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Success Factors of Commercial Banks in Nepal

Nischal Risal
Nepal Commerce Campus, Tribhuvan University
Email: nischalrisal@gmail.com, ORCID: https://orcid.org/0000-0002-8193-4096

Dhruba Lal Pandey
Central Department of Management, Tribhuvan University
Email: p.dhruba@yahoo.com, ORCID: https://orcid.org/0000-0002-1323-7758
(Corresponding Author)

Aayush Gautam
Nepal Commerce Campus, Tribhuvan University, Nepal
Email: aayushg940@gmail.com

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Abstract

The study aims to analyze the determinants of the financial performance of commercial banks in Nepal. A descriptive and causal research design is adopted in the study. The population consists of twenty commercial banks listed on NEPSE. HBL, NABIL, NIMB, SCNBL, EBL, and SANIMA were randomly selected, comprising ten years of data and sixty firm-years observations. Descriptive and inferential statistical analyses have been performed in the study. The study concludes that Nepalese commercial banks maintain an overly high capital adequacy ratio. Banks size is adequate when considering the overall asset base. However, commercial banks remain unable to fully employ all their available assets in various forms. The rising net interest margin ratio suggests that commercial banks are successfully mobilizing and utilizing their available assets. The financial performance of commercial banks is positively impacted by increase in gross domestic product. The capital adequacy ratio has a positive effect on financial performance. Nonetheless, bank size, measured by total assets, has a negative effect on financial performance.

Keywords: *Bank Size, CAR, Inflation, GDP, NIM, ROA.*

JEL Classification: *B21, B22, D4, E43, G2*

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Introduction

Nepal has seen significant changes in its banking industry over the past few decades, with liberalization policies leading to increased competition and innovation within the sector. Pokharel (2014) concluded that the financial performance of commercial banks in Nepal is influenced by capital adequacy, asset quality, management efficiency, earnings quality, liquidity, and sensitivity to market risk. According to Karki (2016), profitability and asset management ratios have a significant effect on the financial performance of Nepalese commercial banks. Shrestha (2017) revealed that higher credit risk levels and fluctuating interest rates have a negative impact on the financial performance of commercial banks in Nepal. Jha and Hui (2012) discovered that private commercial banks in Nepal generally outperform state-owned banks in terms of profitability and overall financial performance. In a similar vein, Bhandari and Nakarmi (2014) analyzed the performance of Nepalese commercial banks using the Analytic Hierarchy Process (AHP), considering key indicators such as profitability, liquidity, and risk management. Bhattarai (2018) concluded that both bank-specific variables (capital adequacy & asset quality) and macroeconomic variables (GDP growth & inflation) have a significant influence on the return on assets (ROA) of commercial banks in Nepal. Rai et al., (2015) found that capital adequacy, asset quality, and management

efficiency have a positive influence on the financial performance of commercial banks in Nepal. Furthermore, inflation and economic growth have a significant impact on bank performance in Nepal.

There has been a rapid increase in the establishment of banks and financial companies over the past few years in Nepal. However, following the enactment of BFIs Merger and Acquisition Bylaws, 2073 BS, there has been a decline in the number of banks and financial institutions operating in the country. With the rapid growth of financial markets, banks are grappling with intense competition. The banking industry has witnessed significant transformations, primarily driven by advancements in technology and the increasing impact of globalization. These factors have not only presented opportunities for expansion but have also posed challenges to bank managers who strive to sustain profitability and competitiveness. Hence, industry managers must be familiar with and comprehend the key factors that impact bank's profitability. This is essential because banks play a pivotal role in economic development. While joint venture banks have shown stronger performance compared to local commercial banks in the short term, they are also engaged in intense competition among themselves. Therefore, this study aims to investigate the factors that affect the financial performance of selected banks. Based on priori signs from on the previous literature, the following hypotheses have been developed and formulated as follows;

Statement of Hypothesis

H_1 : The Capital Adequacy Ratio has a significant positive effect on the Return on Assets of selected banks.
H_2 : The Capital Adequacy Ratio has a significant positive effect on the Net Interest Margin of selected banks.
H_3 : Bank Size has a significant positive effect on the Return on Assets of selected banks.
H_4 : Bank Size has a significant positive effect on the Net Interest Margin of selected banks.
H_5 : GDP growth rate has a significant positive effect on the Return on Assets of the selected banks,
H_6 : GDP growth rate has a significant positive effect on the Net Interest Margin of the selected banks.
H_7 : Inflation Rate has a significant negative impact on the Return on Assets of the selected banks.
H_8 : Inflation Rate has a significant negative impact on the Net Interest Margin of the selected banks.

Literature Review

Conceptual Review

Financial Performance

The capacity of a company to earn funds and employ assets from its principal operations is measured objectively by its financial performance, which describes the general state of the financial health of an organization over a specific time frame. Decision-makers can assess the outcomes of business strategies and actions in monetary terms objectively by evaluating the financial performance of the company. A company's worth is anticipated to be positively impacted by well-designed and effectively implemented financial management practices (Padachi, 2006). Similarly, financial analysis involves examining the financial statements to determine whether the results meet the firm's objectives, to identify any problems in the past, present, or foreseeable future, and to provide recommendation to address them (Pradhan, 1986).

Return on Assets

Return on Assets (ROA) is a financial measure that indicates the percentage of return a firm generates relative to its total resources. ROA reflects a bank's management team's capacity to generate profits from the assets employed in its operations. It demonstrates how effectively assets are managed to produce income. Siraj and Pillai (2012) stated that the return on total assets (ROA), after interest and taxes, is determined by dividing net income by total assets. Mathematically, it can be expressed as:

$$\text{ROA} = \frac{\text{Net profit after tax}}{\text{Total Asstes}}$$

Net Interest Margin

The difference between the interest income generated and the interest expenses incurred on interest-earning assets is known as the Net Interest Margin (NIM). Financial intermediaries determine this margin at a level that accounts for the associated costs and risks of financial intermediation. The cost of a bank's intermediation services and its overall efficiency are both reflected in its NIM. Mathematically, it can be expressed as:

$$\text{NIM} = \frac{\text{Net interest income}}{\text{Total loans and advances}}$$

Macroeconomic Factors

Inflation Rate

An important macroeconomic metric is inflation, which measures changes in the average price of household purchases of consumer goods and services. Clements and Galbiao (2008) found that the performance of enterprises become more volatile as the average inflation rate increases. Perry (1992) discovered that the impact of inflation on bank profitability varies depending on whether the inflation is expected or unexpected. Managers can enhance the positive effects on inflation on profitability by raising loan rates more quickly than operating costs if they can accurately forecast inflation. When unexpected inflation occurs, bank managers may hesitate to adjust interest rates on bank loans, causing operational costs to rise more quickly than revenue and negatively affecting profitability.

Gross Domestic Product

Gross Domestic Product (GDP) is a commonly used economic indicator that represents the total economic activity of a nation within a specific year. Shubiri (2010) discovered a strong positive association between stock market prices, firm performance, and GDP. Since higher GDP growth stimulates greater economic activity and consumption, it is generally believed that GDP growth has a beneficial impact on bank performance.

Bank Specifics Factors

Bank Size

Kosmidou and Zopounidis (2006) stated that bank size has a detrimental impact on performance, whereas Masood and Ashraf (2012) concluded that bank size has a favorable effect. They further noted that the economies of scale enjoyed by larger banks allow them to acquire capital at a lower cost, thereby reducing overall expenses.

Capital Adequacy Ratio

A bank's capital is gauged by the Capital Adequacy Ratio (CAR), expressed as a proportion of a bank's risk-weighted credit exposures. The amount of internal funds that a bank maintains to support operations and serve as a safety buffer in adverse situations is referred to as capital. Poudel (2012) found a strong inverse relationship between bank performance and capital adequacy ratio. Mathematically, it can be expressed as:

$$\text{CAR} = \frac{\text{TOTAL CAPITAL FUND}}{\text{TOTAL RISK WEIGHTEF ASSETS}}$$

Empirical Review

Table 1: Review of Empirical Studies

Authors/Year	Major Findings
Bhandari and Nakarmi (2014)	Financial performance of commercial banks in Nepal largely depends on liquidity, efficiency, profitability, capital sufficiency, and asset quality
Jha (2014)	CAR, interest costs to the total loans, and net interest margin had a negative impact on ROA, while ROE was positively affected by CAR.
Murerwa (2015)	External market structure and industry-specific variables are important determinants of financial performance.

Authors/Year	Major Findings
Rai et al. (2015)	Higher ROE and ROA were associated with improved management effectiveness, liquidity management, and higher CAR. Inflation and GDP growth positively influenced ROE and ROA.
Murewa (2015)	Internal factors played a more significant role than macro-economic factors in determining performance.
Baba & Nasieku (2016)	Interest rate and exchange rate had a negative effect on financial performance, while inflation rate was not significant.
Dhakal et al., (2016)	The ratio of loans to assets, GDP per capita, interest rate, and inflation all had a substantial impact on non-performing loans.
Pandey et al., (2016)	Private commercial banks outperformed state-owned banks. Capital adequacy, asset quality, and management efficiency were major determinants of performance.
Pradhan & Parajuli (2017)	Bank size and ROA were positively related, while equity capital and CAR had a negative relationship with ROA.
Antoun et al., (2018)	Bank size negatively affected asset quality and earnings. Bank concentration and economic growth positively influenced CAR.
Bhattarai (2018)	Bank's profitability was negatively correlated with cost per loan asset.
Egburibe (2018)	Inflation and GDP growth rates had a significant impact on ROA.
Koju et al., (2018)	GDP, inflation rate, and capital adequacy ratio all had a favorable effect on bank performance.
Bacteng (2019)	Bank size, GDP growth rate, capital sufficiency, and non-performing loans negatively affected profitability.
Pradhan & Shrestha (2019)	CR and ROA showed a negative relationship.
Bhattarai (2019)	Non-performing loans were negatively affected by the exchange rate. GDP was insignificant, while inflation had a positive effect on non-performing loans.
Hosen (2020)	CR significantly affected profitability, and CAR had a significant influence on ROA.
Khadka (2020)	Banks with higher capital adequacy and asset quality performed better. GDP growth and inflation played crucial roles in financial performance.
Neupane (2020)	GDP, inflation, and exchange rate all increased ROA. Inflation rate and capital sufficiency significantly affected NIM.
Gurung (2021)	A diverse ownership structure positively influenced bank performance.
Ichsan et al., (2021)	Non-performing loans negatively affected ROA, While CAR had a significant positive effect on profitability.
Bista (2022)	Maintaining optimal liquidity ratios and cash flows enhanced the profitability of commercial banks.
Karki (2023)	Higher credit risk reduced the financial performance of commercial banks
Lama (2023)	Interest rates volatility negatively affected the financial performance of commercial banks.
Singh (2023)	Higher capital adequacy improved bank stability.
Acharya (2024)	Banks with higher market shares exhibited better financial performance.

Theoretical Framework

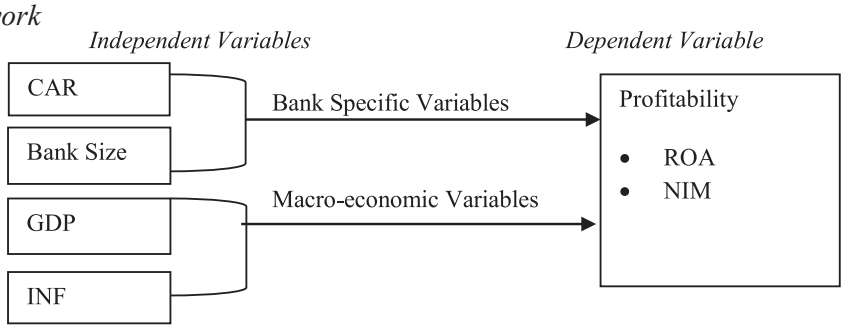

Figure 1: Theoretical Framework

Research Methods

The study is quantitative in nature and adopts the descriptive and causal research designs. The primary statement of the research is that the performance of commercial banking is influenced by macroeconomic parameters such as GDP, inflation (INF), along with bank-specific variables such as bank size and CAR. The dependent variables used in the study are ROA and NIM. Among twenty commercial banks (the population), six were taken as the sample using a random sampling method; Sanima Bank Ltd., Nabil Bank Ltd., Nepal Investment Mega Bank Ltd., Standard Chartered Bank Nepal Ltd., Everest Bank Ltd., and Himalayan Bank Ltd. The study period spans ten fiscal years. The sample includes secondary data from 2013/2014 to 2022/2023 AD. Descriptive and inferential analysis have been conducted using Microsoft Excel and IBM SPSS Version 26.

Model Specifications:

$$Model\ 1: ROA = \beta + \beta_1 CAR_{it} + \beta_2 SIZE_{it} + \beta_3 GDPGR_{it} + \beta_4 INF_{it} + e_{it} \ldots\ldots \quad (1)$$

$$Model\ 2: NIM = \beta + \beta_1 CAR_{it} + \beta_2 SIZE_{it} + \beta_3 GDPGR_{it} + \beta_4 INF_{it} + e_{it} \ldots\ldots \quad (2)$$

Where,

CAR_{it}= Capital adequacy ratio of i^{th} bank for the period 't'; ROA_{it}= Return on assets of i^{th} bank for the period 't'; $SIZE_{it}$= Size of i^{th} bank for the period 't'; $GDPR_{it}$= Gross Domestic Product for period 't'; INF_{it}= Inflation Rate for period 't'; β= Intercept (constant term); β1, β2, β3, β4 = Coefficients of independent variables; e= component of error

Table 2: Description of Variables and Measurements

Variables	Measurements
Dependent Variables	
Return on Assets (ROA)	Net Income/ Total Assets
Net Interest Margin (NIM)	Net Interest Income to Average Earnings
Independent Variables	
Bank Size	Natural logarithm of total assets.
Capital Adequacy Ratio (CAR)	(Tier 1 capital + Tier 2 Capital)/ Risk Weighted
GDP Growth Rate	Annual change in growth rate.
Inflation Rate	Aggregate of price level change in general price level of goods and services in an economy.

Results and Discussions

Capital Adequacy Ratio

Ayele (2012) pointed out that capital adequacy is a measure of a bank's financial strength, reflecting its ability to withstand operational costs and fund liquidity. Capital adequacy also indicates the ability of a bank to undertake additional business. The size of the capital provides financial flexibility to bank and financial institution.

Table 3: Pattern of Capital Adequacy Ratio (CAR)

Year	Capital Adequacy Ratio					
	HBL	NABIL	NIMB	SCBL	EBL	SANIMA
2013/14	11.23	11.18	11.27	12.27	11.31	12.54
2014/15	11.14	11.57	11.9	13.1	13.33	11.08
2015/16	10.84	11.73	14.92	16.38	12.66	12.36
2016/17	12.15	12.9	13.02	21.08	14.54	15.57
2017/18	12.46	13	12.66	22.99	14.2	12.41
2018/19	12.6	12.5	13.26	19.69	13.74	13.19
2019/20	14.89	13.07	13.54	18.51	13.38	13

Year	Capital Adequacy Ratio					
	HBL	NABIL	NIMB	SCBL	EBL	SANIMA
2020/21	13.93	12.77	13.54	17.17	12.48	13.57
2021/22	12.69	13.78	14.79	15.9	11.89	13.51
2022/23	12.31	12.68	15.96	14.91	13.36	14.42
Mean	12.82	12.52	13.49	17	13.39	13.08
SD	1.36	0.85	1.41	3.58	1.07	1.19
CV	10.61	6.82	10.43	21.06	8.11	9.14

Source: Annual Reports, 2013/14 to 2022/23 AD

Table 3 reveals that the CAR of commercial banks is maintained and within accessible limits in Nepal. According to Nepal Rastra Bank's new capital adequacy framework, the minimum capital requirement is 10%, with at least 6% as core capital. However, due to high standard deviation, the capital adequacy ratio has fluctuated and remained somewhat inconsistent over the past ten years across all commercial banks. Moreover, since the coefficient of variation is not zero, annual fluctuations and inconsistencies in the capital adequacy ratio have been observed.

Bank Size

The total assets of the sample banks were used to represent the size of each bank. For analytical purposes, bank size was calculated using the natural logarithm of total assets.

Table 4: Pattern of Bank Size (BS) in Terms of Total Assets 'in million'

Year	Total Assets					
	HBL	NABIL	NIMB	SCBL	EBL	SANIMA
2013/14	74,718	87,274	86,173	53,324	73,589	60,018
2014/15	84,753	115,986	104,345	65,059	82,801	69,186
2015/16	101,217	127,300	129,782	65,185	99,863	88,682
2016/17	100,309	144,017	134,516	663,501	108,063	117,893
2017/18	118,388	169,076	155,361	688,762	116,462	125,847
2018/19	133,151	201,138	185,841	93,264	170,077	151,653
2019/20	155,884	237,680	203,023	116,438	185,023	273,876
2020/21	178,490	291,066.2	227,930	114,739	211,650	160,751
2021/22	216,286	419,818.1	244,449	123,356	225,381	192,511
2022/23	332,392	481,203.5	447,505	151,378	249,983	215,643
Mean	149,558.8	227,455.8	191,892.5	213,500.6	152,289.2	145,606
SD	73,865.9	125,981.1	98,430	233,169,4	60,669.9	64,333.8
CV	49.39	55.39	51.29	109.21	39.84	46.57

Source: Annual Reports, 2013/14 to 2022/23 AD

Table 4 reveals that the selected banks appear to have earned a satisfactory amount of the available assets. The ten-year period's asset fluctuations and inconsistencies were illustrated by the standard deviations for bank sizes. The study found that the assets held by commercial banks in Nepal were completely inconsistent. The coefficient of variations of HBL, NABIL, NIMB, SCBL, EBL, and SANIMA over a ten-year period have reflect annual variations in terms of fluctuation and inconsistency over assets.

Net Interest Margin

A company's ability to successfully invest its cash in relation to its expenses on the same investments is gauged by its net interest margin ratio. When interest costs outweigh the profits on investments, a negative value indicates that the company has not made the best choice in terms of investments.

Table 5: Net Interest Margin (NIM) Ratio

Year	Net Interest Margin Ratio					
	HBL	NABIL	NIMB	SCBL	EBL	SANIMA
2013/14	3.19	4.23	3.48	3.39	3.57	2.79
2014/15	4.02	3.04	3.03	2.39	3.31	2.82
2015/16	3.48	3.39	3.01	3.30	3.34	3.08
2016/17	3.50	3.89	3.17	2.87	3.25	3.20
2017/18	3.46	3.46	3.95	3.72	3.37	3.29
2018/19	4.34	3.63	3.48	3.72	3.48	3.86
2019/20	3.59	2.94	2.95	2.97	3.02	3.76
2020/21	1.92	2.27	2.37	2.18	1.81	2.56
2021/22	1.80	1.98	1.69	2.72	2.18	2.28
2022/23	2.99	3.69	2.76	3.93	2.96	3.00
Mean	3.23	3.25	2.99	3.12	3.03	3.06
SD	0.77	0.67	0.597	0.56	0.55	0.47
CV	23.98	20.59	19.98	17.97	18.23	15.29

Source: Annual Reports, 2013/14-2022/23 AD

Table 5 reveals that each bank shows fluctuations in NIM, reflecting changes in interest income and expenses relative to their interest-earning assets. For instance, HBL's NIM ranges from 1.80 to 4.34, with an average of 3.23 and a standard deviation of 0.77, indicating moderate variability. Similarly, NABIL exhibits a narrower range of 1.98 to 3.89, averaging 3.25 with a lower variation of 0.67. In contrast, NIMB demonstrates a wider range of 1.69 to 3.95, averaging 2.99 with a standard deviation of 0.60, suggesting greater variability in its NIM over the years. SCBL, EBL, and SANIMA also show varying patterns in NIM, reflecting their individual financial strategies and market conditions. These metrics are crucial for assessing a bank's operational efficiency and financial health over time.

Return on Assets

A company's financial performance, measured by return on assets (ROA), gauges its ability to create value for shareholders.

Table 6: Return on Assets (ROA)

Year	ROA					
	HBL	NABIL	NIMB	SCBL	EBL	SANIMA
2013/14	1.3	3.65	2.3	2.51	2.25	1.46
2014/15	1.34	2.06	1.9	1.99	1.85	1.55
2015/16	1.94	2.32	2	1.98	1.59	1.78
2016/17	2.19	2.69	2.1	1.84	1.83	1.86
2017/18	1.67	2.61	2.13	2.61	1.97	1.85
2018/19	2.21	2.11	1.79	2.61	1.94	2.07
2019/20	1.79	1.58	1.19	1.71	1.42	1.41
2020/21	1.68	1.56	1.56	1.22	1.87	1.44
2021/22	1.09	1.01	1.55	1.83	1.10	1.09
2022/23	0.47	1.33	0.83	2.29	1.34	1.21
Mean	1.57	2.05	1.71	2.00	1.74	1.57
SD	0.58	0.86	0.72	0.498	0.40	0.296
CV	37.1	41.88	42.34	24.90	23.03	18.85

Source: Annual Reports, 2013/14-2022/23 AD

Table 6 reveals that the commercial banks made efficient use of the available resources. Consequently, the analysis found that Nepalese commercial banks were effectively mobilizing and utilizing their available assets. For HBL, NABIL, NIMB, SCBL, EBL, and SANIMA, the corresponding standard deviations for ROA were 0.58, 0.86, 0.72, 0.498, 0.40, and 0.296 percent, illustrating the variability and irregularities in return on assets throughout the course of the ten-year period. HBL, NABIL, NIMB, SCBL, EBL, and SANIMA coefficients of variation over ten-year period had represented annual variations in terms of volatility and inconsistency over return on assets. As a result, the analysis found that Nepalese commercial banks' returns on assets were completely inconsistent.

Microeconomic Variables

The inflation rate and GDP growth rate are key macroeconomic variables.

Table 7: Structure and Pattern of GDP Growth Rate (GDPR)

Year	GDP Growth Rate
2013/14	3.8
2014/15	5.7
2015/16	3.3
2016/17	0.6
2017/18	8.2
2018/19	6.7
2019/20	7.0
2020/21	-2.4
2021/22	4.2
2022/23	5.6
Mean	4.27
S.D.	3.03
C.V.	70.94

Source: Economic Survey of Nepal

The highest and lowest GDP growth rates were recorded in the fiscal years 2017/18 and 2020/21, respectively. The mean GDP growth rate over the ten-year period is 4.27 percent, with a standard deviation of 3.03. The coefficient of variation for this period is 70.94 percent.

Table 8: Structure and Pattern of Inflation Rate (IR)

Year	Inflation Rate
2013/14	7.70
2014/15	8.10
2015/16	7.60
2016/17	10.40
2017/18	2.70
2018/19	4.60
2019/20	6.00
2020/21	4.80
2021/22	4.20
2022/23	8.10
Mean	6.42
S.D.	2.34
C.V.	36.49

Source: Economic Survey of Nepal

The highest and lowest inflation rate can be seen in fiscal year 2016/17 and 2017/18 respectively. The mean of inflation rate is 6.42 having standard deviation of 2.34 over the ten years' period. The coefficient of variance over the ten years' period is 36.49 percent.

Assessment of Status of Variables Used in the Study

Table 9: Descriptive Analysis

Variables	Range	Minimum	Maximum	Mean	Std. Deviation
TA ('in 000')	81849887	145606000	227455887	180050498	326426869.4
CAR	4.61	11.86	16.47	13.72	1.5
GDPR	10.6	-2.4	8.2	4.27	3.03
IR	2.30	8.10	10.40	6.42	2.34
NIM	0.26	2.99	3.25	3.11	0.098
ROA	0.48	1.57	2.05	1.77	0.19

The bank size has a minimum of Rs. 145,606,000,000 and a maximum of Rs. 227,455,887,000. As a result, the bank size range is Rs. 81,849,887,000. Similarly, over a ten-year period, the capital adequacy ratio has a mean value of 13.72 percent and a standard deviation of 1.5. Similarly, over a ten-year period, the GDP growth rate has a mean value of 4.27 percent and a standard deviation of 3.03. The GDP has a minimum percentage of -2.4 and a maximum percentage of 8.2. As a result, the GDP range is 10.6 percent. Comparably, over a ten-year period, the average inflation rate is 6.42 percent with a standard deviation of 2.34. As a result, the inflation rate range is 2.30 percent. Over a ten-year period, the net interest margin ratio has a mean value of 3.11 percent and a standard deviation of 0.098. NIM has a minimum of 2.99 and a maximum of 3.25 percent. Therefore, the net interest margin ratio ranges from 0.26 percent. Additionally, over a ten-year period, the mean return on assets is 1.77 percent with a standard deviation of 0.19. The ROA percentage ranges from 1.57 to 2.05 percent at the minimum and maximum. As a result, the ROA range is 0.48 percent.

Relationship Analysis

The Bivariate Pearson's correlation was used to analyze the relationship between the variables.

Table 10: Correlation Matrix for Macroeconomic Factors

		GDPR	IR	NIM	ROA
GDPR	Pearson Correlation	1	-0.215**	0.294*	-0.149
	Sig. (2-tailed)		0.003	0.023	0.213
IR	Pearson Correlation		1	-0.005	0.342**
	Sig. (2-tailed)			0.969	0.008
NIM	Pearson Correlation			1	0.075
	Sig. (2-tailed)				0.568
ROA	Pearson Correlation				1

***. Significant at the 0.01 level (2-tailed).*

**. Significant at the 0.05 level (2-tailed).*

Table 10 reveals a positive correlation between the net interest margin ratio and the growth rate of the gross domestic product. This suggests that as the GDP grows, so does the net interest margin ratio, indicating that the two variables are leading each other in the same direction. As a result, the corresponding hypothesis H_6 is accepted. Nonetheless, there is a negative correlation between the inflation rate and the net interest margin ratio, meaning that when the inflation rate rises, the net interest margin ratio falls and vice versa. As a result, the corresponding hypothesis H_8 is accepted. Similarly, return on assets and GDP growth rate have a negative relationship, meaning that while GDP grows at a faster rate, return on assets also grows at a slower rate because they lead each other in

opposing directions, and vice versa. It concludes that the corresponding hypothesis H_5 has been rejected. There is a positive correlation between the inflation rate and return on assets, meaning that as the inflation rate rises, return on assets falls and vice versa. As a result, H_7 has been rejected. This might be since Nepalese banks are effective at quickly adjusting interest rates to outpace rising costs during inflationary periods. This finding has questioned the existing theory. A positive relationship between inflation and ROA can occur because higher inflation often leads to higher nominal ROA as sample banks can pass on increased costs, and a generally growing economy. The gross domestic product growth rate and inflation eventually show a negative association, suggesting that they follow one another in the opposite direction.

Table 11: Correlation Matrix for Bank Specific Variables

		CAR	BS(Ln_TA)	NIM	ROA
CAR	Pearson Correlation	1	0.105	0.038	-0.145
	Sig. (2-tailed)		0.423	0.775	0.268
BS(Ln_TA)	Pearson Correlation		1	-0.247	-0.025
	Sig. (2-tailed)			0.057	0.852
NIM	Pearson Correlation			1	0.075
	Sig. (2-tailed)				0.568
ROA	Pearson Correlation				1

Table 11 indicates a positive link between the net interest margin ratio and the capital adequacy ratio. This suggests that when the net interest margin ratio rises, the capital adequacy ratio rises as well, leading each other in the same way. It implies that the corresponding hypothesis H_2 is accepted. On the other hand, there appears to be a negative correlation between the net interest margin ratio and bank size. This means that as the net interest margin ratio raises, bank size falls, and vice versa. It implies that the corresponding hypothesis H_4 has been rejected. Similarly, there is a negative correlation between return on assets and both the capital adequacy ratio and bank size. This means that as both variables rise in opposition to one another, return on assets likewise falls and vice versa. This implies that H_1 and H_3 have been falsified respectively. The net interest margin ratio and return on assets eventually show a negative association, indicating that they eventually lead one another in the opposite direction.

Impact Analysis of Bank Specific Variables and Macro-economic Variables on NIM

Table 12: Regression Analysis of CAR, BS(Ln_TA), GDPR and IR on NIM.

Model Summary[b]					
Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Durbin-Watson
1	0.421[a]	0.177	0.117	1.65866	0.630

ANOVA[a]						
Model		Sum of Squares	Df	Mean Square	F	Sig.
1	Regression	32.551	4	8.138	2.958	0.028
	Residual	151.313	55	2.751		
	Total	183.864	59			

Coefficients[a]							
Model		Unstandardized Coefficients		t-value	p-value	Collinearity Statistics	
		B	Std. Error			Tolerance	VIF
1	Constant	26.760	8.682	3.082	0.003		
	CAR	0.033	0.073	0.458	0.648	0.809	1.236
	GDPR	0.173	0.063	2.731	0.008	0.854	1.170
	IR	0.096	0.114	0.837	0.406	0.712	1.404
	BS(Ln_TA)	-0.763	0.338	-2.257	0.028	0.975	1.026

a. Dependent Variable: NIM

b. Predictors: (Constant), BS(Ln_TA), CAR, GDPR, IR

Table 12 reveals that the model's R-square is 0.177 which indicates that independent variables; the capital adequacy ratio, the rate of inflation, the growth rate of the gross domestic product, and the size of the bank can account for 17.7 percent of the variation in the dependent variable, net interest margin ratio. It meant that after accounting for the number of predictors and sample size, the model explains 11.70 percent of the variance. The difference shows the model's R-squared value was likely inflated by the number of variables, and the adjusted R-squared provides a more conservative and reliable measure of the model's explanatory power. The Durbin-Watson test result is 0.63, falling between 0 and 4 indicates no autocorrelation in the residuals. Since the variance influence factor (VIF) is less than 10, multicollinearity is not a severe problem. The model's fitness is shown by an F-value of 2.958 at the 5 percent significance level suggests the fitness of model. The significant coefficient of GDPR indicates that if the gross domestic product growth rate is increased by one percent, NIM would increase by 0.173 percent. At the end, the significant negative coefficient of bank size is -0.763, meaning that for every percent increase in the inflation rate, the average impact on the net interest margin ratio would fall by 0.763 percent.

Impact Analysis of Bank Specific Variables and Macro-economic Variables on ROA

Table 13: Regression Analysis of CAR, BS(Ln_TA), GDPR and IR on ROA.

Model Summary[b]						
Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Durbin-Watson	
1	0.344[a]	0.191	0.121	0.48973	0.986	
ANOVA[a]						
Model		Sum of Squares	Df	Mean Square	F	Sig.
1	Regression	1.776	4	0.444	4.851	.032[b]
	Residual	13.191	55	0.240		
	Total	14.967	59			
Coefficients[a]						
Model		Unstandardized Coefficients		t-value	p-value	Collinearity Statistics	
		B	Std. Error			Tolerance	VIF
1	(Constant)	1.086	2.563	0.424	0.673		
	CAR	0.001	0.022	0.015	0.988	0.809	1.236
	GDPR	-0.006	0.019	-.310	0.758	0.854	1.170
	IR	0.074	0.034	2.197	0.032	0.712	1.404
	BS(Ln_TA)	0.018	0.100	0.179	0.859	0.975	1.026

Predictors: (Constant), BS(Ln_TA), CAR, GDPR, IR

Dependent Variable: ROA

The R-square value of 0.191 indicates that independent variables; the capital adequacy ratio, the rate of inflation, the growth rate of the gross domestic product, and the size of the bank can account for 19.1percent of the variation in the dependent variable, returns on assets. The Durbin-Watson test result, which is 0.986, is between 0 and 4. There is no autocorrelation in the data. The model's fitness is indicated by the F-value of 4.851 at 5% level of significance suggests that the study model fits the data well for describing Nepal's commercial banks' financial performance. Additionally, the average influence on return on assets would grow by 0.074 percent for one percent increase in the inflation rate, according to the significant coefficient value of 0.074.

Discussion

The capital adequacy ratio and return on assets have a statistically significant positive relationship. The finding is consistent with the findings of Rai et al., (2015), Dhakal et al., (2016), Pradhan and Parajuli (2017), Antoun et al., (2018), Koju et al., (2018), and Ichsan et al., (2021). This is consistent due to the reason that the capital adequacy strengthens a bank's financial health, which typically improves profitability (ROA), a well-established theoretical relationship. The results, however, contradict those of Jha (2014) and Bacteng (2019). The contradictions may

arise because those studies might have used different samples, time periods, or modeling approaches or external economic conditions such as crisis might have impacted banks differently. Similarly, a statistically significant positive relationship between return on assets and gross domestic product (GDP) growth rate is in line with earlier findings of Koju et al., (2018) and Bacteng (2019). Nonetheless, the findings are at odds with those of researchers like Egburibe (2018) and Rai et al., (2015). Economic growth usually enhances bank profitability by increasing demand for loans and services, a logical and commonly supported finding. Moreover, the positive relationship between the inflation rate and return on assets in the study is consistent with the findings of Rai et al., (2015), Baba and Nasieku (2016), Antoun et al., (2018), Egburibe (2018), Koju et al., (2018) and Bacteng (2019). The moderate inflation can lead banks to increase interest rates, boosting profitability, which many studies have observed in stable inflationary environments. However, the results contradict the findings of Dhakal et al., (2016). Ultimately, the negative significant impact of bank size on NIM is in line with the studies of Dhakal et al., (2016), and Pradhan and Parajuli (2017). The differences here may reflect that a researcher studied a period of high or volatile inflation, where inflation harms banks profitability, or their model accounted for different confounding factors. Jha (2014) found that CAR, interest expenses to total loan, and net interest margin were significant but had a negative effect on ROA, Non-performing loan and credit to deposit ratio did not have any effect on ROA. This study supports Jha (2014) since CAR is positively correlated with net interest margin ratio. Neupane (2020) found GDP, Inflation and exchange rate had a positive effect on ROA. Thus, the finding of this study is consistent with the Neupane (2020), since there is a positive correlation between capital adequacy, GDP, inflation, and the net interest margin ratio (NIM).

Conclusions

Finally, Nepalese commercial banks are overly maintaining the capital adequacy ratio. The bank's size is adequate when considering its overall assets. Additionally, the whole asset is trending upward year. The use of the assets is not optimal, though. The commercial banks are still unable to make use of all their various asset types. The net interest margin ratio is rising annually, a sign of the commercial banks' efficient mobilization and acquisition of accessible assets. Financial success and the growth rate of the gross domestic product are favorably associated. Additionally, the financial performance of commercial banks is positively impacted by increase in the gross domestic product. The capital adequacy ratio, for example, is a bank-specific statistic that positively affects financial performance. Nonetheless, a bank's size relative to its overall assets has a detrimental effect on its financial performance.

Implications

The study's findings help the financial manager prepare the plan and policies related to financial decision-making by providing information on how to maintain the return on assets, net interest margin ratio, dividend distribution ratio, and maintenance of the non-performing loan ratio to increase the profitability of commercial banks. By implying superior ideas through its conclusions, the study contributes to efficient and profitable investment. As such, it facilitates investors' allocation of capital to these joint venture industries. Since fund managers and stock investors can utilize the characteristics to estimate the right ratio, the study's findings appear to be very helpful to them. The study contributes to the theoretical understanding of frameworks that promote better decision-making and financial performance.

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