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Effect of Capital Adequacy, Bank Size and Lending Interest Rate on Profitability of Commercial Banks in Nepal

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Abstract

Article Info

Purpose : *This study aims to examine the effect of capital adequacy, bank size and lending interest rate on the profitability of commercial banks in Nepal.*

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Methods: *This research used a combination of descriptive and causal comparative research design using secondary source of data obtained from the annual report of corresponding commercial banks. A panel data from the fiscal year 2013/14 to 2022/23 were obtained from six randomly selected commercial banks.*

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Results: *The capital adequacy ratio exhibits a significant positive impact on ROA signifying that a robust capital base strengthens financial stability, lowers funding costs, and promotes profitable lending operations. The analysis reveals that bank size has negative effect on ROA but the effect is insignificant suggesting that variations in size do not substantially influence profitability, implying that other determinants are more critical in shaping financial performance. Furthermore, the results indicate a significant negative effect of lending interest rates on return on assets (ROA), which are attributed to factors such as increased borrower repayment capacity, reduced loan demand, higher non-performing loan risks, and elevated funding costs negatively impact overall bank profitability*

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Conclusion: *Capital adequacy ratio plays a critical role in increasing bank profitability. Other factors such as bank size and lending interest rates need to be managed to optimize financial performance. Future research is necessary to explore these relationships in more diverse banking environments and consider additional variables to further understand the drivers of bank profitability.*

Keywords: Return on assets, lending interest rate, capital adequacy ratio and bank size

I. Introduction

Capital Adequacy Ratio (CAR) measures a bank's capital relative to its risk-weighted credit exposure. It is expressed as a percentage and is determined based on core capital,

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supplementary capital, and total risk-weighted assets (Pradhan, 2017). CAR is designed to safeguard depositors and enhance the stability and efficiency of the global financial system. NRB unified directive 2080 B.S., has made it mandatory for commercial banks to maintain a minimum Capital Adequacy Ratio (CAR) of 11.5 percent including counter cyclical buffer. It is based on the capital adequacy framework 2015 approved by Nepal Rastra bank. The relationship between capital adequacy and profitability is a critical issue in banking and finance. Higher the level of capital reduces the advantage of leverage. Higher capital adequacy ratios require banks to hold more equity, which is costlier than debt, leading to a decrease in the potential benefits of financial leverage (Barth & Miller, 2018).

Firm size is considered a significant determinant of profitability, with larger firms often able to produce goods more cheaply than smaller ones due to greater experience, cumulative learning, and the ability to spread fixed costs over more production (Kigen, 2014). Profit is the goal of all business, as a business cannot survive in the long run without it. Measuring profitability involves assessing income and expenses, with income generated from business activities. A highly profitable business can offer substantial returns to its owners (Waweru & Kalani, 2009). A profitable banking sector is better equipped to withstand economic shocks and contribute to financial stability. Changes in the operating environment, especially regarding credit risk, can significantly impact bank profitability. According to Samuelson (1945), bank profits tend to increase with rising lending rates, arguing that the banking system benefits more from an increase in rates. Accurately measuring how fluctuations in market interest rates affect banks depends on the sensitivity of their assets and liabilities. When interest rates fluctuate due to changes in monetary policy or economic conditions, banks often experience corresponding changes in the returns on their assets, especially since many of their assets have relatively short maturities, causing loan rates to adjust quickly in response to rate changes.

The banking sector is the most essential and crucial sector of any economy. They play a positive role in mobilizing financial resources, identifying good projects, monitoring managers, and managing risk (Levine, 2000). Interest rate is one of the important aspects in the lending decision process of commercial banks. Commercial banks are independent business entities that set their own lending rates. The level of interest rates is influenced by the supply and demand for credit: a rise in demand increases interest rates, while a decrease lowers them (Heakal, 2019). Interest rates are the additional amount, beyond the principal, that a borrower pays to access funds, often seen in financial products like credit cards, mortgages, and auto loans (Connell, 2018). Interest rates can impact corporate profits and government monetary policies, as commercial banks tend to charge higher rates on loans while offering lower rates on savings. This difference between borrowing costs and returns on savings contributes to bank profitability (Pettinger, 2017). The interest rate reflects the percentage reward a lender receives for deferring the use of resources until a future time.

Nepal's financial system comprises dominant share of commercial banks in terms of assets/liabilities size. Among BFIs, commercial banks hold the largest share. In mid-July 2023, the share of commercial banks in total assets/liabilities of BFIs slightly decreased to 88.68 percent from 88.73 percent as of mid-July 2022. Similarly, the ratio of total assets/liabilities of commercial banks to GDP has decreased to 120.15 percent in mid-July 2023 from 124.09 percent a year ago. The dominance of commercial banks in the total banking sector in terms of assets and liabilities as well as in terms of balance sheet components has broadly remained stable. The total assets/liabilities of commercial banks increased by 7.40 percent to Rs. 6,465.94 billion in mid-July 2023 from Rs. 6,020.55 billion in mid-July 2022 (Nepal Rastra Bank, 2023). In this regard, commercial bank sustainability and their stability is very important for maintaining trustworthy financial system and economic stability. Therefore, this study intends to investigate the effect of capital adequacy, bank size and lending interest rate

on profitability of commercial banks in Nepal.

II. Reviews

Theoretical Review

Theory of Capital Adequacy

Capital adequacy refers to the sufficiency of a bank's capital in absorbing potential losses and safeguarding its solvency. It is a core concept in banking regulation and risk management, ensuring that financial institutions remain stable during periods of financial stress Pyle (1971). The theory of capital adequacy has evolved over time, particularly through the development of the Basel Accords, which set international standards for capital requirements

Loanable Funds Theory

This Theory is initially developed by Froyen (1996); it asserts that the interest rate is determined at a level where the supply of securities matches the demand for them. Key factors influencing interest rates include real investment demand and real savings, described by classical economists as the forces of "productivity and thrift." The availability of loanable funds is influenced by factors such as net increases in currency deposits, savings, willingness to hold cash balances, and opportunities for new capital formation.

Demand for loanable funds comes from domestic businesses, consumers, governments, and foreign borrowers. To minimize default risk, banks must assess the creditworthiness of borrowers, charging higher premiums to those deemed high-risk. The supply of funds is generated through savings, money creation within the banking system, and foreign lending. The sectors in which banks concentrate their efforts influence the availability of loanable funds. Claeys and Vander (2008) argue that this theory explains the factors influencing lending rates, low interest rates on deposits due to poor financial intermediation led to lower deposits and, consequently, higher lending rates. The theory posits that the nominal interest rate is determined by the demand and supply of loanable funds. If the supply remains constant, an increase in demand raises the interest rate, while a decrease lowers it. Conversely, an increase in supply reduces interest rates, and a decrease raises them. If both demand and supply change, the resulting interest rate depends on the magnitude and direction of these changes.

Empirical Review

Anggari and Dana (2020) examined the impact of capital adequacy on profitability of depositary financial institutions Nigeria. It seeks to evaluate the consequence of capital adequacy of both foreign and domestic banks in Nigeria on their profitability. The result of the study uncovered significant relationship between capital adequacy and profitability of bank. It was revealed that capitalization and profitability are indicators of bank risk management competence and cushion adjacent to losses not covered by existing earnings.

Goet (2022) studied the impact of capital adequacy on profitability of commercial banks in Nepal. Effect on profitability has been observed in terms of regulatory capital, operating efficiency, bank asset size, loan and advances, and shareholders' equity. The results revealed positive correlation between shareholder's equity, tier 1 capital, total capital, and loans and advance of the banks with net profit.

Abeyrathna, and Priyadarshana (2019) examined the firm size effect on profitability of listed manufacturing corporations in Sri Lanka. Study covered 20 manufacturing corporations listed in Colombo Stock Exchange (CSE). Using random sampling method data have been collected from the annual reports of year 2014 to 2017. Results confirmed that firm size has

no considerable impact on profitability of the listed manufacturing firms in Sri Lanka. However, Kigen, (2014) examined the effect of firm size on profitability of insurance companies in Kenya. Profitability is dependant variable whereas total assets, leverage and market share are independent variables. Forty eight general and long term insurance companies which cover the period of 2009- 2013 were used for data accumulation purpose. Secondary data obtained from the financial statements of insurance companies and annual reports of Insurance Regulatory Authority (IRA).

Regression model was used to analyze the data collected for the insurance companies. The findings revealed positive relationship between size as measured by market share of the insurance companies and profitability. The result also showed that leverage had significant effect on profitability of insurance companies. Khan and Sattar (2014) conducted a study to analyze the impact of interest rate changes on the profitability of commercial banks operating in Pakistan. They examined the financial statements of four major banks during the period from 2008 to 2012. The efficiency of the banking sector is crucial for economic growth, monetary policy implementation, and macroeconomic stability.

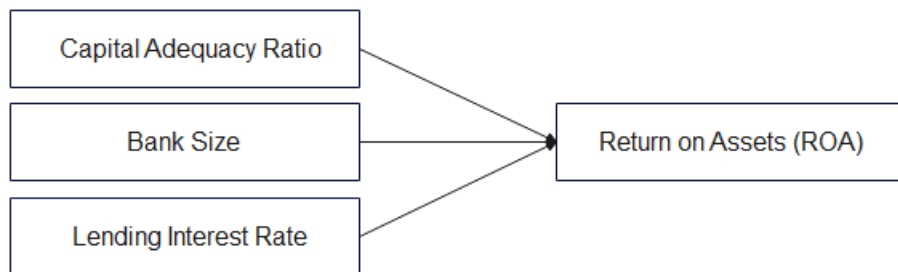
The Pearson correlation method was used to examine the relationship between these variables, revealing a strong and positive correlation. Result showed that interest rates volatility influences bank profitability. In addition, Ogunbiyi (2014) investigated how interest rates affect the profitability of deposit money banks in Nigeria. The study used annual data covering 13 years (1999-2012) and employed multivariate regression analysis within an econometric framework. Additionally, real interest rates had a negative and significant relationship with return on equity (ROE) at the 8% level of significance. However, no significant relationship was found between interest rate variables and the net interest margin of these banks. The study concluded that changes in interest rates significantly influence the profitability of the banking sector. Ghimire and Bhandari (2023) explored the factors affecting lending rates of commercial banks in Nepal. The study used a descriptive and causal comparative research design, analyzing data from fourteen commercial banks over six years (2016 to 2021). The study employed pooled OLS, fixed effects, and random effects models, finding that the deposit rate significantly impacts lending rates, while other factors such as OCTA, ROA, and NPL do not have a strong effect.

Figure 1

Research Framework

Independent Variables

Dependent Variable



Note. Adopted from Demirguc-Kunt and Huizinga (1999)

Definition of Variables

Capital Adequacy Ratio (CAR)

Capital Adequacy Ratio (CAR) measures a bank’s capital relative to its risk-weighted credit exposure. It is expressed as a percentage and is determined based on core capital, supplementary capital, and total risk-weighted assets. CAR is designed to safeguard depositors and enhance the stability and efficiency of the global financial system. According to NRB directives, commercial banks must maintain a CAR of at least 11% (Pradhan, 2017).

Bank Size (BS)

Bank size refers to the scale and scope of a bank’s operations, including its production capabilities, service range, and overall business volume. Size is typically measured by gross sales, total assets, the logarithm of total assets, the number of employees, or sales turnover. In financial analysis, bank size is used to assess potential economies or diseconomies of scale, with the natural logarithm of total assets often serving as a proxy. Research indicates that bank size positively affects the profitability of commercial banks in Nepal (Chhetri, 2021; Hakuduwal, 2021).

Lending Interest Rate (LIR)

Lending Interest Rate (LIR) refers to the rate banks charge for short- to medium-term loans provided to the private sector. This rate varies depending on the borrower’s creditworthiness and the purpose of the loan. It represents the average interest rate on loans offered by commercial banks and is hypothesized to be influenced by factors such as operating costs relative to total assets, deposit interest rates, profitability, and default risk.

Return on Assets (ROA)

Return on Assets (ROA) is a financial ratio that reflects the percentage of profit a bank earns relative to its total assets. This metric is used to gauge a bank’s efficiency in generating profits from its assets (Kohlscheen et al., 2018). ROA is calculated by dividing net profit after tax by total assets and is commonly employed as a dependent variable in studies assessing bank performance.

III. Methodology

The study used descriptive and causal comparative research design. Out of 20 commercial banks 6 commercial banks were taken by applying simple random sampling technique. The data were collected from the annual report of concerned banks for the period of 2013 to 2023. Quantitative nature of data has been used for conducting the study. Table 1 shows the sample banks, study period and the number of observations.

Table 1

Sample Banks, Study Period, and Number of Observations

S. N	Name of the Bank	Study period	Observation
1.	Prabhu Bank Limited	2013-2023	10
2.	Nabil Bank Limited	2013-2023	10
3.	Everest Bank Limited	2013-2023	10
4.	Standard Charted Bank	2013-2023	10
5.	Nepal SBI Bank	2013-2023	10
6.	NMB Bank	2013-2023	10
Total Observations			60

The Model

Study employed linear multiple regression econometric model for examining the effect of explanatory variables on dependent variable bank profitability.

$$ROA_{it} = \beta_0 + \beta_1 CAR_{it} + \beta_2 BS_{it} + \beta_3 LIR_{it} + \epsilon_i \dots\dots\dots(i)$$

Where, β_0 is Constant, β indicates beta coefficient of each explanatory variables, LIR indicates lending interest rate, CAR is capital adequacy ratio and BS refers to bank size and ϵ_i implies error term of the model.

IV. Results and Discussion

This chapter is devoted to the analysis and presentation of secondary data. Data obtained from the annual report have been tabulated and analyzed to reach the findings. This chapter is undertaken as per the objectives of the study.

Descriptive Results

Table 2

Return on Assets (ROA) (in %)

Year/Bank	Nabil	EBL	SCBNL	NSBI	NMB	PBL	Average	SD
2013/14	2.58	2.20	2.51	1.51	1.36	(1.44)	1.45	1.37
2014/15	1.77	1.59	1.99	1.80	1.21	2.19	1.76	0.31
2015/16	2.21	1.52	1.98	1.70	1.54	1.64	1.76	0.25
2016/17	2.59	1.72	1.84	1.57	1.77	1.76	1.87	0.33
2017/18	2.36	1.78	2.61	1.97	1.66	0.83	1.87	0.56
2018/19	2.11	1.80	2.61	1.94	1.67	1.29	1.90	0.40
2019/20	1.46	1.36	1.71	1.17	0.95	0.71	1.23	0.33
2020/21	1.55	0.84	1.22	0.70	1.17	0.80	1.05	0.30
2021/22	1.01	1.08	1.83	1.07	1.29	0.82	1.18	0.32
2022/23	1.33	1.34	2.29	1.06	1.12	0.08	1.20	0.65
Average	1.90	1.52	2.06	1.45	1.37	0.87		
SD	0.52	0.37	0.42	0.41	0.26	0.96		

Note. Annual report of Banks complied by MS-Excel

Table 2 showed that Standard Chartered Bank Nepal Limited (SCBNL) stands out with the highest average ROA of 2.06, indicating that it is the most profitable bank in the group, efficiently generating profit from its assets. On the other hand, Prime Bank Limited (PBL) has the lowest average ROA at 0.87, suggesting it is the least effective in utilizing its assets to generate profit.

When considering the stability of returns, NMB Bank Limited (NMB) demonstrates the lowest standard deviation of 0.26, implying that its returns are the most stable and predictable among the banks listed. Conversely, PBL has the highest standard deviation at 0.96, reflecting

significant variability and volatility in its returns, thus indicating a higher risk profile.

Table 3

Capital Adequacy Ratio (CAR) (in %)

Year/Bank	Nabil	EBL	SCBNL	NSBI	NMB	PBL	Average	SD
2013/14	11.18	11.31	12.27	13.28	10.75	8.68	11.25	1.42
2014/15	11.57	13.33	13.10	14.03	11.13	10.61	12.29	1.25
2015/16	11.73	12.66	16.38	13.49	10.98	12.29	12.92	1.73
2016/17	12.42	14.69	21.08	15.71	13.61	11.18	14.78	3.18
2017/18	13.00	14.20	22.99	15.15	15.75	11.86	15.49	3.59
2018/19	12.50	13.74	19.69	14.12	15.43	11.16	14.44	2.70
2019/20	13.07	13.38	18.51	15.55	15.08	11.18	14.46	2.30
2020/21	12.77	12.48	17.17	13.86	15.08	13.10	14.07	1.62
2021/22	13.09	11.89	15.95	13.25	13.59	12.86	13.44	1.24
2022/23	12.54	13.31	17.09	12.58	13.33	11.87	13.45	1.70
Average	12.39	13.10	17.42	14.10	13.47	11.48		
SD	0.64	0.98	3.15	1.00	1.83	1.20		

Note. Annual report of Banks compiled by MS-Excel

As depicted in table 3 Standard Chartered Bank Nepal Limited (SCBNL) boast the highest average CAR at 17.42, indicating a robust capital buffer relative to its risk-weighted assets. This suggests that SCBNL is well-equipped to absorb potential losses and maintain solvency, enhancing its overall stability. However, SCBNL also exhibits the highest standard deviation at 3.15, reflecting significant variability in its CAR over the observed period. This fluctuation could be due to dynamic financial activities, capital restructuring, or adjustments in risk-weighted assets.

Conversely, Prime Bank Limited (PBL) has the lowest average CAR at 11.48. While still meeting regulatory requirements, this lower CAR indicates a thinner capital cushion compared to its peers, potentially exposing PBL to higher risks during financial stress or economic downturns.

From table 4, Nabil Bank presents a contrasting scenario with the lowest standard deviation of 0.64, suggesting the most stable and consistent CAR among the banks. This stability indicates effective capital management and steady compliance with regulatory capital requirements, ensuring a reliable capital buffer.

Nabil has the highest average bank size at 227 billion, indicating it is the largest bank among those listed, with the most substantial asset base or market presence. On the other hand, SCBNL has the lowest average bank size at 94 billion, suggesting it is the smallest bank in terms of size compared to the others, with a smaller asset base or market presence. Additionally, Nabil exhibits the highest standard deviation at 126, reflecting significant fluctuations in its size over time and indicating a higher level of instability. In contrast, SCBNL has the lowest standard deviation at 30, which implies that its bank size is relatively stable, showing less fluctuation and more consistency. Therefore, while Nabil stands out as the

largest bank with notable size variability, SCBNL is characterized by its smaller yet more stable size.

Table 4

Bank Size (BS) (Total Assets Rs. in billions)

Year/Bank	Nabil	EBL	SCBNL	NSBI	NMB	PBL	Average	SD
2013/14	90	70	53	61	30	21	54	23
2014/15	118	99	64	59	41	46	71	28
2015/16	127	113	65	78	75	68	88	24
2016/17	140	116	77	99	88	90	102	21
2017/18	169	144	84	102	111	116	121	28
2018/19	201	170	93	118	135	137	142	35
2019/20	237	185	116	132	179	167	169	39
2020/21	291	211	114	137	231	215	200	59
2021/22	419	225	123	153	255	232	235	95
2022/23	481	250	151	185	287	347	284	109
Average	227	158	94	112	143	144		
SD	126	56	30	39	86	94		

Note. Annual report of Banks complied by MS-Excel

Table 5

Lending Interest Rate (LIR) (%)

Year/Bank	Nabil	EBL	CBNL	NSBI	NMB	PBL	Average	SD
2013/14	10.16	10.11	9.31	9.95	9.10	13.58	10.37	1.49
2014/15	8.50	8.76	8.68	9.65	7.86	9.48	8.82	0.60
2015/16	8.08	6.94	6.86	8.53	7.16	7.45	7.50	0.61
2016/17	9.44	8.19	6.80	9.51	9.26	8.86	8.68	0.95
2017/18	11.36	9.89	11.14	11.94	10.78	10.46	10.93	0.65
2018/19	11.41	10.66	12.31	12.72	11.17	11.60	11.65	0.69
2019/20	10.98	10.51	11.52	12.10	10.95	11.04	11.18	0.50
2020/21	9.37	7.37	7.40	8.87	8.16	9.05	8.37	0.79
2021/22	10.28	8.62	8.40	9.81	9.55	11.71	9.73	1.10
2022/23	13.89	11.45	13.40	12.32	11.98	12.77	12.64	0.83
Average	10.35	9.25	9.58	10.54	9.60	10.60		
SD	1.60	1.42	2.24	1.48	1.51	1.81		

Note. Annual report of Banks complied by MS-Excel

Table 5 depicts that PBL has the highest average lending interest rate at 10.60%, indicating it charges the highest interest rates on loans among the banks listed. On the other hand, EBL has the lowest average lending interest rate at 9.25%, suggesting it offers the lowest rates

for borrowers.

Regarding variability, SCBNL has the highest standard deviation (SD) at 2.24, which means its lending interest rates fluctuate the most. In contrast, NSBI has the lowest standard deviation at 1.48, indicating its lending rates are the most stable among the banks listed.

Table 6

Descriptive Characterizes of Sample Banks

Variables	N	Minimum	Maximum	Mean	Std. Deviation
ROA	60	-1.44	2.61	1.52	.66
CAR	60	8.68	22.99	13.66	2.54
BS	60	23.78	26.90	25.53	.611
LIR	60	6.80	13.89	9.98	1.79

Table 6 showed that ROA has a minimum value of -1.44 and a maximum value of 2.61, with a mean of 1.52 and a standard deviation of 0.66, indicating moderate variability in the performance of assets. CAR ranges from 8.68 to 22.99, with a mean of 13.66 and a standard deviation of 2.54, reflecting a moderate spread in capital adequacy among the entities. Bank Size (BS) shows relatively low variability, with values ranging from 23.78 to 26.90, a mean of 25.53, and a standard deviation of 0.61. The Lending Interest Rate (LIR) varies from 6.80 to 13.89, with a mean of 9.98 and a standard deviation of 1.79, indicating some diversity in the lending interest rates across the dataset.

Correlation Analysis

Correlation is a widely used statistical measure for assessing the relationship between two variables. In this study, Karl Pearson’s Bivariate Correlation is utilized to examine the relationship between capital adequacy, bank size and lending interest rates (independent variables) on profitability (dependent variable). The result of the analysis is presented in this section.

Table 7

Correlations

Variables	CAR	BS	LIR	ROA
CAR	1	.055	.020	.365**
BS		1	.284*	-.131
LIR			1	-.177
ROA				1

Note. **. Correlation is significant at the 0.01 level (2-tailed). *. Correlation is significant at the 0.05 level (2-tailed).

The table 7 presents the Pearson correlation coefficients between various financial metrics, including capital adequacy ratio (CAR), bank size (BS), lending interest rate (LIR), and return on assets (ROA).

The correlation coefficient between CAR and ROA is 0.365, which is significant at the 0.01 level. There is a positive significant relationship between CAR and ROA. This suggests that higher capital adequacy ratios are associated with higher returns on assets.

The correlation coefficient between BS and ROA is -0.131. There is negative insignificant

relationship between BS and ROA. This indicates that larger bank sizes are slightly associated with lower returns on assets. However, the relationship is not statistically significant, suggesting that bank size does not have a substantial or reliable impact on ROA.

The correlation coefficient between LIR and ROA is -0.177. There is a negative correlation insignificant relationship between LIR and ROA. This suggests that higher lending interest rates are somewhat associated with lower returns on assets. However, this relationship is not statistically significant, indicating that variations in lending interest rates do not have a significant impact on ROA.

Regression Analysis

Multivariate linear regression model is used to examine the effect of explanatory variables on dependent variable profitability; the result of regression outcome is summarized in this section.

The results are based on data of six selected banks for the period of 2013/14 to 2022/23 leading to 60 observations. The model is $ROA_{it} = \beta_0 + \beta_1 CAR_{it} + \beta_2 BS_{it} + \beta_3 LIR_{it} + \epsilon_{it}$. The dependent variable is return on assets (ROA), and independent variables are capital adequacy ratio (CAR), bank size (BS) and lending interest rate (LIR).

Table 8

Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.422 ^a	.178	.134	.62177

a. Predictors: (Constant), LIR, CAR, BS

The model summary table provides key statistics for the regression model that predicts return on assets (ROA) using lending interest rate (LIR), capital adequacy ratio (CAR), and bank size (BS) as predictors.

The multiple correlation coefficient (R) is 0.422, which indicates a moderate positive correlation between the observed and predicted values of ROA. This value suggests that there is a relationship between the predictors and ROA, but it is not very strong.

The R Square value is 0.178, indicating that approximately 17.8% of the variance in ROA can be explained by the model’s predictors (LIR, CAR, and BS). This means that while the model does explain some of the variance in ROA, a large proportion (82.2%) of the variance is left unexplained by these predictors, suggesting that other factors may also influence ROA.

The Adjusted R Square value is 0.134. This adjusted value considers the number of predictors in the model relative to the number of observations and adjusts for the potential inflation of R Square when additional predictors are added. In this case, the adjusted R Square is slightly lower than the R Square, which often happens when the model contains predictors that do not contribute much to explaining the variance in the dependent variable.

Table 9

ANOVA

Model	Sum of Squares	Df	Mean Square	F	Sig.	
1	Regression	4.678	3	1.559	4.233	.015
	Residual	21.650	56	.387		
	Total	26.327	59			

a. Dependent Variable: ROA

b. Predictors: (Constant), LIR, CAR, BS

The ANOVA table 9 provides a statistical analysis of the model that predicts return on assets (ROA) using three independent variables: lending interest rate (LIR), capital adequacy ratio (CAR), and bank size (BS). The p-value is 0.015, which is less than the commonly used significance level of 0.05. This indicates that the overall regression model is statistically significant, meaning that at least one of the independent variables (LIR, CAR and BS) has a significant effect on ROA.

Table 10

Coefficients

Model	Unstandardized		Standardized		T	Sig	Collinearity Statistics	
	Coefficients		Coefficients				Tolerance	VIF
	B	Std. Error	Beta					
(Constant)	3.756	3.431		1.095	.278			
CAR	.099	.032	.344	3.180	.015	.997	1.003	
BS	-.117	.138	-.137	-.849	.399	.917	1.090	
LIR	-.067	.057	-.114	-3.020	.018	.919	0.888	

a. Dependent Variable: ROA

The coefficients table for the model predicting return on assets (ROA) reveals the impact of each predictor variable: capital adequacy ratio (CAR), bank size (BS), and lending interest rate (LIR). The collinearity statistics, with tolerance values close to 1 and VIF values well below 10, suggest that multicollinearity is not an issue in this model, ensuring the reliability of the coefficient estimates.

$$ROA = \beta_0 + \beta_1 CAR + \beta_2 BS + \beta_3 LIR + \text{error.}$$

$$ROA = 3.756 + .099 \text{ CAR} - .117 \text{ BS} - .067 \text{ LIR} + \text{error.}$$

The p-value of capital adequacy ratio (CAR) is less than 0.05 at 5 percent level of significance so it is inferred that there is a positive significant impact of CAR on ROA. The unstandardized coefficient for CAR is 0.099, suggesting that for each one-unit increase in CAR, the ROA increases by 0.099 units, assuming other variables are held constant. This indicates that a stronger capital base enhances profitability by providing greater financial stability, lowering funding costs, and enabling more profitable lending activities.

The p-value of bank size (BS) is more than 0.05. It implies that, at 5 percent level of

significance there is negative insignificant impact of BS on ROA. BS has an unstandardized beta coefficient of -0.117, implying that a one-unit increase in BS leads to a decrease in ROA by 0.117 units, assuming other variables remain constant. This suggests that changes in bank size do not have a meaningful effect on profitability, indicating that other factors may play a more critical role in determining the financial performance of banks.

The p-value of lending interest rate (LIR) is less than 0.05 at 5 percent level of significance so it implies that there is a negative significant impact of LIR on ROA. LIR has an unstandardized coefficient of -0.067, indicating that a one-unit increase in LIR results in a decrease in ROA by 0.067 units, assuming other variables remain constant. This surprising result might be due to an increase in borrower paying capacity and reduces the demand for loans, increase the risk of non-performing loans, or raise the cost of funding, all of which can adversely affect the bank's overall profitability.

According to regression analysis, capital adequacy ratio has a positive significant impact on ROA. This indicates that banks with a higher CAR, which reflects a stronger capital base and better risk management practices, tend to exhibit higher profitability as measured by ROA. These similar findings were drawn by Sunaryo (2020) concluded capital adequacy ratio (CAR) has a positive and significant effect on return on asset (ROA) on the commercial banks in Southeast Asia. Anggriani and Muniarty (2020) showed capital adequacy ratio has a significant effect on return on asset at PT. Bank Central Asia. This is contrary to Silaban (2017) as the study showed that the capital adequacy ratio (CAR) does not have a significant effect on bank profitability based on data from the Indonesian Stock Exchange. Capital Adequacy Ratio has a positive and insignificant effect on Return on Assets (Warsa & Mustanda, 2016).

Bank Size has a negative insignificant impact on the return on assets. This result is similar to the previous studies of Niresh and Velnanpy (2014), as study results showed that firm size has no profound impact on profitability of a firm. Tharu and Shrestha, (2019) proved that profitability (ROA) has not been significantly influenced by the size of the bank (Assets). This is contrary to Ayanda et al. (2013) revealed that bank size is a significant driver which affects bank profitability both in the long run and short run.

This study result showed that the lending interest rate has a negative significant impact on return on assets. As lending interest rates increase, the ROA tends to decrease during the observation period of fiscal year (2013/14 to 2022/23). This finding is similar to Ogunbiyi (2014) as study result, showed that maximum lending rate have negative and significant effects on the profitability of Nigerian deposit money banks as measured by return on assets. Likewise, Beni, Putra and Bariyah (2023) found loan interest rates had a significant effect on the return on assets of CUs in Indonesia. This finding is inconsistent with Poudel (2018) as result showed that the inter-bank interest rate has a positive impact on profitability.

V. Conclusion and Implication

Study result show that both capital adequacy and lending interest rate play significant roles in determining a bank's profitability, as measured by return on assets (ROA). The negative impact of higher lending interest rates suggests that banks need to carefully balance the costs of borrowing to maintain loan demand and minimize credit risk. On the other hand, the positive persuade of capital adequacy ratio underscores the importance of strong capital reserves in enhancing profitability and financial stability. While bank size shows a negative but statistically insignificant effect on ROA, it is clear that size alone does not resolutely affect profitability. Therefore, banks should focus on strategic interest rate management and maintaining robust capital reserves to optimize their financial performance.

The implications in this research study are based on the findings of the survey. Considering

the findings of the study, the following implications can be outlined;

Banks is supposed to focus on maintaining or increasing their Capital Adequacy Ratio (CAR) as it directly influences their profitability, particularly return on assets (ROA), through strategic decisions like enhancing their capital base via retained earnings, issuing new equity, or reducing risk-weighted assets. A stronger capital base can boost confidence in extending credit, potentially leading to a more aggressive lending strategy that increases interest income and improves ROA. However, banks must balance lending rates carefully, as higher rates can reduce loan demand or raise default rates, negatively impacting profitability. To mitigate the risk of defaults, robust risk assessment and management practices are necessary. Competitive interest rate strategies, including offering lower rates, can attract more borrowers, improve asset utilization, and enhance profitability. Further studies are needed to explore the impact of lending interest rates on profitability in Nepal, particularly comparing public and private commercial banks, and to investigate the negative effect of lending rates on ROA, possibly due to an increase in Non-Performing Loans (NPLs).

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