

## **Impact of Capital Adequacy on Profitability of Commercial Banks in Nepal**

**Joginder Goet**

Lecturer

Faculty of Management

Shanker Dev Campus, Kathmandu, Tribhuvan University, Nepal

Email: [goetj15@gmail.com](mailto:goetj15@gmail.com)

### **Abstract**

This paper explores the effect of several bank-specific variables including capital adequacy on the profitability of listed commercial banks operating in Nepal. Determinants of banks' profitability like ROA and ROE have been assessed by the panel data (21 observations) of 3 listed banks out of 27 banks. In this study, profitability has been quantified in terms of regulatory capital, operating efficiency, bank asset size, loan and advances, and shareholders' equity. This study found a significant correlation between net profit with shareholders' equity, Tire 1 capital, total capital, and loan and advance but an insignificant relationship with Tire 2 capital. Again, it has been shown that the credit deposit ratio has a significant impact on return on assets and others have not. Likewise, the shareholders' equity ratio and capital adequacy ratio have a significant impact but the credit deposit ratio has not on the return on equity of the banks.

*Keywords:* tire 1 and tire 2 capital, capital adequacy ratio, return on assets, return on equity

### **Introduction**

#### **Background of the Study**

Capital adequacy is a component in determining and assessing the banking sector's soundness. Commercial banks' core functions are to raise and utilize capital. As a result, commercial banks get vast sums of money from the general population. Depositors believe that putting their money in a bank is a safe bet. But what happens if the bank doesn't have enough capital to protect itself from future, unanticipated losses? As a result, a bank's capital must be adequate to safeguard its depositors and counterparties against credit and market risks. Otherwise, banks will spend all of the depositors' money for their benefit, and depositors would lose money (Maisel, 1982).

The Basel III reforms improve bank-level, or macro-prudential regulation, to increase individual financial institutions' resilience in times of stress. Furthermore, the changes have a macroprudential focus, tackling systemic risks that can accumulate across the banking sector.

These new global regulatory and supervisory standards mainly seek to raise the quality and level of capital (Pillar 1) to ensure that banks are better able to absorb losses on both a going concern and a gone concern basis, increase the risk coverage of the capital framework, introduce leverage ratio to serve as a backstop to the risk-based capital measure, raise the standards for the supervisory review process (Pillar 2) and public disclosures (Pillar 3), etc. The macro-prudential aspects of Basel III are largely enshrined in the capital buffers. The buffers, i.e., the capital conservation buffer and the countercyclical buffer, are intended to protect the banking sector from periods of excess credit growth (NRB,2016). The Basel accord is a key guiding framework for regulatory capital requirements in the banking industry all around the world, including Nepal. Recognizing the importance of capital in ensuring the safety and soundness of banks and the banking system as a whole, Nepal Rastra Bank (NRB) developed and implemented capital adequacy requirements based on international best practices, with appropriate customization based on domestic market conditions. The NRB has already announced the Basel III implementation action plan and stated its desire to embrace the Basel III framework, although in a reduced version, to adopt worldwide best practices (Khatiwada, 2003).

### **Statement of the Problem**

All financial institutions must maintain proper liquidity levels to sustain continuity, therefore profitability is a major goal. They are a vital source of information. The ability to generate capital is essential. Banks will be unable to attract external money to enhance their investments and co-existence with competitors if profits are not generated. Profitability helps to enhance bank deposit holders and potential investors' trust, as well as attract capital shareholders to participate in the bank, and it is also used as a measure of the bank's management's success. Give regulators solid indicators that the bank is on the correct track, as well as an indication of the bank's management's ability to direct initiatives. It is also a measure of the bank's management's performance in terms of investment, operational, and finance policies (Almazari & Alamri, 2017).

However, there appears to be a disconnect between correctional and causal capital adequacy studies. In any economy's banking industry, capital adequacy examination is extremely important. However, the majority of these banks are struggling to strike a balance between capital adequacy and profitability. More elements impacting the bank's profitability include administrative and financial solvency, and the research problem may be summarized as follows:

- What is the relation of net profit with shareholder's equity, tier 1 capital, tier 2 capital, total capital, loan, and advance of the sample banks?
- What is the impact of capital adequacy on the profitability of sample banks?

### **Research Objectives**

The main objectives of the study are to examine the relationship and impact of capital adequacy and profitability of NSBIL, HBL, and EBL, and the specific objectives are as follows:

- To explore the relationship of shareholder's equity, tier 1 capital, tier 2 capital, total capital, loan, and advance with a net profit of NSBIL, HBL, and EBL.
- To evaluate the impact of shareholder's equity ratio, total capital ratio, and CD ratio on ROA and ROE of NSBIL, HBL, and EBL

### **Research Hypothesis**

H<sub>1</sub>: There is a significant relationship between shareholder's equity, tier 1 capital, tier 2 capital, total capital, loan, and advance with a net profit of sample banks

H<sub>2</sub>: There is a significant impact of shareholder's equity ratio, total capital ratio, and credit deposit ratio on return on asset and return on equity.

### **Research Limitation**

Only three commercial banks out of 27 commercial banks in Nepal are taken as the sample for the study. The data extracted from the published annual financial reports of sample banks and the reliability of the data depends on the same report. Only Return on Assets (ROA) and Return on Equity (ROE) are used in this study.

### **Significance of the Study**

The main objective of this research is to look at the impact of capital adequacy on commercial bank profitability to emphasize the role that these banks play in bolstering the profitability of the Nepalese banking system. This research will assist a variety of companies, people, researchers, and institutions in maintaining their assets and achieving the highest potential return in exchange for bearing the least amount of risk.

### **Review of Literature**

Tier 1 capital is the total of common equity Tier 1 and extra Tier 1 capital, while Tier 2 capital is the sum of Tier 1 and Tier 2 capital (Nepal Rastra Bank, 2018). Capital adequacy, according to Clark (1999), is a legal requirement that a financial organization (such as a bank) have sufficient capital to satisfy all of its commitments and support the services it provides. Capital is enough when it decreases the likelihood of an institution's future bankruptcy to a predetermined level, or when the premium paid by banks to an insurer is 'fair,' that is, when it

completely covers the insurer's risks. Such risks, in turn, are dependent on the risk in the bank's portfolio, its capital, and the conditions of the insurance when insolvency is confirmed and a loss is paid (Maisel, 1982). The profit is simply the amount of money earned from a sale that exceeds the amount invested. It provides resources to invest in future operations, hence its absence must result in a reduction in effective capital resources and, eventually, the business's competitive extinction (Seth, 1998). Profitability refers to a company's capacity to generate revenue. It's a vital part of the bank's value generation and a crucial step toward maximizing shareholder wealth. Previous research has utilized the return on assets (ROA), which is calculated by dividing a bank's net income by its total assets, and ROE as the major indicator of profitability (Akhtar et al., 2011; Abbas et al., 2014; Gizaw et al., 2015). Naceur (2003); Aremu et al. (2013) utilized net interest margin as an alternate metric.

One of the key goals of a commercial bank, according to Pradhan (2013), is to protect depositors' money. Because capital accounted for such a small percentage of overall risk-weighted assets, banks traditionally borrowed from depositors' funds. The returns to the stockholders or promoters, on the other hand, were fairly considerable. The depositors' risk was excessive. Pandey went on to say that a strong banking system is a must for sustaining the country's financial stability. And NRB's efforts in this area are very commendable. Banks retain capital over reserve requirements, according to Willam (2014), to offer a buffer against potential unexpected losses. The credit, market, and operational risks inherent in the business of lending money cause such losses. To protect depositors and preserve the financial system's long-term survival, bank regulators impose minimum capital requirements on banks. According to Almazari and Alamri (2017), SABB bank has a low positive association between ROA and ROE and a strong positive correlation between ROA and CCA, ECA, TCA, CIR, and DE. ROA has a weak negative association with TRC, BS, AG, and AL. CCA, ECA, TCA, TRC, and BS all have a favorable association with ROE. ROE has a negative association with CIR, AG, AL, and DA. Furthermore, SAMBA Bank has a strong positive association between ROA and ROE, as well as a good correlation between ROA and DE. ROA has a negative association with CCA, ECA, TCA, CIR, TRC, BS, AG, and AL. ROE and CIR, DE have a positive relationship, while CCA, ECA, TCA, TRC, BS, AG, and AL have a negative association. Muralidhara and Lingam (2017) examined the performance of several of India's nationalized banks. Using weight age approaches, the performance of five nationalized banks is examined in terms of capital sufficiency, asset quality, managerial efficiency, earning potential, and liquidity management. The study discovered that the banking system is one of the most essential trade aids in today's economic world; no firm can exist without the involvement of the banking system. To bring about improvements in the present system, banks must now assess their performance and the efficiency of other banks. Slam and R. M (2018) sought to assess and compare the banking sector's performance in Bangladesh. The CAMELS rating system

(essentially a quantitative approach) has been used to assess banks depending on their performance. It is one of the most successful supervision tools. The average Capital Adequacy Ratio of all banks is determined to be much higher than the Bangladesh Bank-mandated guideline of 10%. City Bank has the highest average CAR (12.90 percent) of all the banks. Because City Bank's NPLs (6.94 percent) are substantially greater than those of other banks, Bangladesh Bank should monitor the bank and recommend remedial actions to avoid possible losses from increased NPLs. Eastern Bank has the greatest profit per employee (PPE), implying that its efficiency is significantly better than that of other banks. When looking at the profitability ratios, it can be seen that One Bank's profitability is excellent on average when compared to other banks over a lengthy period. Okaford, Ikechuwku, and Adebimpe (2018) are interested in determining how the recapitalization of new banks for capital adequacy might enhance bank performance. According to the findings, the Central Bank of Nigeria has a responsibility to preserve and instill confidence in all banks' depositors and creditors by maintaining capital sufficient to withstand losses and financial shortfalls. Ramadhanti, Marlina, and Hidayati (2019) investigated the impact of capital adequacy as measured by the capital adequacy ratio (CAR), liquidity as measured by the loan to deposit ratio (LDR), and credit risk as measured by nonperforming loans (NPL) on profitability as measured by the return on asset (ROA). The study found that capital adequacy (CAR) has a major positive influence on profitability (ROA), liquidity (LDR) has a positive and significant effect on profitability (ROA), and credit risk (NPL) has a negative and significant effect on profitability (ROA). Bhatt and Jain (2020) looked at return on equity as a measure of profitability, using short-term debt, long-term debt, deposits, and total debt to assets ratio as capital structure factors, as well as bank size and asset growth as control variables. The regression model created in this capital structure and profitability indicators of banks discovered that profitability is highly positively associated with bank size, implying that the larger the bank, the better the return to shareholders. Other financial studies indicated that the explanatory capital structure factors may predict more than 40% of bank profitability as assessed by return on equity. Return on equity is also shown to be insignificantly favorably connected to long-term debt and deposits, but insignificantly negatively related to short-term debt and total debt.

### **Research Methods and Materials**

The purpose of the study is to answer “Is there a significant relationship between different variables as well as is there a significant impact of shareholder’s equity ratio, total capital ratio, and credit deposit ratio on return on equity and return on the asset? It describes, to significant users, how hypotheses were tested and the basis for which conclusions were drawn. This research work borders on the association of shareholder’s equity, tier 1 capital, tier 2 capital, and total capital with net profit and effects of SER, CAR, and CDR on ROA and ROE

of NSBIL, HBL, and EBL in Nepal. This study has used correctional and causal research design to test the objective of the study. It relies upon discretionary data that is collected from yearly reports of picked banks. Nepal SBI Bank Limited, Himalayan Bank Limited, and Everest Bank Limited have been taken as sample banks for the study. The banks have been chosen as a purposive technique out of twenty-seven commercial banks in Nepal. The study has used seven years of data for analysis.

### Results and Discussion

The relationship between Shareholder's Equity, Tire 1 Capital, Tier 2 Capital, Total Capital, Loan and Advance, and Net Profit of SBI, HBL, and EBL are calculated in this part of the analysis.

Another part of the analysis tries to evaluate the impact of tier 1 capital ratio and tier 2 capital on ROA and ROE of SBI, HBL, and EBL through regression analysis, where dependent variables are ROA and ROE and independent variables are shareholders' equity ratio, capital adequacy ratio, and CD ratio

**Table 1**

*Correlation Analysis Table*

Correlation	Coefficient	t-calculated	p-value	Sig. Level	Remarks
Net Profit and Shareholder's Equity	0.9381	11.8104	0.0000	0.0500	Significant
Net Profit and Tire 1 Capital	0.9183	10.1078	0.0000	0.0500	Significant
Net Profit and Tier 2 Capital	0.2861	1.3015	0.2086	0.0500	Insignificant
Net Profit and Total Capital	0.7107	4.4041	0.0003	0.0500	Significant
Net Profit and Loan and Advance	0.9590	14.7446	0.0000	0.0500	Significant

*Note.* Researcher Computed, using EViews software.

Table 1 depicts the correlation between shareholder's equity, tier 1 capital, tier 2 capital, total capital, and loan and advance of NSBIL, HBL, and EBL with net profit are 0.9381, 0.9183, 0.7107, and 0.9590 respectively which all are high degree positive correlation showing the fact that the variables have same direction changing relation and the coefficients are significant in the population at 5 percent level of significance since the p-values calculated for the coefficient are less than 0.05. These significant coefficients indicate that the relation of net profit with shareholder's equity, tier 1 capital, total capital, and loan, and advance of sample banks shows significant relation in the same variables of a population. On the other hand, the positive correlation between net profit and tier 2 capital of the banks i.e., 0.2861 is not significant in the population at a 5 percent level of significance.

**Table 2***Regression Analysis for Dependent Variable ROA*

Dependent Variable: ROA				
Included observations: 21				
Variable	Coefficient	Std. Error	t-Statistic	Prob.
Constant	0.0019	0.0043	0.4415	0.6644
Shareholder's Equity Ratio	0.0251	0.0318	0.7899	0.4404
Capital Adequacy Ratio	0.0026	0.0102	0.2549	0.8018
Credit Deposit Ratio	0.0156	0.0064	2.4349	0.0262
R-squared	0.4351			
S.E. of regression	0.0024			
F-statistic	4.3643			
Prob(F-statistic)	0.0188			

*Note.* Researcher Computed, using EViews software.

Table 2 presents the regression analysis result for the dependent variable ROA and independent variables shareholders equity ratio, capital adequacy ratio, and credit deposit ratio of SBI, HBL, and EBL over the study period. The R-squared value of the regression is 0.4351 which means that a 43.51percent change in the ROA of the banks is affected by the shareholders' equity ratio, capital adequacy ratio, and credit deposit ratio of the bank, and the remaining 56.49 percent change in ROA is affected by other variables which are not included in the regression. Since the p-value of f-statistics of the regression line is less than 5 percent i.e., 0.0188, the regression coefficient i.e., R-squared 0.4351 is significant at a 5 percent level of significance. The beta coefficient of shareholder's equity ratio, capital adequacy ratio, and credit deposit ratio are 0.0251, 0.0026, and 0.0156 respectively, which shows that the ROA of the banks is positively associated with shareholder's equity ratio, capital adequacy ratio, and credit deposit ratio. Since, the p-value of the coefficient of credit deposit ratio i.e., 0.0262 is less than the 5 percent level of significance, the coefficient is significant at 5 percent. But the p-values of the coefficients of shareholder's equity ratio and capital adequacy ratio are not less than the 5 percent level of significance the coefficients are not significant.

**Table 3***Regression Analysis for Dependent Variable ROE*

Dependent Variable: ROE				
Included observations: 21				
Variable	Coefficient	Std. Error	t-Statistic	Prob.
Constant	0.2861	0.0498	5.7414	0.0000
Shareholder's Equity Ratio	-0.9263	0.3659	-2.5309	0.0215
Capital Adequacy Ratio	0.2559	0.1171	2.1858	0.0431
Credit Deposit Ratio	-0.0448	0.0737	-0.6081	0.5512

R-squared	0.4286
S.E. of regression	0.0271
F-statistic	4.2511
Prob(F-statistic)	0.0206

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*Note.* Researcher Computed, using EViews software.

Table 3 presents the regression analysis result for the dependent variable ROE and independent variables shareholders equity ratio, capital adequacy ratio, and credit deposit ratio of SBI, HBL, and EBL over the study period. The R-squared value of the regression is 0.4286 which means that a 42.86 percent change in the ROE of the banks is affected by the shareholders' equity ratio, capital adequacy ratio, and credit deposit ratio of the bank, and the remaining 57.14 percent change in ROE is affected by other variables which are not included in the regression. Since the p-value of f-statistics of the regression line is less than 5 percent i.e., 0.0206, the regression coefficient i.e., R-squared 0.4286 is significant at a 5 percent level of significance. The beta coefficient of shareholder's equity ratio, capital adequacy ratio, and credit deposit ratio are -0.9263, 0.2559, and -0.0448 respectively, which shows that the ROE of the banks is positively associated with capital adequacy ratio and negatively associated with shareholders' equity ratio and credit deposit ratio of the banks. Since, the p-values of the coefficient of shareholders' equity ratio and capital adequacy ratio i.e., 0.0215 and 0.0431 are less than 5 percent level of significance, the coefficients are significant at 5 percent. But the p-value of the coefficient of credit deposit ratio is not less than the 5 percent level of significance, the coefficient is not significant.

### **Conclusion**

The results reveal that there is a positive correlation between shareholder's equity, tier 1 capital, total capital, and loan and advance of the banks with net profit which all are a high degree of positive correlation showing the fact that the variables have the same direction changing relation and the coefficients are significant in the population at 5 percent level of significance since the p-values calculated for the coefficient are less than 0.05. These significant coefficients indicate that the relation of net profit with shareholder's equity, tier 1 capital, total capital, and loan, and advance of sample banks shows significant relation in the same variables of a population. On the other hand, the positive correlation between net profit and tier 2 capital of the banks is not significant in the population at a 5 percent level of significance. ROA of the banks is positively associated with shareholder's equity ratio, capital adequacy ratio, and credit deposit ratio, and ROE of the banks is positively associated with capital adequacy ratio and negatively associated with shareholder's equity ratio and credit deposit ratio of the banks.

## Implications

This research is to look into the impact of capital adequacy on profitability. It emphasizes the importance of these institutions in bolstering the Nepalese banking system's profitability. A variety of companies, individuals, researchers, and institutions will benefit from this research.

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