CAPITAL ADEQUACY AND ITS IMPACT ON PROFITABILITY OF COMMERCIAL BANKS IN NEPAL

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By

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1. Background of the Study

A commercial bank is a financial entity that takes in deposits, provides checking account services, extends diverse loans, and offers fundamental financial products such as certificates of deposit and savings accounts to individuals and small enterprises. It serves as the primary banking avenue for most individuals. Commercial banks generate revenue by offering loans, including mortgages, auto loans, business loans, and personal loans, and earning interest on them. The capital required for making these loans is sourced from customer deposits.

The difference between a bank's assets and liabilities is known as bank capital, and it tells investors how much the bank is worth or its equity value. Cash, government securities, and interest-earning loans (such as mortgages, letters of credit, and interbank loans) make up the asset element of a bank's capital. A bank's loan-loss reserves and outstanding debt are included in the liabilities component of its capital. The amount that creditors would be paid if a bank were to liquidate its assets is what is known as the bank's capital (Hayes, 2020).

The Basel III modifications strengthen macro-prudential, or bank-level, regulation to boost the stress-resilience of specific financial institutions. Moreover, the modifications are centered on macro-prudential measures, addressing systemic risks that may accrue throughout the financial industry.

In order to ensure that banks are better able to absorb losses on both a going concern and a gone concern basis, these new global regulatory and supervisory standards primarily aim to raise the quality and level of capital (Pillar 1), increase the risk coverage of the capital framework, introduce leverage ratio as a backup to the risk-based capital measure, raise the standards for the supervisory review process (Pillar 2), increase public disclosures (Pillar 3), etc. The capital buffers are essentially where Basel III's macro-prudential elements are contained. The purpose of the buffers, which include the countercyclical buffer and the capital conservation buffer, is to shield the banking industry from spurts in loan expansion (NRB, 2016). A major framework that directs the regulatory capital requirements in the banking sector globally, including in Nepal, is the Basel accord. Realizing that capital is essential to maintaining the safety and soundness of banks and the banking system overall, Nepal Rastra Bank (NRB) created and enforced capital adequacy standards based on global best practices, appropriately tailoring them to the specifics of the local market. In order to

adopt global best practices, the NRB has already declared its intention to adopt the Basel III framework, albeit in a scaled-down form, and to publish the Basel III implementation action plan (Khatiwada, 2003).

According to Chishty (2011), the Capital Adequacy Ratio (CAR) serves as an indicator of a bank's capital strength. It is represented as a percentage of the bank's risk-weighted credit exposures and is alternatively referred to as the Capital-to-Risk-Weighted Assets Ratio (CRAR). The primary purpose of CAR is to safeguard depositors and enhance the stability and efficiency of global financial systems. Capital is categorized into two types: tier one, capable of absorbing losses without necessitating the cessation of trading, and tier two, designed to absorb losses in the event of winding-up, offering a lower level of protection to depositors. The Capital Adequacy Ratio functions as a safeguard against excessive leverage and insolvency, ensuring banks remain financially sound. Its precise definition is the proportion of capital to current liabilities and risk-weighted assets (RWA) in a bank. RWA is a statistic used to evaluate the risk attached to a bank's assets, ascertain the bank's capacity to fulfill its obligations on time, and control a variety of hazards, including credit, market, and operational risk.

In the context of Nepal as per existing policy, there are four types of financial institution. These are licensed by NRB and classified as A for commercial banks, B for development banks, C for financial companies and D for micro finance institution. Commercial banks in Nepal cab are categorized as public, private and joint ventures. Their main job is to accept deposits from the surplus user of fund and to available the fund to the deficit user of fund as a loan. Now there are 20 commercial banks, 17 development banks, 17 finance companies and 65 micro finance institutions in Nepal. As well as these banks are provides remittance, card facility, letter of credit, bank guarantee and soon.

The notion of capital adequacy entails the necessity for banks to maintain a satisfactory amount of capital to safeguard them from insolvency. Consequently, the capital must be adequate to shield both the bank's deposits and counterparties from potential risks.

2. Problem Statement

Appropriate capital composition is advantageous for every business entity, as long-term profitability hinges on its capital structure among other factors. Depositors entrust their funds to banks for security. As of February 2021, banking and financial statistics indicate that the total amount deposited in various banks across the country is Rs. 3,809 billion. However, a crucial question arises: in the event of a bank's bankruptcy, what happens to the deposited funds of the customers? Therefore, it is imperative to maintain a sufficient capital fund to safeguard the deposits of the customers. A fresh set of directions consisting of twenty-one components has been sent to commercial banks by the Nepal Rastra Bank (NRB). The first of these directives deals with the capital adequacy standards that commercial banks must follow. The total risk-weighted assets are the basis for calculating the capital adequacy ratio. Commercial banks must keep a minimum of 11% total capital, including the conservation buffer, and 6% core capital, according NRB guidelines (NRB, 2015).

The primary focus of banking regulators globally revolves around ensuring the safety of depositors and a significant achievement in the financial sector has been the upward revision of banks' capital bases. Banks play a crucial role by offering both liquid and relatively low-risk savings options, as well as providing flexible credit to households, businesses, and governments. They also contribute to the payments system by offering essential forms of exchange, such as demand deposits (Chishty, 2011).Capital adequacy pertains to the quantity of equity capital and other securities that a bank maintains as reserves against risky assets, serving as a safeguard against the potential failure of the bank. The assessment of capital adequacy is employed to ascertain whether a bank possesses sufficient capital to support the risks inherent in its balance sheet, acting as a measure to mitigate solvency issues. Nevertheless, evaluating capital adequacy for precautionary purposes presents challenges due to the dynamic nature of the economic and financial services industry. Regulators commonly utilize capital levels to restrict credit expansion, highlighting why bank management is motivated to examine the correlations between variables such as total credit loans, demand deposits, inflation rates, political instability, money supply, liquidity risk, and investments (Agbeja, 2015).

Every area of the financial industry faces difficulties, which have an effect on how the deposit mobilization market in Nepal's banks develops and grows. The provisions for capital adequacy may differ in different years due to changes in political, economic, and financial conditions, government regulations, risky business practices, ownership and control by management, and other environmental factors.

The research queries are tackled in the subsequent manner:

1. What is the capital sufficiency status of commercial banks in Nepal?
2. Is there relationship between factors of capital adequacy with profitability of commercial banks?
3. How do capital adequacy, debt-equity, non-performing loan, government security, and loan and advance impact on ROA and ROE?

3. Objectives of the Study

This study's main goal is to evaluate, analyze, and interpret the capital adequacy plans that selected commercial banks have put in place. Since its founding, NRB has taken a leading role in a number of projects aimed at promoting the growth of the banking and financial industries. It has issued a number of directives pertaining to oversight, monitoring, and regulation. This study places a special emphasis on the examination of capital adequacy and how it affects profitability. Furthermore, the study contrasts the chosen commercial banks' profitability results as determined by Return on Equity (ROE) and Return on Assets (ROA). The following is a summary of the study's particular goals:

1. To evaluate the capital sufficiency status of commercial banks in Nepal.
2. To examine the relationship between factors of capital adequacy with profitability.
3. To analyze Capital Adequacy, Debt-equity, non-performing loan, Government security, and Loan and Advance impact on ROA and ROE?

4. Rationale of the Study

Banks serve as a crucial backbone to the financial sector, facilitating the efficient utilization of a country's financial resources. The banking sector is experiencing significant growth, attracting substantial investments. Sundararajan (2002) contends that the financial system, particularly banks, is increasingly exposed to a range of complex

risks. Evaluating the financial supervisory framework's overall effectiveness is critical to managing the complex mix of risks that the banking system faces in an efficient, responsible, and long-lasting manner. The NRB's capital adequacy framework is one example of a measure seen in the supervisory data. The research findings provide significant insights into how deposit mobilization in the banking sector of Nepal might be improved through a variety of approaches, as explained below:

1. Policy planners and decision-makers in the banking industry and other financial sectors should find this research to be significant.
2. This research serves as a valuable resource for future research and reference purposes.
3. This study provides a comprehensive overview of the Nepalese financial sector and the NRB regulations pertaining to commercial banks, guiding them in risk mitigation.
4. It examines the extent to which banks adhere to different policies and legislations governing the financial sector.
5. This study assists customers in identifying the banks that provide the highest levels of customer satisfaction, aiding them in making informed decisions about where to entrust their money.
6. It assists the management of different banks in identifying areas where they lag behind and areas where they excel.

5. Limitations of the Study

In addition to the outlined methodology and strengths, there exist certain limitations that cannot be disregarded. The study faces constraints due to limited resources, making it challenging for the researcher to explore new facets. The primary limitations include the reliability of the statistical tools employed and a deficiency in research experience. Additionally, several other limitations are identified as follows:

1. This study focuses solely on indicators specific to individual firms, particularly those associated with the capital adequacy of Nepalese commercial banks. It does not take into account macroeconomic indicators such as GDP and inflation.

2. Only four Nepalese commercial banks named as sample are considered for the study. Similarly, time period from FY 2012\13 to 2021\22 are included.
3. In the analysis and presentation of data, only a selection of key financial and statistical tools, such as correlation and regression, are employed.
4. Several factors impact the profitability of a commercial bank; nonetheless, this study primarily concentrates solely on the aspect of capital adequacy.

6. Brief Review of the Literature

Quoc and My (2023) examined, 'Bank Capital and Bank Profitability of Vietnam Commercial Banks.' This study demonstrates the significance of the commercial banking system in terms of delivering capital to enterprises and other organizations; hence, bank capital is a topic of significant interest to a wide range of economic disciplines. Vietnam is a developing nation; therefore this stance is even more important given how little the corporate bond market is in relation to the size of the economy. Because it directly affects how effectively money is delivered to businesses and the stability of the market, commercial bank business efficiency is an issue that needs to be addressed. Data from 22 Vietnamese commercial banks was collected between 2011 and 2020 for the research study on the impact of bank capital on bank profitability. Pooled OLS, FEM, REM, and GMM techniques were used in the data collection process. The findings indicate that there is a negative correlation between bank capital and profitability. Bank size, capital adequacy ratio, credit risk, and credit growth all have a favorable impact on bank profitability. The country of Vietnam, whose financial system is primarily dependent on banks, has changed its capital management direction in accordance with Basel 2 guidelines and is getting ready for Basel 3 standards. This study offers a new understanding of the relationship between bank capital and bank profitability in Vietnam and suggests implications for the governance solutions of Vietnamese commercial banks.

Goet (2022) explored, 'Impact of Capital Adequacy on Profitability of Commercial Banks in Nepal.' This study investigated how the profitability of listed commercial banks operating in Nepal was impacted by a number of bank-specific factors, such as capital sufficiency. The panel data (21 observations) of 3 listed banks out of 27 banks has been used to evaluate

factors that affect banks' profitability, such as ROA and ROE. The present investigation has employed regulatory capital, operating efficiency, bank asset size, loan and advance, and shareholders' equity as metrics to measure profitability. This study discovered a negligible link with Tire 2 capital but a strong correlation with shareholders' equity, Tire 1 capital, total capital, and loan and advance. Once more, it has been demonstrated that some factors significantly affect return on assets, while others do not. Similarly, the return on equity of the banks is greatly impacted by the capital adequacy and shareholders' equity ratios, but not by the credit deposit ratio.

Bhattarai (2021) examined, 'Capital Adequacy Ratio and Financial Performance of Commercial banks in Nepal.' The purpose of this study is to evaluate the relationship between financial performance metrics such as return on equity and return on assets and the influence of capital sufficiency ratios, such as core, supplemental, and total capital fund ratios. It has also concentrated on how Nepal's commercial banks' financial performance is affected by their capital adequacy ratio. In this study, a descriptive and informal comparative research design was employed. It is predicated on data from secondary sources. The information was gathered from the annual audit reports of twenty-six out of twenty-seven commercial banks for the fiscal years 2012–2013 and 2018–19. The reason for Rastriya Banijya Bank's exclusion from this study is that their yearly audit report is not available. There were 182 observations in all. In this study, statistical procedures such as mean range, standard deviation, coefficient of variation, correlation analysis, and regression analysis were employed. In contrast to return on equity, this study shows that return on equity is rather erratic. When compared to the core capital ratio, supplemental capital is widely distributed. The return on assets and the core and supplemental capital ratios have a weakly positive correlation. Low levels of inverse relationships exist between return on equity and core capital, but low levels of positive relationships exist between return on equity and supplemental capital. Return on equity and return on assets are positively impacted by both the core capital ratio and the total capital fund ratio.

Olarewaju and Akande, (2020) investigated on the title ‘An Empirical Analysis of Capital Adequacy Determinants in Nigerian Banking Sector.' This study indicates adequacy of capital in banks immediately affects the quantity of funds available for loans distribution

which invariably affects their risk appetite, efficiency and stability. This study looks at the factors that affect capital adequacy in listed deposit money banks in Nigeria between 2005 and 2014. Panel regression with both fixed and descriptive effects is used in the study. For each of the determined factors of capital adequacy, the descriptive analysis reveals that the mean and median values are within the minimal values, and the standard deviation indicates the projected growth rate deviation. In assessing the degree of capital adequacy among Nigeria's deposit money banks, a direct relationship between ETA, ROA, and SIZ as well as an inverse linear relationship between ROA, CR, DEP, and LIQ are found to be statistically significant based on the analysis of panel data using Cross-Sectional Specific fixed effect estimations. The report suggests that in order to attain viability, sustainability, and stability over the long term, all of these impacted institutions should step up and increase their investments in the important areas that can improve their capital adequacy.

Gautam (2019) examined, 'Impact of Capital Adequacy and Bank Operational Efficiency on Profitability of Nepalese Commercial Banks.' Regression with both fixed and descriptive effects was utilized to examine the data. Panel data from nine commercial banks that functioned in Nepal between 2007/2008 and 2016/2017, totaling ninety observations, were used in the study. Return on asset is the dependent variable, whereas the capital adequacy ratio, operational effectiveness, loan to deposit, bank size, and equity ratio are the independent factors. According to the study, the profitability of the sampled commercial bank has a positive significant relationship with EQR and a negative significant relationship with CAR and OEOI.

Malimi (2017) investigated, 'The Influence of Capital Adequacy, Profitability, and Loan Growth on Non-Performing Loans a case of Tanzanian Banking Sector.' The study's two main goals are to comply with prudential requirements for capital adequacy and non-performing loan ratios and to analyze the effects of capital adequacy, profitability, and loan growth on non-performing loans. For the purposes of this analysis, banking sector ratios as provided by the Bank of Tanzania, the supervisory authority, were employed. According to the banking sector ratios, Tanzanian commercial banks had strong capital adequacy ratios that were higher than the 10% minimum stipulated by the Bank of Tanzania. The banking industry, however, fell short of the 5% criteria for non-performing loans. However, when the

effects were examined using regression analysis, it was discovered that while the loan to asset ratio and interest margin had a considerable impact, the capital adequacy profitability had little effect on non-performing loans.

Agbeja (2015) investigated the relationship between 'Capital Adequacy Ratio and Bank Profitability in Nigeria.' The study aimed to assess the impact of capital adequacy ratio on bank profitability, analyze the influence of loans and advances on bank profitability, and examine how capital adequacy ratio affects banks' exposure to credit risk. The research relied on secondary data obtained from the financial statements of five selected commercial banks over a five-year period. The study found a positive and significant correlation between capital adequacy and bank profitability, suggesting that banks with higher equity capital are perceived as safer, translating into increased profitability. The recommendation included a continuous review of the minimum capital requirement for deposit money banks in Nigeria to optimize the level. Additionally, it proposed capitalizing Nigerian banks to provide them access to more affordable funding sources, leading to improved profit levels. Such measures were seen as crucial for maintaining public confidence in banks, enabling them to meet customers' credit needs, and safeguarding depositors' funds.

Chishty (2011) studied on the title ‘The Impact of Capital Adequacy Requirements on Profitability of Private Banks in India.' This research investigates the compliance of banking institutions with the Basel accord, which mandates the maintenance of a capital adequacy ratio of 8 percent on a regular basis. The capital held in accordance with this ratio is intended to ensure the secure operation of banks, providing a buffer against unforeseen losses and generating consistent income through investments in Reserve Bank of India (RBI) and other government securities. However, as the required deposit with the regulator limits the expansion of institutions' lending activities, it may consequently impact the profitability margins of the banks. The study seeks to quantify this impact, and the findings align with the hypothesis that there is no significant influence of capital adequacy, non-interest income, and net interest income on the profitability of private commercial banks. Various financial ratios are employed, and multiple regression analyses support the assertion of the null hypothesis.

7. Research Methodology

Research methodologies applied by researcher is shown in the study. It includes research design, population, sampling methods, sample size, data collection instruments, and processing procedures.

7.1 Research Design

The research design constitutes the structured plan and approach for conducting an investigation, formulated to yield responses to specific inquiries while managing variations. In this study, the analysis is grounded in a particular research design, aligning with the study's objectives. Research design typically refers to a systematic method and technique that guides a comprehensive exploration of research feasibility. The primary goal of this study is to examine the impact of capital adequacy on the profitability of Nepalese commercial banks. Descriptive and causal-comparative research designs have been employed, with a focus on a detailed examination of the collected data from profit and loss accounts and balance sheets (i.e., financial statements) spanning a decade. The data obtained from banks are organized in tabular form, covering a ten-year period. The analysis involves the application of diverse statistical and financial tools to derive meaningful results.

7.2 Population Sample and Sampling Method

The study encompasses the entire set of commercial banks operating in Nepal, totaling 20 establishments with branches situated across various regions of the country. From this population, four prominent commercial banks have been chosen as a sample, selected based on their founding dates falling within the period from 2022 to 2013. This sample accounts for 20% of the overall population of commercial banks in Nepal. The research employs the convenience sampling method. The selected banks for this study are as follows:

1. Himalayan Bank Limited
2. Nepal SBI Bank Limited
3. Everest Bank Limited
4. Machhapuchhre Bank limited

7.3 Source of Data

In line with the study's objective, secondary data is employed, focusing on sources such as balance sheets, profit and loss statements, etc. These data are sourced from the annual reports of the chosen commercial banks, complemented by structured document reviews. Primary data sources include the annual reports of the selected sample banks and reports from Nepal Rastra Bank (NRB). Additionally, information is supplemented through various publications from the Nepal Stock Exchange (NEPSE) and by browsing the official websites of the sample banks, NRB, and NEPSE.

7.4 Data Collection and Processing Procedure

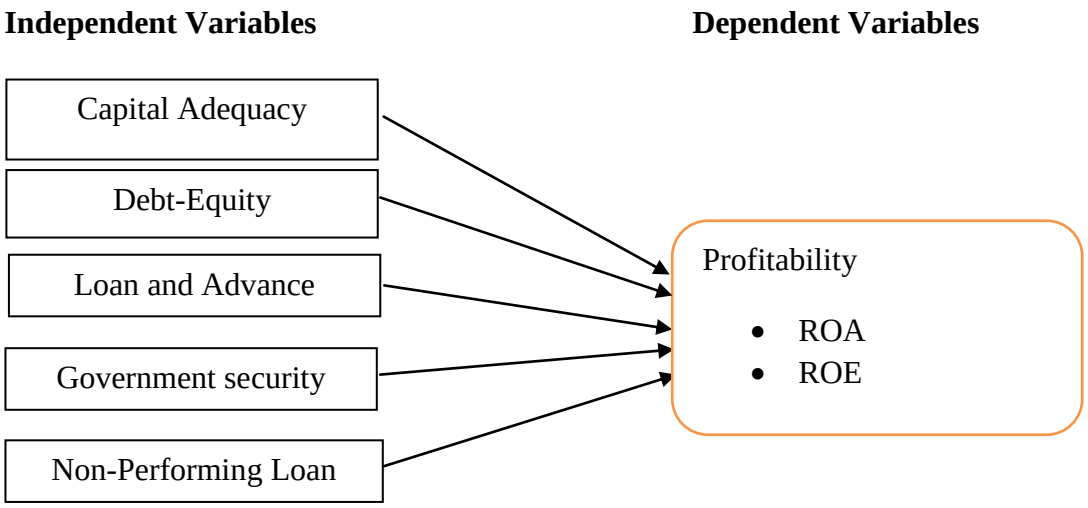
Various tools and techniques were employed in the collection and processing of data for this study. The required data, sourced entirely from secondary sources, relies on the accuracy maintained by the sample banks in their reports or accounts to determine its reliability and validity. The verification of data through crosschecking the source is undertaken to ensure its integrity. The data collected, utilizing a data collection sheet, underwent editing, coding, and rearrangement to suit the study's requirements. Analysis of the data was carried out using a calculator, Microsoft Excel, and SPSS software. SPSS software facilitated the entry of collected data, and descriptive, correlation, and regression analyses were performed as needed for the study.

7.5 Conceptual Framework and Definition of Variables

The theoretical framework outlines the connections among the variables and delineates the nature and direction of these relationships. Drawing from the literature review, five independent variables were considered that exert an influence on the impact of capital adequacy on the profitability of commercial banks. The dependent and independent variables are enumerated as follows:

Figure1

Conceptual framework



Source: Chishty (2011) and Pefan (2013)

Operational Definition of Variables

Capital Adequacy Ratio (CAR): In Nepal, following the capital adequacy framework of 2015, every commercial bank was mandated to uphold a Capital Adequacy Ratio (CAR) of 8.5%. Failure to meet this requirement would categorize the bank as undercapitalized. A heightened CAR signifies a reduced necessity for external funding, consequently leading to enhanced profitability. Furthermore, well-capitalized banks encounter diminished costs associated with bankruptcy and a subsequent reduction in funding costs. This is expressed as:

$$CAR = \frac{Total\ Capital\ Fund}{Total\ Risk\ Weighted\ Assets}$$

Whereas,

Capital Fund = Tier 1 Capital + Tire 2 Capital

Debt-Equity Ratio (DER): This ratio reveals the extent of a bank's leverage, showcasing the proportion of the bank's business funded by debt as opposed to equity. It is computed by dividing the total borrowing by the net worth of shareholders, encompassing equity capital, reserves, and surplus. This ratio signifies the multiple by which debt exceeds equity. A

higher ratio implies diminished protection for the bank's creditors and depositors. This is expressed as:

$$DER = \frac{Total\ Debt}{Total\ Shareholder's\ Equity}$$

Loans and Advances Ratio (LAR): This ratio illustrates the assertiveness of a bank in deploying funds, leading to enhanced profitability. The ratio is calculated by dividing Advances by Assets, revealing the proportion or percentage of Total Assets allocated to Advances. A higher ratio signifies a greater proportion of total assets devoted to advances. Given that lending is a fundamental function of banks, a higher Advances/Assets ratio is preferable to a lower one. This is expressed as:

$$LAR = \frac{TotalLoansandAdvances}{TotalAssets}$$

Government Securities to Total Investments Ratio (GSTIR): The ratio representing the share of investment in government securities is a crucial metric that reveals a bank's capacity for taking risks. This ratio reflects a bank's strategic orientation, indicating whether it adopts a High Profit-High Risk approach or a Low Profit-Low Risk approach. Additionally, it provides insights into the availability of alternative investment opportunities. Government securities, being widely perceived as the safest debt instruments, tend to offer the lowest returns. Given their risk-free nature, a higher ratio of Government Securities to Total Investments signifies reduced risk in a bank's investment portfolio. This is expressed as:

$$GSTIR = \frac{Investment\ in\ Government\ Securities}{Total\ Investments}$$

Where,

Government securities = NRB Treasury Bills + NRB Other Securities

Non-Performing Loan Ratio (NPLR): A nonperforming loan refers to a loan where the borrower has defaulted by failing to make the scheduled payments for a designated period. The definition of nonperforming status may vary based on the terms of the particular loan, with "no payment" typically interpreted as zero payments of either principal or interest. The

specific duration for nonperformance can differ across industries and loan types, but it commonly spans 90 days or 180 days. This is expressed as:

$$NPLR = \frac{Non - Performing\ Loan}{Total\ Loan}$$

Profitability Indicators

The quality of earnings is a crucial factor that assesses a bank's capacity to generate consistent and sustainable profits. It serves as a fundamental measure of the bank's profitability and reflects its potential for future earnings and growth.

Return on Assets (ROA): Return on assets (ROA) serves as a metric indicating a company's profitability concerning its overall assets. ROA provides insights for managers, investors, or analysts into the efficiency of a company's management in leveraging its assets for earnings generation. Represented as a percentage, a higher ROA is favorable. ROA specifically assesses a bank's management proficiency in generating profits from its assets, indicating the profitability per unit of assets and revealing the effectiveness of asset management in revenue generation. Despite potential biases from off-balance-sheet activities, ROA stands as a crucial ratio for comparing the operational efficiency and performance of banks by showcasing the returns derived from owned assets.

$$ROA = \frac{Net\ Profit}{Total\ Assets}$$

Return on Equity (ROE): Return on equity (ROE) stands as a financial performance metric determined by dividing net income by shareholders' equity. As shareholders' equity represents a company's assets subtracted by its debt, ROE signifies the return on net assets. It functions as an indicator of a corporation's profitability concerning stockholders' equity. ROE is particularly recognized for gauging the rate of return on a bank's shareholders' equity, computed by dividing the bank's post-tax net income by the encompassing total equity capital, which includes common and preferred stock, surplus, undivided profits, and capital reserve.

$$ROE = \frac{NetProfit}{TotalShareholder's Equity}$$

Where,

Shareholder's Equity = Share Capital + Reserve and Fund

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