, industry, real estate and construction and commercial sectors has exerted significant positive impact on economic growth real gross domestic product of the respective sectors. Likewise, Oluitan (2012) examined the significance of bank credit in stimulating output and the factors that prompt financial intermediation within the Nigerian economy over the period 1970-2005. The study used the Johansen cointegration and error correction model to provide evidence that although, a long run equilibrium relationship exists between private sector credit and economic growth, real output causes financial development, but not vice versa.

Katircioglu (2006) examined the relationship between agricultural sector and the economic growth between 1975-2002 in North Cyprus with cointegration analysis. The study found the long-term bi-directional causality as a result of analysis. The study revealed that the agriculture sector is still affecting the economy despite the political problems in the country. Likewise, Chabbi and Lachaal (2007) analysed the contribution of agriculture to economic growth and the ties between other sectors in Tunisia. The findings showed that economic sectors tend to move together in the long term. However, in the short term, the role of agriculture leading to other sectors of the economy is the extremely limited. Similarly, Siudek (2008) investigated the role of agricultural credit in the development of the agricultural sector in Poland. The study found that the agricultural credits funded by co-operative banks have statistically significant positive impact on agricultural growth. Akram *et al.* (2008) used a macro model (time series analysis) to evaluate and analyze the impact of institutional credit on farm productivity, agricultural growth and alleviation of poverty. The study found that the agricultural credit has a positive impact on GDP and the impact of agricultural credit in reducing poverty was significant both in the short run and the long run. Moreover, Hartarska *et al.* (2015) evaluated the relation between credit by major lenders in rural areas such as commercial banks and Farm Credit System (FCS) institutions and economic growth for the period 1991-2010. The study found a positive association between agricultural lending and agricultural GDP growth per rural resident with additional billion in loans (about a third of the actual average) associated with 7-10 percent higher state growth rate with this association stronger during the 1990s. The results pointed to a positive link between credit and economic growth in rural areas during that period, attributable to the lending by FCS institutions and by commercial banks. Furthermore, Anthony (2010) examined the impact of agriculture credit on economic growth in Nigeria. The study revealed that agricultural variables have significant impact on economic growth and their contribution to export growth has been encouraging.

In Nepalese context, Timsina (2014) examined the impact of commercial bank credit to the private sector on the economic growth in Nepal from supply side perspectives. The study has applied Johansen co-integration approach and Error Correction Model using the time series data for the period of 1975-2014. The empirical results showed that bank credit to the private sector has positive effects on the economic growth in Nepal only in the long run. Nevertheless, in the short run, the study observed a feedback effect from economic growth to private sector credit. Credit extended to the private sector in an environment of banking discipline will be instrumental in tapping the productive potentialities and development prospects of the economy. It thereby ushers to inculcate economic growth, generating employment opportunities, and strengthening the competitiveness of the economy (Basyal, 2009).

The above discussion shows that empirical evidences vary greatly across the studies concerning the interrelationship between sectoral allocation of banks credit and economic growth. Though there are above mentioned empirical evidences in the context of other countries and in Nepal, no such findings using more recent data exist in the context of Nepal. Therefore, in order to support one view or the other, this study has been conducted.

The major objective of the study is to examine the impact of sectoral allocations of commercial banks credit on economic growth of Nepal. Specifically, it examines the relationship of credit to agriculture sector, credit to manufacturing sector, credit to construction sector, credit to energy sector, credit to tourism sector and credit to deprived sector with real GDP growth and per capita income growth of Nepal.

The remainder of this study is organized as follows. Section two describes the sample, data and methodology. Section three presents the empirical results and the final sections draws the conclusion.

2. Methodological aspects

This study is based on the secondary source of data for the study period from 1999/2000 to 2020/21. The main sources of data include Bank supervision report, Economic Survey published by Ministry of Finance and reports published by World Bank. The study has employed 22 years of time series data from 1999/2000 to 2020/21. This study is based on descriptive as well as causal comparative research designs.

The model

The econometric models employed in this study tries to analyse the impact of sectoral credit on economic growth. The dependent variables selected for the study are real GDP growth and per capita income growth. Similarly, the selected independent variables are credit to agriculture sector, credit to manufacturing sector, credit to construction sector, credit to energy sector, credit to tourism sector and credit to deprived sector. Therefore, the model takes the following form:

Economic growth = f (CAS, CMS, CCS, CES, CTS and CDS)

More specially, the given model has been segmented into following models:

$$RGDP = \beta_0 + \beta_1 CAS + \beta_2 CMS + \beta_3 CCS + \beta_4 CES + \beta_5 CTS + \beta_6 CDS + e_{it}$$

$$PCI = \beta_0 + \beta_1 CAS + \beta_2 CMS + \beta_3 CCS + \beta_4 CES + \beta_5 CTS + \beta_6 CDS + e_{it}$$

Where,

RGDP = Real GDP growth, in percent.

PCI = Per capita income growth, in percent.

CAS = Credit to agriculture sector as measured by ratio of total agriculture sector loans to total outstanding loans, in percent.

CMS = Credit to manufacturing sector as measured by ratio of total manufacturing sector loans to total outstanding loans, in percent.

CCS = Credit to construction sector as measured by ratio of total construction sector loans to total outstanding loans, in percent.

CES = Credit to energy sector as measured by ratio of total energy sector loans to total outstanding

loans, in percent.

CTS = Credit to tourism sector as measured by ratio of total tourism sector loans to total outstanding loans, in percent.

CDS = Credit to deprived sector as measured by ratio of total deprived sector loans to total outstanding loans, in percent.

The following section describes the independent variables used in this study along with hypothesis formulation

Credit to agriculture sector

Florence and Nathan (2020) found that commercial banks' agricultural credit has significant impact on agricultural sector GDP. Likewise, Peng *et al.* (2021) revealed that agricultural loans have a significant positive effect on both regional agricultural and economic growth. Moreover, Hussain and Taqi (2014) investigated the impact of credit to farmers on agricultural productivity in Pakistan by employing logit regression analysis. The study found a positive influence of agricultural credit on the productivity of agriculture. Likewise, Chinweoke *et al.* (2015) found that banks' loans and advances to agricultural and manufacturing sectors have a statistically significant and positive impact on economic growth. Moreover, Singariya and Sinha (2015) examined causal relationship among per capita GDP, agriculture and manufacturing sector output in India using time series data collected from CSO for the period 1970 to 2013. The study found that there exists bidirectional causality between agriculture sector and per capita GDP. Similarly, Eu and Kabiru (2019) found that commercial banks' credit, loans and advances to the agricultural sector (CBCA) have positive and significant impact on economic growth. Likewise, Sogules and Nkoro (2016) showed that bank credit to agricultural sector exhibited an insignificant positive impact on economic growth. Based on it, this study develops the following hypothesis.

H_1 : *There is a positive relationship between credit to agriculture sector and economic growth.*

Credit to manufacturing sector

Iorember and John (2016) revealed that the credit of commercial banks has a strong positive relationship in the manufacturing sector production. Similarly, Ogunmuyiwa *et al.* (2017) examined the impact of bank credit on growth of the manufacturing sector in Nigeria by using time series data from 1999 to 2014. The study concluded that bank credit to the private sector has a positive impact on the upliftment of manufacturing sector. Likewise, Ogar *et al.* (2014) examined the impact of commercial bank loans on manufacturing sector. The study revealed that commercial bank credit has a significant positive relationship with development of manufacturing sector. In addition, Oladapo and Adefemi (2015) found that commercial bank's loans and advances to production and other subsector are both positive and significant in determining growth. Moreover, Meyer and McCamel (2017) determined the relationship between the manufacturing sector, economic output, and employment in South Africa during the 1994–2015 period. The study found a positive long-run relationship between the manufacturing sector, GDP, and employment. Based on it, this study develops the following hypothesis.

H_2 : *There is a positive relationship between credit to manufacturing sector and economic growth.*

Credit to construction sector

Ofori (1988) considered the role of the construction industry in Singapore's economy from 1960 to 1986. The study concluded that the construction industry played a significant role in the development process of Singapore. Ruddock and Lopes (2006) found that the construction sector played a major role in economic development. Likewise, Crosthwaite (2000) examined the relationship between construction investments and growth in 150 countries. The study revealed that construction investments in underdeveloped countries have the strongest effect on GDP, followed by those in developing and developed countries. Similarly, Wigren and Wilhelmsson (2007) analysed direct or indirect effects on GDP of building, residential and infrastructure investments in 14 EU member states. The study concluded that governmental infrastructure investments have positive effects in the short term but in the long term, they are poor whereas residential investments have significant impact on the growth in the long run. Moreover, Gundes (2011) found a strong positive correlation between construction activities and economic development in Turkey. Furthermore, Ozkan *et al.* (2012) examined the causal relationship between construction growth and GDP growth in Turkey using data from 1987 to 2008. The study found a bi-directional Granger causality between infrastructure investment and GDP growth as well as between public building and residential investments and GDP growth. Based on it, this study develops the following hypothesis.

H_3 : *There is a positive relationship between credit to construction sector and economic growth.*

Credit to energy sector

Rashid and Yousaf (2015) found that the linkage between financial development and electricity consumption via economic growth is positive and significant. In addition, Komal and Abbas (2015) found that financial development positively and significantly affects energy consumption through the economic growth channel. Al-Mulali *et al.* (2014) stated that renewable electricity consumption, non-renewable electricity consumption, labor, gross fixed capital formation, and total trade are co-integrated and renewable electricity consumption is more significant than non-renewable electricity consumption in promoting economic growth. Similarly, Yoo (2005) considered a sample of 30 provinces in China and tested the long-run co-integration relationship between the real GDP per capita and energy consumption. The study found a positive long-run co-integrated relationship between the real GDP per capita and energy consumption. Likewise, Zhang and Cheng (2009) reported that energy consumption leads to an increase in economic growth but the effect of time trend is not significant. Based on it, this study develops the following hypothesis.

H_4 : *There is a positive relationship between credit to energy sector and economic growth.*

Credit to tourism sector

Durberry (2004) applied a co-integration and causality analysis to study the relationship between tourism and economic growth in Mauritius. The study found that tourism had contributed significantly to economic growth and development. Similarly, Dritsakis (2004) examined the impact of tourism on the long-run economic growth of Greece. The study revealed that there is a strong Granger causality between international tourism receipts and economic growth. Similarly, Kim and Chen (2006) found a bidirectional causality between economic growth and tourism expansion in Taiwan. Moreover, Belloumi (2010) assessed the relationship between tourism receipts, real effective exchange rate and economic growth in Tunisia by using annual data from 1970 to 2007. The study found that there is a co-integrating relationship between tourism and economic growth indicating that tourism has a positive impact on GDP. Tang *et al.* (2020) found that financial development,

tourism, and institutional quality are significant and has positive impact on long run economic growth. Likewise, Shirkhani *et al.* (2021) showed that bank loans to the tourism sector and/or tourism related activities stimulate economic growth in the short run, and more effectively in the long run. Based on it, this study develops the following hypothesis.

H_5 : *There is a positive relationship between credits to tourism sector and economic growth.*

Credit to deprived sector

Mohammed *et al.* (2017) analyzed the effect of financial inclusion on reducing poverty among the low-income household level for 35 countries in sub-Saharan Africa. The study found that financial inclusion significantly reduced the level of poverty in sub-Saharan Africa through providing net wealth and larger welfare benefits to the poor. Similarly, Cuong (2008) concluded that a micro-credit program operated by the Vietnam Bank for social policies to provide the poor with subsidized credit has reduced the poverty rate of the participants. Ravallion and Chen (1997) showed that economic growth and poverty reduction are strongly and positively correlated. Similarly, Omar and Inaba (2020) found that financial inclusion significantly reduces poverty rates and income inequality in developing countries. Moreover, Shahbaz (2009) stated that financial development not only improves the income levels of the poor people through investment in physical and human capital directly but indirectly by means of increased economic growth. Based on it, this study develops the following hypothesis:

H_6 : *There is a positive relationship between credit to deprived sector and economic growth.*

3. Results and discussion

Descriptive statistics

Table 1 presents the descriptive statistics of the selected dependent and independent variables during the period 1999/2000 to 2020/21.

Table 1: Descriptive statistics

This table shows the descriptive statistics of dependent and independent variables for the study period from 1999/2000 to 2020/21. The dependent variables are RGDP (Real GDP growth, in percent) and PCI (Per capita income growth, in percent). The independent variables are CAS (Credit to agriculture sector as measured by ratio of total agriculture sector loans to total outstanding loans, in percent), CMS (Credit to manufacturing sector as measured by ratio of total manufacturing sector loans to total outstanding loans, in percent), CCS (Credit to construction sector as measured by ratio of total construction sector loans to total outstanding loans, in percent), CES (Credit to energy sector as measured by ratio of total energy sector loans to total outstanding loans, in percent), CTS (Credit to tourism sector as measured by ratio of total tourism sector loans to total outstanding loans, in percent) and CDS (Credit to deprived sector as measured by ratio of total deprived sector loans to total outstanding loans, in percent).

Variables	Minimum	Maximum	Mean	S.D.
RGDP	-2.40	9.00	4.20	2.50
PCI	-4.10	7.50	3.13	2.56
CAS	2.70	7.94	4.51	1.62
CMS	16.65	35.54	25.18	6.76
CCS	2.26	11.17	8.13	3.02

CES	1.32	5.45	2.47	1.32
CTS	2.13	4.72	3.50	0.67
CDS	2.96	6.45	4.11	1.05

Source: SPSS output

Correlation analysis

Having indicated the descriptive statistics, Pearson's correlation coefficients are computed and the results are presented in Table 2.

Table 2: Pearson's correlation coefficients matrix

This table shows the bivariate Pearson's correlation coefficients of dependent and independent variables for the study period from 1999/2000 to 2020/21. The dependent variables are RGDP (Real GDP growth, in percent) and PCI (Per capita income growth, in percent). The independent variables are CAS (Credit to agriculture sector as measured by ratio of total agriculture sector loans to total outstanding loans, in percent), CMS (Credit to manufacturing sector as measured by ratio of total manufacturing sector loans to total outstanding loans, in percent), CCS (Credit to construction sector as measured by ratio of total construction sector loans to total outstanding loans, in percent), CES (Credit to energy sector as measured by ratio of total energy sector loans to total outstanding loans, in percent), CTS (Credit to tourism sector as measured by ratio of total tourism sector loans to total outstanding loans, in percent) and CDS (Credit to deprived sector as measured by ratio of total deprived sector loans to total outstanding loans, in percent).

Variables	RGDP	PCI	CAS	CMS	CCS	CES	CTS	CDS
RGDP	1							
PCI	0.960**	1						
CAS	0.899**	0.836**	1					
CMS	0.886**	0.843**	0.643**	1				
CCS	0.850**	0.880**	0.855**	0.548**	1			
CES	0.850**	0.776**	0.941**	0.552**	0.838**	1		
CTS	0.968**	0.887**	0.905**	0.828**	0.818**	0.875**	1	
CDS	0.931**	0.884**	0.938**	0.680**	0.902**	0.970**	0.915**	1

Note: The asterisk signs (**) and (*) indicate that the results are significant at one percent and five percent levels respectively.

Table 2 shows that credit to agriculture sector is positively correlated to real gross domestic product growth. It means that increase in credit to agriculture sector leads to increase in real gross domestic product growth. Similarly, there is a positive relationship between credit to manufacturing sector and real gross domestic product growth. It means that increase in credit to manufacturing sector leads to increase in real gross domestic product growth. Furthermore, credit to construction sector has a positive relationship with real gross domestic product growth. It shows that increase in credit to construction sector leads to increase in real gross domestic product growth. Similarly, there is a positive relationship between credit to energy sector and real gross domestic product growth. It indicates that increase in credit to energy sector leads to increase in real gross domestic product growth. In addition, credit to tourism sector has a positive relationship with real gross domestic product growth. It indicates that increase in credit to tourism sector leads to increase in real gross domestic product growth. Further, this study shows that there is a positive relationship between credit to deprived sector and real gross domestic product growth. It means that increase in credit to deprived sector leads to increase in real gross domestic product growth of Nepal.

Similarly, the result also shows that credit to agriculture sector is positively correlated to per capita income growth. It means that increase in credit to agriculture sector leads to increase in per capita income growth. Similarly, there is a positive relationship between credit to manufacturing sector and per capita income growth. It means that increase in credit to manufacturing sector leads to increase in per capita income growth. Furthermore, credit to construction sector has a positive relationship with per capita income growth. It shows that increase in credit to construction sector leads to increase in per capita income growth. Similarly, there is a positive relationship between credit to energy sector and per capita income growth. It indicates that increase in credit to energy sector leads to increase in per capita income growth. In addition, credit to tourism sector has a positive relationship with per capita income growth. It indicates that increase in credit to tourism sector leads to increase in per capita income growth. Further, this study shows that there is a positive relationship between credit to deprived sector and per capita income growth. It means that increase in credit to deprived sector leads to increase in per capita income growth of Nepal.

Regression analysis

Having indicated the Pearson's correlation coefficients, the regression analysis has been carried out and results are presented in Table 3. More specifically, it shows the regression results of credit to agriculture sector, credit to manufacturing sector, credit to construction sector, credit to energy sector, credit to tourism sector and credit to deprived sector on real gross domestic product growth of Nepal.

Table 3: Estimated regression results of credit to agriculture sector, credit to manufacturing sector, credit to construction sector, credit to energy sector, credit to tourism sector and credit to deprived sector on real gross domestic product growth of Nepal

The results are based on time series data of Nepal for the study period of 1999/2000 to 2020/21 by using the linear regression model and the model is $RGDP = \beta_0 + \beta_1 CAS + \beta_2 CMS + \beta_3 CCS + \beta_4 CES + \beta_5 CTS + \beta_6 CDS + e_t$ where, the dependent variable is RGDP (Real GDP growth, in percent). The independent variables are CAS (Credit to agriculture sector as measured by ratio of total agriculture sector loans to total outstanding loans, in percent), CMS (Credit to manufacturing sector as measured by ratio of total manufacturing sector loans to total outstanding loans, in percent), CCS (Credit to construction sector as measured by ratio of total construction sector loans to total outstanding loans, in percent), CES (Credit to energy sector as measured by ratio of total energy sector loans to total outstanding loans, in percent), CTS (Credit to tourism sector as measured by ratio of total tourism sector loans to total outstanding loans, in percent) and CDS (Credit to deprived sector as measured by ratio of total deprived sector loans to total outstanding loans, in percent).

Model	Intercept	Regression coefficients of						Adj. R _{bar} ²	SEE	F-value
		CAS	CMS	CCS	CES	CTS	CDS			
1	1.218 (3.022)**	7.675 (9.189)**						0.799	1.119	84.44
2	0.216 (0.407)		1.827 (8.548)**					0.774	1.186	73.07
3	1.554 (3.334)**			3.547 (7.218)**				0.709	1.347	52.09
4	2.160 (5.354)**				9.591 (7.219)**			0.709	1.347	52.11
5	0.540 (2.133)*					12.087 (17.218)**		0.934	0.643	296.44
6	1.253 (3.843)**						8.036 (11.422)**	0.860	0.933	130.47

7	-0.023 (0.110)	4.793 (10.799)**	1.082 (10.092)**					0.767	0.455	306.03
8	0.111 (1.319)	2.546 (8.716)**	1.085 (24.784)**	1.281 (9.801)**				0.794	0.186	126.74
9	0.000 (0.016)	0.978 (8.986)**	1.123 (110.411)**	1.171 (38.645)**	2.329 (18.200)**			0.789	0.422	487.63
10	0.003 (0.266)	0.911 (13.988)**	1.073 (101.375)**	1.145 (62.120)**	2.097 (24.542)**	0.667 (5.750)**		0.718	0.248	496.57
11	-0.002 (0.532)	1.025 (49.513)**	0.994 (149.195)**	0.995 (79.713)**	0.930 (10.197)**	1.059 (23.699)**	1.017 (13.281)**	0.765	0.719	450.71

Notes:

- i. Figures in parenthesis are t-values.
- ii. The asterisk signs (**) and (*) indicate that the results are significant at one percent and five percent level respectively.
- iii. Real GRP growth is the dependent variable.

Table 3 shows that the beta coefficients for credit to agriculture sector are positive with real gross domestic product growth. It indicates that credit to agriculture sector has a positive impact on real gross domestic product growth. This finding is similar to the findings of Chinweoke *et al.* (2015). Likewise, the beta coefficients for credit to manufacturing sector are positive with real gross domestic product growth. It indicates that credit to manufacturing sector has a positive impact on real gross domestic product growth. This finding is consistent with the findings of Iorember and John (2016). Similarly, the beta coefficients for credit to construction sector are positive with real gross domestic product growth. It indicates that credit to construction sector has a positive impact on real gross domestic product growth. This finding is similar to the findings of Ofori (1988). Likewise, the beta coefficients for credit to energy sector are positive with real gross domestic product growth. It indicates that credit to energy sector has a positive impact on real gross domestic product growth. This finding is consistent with the findings of Rashid and Yousaf (2015). In addition, the beta coefficients for credit to tourism sector are positive real gross domestic product growth. It indicates that credit to tourism sector has a positive impact on real gross domestic product growth. This finding is similar to the findings of Dritsakis (2004). Similarly, the beta coefficients for credit to deprived sector are positive with real gross domestic product growth. It indicates that credit to deprived sector has a positive impact on real gross domestic product growth. This finding is consistent with the findings of Mohammed *et al.* (2017).

Table 4 shows the estimated regression results of credit to agriculture sector, credit to manufacturing sector, credit to construction sector, credit to energy sector, credit to tourism sector and credit to deprived sector on per capita income growth of Nepal.

Table 4: Estimated regression results of credit to agriculture sector, credit to manufacturing sector, credit to construction sector, credit to energy sector, credit to tourism sector and credit to deprived sector on per capita income growth of Nepal

The results are based on time series data of Nepal for the study period of 1999/2000 to 2020/21 by using the linear regression model and the model is $PCI = \beta_0 + \beta_1 CAS + \beta_2 CMS + \beta_3 CCS + \beta_4 CES + \beta_5 CTS + \beta_6 CDS + e_i$ where, the dependent variable is PCI (Per capita income growth, in percent). The independent variables are CAS (Credit to agriculture sector as measured by ratio of total agriculture sector loans to total outstanding loans, in percent), CMS (Credit to manufacturing sector as measured by ratio of total manufacturing sector loans to total outstanding loans, in percent), CCS (Credit to construction sector as measured by ratio of total construction sector loans to total outstanding loans, in percent), CES (Credit to energy sector as measured by ratio of total energy sector loans to total outstanding loans, in percent), CTS (Credit to tourism sector as measured by ratio of total tourism sector loans to total outstanding loans, in percent) and CDS (Credit to deprived sector as measured by ratio of total deprived sector loans to total outstanding loans, in percent).

Model	Intercept	Regression coefficients of						Adj. R _{bar} ²	SEE	F-value
		CAS	CMS	CCS	CES	CTS	CDS			
1	0.280 (0.540)	7.317 (6.810)**						0.684	1.439	46.380
2	-0.763 (1.208)		1.782 (7.003)**					0.696	1.412	49.041
3	0.313 (0.727)			3.776 (8.228)**				0.763	1.246	68.692
4	1.214 (2.449)*				8.974 (5.494)**			0.582	1.656	30.181
5	0.315 (0.660)					11.354 (8.571)**		0.775	1.213	73.467
6	0.255 (0.593)**						7.821 (8.443)**	0.770	1.228	71.284
7	0.982 (2.146)*	4.386 (4.428)**	1.100 (4.599)**					0.842	1.012	57.141
8	1.165 (4.692)**	0.263 (0.305)	1.106 (8.566)**	2.650 (6.875)**				0.754	0.548	146.611
9	1.186 (4.431)**	0.033 (0.023)	1.098 (8.104)**	2.671 (6.613)**	0.440 (0.258)			0.752	0.563	104.275
10	1.210 (5.138)**	0.602 (0.465)	1.524 (7.237)**	2.896 (7.898)**	1.527 (0.898)	-5.653 (2.451)*		0.763	0.495	109.183
11	1.162 (5.369)**	0.506 (0.389)	2.285 (5.454)**	4.346 (5.540)**	12.810 (2.234)*	-9.453 (3.364)**	9.841 (2.044)*	0.769	0.452	109.757

Notes:

- i. Figures in parenthesis are t-values.
- ii. The asterisk signs (**) and (*) indicate that the results are significant at one percent and five percent level respectively.
- iii. Per capita income growth is the dependent variable.

Table 4 shows that the beta coefficients for credit to agriculture sector are positive with per capita income growth. It indicates that credit to agriculture sector has a positive impact on per capita income growth. This finding is similar to the findings of Sogules and Nkoro (2016). Similarly, the beta coefficients for credit to manufacturing sector are positive with per capita income growth. It indicates that credit to manufacturing sector has a positive impact on per capita income growth. This finding is consistent with the findings of Meyer and McCamel (2017). Similarly, the beta coefficients for credit to construction sector are positive with per capita income growth. It indicates that credit to construction sector has a positive impact on per capita income growth. This finding is similar to the findings of Gundes (2011). Likewise, the beta coefficients for credit to energy sector are positive with per capita income growth. It indicates that credit to energy sector has a positive impact on real per capita income growth. This finding is consistent with the findings of Yoo (2005). In addition, the beta coefficients for credit to tourism sector are positive per capita income growth. It indicates that credit to tourism sector has a positive impact on per capita income growth. This finding is similar to the findings of Shirkhani *et al.* (2021). Similarly, the beta coefficients for credit to deprived sector are positive with per capita income growth. It indicates that credit to deprived sector has a positive impact on per capita income growth. This finding is consistent with the findings of Ravallion and Chen (1997).

4. Summary and conclusion

Credit is considered as a key to economic growth especially in developing countries as it lubricates the economy. Economic growth has been one of the major macroeconomic objectives of the government of Nepal. Nepal Rastra Bank considers that monetary policy should also support growth. NRB always directs commercial banks to flow their credit to productive sector. Credit channel of monetary policy is considered very important and effective in Nepal. In this channel, money supply is expected to affect real variables through the means of bank balance sheet and availability of credit.

This study attempts to examine the relationship between sectoral allocation of banks credit and economic growth in Nepal. This study is based on the secondary source of data for the study period from 1999/2000 to 2020/21.

The study showed that credit to agriculture sector, credit to manufacturing sector, credit to construction sector, credit to energy sector, credit to tourism sector and credit to deprived sector have positive impact on real GDP growth rate. Likewise, the study showed that credit to agriculture sector, credit to manufacturing sector, credit to construction sector, credit to energy sector, credit to tourism sector and credit to deprived sector have positive impact on per capita income growth. The study concluded that sectoral allocation of banks credit has significant effect on the economic growth. More specifically, the study also concluded that credit to tourism sector is the most influencing factor that explains the changes in economic growth in Nepal.

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Relationship between inflation and profitability of Nepalese commercial banks

– Anjila Humagain*

Abstract

This study examines the relationship between inflation and profitability of Nepalese commercial bank. Net interest margin and price to earnings ratio are selected as the dependent variables. Similarly, bank size, inflation rate, liquidity, leverage, capitalization and credit risk are selected as the independent variables. This study is based on secondary data of 16 commercial banks with 128 observations for the study period from 2013/14 to 2020/21. The data were collected from Banking and Financial Statistics published by Nepal Rastra Bank, annual reports of the selected commercial banks and reports published by Ministry of Finance. The correlation coefficients and regression models are estimated to test the significance and importance of inflation and other bank specific factors on the profitability of Nepalese commercial bank.

bank size has a positive impact on net interest margin and price to earnings ratio. It means that increase in bank size leads to increase in net interest margin and price to earnings ratio. Similarly, liquidity has a negative impact on net interest margin. It shows that increase in liquidity leads to decrease in net interest margin. In addition, credit risk has a negative impact on price to earnings ratio. It means that increase in credit risk leads to decrease in price to earnings ratio in Nepalese commercial banks. On the other hand, inflation rate has a negative impact on price to earnings ratio. It indicates that increase in inflation rate leads to decrease in price to earnings ratio. Moreover, capitalization has a positive impact on price to earnings ratio. It means that increase in capitalization leads to increase in price to earnings ratio. Furthermore, leverage has a negative impact on net interest margin. It indicates that increase in leverage leads to decrease in net interest margin.

Key words: *Net interest margin, price to earnings ratio, bank size, inflation rate, liquidity, leverage, capitalization and credit risk.*

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1. Introduction

Commercial banks have a crucial role for the allocation of economic resource in countries. Their main contribution is in the economic growth of the country through making available the funds for investors to borrow as well as financial deepening in the country. Corporate performance has been one of the most important issues of managers, investors, and analysts. This concern is connected to the significant role of the profitability of corporate organizations in general, and the banks in particular, on the potential growth of the economy as a whole (Duraj and Moci, 2015). The banking industry in general has experienced some profound changes in recent decades, as innovations in technology and the inexorable forces driving globalization continue to create both opportunities for growth and challenges for banking managers to remain profitable in this increasingly competitive environment (Hooshyari and Moghanloo, 2015). Inflation affects an economy in various ways, both positive and negative. Negative effects of inflation include an increase in the opportunity cost of holding money, uncertainty over future inflation which may discourage investment and savings. If inflation were rapid enough, shortages of goods as consumers begin hoarding out of concern that prices will increase in the future. Positive effects include ensuring that central banks can adjust real interest rates (to mitigate recessions) and encouraging investment in non-monetary capital projects (Musarat *et al.*, 2021).

Consistency in performance is the basic reason for smooth running and presence of every financial institution. Profitability is the most significant and consistent indicator as it contributes huge amount of profit that ultimately influences its performance. The economic development and prosperity come from the well-rounded developed and perfect banking system. Strong banking system plays important role in efficient allocation and utilization of credit (Haque and Tariq, 2012). The banks have extra ability in a concentrated market so that they can charge more interest margin from their customers to whom they borrow and pay less amount of return on their lending to their depositor. This gap of difference between the lending and borrowing rate is the profit of banks (Weber, 2005). Banking institutions are playing significant roles in the expansion of the financial system and the economy of the nation. The banking sector of developing countries is less stable than developed countries (Beck and Rahman, 2006).

Nwakanma and Ajibola (2013) examined the relationship between inflationary rates and returns on equity using the UVAR mechanism. The results obtained provide evidence to support the assertion that there is inconsistency in the nature of the relationship between inflation and returns on equity in Nigeria. The findings further showed that the rates of inflation and returns on equity was increasing over time, but inflation rates rise faster than returns on equity. The study also reported that there was no causal effect between previous inflationary rates and previous returns. Similarly, Faiza *et al.* (2013) investigated the long-run relationship between the KSE 100 index return and inflation rates in Pakistan's economy. The study showed a negative relationship between the KSE 100 index return and the inflation rate. When inflation happens, it badly influences the economy, and this will ultimately influence stock returns. The Granger causality tests showed that there is no causality between KSE 100 index return and inflation rate in any direction.

Badar and Javid (2013) revealed that higher inflation rate results in higher non-performing loans in commercial banks of Pakistan. Furthermore, Al-Rjoub (2005) suggested a negative and strongly significant relationship between unexpected inflation and stock returns in MENA countries. The study also indicated that the stock markets of the listed MENA countries could not feel the high ups and down movements in the markets and as such the volatilities and the asymmetric news effect was absent. Moreover, Haniifah (2019) assessed the economic determinants of non-performing loans

in Ugandan commercial banks. The study found that inflation rate has a negative but statistically insignificant effect on non-performing loans. Spyrou (2001) examined the relationship between stock returns and inflation rate in Greek by using monthly data from January 1990 to June 2000. The results for the period 1995-2000 demonstrated a negative but insignificant relationship between stock returns and inflation rate in Greek.

Nugraha *et al.* (2021) determined the effect of inflation, leverage, and company size on profitability in the plantation sub-sector companies listed on the Indonesia Stock Exchange for the period 2014-2018. The results of the study indicated that inflation, leverage, and firm size have significant effect on profitability. Kjosevski and Petkovski (2017) investigated the determinants and macroeconomic effects on non-performing loans in Baltic States. The study found that inflation rate has a negative correlation with non-performing loans. Boudoukh and Richardson (1993) examined the relationship between stock returns and inflation in the United States and the United Kingdom in the short-term horizon (one year) and in the long term (five years). The study concluded that with a term of one year or less, inflation and stock returns are negatively related. However, with a term of five-year horizon, inflation is positively associated with stock returns. Perry (1992) concluded that the profitability depends on the anticipation of future inflation rates by banks. If the rise in inflation has been correctly anticipated, the bank will be able to adjust interest rates in order to increase revenues and improve performance. Hosen and Muhari (2019) assessed the non-performing financing of Islamic rural bank industry in Indonesia. The study found that inflation has a statistically significant and negative relationship with non-performing loans. According to Nanjunga *et al.* (2016), there is a positive relationship between inflation and interest rate spread. Similarly, Crowley (2007) found that higher spreads is associated with lower inflation, a greater number of banks, and greater public ownership of banks. Inflation is usually a factor that has a great impact on the revenue side rather than the cost side, and can be ended with an increase in bank performance (NIM). There is positive impact of changes in inflation on the interest margin (Kosmidou *et al.*, 2006).

Pasiouras and Kosmidou (2007) examined the profitability of 584 commercial domestic and foreign banks operating in 15 European Union countries over the period 1995-2001. The study revealed that profitability of both domestic and foreign banks in the European Union is affected by the bank's specific characteristics (size and capital adequacy), and macroeconomic conditions (inflation and the real gross domestic product growth). Colin and Kacaribu (2021) investigated the impact of macroeconomic volatility on bank credit allocation. The study found a negative relationship between inflation volatility and bank lending. Moreover, Boyd *et al.* (2001) examined the impact of inflation on financial sector performance. The study showed that inflation has a negative relationship with financial performance. Vong and Chan (2009) found that there is a positive relationship between inflation and bank performance. Moreover, Perry (1992) found that inflation has a significant positive effect on banking profitability. Furthermore, Sufian and Kamarudin (2012) revealed that there is a significant positive relationship with bank profitability.

In the context of Nepal, Sunam *et al.* (2022) analyzed the effect of foreign exchange exposure on the profitability of Nepalese commercial banks. The study showed that exchange rate and external debt have a negative impact on return on assets. However, interest rate, inflation rate, gross domestic product and broad money supply have a positive impact on returns on assets. The study also showed that inflation rate, exchange rate and external debt have a negative impact on net interest margin. In addition, Bhattarai (2020) analyzed the determinants of commercial banks' lending in Nepal. The study found that macroeconomic variables such as gross domestic products growth rate and inflation rate have insignificant effect on the changes in the total loan and advance. Moreover, Kunwar (2018) determined the factors affecting profitability of Nepalese commercial banks. The study revealed that

inflation, liquidity, and non-performing loans have negative relationship with bank profitability. However, credit to deposit ratio, market share and GDP have positive relationship with bank profitability.

The above discussion shows that empirical evidences vary greatly across the studies on the impact of inflation on bank profitability. Though there are above mentioned empirical evidences in the context of other countries and in Nepal, no such findings using more recent data exist in the context of Nepal. Therefore, in order to support one view or the other, this study has been conducted.

The main purpose of the study is to analyse the relationship between inflation and profitability of Nepalese commercial banks. Specifically, it examines the relationship of credit risk, bank size, liquidity, capitalization, leverage and inflation rate with net interest margin and price to earnings ratio of Nepalese commercial banks.

The remainder of this study is organized as follows. Section two describes the sample, data and methodology. Section three presents the empirical results and the final sections draws the conclusion.

2. Methodological aspects

The study is based on the secondary data which were gathered from 16 commercial banks for the study period from 2013/14 to 2020/21, leading to a total of 128 observations. The main sources of data include Banking and Financial statistics published by Nepal Rastra Bank, reports published by Ministry of Finance and the annual report of respective banks. This study is based on descriptive as well as causal comparative research designs. Table 1 shows the list of commercial banks selected for the study along with the study period and number of observations.

Table 1: List of commercial banks selected for the study along with study period and number of observations

S. N.	Name of the banks	Study period	Observations
Public banks			
1	Rastriya Banijya Bank Limited	2013/14 - 2020/21	8
2	Agricultural Development Bank Limited	2013/14 - 2020/21	8
Joint venture banks			
3	Nabil Bank Limited	2013/14 - 2020/21	8
4	NMB Bank Limited	2013/14 - 2020/21	8
5	Himalayan Bank Limited	2013/14 - 2020/21	8
6	Everest Bank Limited	2013/14 - 2020/21	8
Private banks			
7	NIC Asia Bank Limited	2013/14 - 2020/21	8
8	Global IME Bank Limited	2013/14 - 2020/21	8
9	Siddhartha Bank Limited	2013/14 - 2020/21	8
10	Nepal Investment Bank Limited	2013/14 - 2020/21	8

11	Prime Commercial Bank Limited	2013/14 - 2020/21	8
12	Kumari Bank Limited	2013/14 - 2020/21	8
13	Prabhu Bank Limited	2013/14 - 2020/21	8
14	Mega Bank Limited	2013/14 - 2020/21	8
15	Sanima Bank Limited	2013/14 - 2020/21	8
16	Machhapuchchhre Bank Limited	2013/14 - 2020/21	8
Total number of observations			128

Thus, the study is based on the 128 observations.

The model

The model used in this study assumes that the bank's profitability depends upon inflation and bank specific factors. The dependent variables selected for the study are net interest margin and price to earnings ratio. Similarly, the selected independent variables are inflation, bank size, leverage, liquidity, capitalization and credit risk. Therefore, the model takes the following form:

Profitability = f (BS, INF, LIV, LIQ, CAP and CR)

More specifically,

$$\text{NIM} = \beta_0 + \beta_1 \text{BS} + \beta_2 \text{INF} + \beta_3 \text{LIQ} + \beta_4 \text{LIV} + \beta_5 \text{CAP} + \beta_6 \text{CR} + e_{it}$$

$$\text{P/E} = \beta_0 + \beta_1 \text{BS} + \beta_2 \text{INF} + \beta_3 \text{LIQ} + \beta_4 \text{LIV} + \beta_5 \text{CAP} + \beta_6 \text{CR} + e_{it}$$

Where,

NIM = Net interest margin as measured by the ratio of net interest income to total assets, in percentage.

P/E = Price earnings ratio as measured by the ratio of market price per share to earnings per share, in percentage.

CAP = Capitalization as measured by the product of market price per share and total number of outstanding shares, Rs in billion.

CR = Credit risk as measured by the ratio of non-performing loans to total loans, in percentage.

INF = Inflation rate as measured by the change in consumer price index, in percentage.

LIQ = Liquidity ratio as measured by the ratio of total loans to total deposits, in percentage.

BS = Bank size as measured by the total assets, Rs in billion.

LIV = Leverage ratio as measured by the ratio of total debt to total assets, in percentage.

The following section describes the independent variables used in this study along with hypothesis formulation.

Credit risk

Ruziqa (2013) examined the impact of credit and liquidity risk on bank financial performance of Indonesian Conventional Bank. The study found a negative relationship between credit risk and bank profitability. Likewise, Kargi (2011) analysed credit risk and the performance of Nigerian banks. The study found that credit risk has a negative impact on the value of the bank. Dietrich and Wanzenried (2011) examined the determinants of bank profitability before and during the crisis in the context of

Switzerland. The study stated that credit risk has a negative impact on bank profitability. In the same way, Islam and Nishiyama (2016) found that credit risk has a negative impact on bank profitability. Based on it, this study develops the following hypothesis:

H_1 : *There is a negative relationship between credit risk and bank profitability.*

Bank size

Jonsson (2007) examined the relationship between size and profitability of Icelandic firms. The study found a positive relation between profitability and size of the firms. Likewise, Gul *et al.* (2011) assessed the factors affecting bank profitability in Pakistan. The study stated that bank size has direct impact on bank profitability. Molyneux *et al.* (1994) found a positive relationship between bank size and profitability. In addition, Bikker and Hu (2002) stated a positive impact of bank size on the profitability. Irawati and Maksum (2017) stated that firm size has a positive and significant effect on return on assets. In the same way, Goddard *et al.* (2004) found that size is positively related to profitability. Based on it, following hypothesis has been developed:

H_2 : *There is a positive relationship between bank size and bank profitability.*

Liquidity

Salim and Bilal (2016) examined four commercial banks in Oman for the period of 2010-2014. The study found a positive relationship between bank liquidity and bank profitability. In addition, Ibrahim (2017) examined the influence of liquidity on the profitability of Iraqi banks over the period of 2005-2013. The study concluded a significant positive impact of liquidity on bank profitability. Moreover, Fisseha (2015) analyzed the profitability of commercial banks on the basis of bank size, capital adequacy, liquidity risk, credit risk, management efficiency, labor efficiency, inflation rate and real GDP rate. The study showed a positive impact of bank size, capital adequacy and liquidity risk on the profitability of commercial banks. Based on it, following hypothesis has been developed:

H_3 : *There is a positive relationship between liquidity and bank profitability.*

Capitalization

Qurashi and Zahoor (2016) examined the impact of profitability, bank and macroeconomic factors on the market capitalization of the Middle Eastern banks. The study found a positive association between bank profitability and market capitalization of the Middle Eastern banks. In addition, Sayari and Shamki (2016) examined whether the market capitalization and trading volume could be the determinants of the commercial banks' profitability in Jordan. The study found a positive relationship between market capitalization and bank profitability. Moreover, Al-Nimer and Alslihat (2015) assessed the effect of profitability ratios on market capitalization in Jordanian insurance companies listed in Amman Stock Exchange. The study found that return on assets is positively related to the market capitalization in Jordanian insurance companies listed in Amman Stock Exchange. Based on it, following hypothesis has been developed:

H_4 : *There is a positive relationship between capitalization and bank profitability.*

Leverage

Leverage is the ratio that is used to measure how much the company is financed with debt (Bintara, 2020). Margaritis and Psillaki (2010) found a significant positive relationship between profitability

and leverage. Similarly, Khalid *et al.* (2014) revealed that Pakistani firms' leverage is positively related to bank profitability. In addition, Avci (2016) found positive link between leverage with bank profitability. Moreover, Kester (1986) examined the impact of leverage and found the positive link of leverage and profitability. The study revealed a positive connection of firm leverage with profitability. Based on it, following hypothesis has been developed:

H_5 : *There is a positive relationship between leverage and bank profitability.*

Inflation

Batsinda and Shukla (2019) evaluated the impact of inflation on the profitability of commercial banks in Rwanda with specific focus on the Bank of Kigali. The findings indicated that demand pull inflation and monetary inflation have negative correlation with the profitability of Bank of Kigali. Similarly, Huybens and Smith (2009) argued that rate of inflation has negative consequences on financial sector performance through credit market frictions before it affects economic growth. Furthermore, Hooshyari and Moghanloo (2015) evaluated the impact of Inflation on profitability of banks in Iran. The findings showed that inflation, net interest margin, liquidity, taxation, capitalization and cost efficiency have negative impact on profitability of banks. Based on it, following hypothesis has been developed:

H_6 : *There is a negative relationship between inflation and bank profitability.*

3. Results and discussion

Descriptive statistics

Table 2 presents the descriptive statistics of the selected dependent and independent variables during the period 2013/14 to 2020/21.

Table 2: Descriptive statistics

This table shows the descriptive statistics of dependent and independent variables of 16 Nepalese commercial banks for the study period of 2013/14 to 2020/21. The dependent variables are NIM (Net interest margin as measured by the ratio of net interest income to total assets, in percentage) and P/E (Price earnings ratio as measured by the ratio of market price per share to earnings per share, in percentage). The independent variables are BS (Bank size as measured by the total assets, Rs in billion), INF (Inflation rate as measured by the change in consumer price index, in percentage), LIQ (Liquidity ratio as measured by the ratio of total loans to total deposits, in percentage), LIV (Leverage ratio as measured by the ratio of total debt to total assets, in percentage), CS (Capitalization as measured by the product of market price per share and total number of outstanding shares, Rs in billion) and CR (Credit risk as measured by the ratio of non-performing loans to total loans, in percentage).

Variables	Minimum	Maximum	Mean	S.D.
NIM	1.87	7.28	3.20	0.75
PE	10.83	33.09	19.04	6.40
BS	4.31	5.54	5.02	0.27
INF	3.60	9.93	6.15	2.23
LIQ	0.53	1.05	0.83	0.09
LIV	0.34	4.11	1.01	0.66

CS	0.00	11.27	9.75	2.71
CR	0.01	24.29	1.89	2.57

Source: SPSS output

Correlation analysis

Having indicated the descriptive statistics, Pearson's correlation coefficients are computed and the results are presented in Table 3.

Table 3: Pearson's correlation coefficients matrix

This table shows the bivariate Pearson's correlation coefficient matrix of dependent and independent variables of 16 Nepalese commercial banks for the study period from 2013/14 to 2020/21. The dependent variables are NIM (Net interest margin as measured by the ratio of net interest income to total assets, in percentage) and P/E (Price earnings ratio as measured by the ratio of market price per share to earnings per share, in percentage). The independent variables are BS (Bank size as measured by the total assets, Rs in billion), INF (Inflation rate as measured by the change in consumer price index, in percentage), LIQ (Liquidity ratio as measured by the ratio of total loans to total deposits, in percentage), LIV (Leverage ratio as measured by the ratio of total debt to total assets, in percentage), CS (Capitalization as measured by the product of market price per share and total number of outstanding shares, Rs in billion) and CR (Credit risk as measured by the ratio of non-performing loans to total loans, in percentage).

Variables	NIM	PE	BS	INF	LIQ	LIV	CS	CR
NIM	1							
PE	0.155	1						
BS	0.028	0.265	1					
INF	0.097	-0.088	-0.549**	1				
LIQ	-0.028	0.088	0.260**	-0.477**	1			
LIV	-0.155	-0.277	-0.828**	-0.438**	-0.070**	1		
CS	-0.126	0.118	0.005	-0.088	0.495**	0.098	1	
CR	0.272**	-0.080	-0.213*	0.228**	-0.468**	0.125	-0.280**	1

Note: The asterisk signs (**) and (*) indicate that the results are significant at one percent and five percent levels respectively.

Table 3 shows that bank size is positively correlated to net interest margin. It means that increase in bank size leads to increase in net interest margin. Similarly, there is a positive relationship between inflation rate and net interest margin. It means that increase in inflation rate leads to increase in net interest margin. However, liquidity has a negative relationship with net interest margin. It shows that increase in liquidity leads to decrease in net interest margin. Furthermore, there is a negative relationship between leverage and net interest margin. It indicates that increase in leverage leads to decrease in net interest margin. Further, capitalization has a negative relationship with net interest margin. It indicates that increase in capitalization leads to decrease in net interest margin. In contrast, this study shows that there is a positive relationship between credit risk and net interest margin. It means that increase in credit risk leads to increase in net interest margin in Nepalese commercial banks.

Similarly, the result also shows that bank size is positively correlated to price to earnings ratio. It indicates that increase in bank size leads to increase in price to earnings ratio. On the other hand, there is a negative relationship between inflation rate and price to earnings ratio. It indicates that increase in inflation rate leads to decrease in price to earnings ratio. In addition, liquidity is positively related

to price to earnings ratio. It shows that increase in liquidity leads to increase in price to earnings ratio. Furthermore, there is a negative relationship between leverage and price to earnings ratio. It indicates that increase in leverage leads to decrease in price to earnings ratio. Moreover, capitalization has a positive relationship with price to earnings ratio. It means that increase in capitalization leads to increase in price to earnings ratio. In addition, there is a negative relationship between credit risk and price to earnings ratio. It means that increase in credit risk leads to decrease in price to earnings ratio in Nepalese commercial banks.

4. Regression analysis

Having indicated the Pearson's correlation coefficients, the regression analysis has been carried out and results are presented in Table 4. More specifically, it shows the regression results of bank size, inflation, liquidity, leverage, capitalization and credit risk on net interest margin of Nepalese commercial banks.

Table 4: Estimated regression results of bank size, inflation, liquidity, leverage, capitalization and credit risk on net interest margin of Nepalese commercial banks

The results are based on panel data of 16 commercial banks with 128 observations for the period of 2013/14 to 2020/21 by using the linear regression model and the model is $NIM = \beta_0 + \beta_1 BS + \beta_2 INF + \beta_3 LIQ + \beta_4 LIV + \beta_5 CAP + \beta_6 CR + e_{it}$, where, the dependent variable is NIM (Net interest margin as measured by the ratio of net interest income to total assets, in percentage). The independent variables are BS (Bank size as measured by the total assets, Rs in billion), INF (Inflation rate as measured by the change in consumer price index, in percentage), LIQ (Liquidity ratio as measured by the ratio of total loans to total deposits, in percentage), LIV (Leverage ratio as measured by the ratio of total debt to total assets, in percentage), CS (Capitalization as measured by the product of market price per share and total number of outstanding shares, Rs in billion) and CR (Credit risk as measured by the ratio of non-performing loans to total loans, in percentage).

Model	Intercept	Regression coefficients of						Adj. R_bar ²	SEE	F-value
		BS	INF	LIQ	LIV	CS	CR			
1	2.815 (2.248)*	0.077 (0.310)						0.007	0.750	0.096
2	3.003 (15.433)**		0.032 (1.090)					0.001	0.751	1.187
3	3.389 (5.724)**			-0.224 (0.317)				0.071	0.752	0.101
4	3.380 (28.092)**				-0.176 (1.757)			0.016	0.740	3.088
5	3.541 (14.347)**					-0.035 (1.424)		0.008	0.744	2.026
6	3.053 (38.372)**						0.079 (3.168)**	0.066	0.720	10.037
7	1.254 (0.774)	0.323 (1.088)	0.054 (0.160)					0.003	0.747	1.186
8	3.642 (6.029)**			-0.311 (0.444)	-0.179 (1.779)			0.010	0.745	1.633
9	3.206 (12.005)**					-0.015 (0.602)	0.075 (2.865)**	0.062	0.725	5.174

10	1.075 (0.597)	0.323 (1.084)	0.057 (1.463)	-0.186 (0.231)				0.005	0.750	0.802
11	3.331 (12.368)**				-0.214 (2.180)*	-0.007 (0.300)	0.084 (3.217)**	0.009	0.714	5.137
12	6.382 (2.494)*	0.749 (1.576)	0.067 (1.750)	-0.830 (1.021)	-0.519 (2.844)**			0.500	0.729	2.658
13	6.149 (2.413)*	0.750 (1.587)	0.075 (1.956)	-1.546 (1.662)	-0.507 (2.789)*	-0.039 (1.352)	0.102 (3.721)*	0.060	0.726	2.635
14	4.457 (1.807)	0.666 (1.480)	0.082 (2.234)*	-2.734 (2.907)**	-0.529 (3.058)**	-0.039 (1.352)	0.102 (3.721)**	0.150	0.690	4.735

Notes:

- i. Figures in parenthesis are t-values.
- ii. The asterisk signs (**) and (*) indicate that the results are significant at one percent and five percent level respectively.
- iii. Net interest margin is the dependent variable.

Table 4 shows that the beta coefficients for bank size are positive with net interest margin. It indicates that bank size has a positive impact on net interest margin. This finding is similar to the findings of Irawati and Maksum (2017). Similarly, the beta coefficients for inflation are positive with net interest margin. It indicates that inflation has a positive impact on net interest margin. This finding is consistent with the findings of Hooshyari and Moghanloo (2015). Likewise, the beta coefficients for liquidity are negative with net interest margin. It indicates that liquidity has a negative impact on net interest margin. This finding is similar to the findings of Fisseha (2015). Likewise, the beta coefficients for leverage are negative with net interest margin. It indicates that leverage has a negative impact on net interest margin. This finding is consistent with the findings of Margaritis and Psillaki (2010). On the other hand, the beta coefficients for capitalization are negative with net interest margin. It indicates that capitalization has a negative impact on net interest margin. This finding is similar to the findings of Sayari and Shamki (2016).

Table 5 shows the estimated regression results of bank size, inflation, leverage, liquidity, capitalization and credit risk on price to earnings ratio of Nepalese commercial banks.

Table 5: Estimated regression results bank size, inflation, liquidity, leverage, capitalization and credit risk on price to earnings ratio of Nepalese commercial banks

The results are based on panel data of 16 commercial banks with 128 observations for the period of 2013/14 to 2020/21 by using the linear regression model and the model is $P/E = \beta_0 + \beta_1 BS + \beta_2 INF + \beta_3 LIQ + \beta_4 LIV + \beta_5 CAP + \beta_6 CR + e_{it}$, where, the dependent variable is P/E (Price earnings ratio as measured by the ratio of market price per share to earnings per share, in percentage). The independent variables are BS (Bank size as measured by the total assets, Rs in billion), INF (Inflation rate as measured by the change in consumer price index, in percentage), LIQ (Liquidity ratio as measured by the ratio of total loans to total deposits, in percentage), LIV (Leverage ratio as measured by the ratio of total debt to total assets, in percentage), CS (Capitalization as measured by the product of market price per share and total number of outstanding shares, Rs in billion) and CR (Credit risk as measured by the ratio of non-performing loans to total loans, in percentage).

Model	Intercept	Regression coefficients of						Adj. R _{bar} ²	SEE	F-value
		BS	INF	LIQ	LIV	CS	CR			
1	-14.710 (0.598)	6.611 (2.373)*						0.133	6.297	9.886
2	20.611 (5.492)**		-0.244 (0.444)					0.032	6.505	0.197

3	15.407 (1.850)*			4.679 (0.441)				0.032	6.505	0.195
4	21.476 (10.331)**				-3.737 (1.439)			0.040	6.276	2.070
5	17.896 (7.814)**					0.153 (0.596)		0.025	6.484	0.356
6	19.867 (8.277)**						-0.281 (0.403)	0.033	6.509	0.163
7	15.572 (0.542)	6.734 (2.270)*	-0.036 (0.062)					0.007	6.427	0.907
8	17.324 (3.097)**			5.401 (0.520)	-3.803 (1.441)			0.011	6.369	1.140
9	-18.413 (3.887)**					0.141 (0.433)	-0.054 (0.061)	0.068	6.617	0.173
10	-20.528 (0.648)	6.899 (2.275)*	-0.121 (0.192)	4.595 (0.406)				0.043	6.541	0.639
11	22.586 (4.447)				-5.286 (1.824)	0.198 (0.633)	-0.538 (0.611)	0.026	6.319	1.235
12	-3.617 (0.093)	3.563 (0.509)	-0.234 (0.357)	6.273 (0.539)	-2.931 (0.762)			0.063	6.602	0.616
13	10.320 (0.246)	2.475 (0.347)	-0.023 (0.033)	5.483 (0.317)	-4.100 (1.009)	0.383 (0.920)		0.070	6.625	0.658
14	11.188 (0.262)	1.945 (0.266)	0.285 (0.334)	0.184 (0.009)	-5.182 (1.132)	0.167 (0.289)	-0.655 (0.548)	0.107	6.738	0.580

Notes:

- i. Figures in parenthesis are t-values.
- ii. The asterisk signs (**) and (*) indicate that the results are significant at one percent and five percent level respectively.
- iii. Price to earnings ratio is the dependent variable.

Table 5 shows that the beta coefficients for bank size are positive with price to earnings ratio. It indicates that bank size has a positive impact on price to earnings ratio. This finding is similar to the findings of Molyneux *et al.* (1994). The beta coefficients for inflation are negative with price to earnings ratio. It indicates that inflation has a negative impact on price to earnings ratio. This finding is consistent with the findings of Huybens and Smith (2009). Similarly, the beta coefficients for liquidity are positive with price to earnings ratio. It indicates that liquidity has a positive impact on price to earnings ratio. This finding is similar to the findings of Salim and Bilal (2016). Likewise, the beta coefficients for leverage are negative with price to earnings ratio. It indicates that leverage has a negative impact on price to earnings ratio. This finding is consistent with the findings of Avci (2016). On the other hand, the beta coefficients for capitalization are positive with price to earnings ratio. It indicates that capitalization rate has a positive impact on price to earnings ratio. This finding is similar to the findings of Al-Nimer and Alslihat (2015).

4. Summary and conclusion

Banks are expected to execute their functions in a way that it increases confidence and stability. Commercial banks play an important role in the development of a country. A sound, progressive and dynamic banking system is a fundamental requirement for economic developments.

This study attempts to analyse the relationship between inflation and profitability of Nepalese commercial banks. The study is based on secondary data of 16 commercial banks with 128 observations for the period from 2013/14 to 2020/21.

The study showed that bank size, inflation and credit risk have positive relationship with net interest margin. However, liquidity, leverage and capitalization have negative impact on net interest margin. Likewise, bank size, liquidity and capitalization have positive impact on price to earnings ratio. However, inflation rate, leverage and credit risk have negative impact on price to earnings ratio. The study concluded that credit risk is the most influencing factor that explains the profitability of banks in terms of net interest margin. Similarly, the study also concluded that the most dominant factor that determines the price to earnings ratio is bank size in the context of Nepalese commercial banks.

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Variability of macroeconomic variables and its implications on the sustainability of profitability in Nepalese commercial banks

– Shailendra Kumar Yadav*

Abstract

This study examines the variability of macroeconomic variables and its implications on the sustainability of profitability in Nepalese commercial banks. Return on assets and return on equity are selected as the dependent variables. Similarly, gross domestic product, inflation, bank rate, money supply, total government expenditure and total government revenues are selected as the independent variables. This study is based on secondary data of 15 commercial banks with 120 observations for the study period from 2013/14 to 2020/21. The data were collected from Banking and Financial Statistics published by Nepal Rastra Bank, annual reports of the selected commercial banks and reports published by Ministry of Finance. The correlation coefficients and regression models are estimated to test the significance and importance of macro-economic variables on the profitability of Nepalese commercial banks.

The study showed that inflation rate has a negative impact on return on assets. It means that increase in inflation rate leads to decrease in return on assets. Similarly, bank rate has a positive impact on return on assets and return on equity. It indicates that increase in bank rate leads to increase in return on assets and return on equity. In addition, gross domestic product has a positive impact on return on assets. It means that increase in gross domestic product leads to increase in return on assets. Likewise, the study also showed that government expenditure has a positive impact on return on equity. It means that increase in government expenditure leads to increase in return on equity. In contrast, government revenue has a positive impact on return on equity. It means that increase in government revenue leads to increase in return on equity. Moreover, money supply has a negative impact on return on assets and return on equity. It shows that increase in money supply leads to decrease in return on assets and return on equity.

Key words: *Return on assets, return on equity, gross domestic product, inflation, bank rate, money supply, total government expenditure and total government revenues.*

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1. Introduction

The banking industry contributes significantly to the effectiveness of the entire financial system. The banking institutions offer an efficient institutional mechanism through which resources can be mobilized and directed from less essential uses to more productive investments (Wilner, 2000). Banks play a crucial role in the operation of most economies. The efficiency of financial intermediation can also affect economic growth. Besides, banks insolvencies can result in systemic crisis. Economies that have a profitable banking sector are better able to withstand negative shocks and contribute to the stability of the financial system. The financial system is an important ingredient in any economic environment of a country (Abebaw and Kapur, 2011). One of the most important factors influencing cohesive economic development of any country is effective performance and reliability of its banks. The evaluation of soundness and stability of the commercial banks and the stability of the financial system of a country are closely related. At the macro level, a profitable banking sector is better able to endure negative shocks and contribute to the stability of the financial system (Menicucci and Paolucci, 2016).

Banking sector in emerging economies has seen important transformations in the development of financial market. The banking system and financial institutions have faced difficulties how to maintain their operational activities, relieve losses and the need of liquidity. The financial stability and sustainable development have become a key to global social and economic development. Banks are also the ultimate vendors of transmitting effective monetary policy of the central bank of the economy. Thus, they share the responsibility of stabilizing economy (Shoab, 2011). The soundness of banking sector is very critical to the health of the entire economy. Ozili and Ndah (2021) found a significant negative relationship between the financial system deposits to GDP ratio and the non-interest income of Nigerian banks. This indicates that higher financial system deposits to GDP depresses the non-interest income of Nigerian banks. The result implies that the larger the size of the Nigerian financial system, the lower the profitability of banks in Nigeria. Moreover, the study observed that bank concentration, nonperforming loans, cost efficiency and the level of inflation are significant determinants of the profitability of Nigerian banks. Similarly, Yakubu and Bunyaminu (2022) showed a negative significant effect of financial and trade globalization on bank profitability, signifying the intense competition of banks in Sub-Saharan Africa accelerated by globalization. The negative effect of economic globalization holds irrespective of the indicator of bank profitability.

Inflation occurs when there is a general and continuous rise in the prices of goods and services in the economy (Gbadebo *et al.* 2015). Ben Khediri and Ben-Khedhiri (2009) indicated that bank profitability is positively associated with inflation. Likewise, Wasiuzzaman and Tarmizi (2010) found a positive relationship between inflation rate and bank profitability. Furthermore, Sihotang *et al.* (2022) indicated that money supply has a significant effect on ROA. However, Omankhanlen *et al.* (2021) found that there exists a positive long run relationship between money supply (M2) and bank's profitability. In addition, Seemule *et al.* (2017) revealed that money supply has a significant negative relationship with bank profitability. Moreover, Rolle *et al.* (2020) found that GDP has a significant negative impact on the profitability of conventional banks of Pakistan. In the same way, Ayadi and Boujelbene (2012) revealed that GDP growth are not significant and has a negative relationship with the bank profitability. Furthermore, Al-Jafari and Alchami (2014) found that macroeconomic variables (inflation rate and real gross domestic product growth rate) affect bank profitability significantly. Shuremo (2016) showed that interest rate spread is statistically significant and positive relationship with banks' profitability. Likewise, Katusiime (2021) showed that interest rate significantly and positively affects bank profitability. Moreover, Saeed (2014) revealed a positive

and significant relationship between profitability and interest rate. In the same way, Sufian and Chong (2008) portrayed a positive impact of macroeconomic conditions including interest rate on commercial banks profitability.

Noor and Hayati (2012) examined the relationship between Islamic banking profitability and determinants of efficiency. The study revealed that GDP has positive impact on Islamic banks efficiency. Additionally, Sharma and Mani (2012) assessed the effect of macroeconomic and financial market indicators on the banking sector of India. The study found that GDP is positively related to ROA and ROE. Furthermore, Batsinda and Shukla (2019) assessed the inflation and profitability of commercial banks in Rwanda. The study stated that inflation has a positive relationship with profitability. In addition, Islam and Nishiyama (2016) examined the determinants of bank profitability using dynamic panel evidence from South Asian countries. The study revealed that inflation positively affect bank profitability. Moreover, Azmi *et al.* (2022) found that inflation has a significant positive effect on the profitability measured by ROA. Likewise, Muraina (2018) assessed the determinants of listed deposit money banks' profitability in Nigeria. The study stated that inflation is positively related to profitability. Horobet *et al.* (2021) investigated the determinants of banking profitability in the CEE banking sectors based on a Generalized Method of Methods (GMM) approach using data between 2009 and 2018. The study found that unemployment rate, inflation, budget balance, non-governmental credit, non-performing loan rates, concentration rate and capitalization rate have negative impact on the banking profitability in the CEE banking sectors.

Staikouras and Wood (2004) analyzed the performance of European Banking industry during 1994-1998. Using ordinary least square method and fixed effects model, the study concluded that interest rate has a significant positive on return on assets. However, GDP growth exerts significant negative impact on ROA. Athanasoglou *et al.* (2006) showed high earnings during peak inflation periods and no noticeable effect of GDP in the context of South-Eastern European banks. Moreover, Kanwal and Nadeem (2013) examined the impact of macroeconomic variables on the profitability of public limited commercial banks in Pakistan. The result showed a strong positive relationship of real interest rate with return on assets and return on equity. The result also found that real GDP has an insignificant positive effect on ROA, but an insignificant negative impact on ROE. Anbar and Alper (2011) examined the bank-specific and macroeconomic determinants of the bank profitability in Turkey. The study showed that only the real interest rate affects the performance of banks positively. The results also showed that asset size and non-interest income have a positive and significant effect on bank profitability.

In the context of Nepal, Khanal (2016) examined the effect of bank specific and macroeconomic factors on the profitability of Nepalese commercial banks for the period of 2007/08-2013/14. The study observed that equity to total assets, loan loss provision to total loan, GDP growth rate and inflation are positively correlated to return on assets and return on equity. Humagain *et al.* (2022) analyzed the impact of internal and external factors on the profitability of Nepalese commercial banks. The study showed that GDP growth rate, equity to total assets, total loan to total assets, and bank size have positive impact on return on assets. In addition, Neupane (2020) examined the determinants of commercial bank profitability in Nepal. The study revealed that industry specific factors such as concentration and banking sector development have high degree of impact on return on assets whereas macroeconomic variables such as GDP growth, inflation rate and exchange rate have quite a weak degree but significant impact on profitability of Nepalese commercial banks. Moreover, Hakuduwal (2021) assessed the impact of bank specific factors on the profitability of Nepalese commercial banks. The study found that the total assets and total loan and advance have positive and significant impact on the profitability of Nepalese commercial banks. The study also

revealed that the total equity has insignificant impact and deposit has negative significant impact on the profitability of Nepalese commercial banks.

The above discussion shows that empirical evidences vary greatly across the studies on the variability of macroeconomic variables and their implications on the sustainability of bank profitability. Though there are above mentioned empirical evidences in the context of other countries and in Nepal, no such findings using more recent data exist in the context of Nepal. Therefore, in order to support one view or the other, this study has been conducted.

The main purpose of the study is to analyze the variability of macroeconomic variables and their implications on the sustainability of profitability in Nepalese commercial banks. Specifically, it examines the relationship of gross domestic product, inflation, bank rate, money supply, total government expenditure and total government revenues with return on assets and return on equity of Nepalese commercial banks.

The remainder of this study is organized as follows. Section two describes the sample, data and methodology. Section three presents the empirical results and the final sections draws the conclusion.

2. Methodological aspects

The study is based on the secondary data which were gathered from 15 commercial banks for the period from 2013/14 to 2020/21, leading to a total of 120 observations. The study employed stratified sampling method. The main sources of data include Banking and Financial statistics published by Nepal Rastra Bank, reports published by Ministry of Finance and the annual report of respective banks. This study is based on descriptive as well as causal comparative research designs. Table 1 shows the list of commercial banks selected for the study along with the study period and number of observations.

Table 1: List of commercial banks selected for the study along with study period and number of observations

S. N.	Name of the banks	Study period	Observations
Public banks			
1	Nepal Bank Limited	2013/14 - 2020/21	8
2	Agricultural Development Bank Limited	2013/14 - 2020/21	8
3	Rastriya Banijya Bank Limited	2013/14 - 2020/21	8
Joint venture banks			
4	Nabil Bank Limited	2013/14 - 2020/21	8
5	NMB Bank Limited	2013/14 - 2020/21	8
6	Everest Bank Limited	2013/14 - 2020/21	8
7	Himalayan Bank Limited	2013/14 - 2020/21	8
Private banks			
8	NIC Asia Bank Limited	2013/14 - 2020/21	8
9	Global IME Bank Limited	2013/14 - 2020/21	8
10	Prime Commercial Bank Limited	2013/14 - 2020/21	8

11	Nepal Investment Bank Limited	2013/14 - 2020/21	8
12	Siddhartha Bank Limited	2013/14 - 2020/21	8
13	Prabhu Bank Limited	2013/14 - 2020/21	8
14	Kumari Bank Limited	2013/14 - 2020/21	8
15	Sanima Bank Limited	2013/14 - 2020/21	8
Total number of observations			120

Thus, the study is based on the 120 observations.

The model

The model used in this study assumes that the bank's profitability depends upon macro-economic factors. The dependent variables selected for the study are return on assets and return on equity. Similarly, the selected independent variables are gross domestic product, inflation, bank rate, money supply, total government expenditure and total government revenues. Therefore, the model takes the following form:

Bank profitability = f (gross domestic product, inflation, bank rate, money supply, total government expenditure and total government revenues.)

More specifically,

$$ROA = \beta_0 + \beta_1 TGE + \beta_2 TGR + \beta_3 BR + \beta_4 GDP + \beta_5 INF + \beta_6 MS + e_{it}$$

$$ROE = \beta_0 + \beta_1 TGE + \beta_2 TGR + \beta_3 BR + \beta_4 GDP + \beta_5 INF + \beta_6 MS + e_{it}$$

Where,

ROA = Return on assets as measured by the ratio of net income to total assets, in percent.

ROE = Return on equity as measured by the ratio of net income to total equity, in percent.

TGE = Government spending, Rs in million.

TGR = Government revenue, Rs in million.

BR = Bank rate as measured by the interest rate at which a nation's central bank lends money to domestic banks, often in the form of very short-term loans, in percent.

GDP = Gross domestic product as measured by the total goods and services produced within the country in a year, USD in billion.

INF = Inflation rate as measured by the change in consumer price index, in percentage.

MS = Money supply as measured by the broad money, USD in billion.

The following section describes the independent variables used in this study along with hypothesis formulation.

Gross domestic product

Madishetti and Rwechungura (2013) examined the determinants of bank profitability in a developing economy of Tanzania. The results showed a positive effect of gross domestic product, inflation, bank rate, money supply on the bank profitability. Similarly, Adelopo *et al.* (2018) analyzed the relationship between bank-specific, macroeconomic factors and bank profitability before (1999-2006), during (2007-2009), and after (2010-2013) the financial crisis. Using Panel data analysis, the results showed that there is a significant relationship between bank-specific determinants (size, cost management,

and liquidity) and bank profitability (ROA) before, during, and after the financial crisis. However, the relationships between other bank-specific (capital strength, credit risk, and market power), macroeconomic (gross domestic product and inflation) determinants are sensitive to both periods of analysis (before, during, and after financial crisis) and bank profitability measure used (ROA or NIM). The study showed a positive relationship between gross domestic product and ROA before, during, and after financial crisis. Moreover, Wasiuzzaman and Tarmizi (2010) showed that higher Profitability of Islamic banks in Malaysia is significantly association with higher GDP growth rate. Based on it, this study develops the following hypothesis:

H_1 : *There is a positive relationship between gross domestic product and bank profitability.*

Inflation

Tan and Floros (2012) evaluated the determinants of bank profitability in China. The empirical results exhibited that there is a positive relationship between bank profitability, cost efficiency, banking sector development, stock market development and inflation in China. Likewise, Katircioglu *et al.* (2020); Saeed (2014) and Umar *et al.* (2014) stressed on the positive relation between inflation and the bank profitability. Furthermore, Ramadan *et al.* (2011) assessed the relationship between the profitability of banks and the characteristics of internal and external factors. The results showed that the Jordanian bank's characteristics explain a significant part of the variation in bank profitability. High Jordanian bank profitability tends to be associated with well-capitalized banks, inflation, high lending activities, low credit risk, and the efficiency of cost management. Based on it, this study develops the following hypothesis:

H_2 : *There is a positive relationship between inflation and bank profitability.*

Money supply

The money supply refers to the total volume of currency held by the public at a particular point in time. Sufian and Habibullah (2009) analyzed the bank specific and macroeconomic determinants of bank profitability in Chinese banking sector. The study found positive relationship of capital adequacy ratio, bank size and money supply with bank profitability. There is excess money supply when the amount of money in circulation is higher than the level of total output of the economy. Changes in the money supply may lead to changes in the nominal GDP and the price level. Although the money supply is basically determined by the central bank's policy, it may also be affected by the behaviour of households and banks. Kosmidou (2008) examined the determinants of banks' profits in Greece during the period of EU financial integration. The study found a positive relationship between bank profitability and the growth of the money supply. Moreover, Mamatzakis and Remoundos (2003) assessed the determinants of Greek commercial banks profitability during 1989–2000. The study showed that money supply as a measure of market size has a significant positive effect on bank profitability. Based on it, this study develops the following hypothesis:

H_3 : *There is a positive relationship between money supply and bank profitability*

Total government expenditure

Government spending refers to money spent by the public sector on the acquisition of goods and provision of services such as education, healthcare, social protection, and defense. Domanovic *et al.* (2018) assessed the internal factors of bank profitability in the republic of Serbia. The study found a positive association between government expenditure, economic growth and banking profitability.

Similarly, Molyneux and Thornton (1992) analyzed the determinants of European bank profitability. The study revealed a positive effect of government expenditure and GDP growth rate on bank profitability. Moreover, Horobet *et al.* (2021) examined the determinants of bank profitability in CEE countries. Using GMM panel data estimates, the result showed a positive association between government expenditure and bank profitability. Different studies stressed that there a positive association between government expenditure and bank profitability (Jadah *et al.*, 2020; Aburime, 2009). Based on it, this study develops the following hypothesis:

H_4 : *There is a positive relationship between total government expenditure and bank profitability.*

Total government revenue

Government revenue is defined as the revenue of the government which are the financial resources for ensuring the government to function. Sufian (2009) examined the determinants of the profitability of the Chinese banking sector. The empirical findings of this study suggested that size, credit risk, and capitalization are positively related to the profitability of China banks, whereas liquidity, overhead costs, and network embeddedness have negative impacts. Similarly, the result also showed that higher spending by government and revenue with higher level of growth rate tend to be relatively more profitable to banks. Different studies stressed that there a positive association between government revenue and bank profitability (Olson and Zoubi, 2011; Akpan and Riman, 2012; Short, 1979). Based on it, this study develops the following hypothesis:

H_5 : *There is a positive relationship between Total government revenue and return on assets and return on equity.*

Bank rate

Staikouras and Wood (2004) assessed the determinants of European bank profitability. The estimation results suggested that the profitability of European banks is influenced not only by factors related to their management decisions but also to changes in the external macroeconomic environment. The results showed a positive effect of bank rate on the profitability of European banks. Moreover, Rasiah (2010) revealed that savings, current account deposits, fixed deposits, total capital and capital reserves, and money supply play a major role in influencing the profitability. Similarly, external determinants which are beyond the control of management of these institutions such as interest rates, inflation rates, market growth and market share have positive effect on the bank profitability. Different studies stressed that there a positive association between government revenue and bank profitability (Vong and Chan, 2009; Guru *et al.*, 2002). Based on it, this study develops the following hypothesis:

H_6 : *There is a positive relationship between bank rate and profitability.*

3. Results and discussion

Descriptive statistics

Table 2 presents the descriptive statistics of the selected dependent and independent variables during the period 2013/14 to 2020/21.

Table 2: Descriptive statistics

This table shows the descriptive statistics of dependent and independent variables of 15 Nepalese commercial banks for the study period of 2013/14 to 2020/21. The dependent variables are ROA (Return on assets as measured by the ratio of net income to total assets, in percent) and ROE (Return on equity as measured by the ratio of net income to total equity, in percent). The independent variables are TGE (Government spending, Rs in million), TGR (Government revenue, Rs in million), BR (Bank rate as measured by the interest rate at which a nation's central bank lends money to domestic banks, often in the form of very short-term loans, in percent), MS (Money supply as measured by the broad money, USD in billion), GDP (Gross domestic product as measured by the total goods and services produced within the country in a year, USD in billion) and INF (Annual inflation rate as measured by change in consumer price index, in percentage).

Variables	Minimum	Maximum	Mean	Std. Deviation
ROA	-1.44	2.95	1.61	0.56
ROE	-26.89	52.41	16.83	7.96
GDP	20	34.27	28.80	5.67
INF	3.6	9.93	6.15	2.23
BR	5	8	6.94	0.89
TGE	400163	819460	554831.6	119401.2
TGR	329856	587941	474244.8	86733.7
MS	75.36	135.76	98.82	17.83

Source: SPSS output

Correlation analysis

Having indicated the descriptive statistics, Pearson's correlation coefficients are computed and the results are presented in Table 3.

Table 3: Pearson's correlation coefficients matrix

This table shows the bivariate Pearson's correlation coefficients of dependent and independent variables of 15 Nepalese commercial banks for the study period from 2013/14 to 2020/21. The dependent variables are ROA (Return on assets as measured by the ratio of net income to total assets, in percent) and ROE (Return on equity as measured by the ratio of net income to total equity, in percent). The independent variables are TGE (Government spending, Rs in million), TGR (Government revenue, Rs in million), BR (Bank rate as measured by the interest rate at which a nation's central bank lends money to domestic banks, often in the form of very short-term loans, in percent), MS (Money supply as measured by the broad money, USD in billion), GDP (Gross domestic product as measured by the total goods and services produced within the country in a year, USD in billion) and INF (Annual inflation rate as measured by change in consumer price index, in percentage).

Variables	ROA	ROE	GDP	INF	BR	TGE	TGR	MS
ROA	1							
ROE	0.691**	1						
GDP	0.010	-0.198*	1					
INF	-0.044	0.198*	-0.802**	1				
BR	0.066	0.13	-0.735**	0.300**	1			
TGE	-0.02	0.141	0.049	0.436**	-0.295**	1		
TGR	-0.173	0.017	0.287**	0.174	-0.425**	0.842**	1	
MS	-0.209*	-0.181*	0.734**	-0.530**	-0.570**	0.301**	0.654**	1

Note: The asterisk signs (**) and (*) indicate that the results are significant at one percent and five percent levels respectively.

Table 3 shows that inflation rate is negatively correlated to return on assets. It means that increase in inflation rate leads to decrease in return on assets. Similarly, money supply has a negative relationship with return on assets. It shows that increase in money supply leads to decrease in return on assets. Likewise, the study shows that there is a negative relationship between government expenditure and return on assets. It means that increase in government expenditure leads to decrease in return on assets. In contrast, there is a negative relationship between government revenue and return on assets. It means that increase in government revenue leads to decrease in return on assets. Moreover, there is a positive relationship between gross domestic product and return on assets. It means that increase in gross domestic product leads to increase in return on assets. Furthermore, bank rate has a positive relationship with return on assets. It indicates that increase in bank rate leads to increase in return on assets.

Similarly, the result shows that inflation rate is positively correlated to return on equity. It means that increase in inflation rate leads to increase in return on equity. Similarly, money supply has a negative relationship with return on equity. It shows that increase in money supply leads to decrease in return on equity. Likewise, the study shows that there is a positive relationship between government expenditure and return on equity. It means that increase in government expenditure leads to increase in return on equity. In addition, there is a positive relationship between government revenue and return on equity. It means that increase in government revenue leads to increase in return on equity. Moreover, there is a negative relationship between gross domestic product and return on equity. It means that increase in gross domestic product leads to decrease in return on equity. Furthermore, bank rate has a positive relationship with return on equity. It indicates that increase in bank rate leads to increase in return on equity.

Regression analysis

Having indicated the Pearson's correlation coefficients, the regression analysis has been carried out and results are presented in Table 4. More specifically, it shows the regression results of gross domestic product, inflation rate, money supply, bank rate, total government expenditure and total government revenue with return on assets of Nepalese commercial banks.

Table 4: Estimated regression results of gross domestic product, inflation rate, money supply, bank rate, total government expenditure and total government revenue with return on assets of Nepalese commercial banks

The results are based on panel data of 15 commercial banks with 120 observations for the period of 2013/14-2020/21 by using the linear regression model and the model is $ROA = \beta_0 + \beta_1 TGE + \beta_2 TGR + \beta_3 BR + \beta_4 GDP + \beta_5 INF + \beta_6 MS + e_u$ where the dependent variable is ROA (Return on assets as measured by the ratio of net income to total assets, in percent). The independent variables are TGE (Government spending, Rs in million), TGR (Government revenue, Rs in million), BR (Bank rate as measured by the interest rate at which a nation's central bank lends money to domestic banks, often in the form of very short-term loans, in percent), MS (Money supply as measured by the broad money, USD in billion), GDP (Gross domestic product as measured by the total goods and services produced within the country in a year, USD in billion) and INF (Annual inflation rate as measured by change in consumer price index, in percentage).

Model	Intercept	Regression coefficients of						Adj. R_bar ²	SEE	F-value
		BR	MS	GDP	TGR	TGE	INF			
1	3.008 (6.774)**	0.018 (0.989)						0.001	0.457	0.979
2	2.565 (12.059)**		-0.009 (4.479)**					0.130	0.426	20.059

3	2.272 (9.640)**			0.208 (2.773)*				0.050	0.445	7.690
4	1.998 (9.604)**				-0.013 (1.814)			0.018	0.453	3.292
5	3.709 (6.123)**					-0.019 (3.443)**		0.079	0.438	11.854
6	0.733 (2.445)*						-0.086 (3.009)**	0.067	0.443	9.051
7	2.958 (9.985)**	0.031 (1.556)	-0.012 (4.644)**					0.140	0.423	11.352
8	2.833 (8.160)**	0.029 (1.456)	-0.015 (3.921)**	0.137 (1.122)				0.142	0.423	8.003
9	1.367 (2.165)*	0.048 (1.401)	-0.028 (4.617)**	0.421 (2.670)*	-0.051 (2.748)*			0.185	0.412	8.207
10	1.312 (1.036)	0.047 (1.214)	-0.028 (3.755)**	0.420 (2.659)**	-0.049 (2.046)*	-0.001 (0.050)		0.178	0.414	5.601
11	8.905 (2.530)*	0.016 (0.351)	-0.057 (3.927)**	0.221 (1.245)	-0.156 (2.996)**	-0.024 (1.096)	-0.397 (2.306)*	0.206	0.407	6.506

Notes:

- i. Figures in parenthesis are t-values.
- ii. The asterisk signs (**) and (*) indicate that the results are significant at one percent and five percent level respectively.
- iii. Return on assets is the dependent variable.

Table 4 shows that the beta coefficients for inflation rate are negative with return on assets. It indicates that the inflation rate has a negative impact on return on assets. This finding is similar to the findings of Vong and Chan (2009). Similarly, the beta coefficients for money supply are negative with return on assets. It indicates that money supply has a negative impact on return on assets. This finding is consistent with the findings of Sihotang *et al.* (2022). Likewise, the beta coefficients for total government revenue are negative with return on assets. It indicates that total government revenue has a negative impact on return on assets. This finding is similar to the findings of Sufian (2009). Likewise, the beta coefficients for gross domestic product are positive with return on assets. It indicates that gross domestic product has a positive impact on return on assets. This finding is consistent to the findings of Saeed (2014). Similarly, the beta coefficients for bank rate are positive with return on assets. It indicates that bank rate has a positive impact on return on assets. This finding is consistent with the findings of Staikouras and Wood (2004). However, the beta coefficients for total government expenditure are negative with return on assets. It indicates that total government expenditure has a negative impact on return on assets. This finding is consistent with the findings of Rolle *et al.* (2020).

Table 5 shows the estimated regression results of gross domestic product, inflation rate, money supply, bank rate, total government expenditure and total government revenue with return on equity of Nepalese commercial banks.

Table 5: Estimated regression results of gross domestic product, inflation rate, money supply, bank rate, total government expenditure and total government revenue with return on equity of Nepalese commercial banks

The results are based on panel data of 15 commercial banks with 120 observations for the period of 2013/14-2020/21 by using the linear regression model and the model is $ROE = \beta_0 + \beta_1 TGE + \beta_2 TGR + \beta_3 BR + \beta_4 GDP + \beta_5 INF + \beta_6 MS + e_{it}$ where the dependent variable is ROE (Return on equity as measured by the ratio of net income to total equity, in percent). The independent

variables are TGE (Government spending, Rs in million), TGR (Government revenue, Rs in million), BR (Bank rate as measured by the interest rate at which a nation's central bank lends money to domestic banks, often in the form of very short-term loans, in percent), MS (Money supply as measured by the broad money, USD in billion), GDP (Gross domestic product as measured by the total goods and services produced within the country in a year, USD in billion) and INF (Annual inflation rate as measured by change in consumer price index, in percentage).

Model	Intercept	Regression coefficients of						Adj. R _{bar} ²	SEE	F-value
		BR	MS	GDP	TGR	TGE	INF			
1	11.802 (7.413)**	1.009 (4.140)**						0.113	6.120	17.138
2	29.349 (9.488)**		-0.115 (3.728)**					0.092	6.191	13.895
3	25.476 (7.520)**			-2.412 (2.238)*				0.031	6.397	5.007
4	30.341 (10.907)**				0.428 (4.520)**			0.133	6.051	20.434
5	50.384 (5.901)*					0.301 (3.801)**		0.096	6.178	0.942
6	22.237 (0.406)						5.052 (0.971)	0.001	6.498	0.942
7	20.141 (4.275)**	0.726 (2.551)*	-0.067 (1.878)*					0.130	6.059	10.505
8	17.825 (3.600)**	0.761 (2.678)*	-0.125 (2.344)*	-2.539 (1.460)				0.138	6.031	7.777
9	18.363 (1.979)*	0.733 (1.469)	-0.120 (1.351)	-2.435 (1.054)	0.018 (0.069)			0.131	6.062	5.787
10	13.977 (0.751)	0.622 (1.173)	-0.138 (1.250)	-2.443 (1.053)	0.081 (0.229)	0.077 (0.272)		0.124	6.081	4.614
11	79.367 (1.513)	0.119 (0.172)	-0.387 (1.785)	-0.730 (0.276)	0.846 (1.087)	0.137 (0.422)	3.432 (1.333)	0.130	6.010	4.162

Notes:

- i. Figures in parenthesis are t-values.
- ii. The asterisk signs (**) and (*) indicate that the results are significant at one percent and five percent level respectively.
- iii. Return on equity is the dependent variable.

Table 5 shows that the beta coefficients for inflation rate are positive with return on equity. It indicates that the inflation rate has a positive impact on return on equity. This finding is similar to the findings of Al-Jafari and Alchami (2014). Similarly, the beta coefficients for money supply are negative with return on equity. It indicates that money supply has a negative impact on return on equity. This finding is consistent with the findings of Seemule *et al.* (2017). Likewise, the beta coefficients for total government revenue are positive with return on equity. It indicates that total government revenue has a positive impact on return on equity. This finding is similar to the findings of Olson and Zoubi (2011). Likewise, the beta coefficients for gross domestic product are negative with return on equity. It indicates that gross domestic product has a negative impact on return on equity. This finding is consistent to the findings of Yakubu and Bunyaminu (2022). Similarly, the beta coefficients for bank rate are positive with return on equity. It indicates that bank rate has a positive impact on return on equity. This finding is consistent with the findings of Vong and Chan (2009).

4. Summary and conclusion

Banks are the most important financial intermediaries in the most economies that provide a bundle of different services. As financial intermediaries, banks play a crucial role in the operation of most economies. The efficiency of financial intermediation can also affect economic growth. Besides, banks insolvencies can result in systemic crisis. Economies that have a profitable banking sector are better able to withstand negative shocks and contribute to the stability of the financial system.

This study attempts to analyze the impact of macroeconomic variables on the profitability of Nepalese commercial banks. The study is based on secondary data of 15 commercial banks with 120 observations for the period from 2013/14 to 2020/21.

The study showed that gross domestic product and bank rate have positive impact on return on assets. However, inflation rate, money supply, total government expenditure and total government revenue have negative impact on return on assets. In addition, inflation rate, bank rate, total government expenditure and total government revenue have positive impact on return on equity. However, gross domestic product and money supply have negative impact on return on equity. The study also concluded that money supply is the most influencing factor that explains the changes in return on assets of Nepalese commercial banks. Similarly, the study also concluded that total government revenue is the most influencing factor that explains the changes in return on equity in context of Nepalese commercial banks.

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