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Bank Profitability and Financial Reporting Irregularities in Bangladesh: An Empirical and Doctrinal Analysis of Regulatory Enforcement

Md. Al-Amin
Comilla University
Md. Abu Bakar Siddiq
siddiqsohel@gmail.com
Comilla University
Lubna Jaman
Comilla University
Saif Uddin Asif
University at Buffalo, State University of New York
Shahenara Akter
Birkbeck, University of London

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Abstract

This study examines the interrelationships among bank profitability, financial reporting irregularities, and regulatory enforcement in Bangladesh by focusing on how institutional weaknesses affect financial performance along with legal regulations in Bangladesh. It employs a dynamic panel data analysis of 20 selected commercial banks over 10 years, 2014 to 2023, to substantiate the research hypothesis. Moreover, the doctrinal legal research method was used to analyze existing legal mechanisms for regulating financial discrepancies and checking irregularities in financial statements. It rigorously substantiates three research hypotheses on different aspects of firm-specific and macroeconomic determinants, while scrutinizing the governing legislation and considering how the existing legal framework regulates financial inconsistency. The findings indicate that bank profitability can be substantially improved through sustainable loan growth, optimal equity capital levels, enhanced cost efficiency, and the maintenance of moderate inflation. Additionally, reducing the proportion of non-performing loans is essential for strengthening banks' financial performance. Despite Bangladesh having a comprehensive legal mechanism for financial statements of financial entities, there are a lot of fragmented regulations, weak enforcement, and limited institutional coordination, which significantly undermine the accuracy and reliability of financial disclosures, distorting bank profitability indicators. Finally, it recommends strengthening the regulatory coordination and enforcement among the Bangladesh Bank, the Financial Reporting Council, and the Anti-Corruption Commission to improve transparency and accountability in financial reporting, which will make it smooth and transparent for the financial profitability of the bank. Whereas this study brings together financial analysis and legal examination to assess how regulatory enforcement and reporting irregularities jointly shape bank profitability in Bangladesh, it connects them within a single framework and shows how institutional weaknesses and fragmented oversight affect the reliability of financial disclosures.

JEL Codes: G20, G21, G32, L25, E31, E43, M48, K22, K34, K42

1. Introduction

The banking sector is vital to economic development, as it mobilizes savings, facilitates investment, and ensures financial stability. Bank efficiency and profitability serve as key indicators of economic resilience (Al-Harbi, 2019; Chand et al., 2024). Today's banks also help drive trade, innovation, and investment, which strengthen macroeconomic stability and national progress (Safiullah & Paramati, 2024). Consequently, the profitability of banks does not only mirror the performance of the management, but also the stability of the economy, in general. The functioning of a stable and profitable banking system is important in the countries like Bangladesh to continue its economic growth and make people believe in the financial institutions (Siddique et al., 2022).

A complicated interdependence of external and internal determinants affects the profitability of a bank. Many factors, both internal and external, affect a bank's profitability. The management of the bank is able to manage the firm-specific variables such as capital adequacy, asset quality, liquidity, operational efficiency and credit risk. Conversely, the financial environment is influenced by the broader economic factors, including inflation, interest rates, and monetary policy (Athanasoglou et al., 2008; Dietrich and Wanzenried, 2014). In most countries and settings, these influences have been researched by researchers. Indicatively, Sufian (2012), and Menicucci and Paolucci (2016) discovered that bank-specific, as well as economic, variables are significant in the profitability. Al-Homaidi et al. (2018) also revealed that capital adequacy, credit risk, and inflation are also significant contributors to bank performance. Combined, these studies indicate that profitability is a result of the quality of management of the banks as well as the economic environment in which they operate. Bangladesh is a developing economy with distinct financial features, such as the presence of a great number of non-performing loans, changing regulatory environment, and unstable macroeconomic indicators. These issues require country-specific studies to come up with policy-relevant information and develop a better understanding of how profitability works in its banking sector.

The banking industry in Bangladesh has encountered a number of problems such as increased credit risks, poor cost structure, inflation and governance. These issues have strained profitability and stability of commercial banks. Although previous studies have looked at factors like liquidity, capital structure as well as credit risk, limited research has been conducted looking at both macroeconomic factors and firm-specific factors. It is even more crucial to examine the banking performance in its entirety due to the changed economic conditions following the pandemic. In the absence of integrated models, policymakers find it more difficult to develop effective strategies on financial stability and growth.

Bank profitability also depends on the rules and regulations of financial reporting. Good corporate governance and trust in the banks is supported by clear and trustworthy financial disclosure to evaluate the performance of the banks. The laws that have been passed to enhance transparency and accountability in Bangladesh are the Financial Reporting Act, 2015, and the Banking Companies Act, 1991. Nevertheless, such problems as inconsistent rules, ineffective enforcement, and lack of coordination contribute to the fact that financial reporting is less reliable. Such issues are capable of misrepresenting profitability metrics and complicating the process of formulating effective policies. Therefore, we have to learn about financial reporting governance along with economic factors.

The research is aimed at investigating these relationships focusing on the following key firm-specific variables: Total Loans to Total Assets Ratio (TLTA), Loan-to-Deposit Ratio (LDR), Equity Capital to Total Assets Ratio (ECTA), Cost-to-Income Ratio (CIR), and Non-Performing Loans to Total Loan Ratio (NPLR). It also looks at macroeconomic parameters like the Inflation (INFR) and Interest Rate Spread (SPREAD). A combination of these indicators reflects the efficiency of the work of banks and the economic environment they are in. The three objectives of the study include; first, to examine the impact of firm specific on the profitability of commercial banks in Bangladesh, second, to examine the impact of macroeconomic factors on the profitability of the banks and lastly, to determine the effectiveness of financial reporting rules and governance in promoting transparency and enhancing the financial performance of the banks.

The study contributes to the body of research and aids policymakers in a number of ways. It gives a comprehensive analysis as it takes into account both the firm-specific and macroeconomic factors. It also provides a multidisciplinary approach through incorporation of legal and regulatory analysis of financial reporting. Recent Bangladesh panel data is utilized in the study, which offers new evidence on the emerging economies. Lastly, it provides pragmatic lessons to facilitate better governance, transparency, and financial stability by the regulators, financial institutions, and policy makers.

The remainder of the article is structured in the following way. Section 2 discusses the research questions and hypotheses. The models, sources of data, and methods have been described in section 3. Section 4 examines the literature on the profitability of banks and its determinants. Section 5 gives the analysis and discusses the findings. The limitations of the study are highlighted in section 6. Section 7 looks into the legal regulations of financial reporting in Bangladesh. Section 8 wraps up with policy implications and suggestions for future research.

2. Research Hypothesis and Research Questions

There are three research hypotheses (RH) which are: RH1: firm specific determinants such as the total loans to total assets ratio (TLTA), total loans to total deposit ratio (LDR), equity capital to total assets ratio (ECTA), cost to income ratio (CIR), and non-performing loans to total loan ratio (NPLR) have a significant association with banks profitability; RH2: macro-economic factors i.e. inflation rate (INFR) and interest rate spread (SPREAD) have a meaningful influence on banks profitability; RH3: Effective financial reporting regulations and governance enhance transparency and positively influence the profitability and reliability of commercial banks in Bangladesh.

Considering these issues, this research question is: To what extent do firm-specific variables, macroeconomic, and financial reporting regulations influence the profitability of commercial banks in Bangladesh? In answering this question,

the research will seek to address research gaps and provide useful information on the performance of banks in an emerging economy.

3. Methodology

3.1. Sample selection and data source

This explanatory work will examine how firm-specific and macroeconomic variables are interconnected and influence the Bangladesh banking profitability in terms of return on equity using data obtained between 2014 and 2023 of 20 commercial banks. The annual reports of the sampled banks were used to extract secondary data to be used in computing the firm-specific variables and macroeconomic variables were obtained through well-known sources that are the world bank and the Bangladesh bank. In addition, whereas this research also involves regulatory analysis on financial reporting irregularities and applies a doctrinal legal research method, it uses primary sources, i.e., domestic legislation and secondary sources like scholarly research articles, books, and news reports to represent a comprehensive scenario on the legal regulatory mechanism to consider how the existing laws in Bangladesh deal therewith.

3.2. Variable Description

This research paper analyses how firm specific and macroeconomic factors affect the profitability of commercial banks in Bangladesh. The dependent variable is return on equity (ROE) and the independent variables are selected bank-specific and macroeconomic variables. The definitions and measurements of these variables are presented below:

Table 1
Description of Variables included in empirical result of the paper

S. No.	Variable Name	Variable Definition	Sources
Profitability Measure (Dependent Variable)			
1	Return on Equity (ROE)	A company's return on equity (ROE) is used to evaluate its profitability, which is defined as the ratio of shareholders' equity to net income or earnings. It illustrates the efficacy with which the business generates profit from the capital invested by shareholders.	Kharatyan, D.,2016
Firm Specific and Macroeconomic Determinants (Independent variables)			
2	Total Loans to Total Assets Ratio (TLTA)	The Total Loans to Total Assets ratio represents the proportion of total advances to total assets of the bank, expressed as a percentage. It is the proportion of the bank's assets dedicated to its primary lending operations, signifying the bank's risk exposure and lending assertiveness.	Ghuman et al., 2018; Athanasoglou et al.,2008
3	Total Loans to Total Deposit Ratio (LDR)	The loan-to-deposit ratio reflects the bank's liquidity status and its efficacy in transforming deposits into income-producing loans. The loan-to-deposit ratio measures a bank's total loans relative to its total deposits, indicating the degree to which the bank employs its deposits for lending activities.	Athanasoglou et al., 2008
4	Equity Capital to Total Assets Ratio (ECTA)	The Equity Capital to Total Assets Ratio quantifies the ratio of a bank's total assets financed by its own capital (equity and reserves). It demonstrates financial robustness by revealing the proportion of the asset base financed domestically as opposed to through liabilities.	Lalon et al., 2022; Hutchison and Cox., 2006
5	Cost to Income Ratio (CIR)	A key financial metric for assessing banks' performance is the Cost-to-Income Ratio, which illustrates a firm's expenses relative to its revenue. The measurement involves calculating the ratio of a firm's operational expenses to operating income, represented as a percentage.	Ayinuola et al., 2023; Christian et al., 2008
6	NPL to Total Loan Ratio (NPLR)	The NPL to Total Loan Ratio assesses the proportion of nonperforming loans relative to the total outstanding loans. This reflects the asset quality of a bank.	Rahman et al., 2024
7	Inflation (INFR)	The nature of inflation is a critical factor in determining the profitability of companies. For instance, whether inflation is anticipated or unexpected. The purchasing power of currency diminishes due to a prolonged rise in the overall price level of goods and services in an economy, referred to as inflation.	Berhe et al., 2017
8	Interest Rate Spread (SPREAD)	The Interest Rate Spread, also known as the net interest rate spread or bank lending-deposit spread, quantifies the difference between the interest rates banks get on loans (or other earning assets) and the interest rates they disburse on deposits (or other funding sources).	Lalon et al., 2022; Musah et al., 2018

3.3. Data Analysis Methods

This study employs the random effects model of panel data analysis (Greene, 2003), informed by the results of the Hausman test and the Breusch and Pagan Lagrangian multiplier test. Prior to the implementation of the random effects model, pertinent diagnostic assessments, encompassing multicollinearity, autocorrelation, and normality evaluations, were conducted (Woolridge, 2004). For this study, the subsequent regression equation is formulated:

$$ROE_{i,t} = \beta_0 + \beta_1 TLTA_{i,t} + \beta_2 LDR_{i,t} + \beta_3 ECTA_{i,t} + \beta_4 CIR_{i,t} + \beta_5 NPLR_{i,t} + \beta_6 INFR_{i,t} + \beta_7 SPREAD_{i,t} + \varepsilon_{i,t} \quad \text{(i)}$$

Where ROE denotes Return on Equity, whereas β_0 represents the Constant. It encompasses both bank-specific and macroeconomic data as predictors. TLTA (Total Loans to Total Assets), LDR (Loan to Deposit Ratio), ECTA (Equity Capital

to Total Assets), CIR (Cost-to-Income Ratio), and NPLR (Non-Performing Loans Ratio) signify essential internal financial indicators. Simultaneously, INFR (Inflation Rate) and SPREAD (Interest Rate Spread) are external macroeconomic variables. Each coefficient (β) quantifies the effect of its corresponding variable on the return on equity (ROE), facilitating the identification of factors that positively or negatively affect bank performance. Furthermore, i represents banks, t denotes time (year), and the error term (ε) encompasses unobserved factors. Hence, the Fig. 1 shows the expected relationship between bank-specific and macroeconomic variables and profitability measures:

Relationship Between Bank-Specific and Macroeconomic Variables and Bank Profitability

4. Literature Review

In recent years, the investigation of bank profitability has intensified due to globalization, the repercussions of COVID-19, and persistent adverse interest rates (Ercegovac et al., 2020; Korytowski, 2018; López-Penabad et al., 2022; Yin, 2019; Yüksel et al., 2018). A variety of factors can affect a bank's profitability. Certain aspects can enhance banks' profitability, but others may have adverse impacts. The bank's management may exert control over certain elements affecting productivity, but may lack control over others. The bank's administration mainly controls internal elements which are termed as "bank-specific factors" and their influence on a bank's profitability or return. External factors beyond management's control may encompass the rate of economic growth, applicable banking laws and regulations, inflation, interest rate differentials, fiscal policies, and monetary policies (Jo-Ann, Gobind, & Bushra, 2020).

Bony, S. Z. (2021) examined how bank specific and macroeconomic factors have a bearing on the financial performance of commercial banks in Bangladesh, which has been defined by performance in terms of return on assets, return on equity and net interest margin. Empirical data show that certain firm level characteristics, which are, board size, the number of times the audit committee met, and foreign ownership, have a statistically significant positive relationship with the performance of the bank. In addition, an efficient macroeconomic environment is also linked with an increase in profitability in the banking industry.

The profitability of Tanzanian commercial banks is highly influenced by macroeconomic conditions (Lyimo & Hussein, 2022). Lalon et al. (2022) investigated the relationship between profitability, measured by ROE and EPS, and several industry-specific factors, including underwriting risk, solvency margin, leverage, liquidity risk, premium growth, company size, and asset tangibility, as well as macroeconomic variables such as GDP growth, inflation, and stock market development in Bangladesh's general insurance sector and found that the macroeconomic variables included in the model do not significantly influence profitability, with the sole exception of inflation, which has a positive impact on the return on equity.

Additionally, Ullah et al. (2020) conducted a study to examine the impact of internal bank-specific characteristics on the profitability of commercial banks in Bangladesh. The authors determined that non-performing loans, bank size, and liquidity are the primary internal determinants affecting bank profitability. Moreover, Rana-Al-Mosharrafa et al. (2021) examined the internal management issues and the operational problems that affect the profitability of banks in Bangladesh. According to their findings, a number of bank-specific attributes have a considerable effect on profitability. The research also revealed a statistically significant adverse correlation between some internal variables and profitability given in terms of the ratio of return on equity, but not in terms of the ratio of return on assets and net interest margin.

Return on equity is one of the most important proxies of profitability and efficiency of operations and it measures the degree to which the firm management is effective in terms of creating profits on shareholders compared to equity (Kharatyan, 2016). High ROE rates indicate optimal work of the bank, more effective use of assets, and competitive advantage, which makes it a critical indicator of determining the profitability of the bank and attracting investor attention (Naceur and Omran, 2021).

Aladwan (2015) used the return on equity as one of the key indicators to evaluate the performance of large and small Greek banks in terms of profitability and examined how it is related to such variables as asset volume, liquidity, and risk. Yanikkaya et al. (2018) also emphasized that bank profitability and operational performance are periodically measured by ROE, and the study involves specifics of the bank, as well as country-specific determinants. K. M. et al. (2021) proved that the bank-specific factors, such as the proportion of total loans to total assets, the deposit level, and the liquidity level, have a significant impact on the profitability within the domestic commercial banks in Sri Lanka.

The lack of a connection between firm-specific and macroeconomic factors in assessing the combined impact on bank profitability creates a serious gap in the current literature on the banking sector in Bangladesh. The current research aims at addressing this gap by empirically examining both the fixed and dynamic panel impacts of bank-specific and macroeconomic variables on the profitability of traditional commercial banks in Bangladesh, especially in the changing post-COVID-19 economic context in the following next sections.

4.1. Bank-Specific Variables

Bank-specific variables are those factors that are specific to a specific banking institution, and which have an impact on the performance and risk profile. These variables are based on the internal functioning of the institution, strategic management, and financial structural set-ups.

4.1.1. Total Loans to Total Assets Ratio (TLTA)

The total loans to total assets ratio is the measure of the percentage of loans of a bank regarding the total assets and is a commonly-used statistic of credit activity, asset utilization and bank income (Sufian and Habibullah, 2010; Sufian, 2011; Rivai, 2007; Saeed, 2014; Chronopoulos et al., 2013). An increased ratio of loan to assets (LAR) is an indicator of increased lending and the possibility of interest earnings, but it can also reduce liquidity because a higher proportion of assets is committed to credit portfolios (Dendawijaya, 2005). The positive relationship between LAR and the profitability of banks, especially return on equity (ROE), has been empirically reported (Islam and Nishiyama, 2016; Islam, Alam, and Hossain, 2016; Samad, 2015; Abdullah et al., 2014).

4.1.2. Total Loans to Total Deposit Ratio (LDR)

The deposits are a major and relatively inexpensive source of bank capital; conversion into credit facilities is capable of providing an additional stimulus to profitability by increasing interest margins, which further highlights the importance of good liquidity management (Khanal, 2016). Experimental research always shows a positive relationship between the loan-to-deposit ratio and the major profitability indicators, such as return on equity and net interest margin, which means that an efficient use of deposit resources in lending business promotes financial performance (Rana-Al-Mosharrafa et al., 2021; Supriyono et al., 2019; Athanasoglou et al., 2008). However, the effects of LDR on profitability depend on the considerations on credit risks and exogenous factors like the current interest rates, macroeconomic stability, and competition within the market (Mirzaei, Moore, and Liu, 2013).

4.1.3. Equity Capital to Total Assets Ratio (ECTA)

According to financial theory, banks with strong capital buffers are more likely to achieve high stability, as well as profitability since high capital reserve alleviates risk, lowers the cost of capital and provides insurances against possible financial losses. Empirical studies constantly show that capital adequacy, typically measured through the equity-to-total-assets ratio has a positive impact on bank profitability and increases the ability of the bank to cope with risk, maintain liquidity and survive financial shocks (Khanal, 2016; Bashir, 2001; Hassan and Bashir, 2003; Haron, 2004; Aspal et al., 2014; Al-Sharkas, 2022). Moreover, a strong capital base creates investor confidence and ability of banks to meet cash-flow and credit demands, which supports long-term financial performance.

4.1.4. Cost to Income Ratio (CIR)

The cost-to-income ratio is used as an efficiency measure because it compares the operating expenses, which are the management fees, employee compensation, and the expenses associated with assets, to total revenue. Some research proves that the correlation between CIR and banking profitability is statistically significant, which means that the high costs of operations undermine financial performance (Khanal, 2016; Dsouza et al., 2022; Al-Sharkas et al., 2022). Therefore, initiatives to increase the operational efficiency and reduce the costs are bound to enhance profitability ratios like net interest margin and return on equity.

4.1.5. NPL to Total Loan Ratio (NPLR)

Commercial banks are facing same challenges of credit risk especially non-performing loans (NPLs). High levels of NPL destroy the quality of loan portfolios and lower the overall profitability (Veizi et al., 2024). There is always experimental evidence showing a strong negative relationship between the non-performing loans ratio and profitability ratios like the return on assets and that of equity. The consequence of this relationship is that increased loan defaults and associated provisioning of classified loans reduce the performance of an institution (Jing, 2020; Anik, Das, and Alam, 2019; Christaria and Kurnia, 2016; Kebede and Selvaraj, 2015; Islam and Rana, 2017). However, some studies present inconsistent results and assume that there is a positive correlation between NPL incidence and financial performance in a set of circumstances (Li and ¯ Zou, 2014; Alshatti, 2015).

4.2. Macroeconomic Variables

Macroeconomic variables are some of the economic variables that indicate the economy of a country. They are outside factors of individual firms/banks and they have a general impact on all industries.

4.2.1. Inflation Rate (INFR)

The concept of inflation refers to a continuous increase in the general price level of goods and services and therefore, it also reduces the buying power of money. It is traditionally measured by the annual change in Consumer Price Index (CPI) (Anidiobu et al., 2018). There is still heterogeneous empirical evidence concerning the effect of inflation on the profitability of banks. A negative relationship between inflation and bank performance has been reported in a number of studies and this association was attributed to the increased operating expenses and the increased economic volatility (Isayas, 2022; Jadah et al., 2020; Bilal et al., 2013; Cetin, 2019; Odusanya et al., 2018; Vatavu, 2014). On the other hand, there are positive correlations suggested by other researchers, which postulates that moderate inflation can enhance bank profitability in certain macroeconomic conditions (Gyamerah & Amoah, 2015; Jara-Bertin et al., 2014; Bourke, 1989; Molyneux and Thornton, 1992; Perry, 1992; Khanal, 2016).

4.2.2. Interest Rate Spread (SPREAD)

Interest rates are one of the key factors of bank profitability, as large percentage of bank income is generated by the interest margin, which is the difference between the rate of loans and the rate of deposits (Musah et al., 2018; Aboagye et al., 2008; Owusu-Antwi et al., 2017; Kalsoom and Khurshid, 2016). Empirical studies have produced mixed results; some have found a positive and statistically significant relationship between interest-rate spreads and bank financial performance, suggesting that an increase in interest rate spreads enhances bank profitability by increasing interest income (Musah et al., 2018; Owusu-Antwi et al., 2017), but have also found no negative and statistically significant link between interest-rate spreads and bank financial performance (Obidike et al., 2015).

5. Analysis and Discussion

5.1. Descriptive Statistics

Table 2 displays the descriptive statistics of the analyzed variable, derived from data of 20 commercial banks in Bangladesh from 2014 to 2023, encompassing 200 observations. This study provides the mean, standard deviation, median, minimum, maximum, skewness, and kurtosis for all analyzed variables. The average ROE is 9.718, accompanied by a standard deviation of 4.859. The average values for the TLTA, LDR, ECTA, CIR and NPLR are 65.303, 84.705, 8.402, 51.522, and 4.551 respectively. The INFR, and SPREAD are, 6.373, and 3.982, respectively.

Table 2
Descriptive Statistics

Variables	Obs.	Mean	Std. Dev.	Min	Max	Median	Skewness	Kurtosis
Return on Equity (ROE)	200	9.718	4.859	0.76	17.2	10.615	-0.431	2.240
Total Loans to Total Assets Ratio (TLTA)	200	65.303	8.021	43.03	74.59	67.53	-1.382	4.362
Total Loans to Total Deposit Ratio (LDR)	200	84.705	10.747	61.93	101.75	85.19	-0.399	2.512
Equity Capital to Total Assets Ratio (ECTA)	200	8.402	2.761	4.3	15.27	7.77	0.947	3.421
Cost to Income Ratio (CIR)	200	51.522	10.914	34.61	76.39	49	0.645	2.870
NPL to Total Loan Ratio (NPLR)	200	4.551	2.255	0.26	9.57	4.66	0.211	2.935
Inflation Rate (INFR)	200	6.373	1.163	5.51	9.02	5.695	1.211	3.060
Interest Rate Spread (SPREAD)	200	3.982	0.729	2.93	5.12	3.75	0.212	1.548

5.2 Correlation Analysis for RH1 and RH2:

Table 3 presents the outcomes of multicollinearity, referred to as the pairwise correlation matrix, which reveals the relationships among all variables included in the study.

In RH1, ROE exhibited a negative correlation with the TLTA, LDR, CIR, and NPLR which value are − 0.015, -0.02, -0.333 and − 0.307 respectively but conversely demonstrating a positive association with the ECTA that's value is 0.043. Moreover, in RH2, there is a positive correlation with the INFR and return on equity which value is 0.047, while the SPREAD has a negative association with ROE and its value is -0.059.

Table 3 also demonstrates the absence of multicollinearity, as no correlation coefficients among the variables exceed 0.80. The Variance Inflation Factors (VIF) test indicates that the independent variables span from 1.12 to 2.41, with an average VIF of 1.66. The numbers are much below the widely recognized threshold of 10, and even the more cautious criterion of 5, suggesting that multicollinearity is not an issue in this model.

Table 3
Correlations Matrix

Variables	ROE	TLTA	LDR	ECTA	CIR	NPLR	INFR	SPREAD	VIF
Return on Equity (ROE)	1.000								
Total Loans to Total Assets Ratio (TLTA)	-0.015	1.000							2.41
Total Loans to Total Deposit Ratio (LDR)	-0.02	0.708***	1.000						2.3
Equity Capital to Total Assets Ratio (ECTA)	0.043	-0.162**	-0.069	1.000					1.68
Cost to Income Ratio (CIR)	-0.333***	-0.143**	-0.359***	0.032	1.000				1.47
NPL to Total Loan Ratio (NPLR)	-0.307***	0.146**	-0.122*	-0.403***	0.434***	1.000			1.36
Inflation Rate (INFR)	0.047	-0.025	0.003	-0.028	0.043	0.073	1.000		1.25
Interest Rate Spread (SPREAD)	-0.059	-0.228***	-0.195***	0.267***	0.071	-0.078	-0.293***	1.000	1.12
*Statistically Significant *p < 0.10, **p < 0.05, *** p < 0.01; t statistics are enclosed in parentheses.*									

5.3 Regression Analysis for RH1 and RH2:

The study employs random-effects panel regression analysis to determine the impact of firm-specific and macroeconomic factors on the profitability of commercial banks in Bangladesh. The pooled OLS model and fixed effects model were utilized with the previously mentioned investigation.

The Hausman test was utilized to differentiate between two panel analysis approaches: the Fixed Effects Model and the Random Effects Model. In Hausman test, the p-value is more than 0.05. As a result, we have been unable to dismiss the null hypothesis and thus, the random effects model is superior to the fixed effects model. The diagnostic evaluations for panel data analysis, including normality, multicollinearity, heteroscedasticity, and autocorrelation, have been conducted. The results indicate no issues concerning normality, multicollinearity, or heteroscedasticity. The panel data model is not affected by first-order autocorrelation.

Table 4 Analyzing Firm-Specific and Macroeconomic Drivers of Profitability of Commercial Banks

Variables	Model -I	Model -II	Model -III
	Random Effect Model	Fixed Effect Model	Pooled OLS Method
	ROE	ROE	ROE
	(T-stat)	(T-stat)	(T-stat)
Total Loans to Total Assets Ratio (TLTA)	0.091*	0.098*	0.106*
	(1.65)	(1.71)	(1.72)
Total Loans to Total Deposit Ratio (LDR)	-0.031	-0.019	-0.132***
	(-0.86)	(-0.52)	(-2.83)
Equity Capital to Total Assets Ratio (ECTA)	247*	0.338**	-0.055
	(1.69)	(2.12)	(-0.41)
Cost to Income Ratio (CIR)	-0.142***	-0.138***	-0.135***
	(-4.86)	(-4.53)	(-3.77)
NPL to Total Loan Ratio (NPLR)	-0.289**	-0.309**	-0.545***
	(-2.07)	(-2.15)	(-2.93)
Inflation Rate (INFR)	1.294*	1.331*	1.151
	(1.7)	(1.75)	(0.86)
Interest Rate Spread (SPREAD)	0.19	0.241	-0.068
	(0.29)	(0.37)	(-0.06)
Constant	2.046	-0.548	15.323
	(0.21)	(-0.06)	(1.02)
F-Stat	-	3.872***	3.267***
Chi-Square	56.392***	-	-
R2	0.145	0.247	0.198
No. of Observations	200	200	200
Statistically Significant *p<0.10, **p<0.05, *** p<0.01; t statistics are enclosed in parentheses.			

In RH1, the coefficients obtained from random effects, fixed effects, and pooled OLS studies indicate that Total Loans to Total Assets Ratio (TLTA) is statistically positive significant relationship with the banks' profitability (ROE). The TLTA coefficient in Model I (Random Effects) is 0.091 ($t = 1.65$, $p < 0.1$) for ROE. In Model II (Fixed Effects), the coefficient is 0.098 ($t = 1.71$, $p < 0.1$). The TLTA coefficient in Model-III is 0.106 ($t = 1.72$, $p < 0.1$). These analyses indicate that TLTA can enhance ROE by augmenting interest income, provided the loans are effectively managed and of high quality. An ideal TLTA level enhances profitability; however, excessively high ratios may elevate risk and diminish profits. The total loans to total assets ratio exhibit a favorable correlation with ROE, as corroborated by Lalon, R. M. (2022), Islam & Nishiyama (2016), Islam, Alam, & Hossain (2016), Samad (2015), and Abdullah et al. (2014).

Moreover, the equity capital to total assets ratio (ECTA) in both random-effects and fixed-effects models demonstrates a positive effect, indicating that ECTA significantly influences bank profitability. The coefficient for ECTA in Model I (random effects) is 247 ($t = 1.69$, $p < 0.1$) for ROE. In Model II (Fixed Effects), the coefficient is 0.338 ($t = 2.12$, $p < 0.05$). This outcome suggests that ECTA strengthens financial resilience and diminishes the probability of insolvency, especially during times of financial distress or economic decline. Financial institutions with robust equity positions are better equipped to absorb losses and sustain operations, thereby enhancing long-term profitability and investor confidence but it may adversely impact the ROE due to diminished leverage. Consequently, banks must strike a balance between equity and debt to enhance both profitability and financial stability. Chowdhury, M. A., & Salman, M. A. G. (2021) established in their research that the equity capital to total assets ratio shows a significant positive link with ROE. This link is corroborated by Hasan et al. (2020), Almaqtari et al. (2018), and Saima & Alalawi (2018).

In addition, the regression results indicate that the cost to income Ratio (CIR) exerts a considerable negative impact on ROE which posits a substantial link between CIR and ROE. In Model I (random effects), the coefficient for CIR for ROE is -0.142 ($t = -4.86$, $p < 0.01$). In Model II (Fixed Effects), the coefficient is -0.138 ($t = -4.53$, $p < 0.01$). Additionally, the CIR coefficient in Model-III (Pooled OLS Method) is -0.135 ($t = -3.77$, $p < 0.01$). The findings demonstrate that a high CIR indicates a significant allocation of a bank's revenue to operational expenses, consequently decreasing net profit and ultimately lowering ROE. The research conducted by Al-Homaidi et al. (2018), Ebenezer et al. (2017), and Abel and Roux (2016) corroborates the conclusion that CIR may have an adverse impact on profitability.

Further, the Non-Performing Loan Total Loan Ratio (NPLR) and bank profitability indicate a significant correlation between, is substantiated by the regression analysis, indicating a considerable negative effect on ROE. In model I (random effect), the coefficient of NPLR is -0.289 ($t=-2.07$, $p < 0.05$). In Model-II (Fixed Effects), the coefficient is -0.309 ($t=-2.15$, $p < 0.05$). Furthermore, the NPLR coefficient in Model-III (Pooled OLS Method) is -0.545 ($t=-2.93$, $p < 0.01$). Veizi et al. (2024) identified a negative link between NPLR and ROE in their research. The results indicate that a high NPLR adversely impacts ROE and overall bank profitability by diminishing interest income, escalating provisioning expenses, and indicating inadequate credit risk management. Consequently, sustaining a low Non-Performing Loan Ratio is crucial for enduring profitability and financial stability within the banking system. This adverse correlation is substantiated by Anik et al. (2019).

However, in RH2, the regression analysis indicates a positive effect of Inflation (INFR) on return on equity (ROE) which identifies a significant relationship between inflation and bank profitability. The estimated coefficient of INFR under random effects is 1.294 ($t = 1.7$, $p < 0.1$), while under fixed effects it is 1.331 ($t = 1.75$, $p < 0.1$). This affirmative correlation is corroborated by Batten & Vo (2019), Al-Homaidi et al. (2018), Almaqtari et al. (2018), Sahyouni & Wang (2018), Yüksel et al. (2018), Robin et al. (2018), and Bojare & Romanova (2017). While inflation is often regarded as a threat, it can simultaneously augment bank profitability under specific circumstances when it is modest and effectively managed. In inflationary situations, central banks generally increase policy rates to regulate price levels. Consequently, commercial banks raise lending rates, allowing them to earn additional interest on loans. This enhances net interest income, hence directly augmenting profitability of banks.

Overall, the regression analysis results demonstrate that the profitability of banks is influenced both favorably and adversely by bank-specific determinants (RH1) and also macroeconomic factors (RH2). The results indicate that bank-specific variables, including the total loans to total assets ratio (TLTA) and the equity capital to total assets ratio (ECTA), have a beneficial impact on bank profitability and the cost-to-income ratio (CIR) and the non-performing loan-to-total loan ratio (NPLR) negatively affect bank profitability. Additionally, the macroeconomic variable of inflation (INFR) positively influences the bank's profitability.

6. Limitations of the Statistical Matrix

Despite its contributions, the research is limited some ways. The banks which are owned by foreigners were not included even though they may operate in different structures and have different determinants of profits. Profitability is calculated solely on the basis of return on equity, leaving out other suitable measures like return on assets, and net interest margin.

7. Legal Mechanism for Addressing Misrepresentation in Financial Reporting

The legal framework for ensuring profitability and data accuracy in financial reporting can be divided into three key categories i.e., banking-specific laws, corporate governance laws, and anticorruption and penal laws. To understand how existing laws in Bangladesh regulate misrepresentation in financial reporting, there have been analyzed the relevant notable essences of financial legislations considering the financial irregularities by corporate entities as punishable offences and the enforcing mechanisms.

The Financial Reporting Act, 2015 (Act No. 16 of 2015) is a fundamental piece of legislation in Bangladesh that guarantees financial reporting standards by establishing the Financial Reporting Council to monitor public interest companies (Financial Reporting Act, 2015, s 3). These companies include five categories: banking companies and other companies under the Banking Companies Act, 1991 (Act No. 14 of 1991) and the Companies Act, 1994 (Act No. 18 of 1994), securities issuing institutions under the Bangladesh Securities and Exchange Commission Act, 1993 (Act No. 15 of 1993), financial institutions under the Finance Company Act, 2023 (Act No. 59 of 2023), microcredit institutions under the Microcredit Regulatory Authority Act, 2006 (Act No. 32 of 2006), and insurers under the Insurance Act, 2010 (Act No. 13 of 2010). These entities are required to follow the financial reporting standards prescribed in Section 40 of the Financial Reporting Act, 2015 (FR Act, 2015).

Misrepresentation in financial reporting can occur both through auditing firms and within public interest companies (The Financial Express, 2026). According to section 48 of the FR Act, 2015, violations committed by accountants, audit firms, or public interest companies in preparing financial reports or statements are punishable by imprisonment for up to five years, or a fine of no less than 5 lakh BDT, or both. Furthermore, those responsible for discrepancies in financial reports, such as balance sheets or income statements, are held accountable. For instance, under Section 109 (2) of the Banking Companies Act, 1991, responsible authority may face imprisonment for up to three years, or a fine of up to 5 lakh BDT, or both. The Companies Act, 1994 mandates that balance sheets, including details of profits, losses, income, and expenditure, must be accompanied by an audit report in accordance with section 40 of the Act No. 16 of 2015, and approved at the annual general meeting (Companies Act, 1994, s 183). Any discrepancies or false statements in these reports could result in imprisonment of up to five years or a fine of up to 5,000 BDT, as outlined in Sections 397 and 183(5) of the Companies Act, 1994.

The Securities and Exchange Ordinance, 1969 (Ordinance No. 17 of 1969), and the Securities and Exchange Commission Act, 1993 play a pivotal role in regulating the securities market. Enlisted securities and exchanges that facilitate the trading of securities are required to submit returns and annual or periodical reports to the Securities and Exchange Commission, as specified under Section 6 of the Securities and Exchange Commission Act, 1993. Failure to comply or engaging in fraudulent activities, as outlined in Section 17, can lead to punishment, including imprisonment for up to five years or a minimum fine of 5 lakh BDT, or both.

Additionally, finance companies licensed under section 4 of the Finance Company Act, 2023 (FC Act, 2023), are required to submit their financial statements and reports in accordance with sections 33 and 34 of the same Act to the Bangladesh Bank (BB). In case of default, they will be liable to pay a fine of 10,000 BDT per day. Furthermore, these finance companies must comply with sections 35 and 40 of the FR Act, 2015, which mandates the submission of these reports along with an audit report to the BB.

The Microcredit Regulatory Authority, established under the Microcredit Regulatory Authority Act, 2006, to regulate microcredit organizations, also mandates under section 45 the submission of an annual report to the Government within

three months from the end of each English calendar year. This report must contain a statement of the activities accomplished by the Authority during the year, and the Government shall raise it in the House of the Nation as soon as possible. This means that every microcredit organization distributing microcredit aimed at alleviating poverty, creating job opportunities, or assisting small businesses, as operating business under the Societies Registration Act, 1860 (Act No. 21 of 1860), the Trust Act, 1882 (Act No. 2 of 1882), the Voluntary Social Welfare Agencies (Registration and Control) Ordinance, 1961 (Ordinance No. 46 of 1961), the Cooperative Societies Act, 2001 (Act 47 of 2001), or the Companies Act, 1994 (Act 18 of 1994), must maintain profit and loss accounts and balance sheets. Failure to do so will result in penalties, with the governing body or responsible person liable to imprisonment for up to one year, a fine not exceeding 5 lakh BDT, or both (Microcredit Regulatory Authority Act, 2006, ss 22(2), 35(2)). Similarly, insurance companies must prepare balance sheets and financial reports following Section 27 of the Insurance Act, 2010. Failure to do so will result in punishment, which may include imprisonment for up to 3 years, a fine of up to 5 lakh BDT, or both (Insurance Act, 2010, s 131).

The scope for investigating against the private corporations or small entrepreneurs are minimal under the Anti-Corruption Commission Act, 2004 (Act No. 5 of 2004). Allegation against individual is subject to contemplating the order by the Anti-Corruption Commission (ACC) to revert the allegation or substantiate the argument. It is thereby required to satisfy and furnish documents to ACC that the alleged person has or is owned the property with his lawful source as shown in his annual income tax return; otherwise, liable to imprisonment up to 3 years or fine or both following the section 26. Section 27 stipulates a punishment of imprisonment which may be extended up to 10 years but not less than 3 years or fine or both, and the forfeiture of property whenever the court finds that the alleged person is holding property inconsistent with his lawful income and income tax return. This provision appears plausible, but the investigation process and trial procedure under this Act involve numerous formalities and a condition precedent to initiate trial, i.e., prior approval of the ACC to file a complaint upon completion of its own investigations with due diligence (Anti-Corruption Commission Act, 2004, s 20AA). There is thereby no provision for individuals to file a complaint with the Special Judge for regulating private corporate-based corruption, except with prior permission from the ACC. The jurisdiction of ACC in 2015 was limited to corruption and bribery of government officials, but by 2023 it had expanded to 27 (The Daily Star, 2015). There was a gap in preventing import and export through invoices; despite this, it was argued that about 80% of money laundering occurs under the guise of import and export (Kashem, 2023). It was argued for the inclusion of all types of money laundering crimes under the jurisdiction of ACC, as it was in the state in the first version of the legislation, but later on it was curtailed. However, by the amending ordinance of 2025 to the Anti-Corruption Commission Act, 2004 (ACC Act, 2004), only eight types of offences of the Money Laundering Prevention Act, 2012 (Act No 5 of 2012) have been included in article ‘D’ of the schedule. That replaced with i) bribery and corruption, ii) counterfeiting deeds and documents, iii) forgery, iv) fraud, v) smuggling of local and foreign currencies, vi) smuggling and offences relating to customs and excise duty, vii) tax-related offences, viii) insider trading and market manipulation using price-sensitive information relating to the capital market before its publication to take advantage of the market, and attempting to manipulate the market for personal or institutional gain.

Share market manipulation involving taking advantage of the market to buy shares before the market price is published. Although 28 categories of offences have been termed as ‘predicate offence’ in section 2(cc), only these eight types of money laundering activities fall under the jurisdiction of the ACC, subject to the rest of the offences as prescribed in the schedule to the ACC Act, 2004. However, there is room for the government to take action under the Money Laundering Prevention Act, 2012 (MLP Act, 2012) using its various regulatory mechanisms, including the Penal Code, 1860 (Act No. 45 of 1860). The ACC prepares reports on corruption-prone institutions and proposes recommendations, but lacks the power to enforce them (Transparency International Bangladesh, 2020, p. 8). Both of the ACC Act, 2004 and the MLP Act, 2012 stipulate that the Special Judges appointed under the Criminal Law Amendment Act, 1958 (Act No. 40 of 1958) deal with offenses under these two legislations.

The existing criminal law in Bangladesh is more effective in preventing crimes related to service in the Republic and more plausible in ensuring good practice and due diligence. The offences relating to public servants on gratifications and

corruptions, forming incorrect documents, unlawfully engaging in trade or bidding or extorting by public servant, as well as misappropriation of forfeited properties and disobeying the rules therefor, and criminal breach of trust are punishable under sections 161 to 165, 165A, 165B, 167 to 169, 217, 218 and 409 of the Penal Code, 1860 and are falling under the jurisdiction of the ACC. Moreover, every type of offence like cheating, forgery, or cheating of valuable security, using forged documents as genuine, and falsification of accounts all fall under the sections 420, 467, 468, 471, and 477A and will be punished if these occur at the time of discharging official duty of the Republic. These general provisions of the criminal law apply to both of civil servants of the Republic and individual citizens acting in their personal capacity to financial entities. Although this means that every act of malpractice violates the principle of morality, which has been criminalized under the above-mentioned provisions of the Penal Code, 1860, while financial discrepancies amounting to laundering have been under investigation and trial by the court under the ACC Act, 2004 or the MLP Act, 2012. Despite having a separate prosecution and investigation system in the ACC Act, 2004, i.e., sections 20A, 33, and MLP Act, 2012, i.e., section 23, non-inclusion of the all of 'predicate offence' in the latest amendment of the ACC Act, 2004 might have further inducement or leave room for financial disorder to entrepreneurs, as the Bangladesh is experiencing since last since the independence.

Therefore, the legal framework governing financial reporting in Bangladesh reflects a formally comprehensive but functionally varies on the objectives. It is evident form the above discussion that the FR Act, 2015 establishes a centralized standard-setting mechanism through the Financial Reporting Council and mandates compliance with reporting standards (Financial Reporting Act, 2015, ss 3, 40), there still remains weak enforcement and overlapping jurisdiction which limits the effectiveness. Similarly, the Banking Companies Act, 1991 levies on banking institutions to ensure accurate financial disclosures, but enforcement remains dependent on regulatory discretion (Banking Companies Act, 1991, s 109). The nominal penalties for misreporting in the Companies Act, 1994 on violation of audited financial statements and shareholder approval's requirement have undermines the deterrence of audited transparency (Companies Act, 1994, § 183, § 397). It is further plausible that the enforcement relaxations still appearing on preventing the disclosure of fraudulent reporting which is being penalized in the Securities and Exchange Commission Act, 1993 (Securities and Exchange Commission Act, 1993, s 18). Moreover, bulk of the sectoral laws in Bangladesh are heavily rely on administrative compliance rather than strong enforcement mechanisms such as the FR Act, 2023 (Finance Company Act, 2023, s 33, 34), Microcredit Regulatory Authority Act, 2006 (Microcredit Regulatory Authority Act, 2006, ss 22, 35), and Insurance Act, 2010 (Insurance Act, 2010, ss 27, 131) impose reporting obligations. The anti-corruption and criminal law framework further reveal structural weaknesses. The ACC Act, 2004 restricts enforcement through procedural barriers such as prior approval requirements (Anti-Corruption Commission Act, 2004, s 20AA) and limited jurisdiction, while the Money Laundering Prevention Act, 2012 provides broader coverage of financial crimes but suffers from coordination gaps. Finally, although the Penal Code, 1860 (Penal Code, 1860, ss 420, 467, 477A) is the country's general criminal law on dealing with every aspect of crimes in Bangladesh, it is apparently inadequate to address complex financial reporting misconduct. Despite the Bangladesh has extensive statutory provisions, therefore, these laws have weak enforcement, institutional fragmentation, and limited deterrence continue to undermine transparency and distort bank profitability outcomes.

8. Conclusion

The researchers conclude that the determinants of profitability of commercial banks in Bangladesh are studied by considering both firm-specific determinants, macroeconomic determinants, and financial reporting governance. It presents a revelation of the performance of banks in a comprehensive manner using dynamic panel data of 20 commercial banks and doctrinal legal analysis. The results show that the Total Loans to Total Assets Ratio and Equity Capital to Total Assets Ratio increase profitability, while the Cost-to-Income Ratio and Non-Performing Loans Ratio decrease it. Moderate inflation brings about positive impacts on profitability with emphasis on economic stability. The analysis indicates deficiencies in regulations, such as divided regulation and poor enforcement that weaken transparency

and manipulate profitability levels. The combination of economic and legal views helps to further comprehend the dynamics that influence the banking industry in Bangladesh.

The findings of the research have provided clear policy guidelines to the regulators, financial institutions and the government authorities. Monetary and regulatory policies that facilitate responsible increases in loaning and consistent inflation rates should be emphasized by the policymakers. The regulatory agencies (Bangladesh Bank, Financial Reporting Council and the Anti-Corruption Commission) are supposed to organize and implement standards to create transparent financial reporting. Enhanced capital requirements, enhanced credit risk management and cost efficiency will make the banks more profitable and resilient. Banks are also expected to have good governance and embrace modern technologies to minimize non-performing loans and enhance efficiency. Such measures will create a more open, strong and sustainable banking industry in Bangladesh.

In spite of its contributions, subsequent studies are advised to utilize additional financial indicators, expand the sample period, and involve qualitative analysis. Further investigation of the dynamics in the profitability of banks and comparative work in other developing economies and research on financial technology, digital banking, and ESG factors would contribute to the understanding of the dynamics of bank profitability.

Declarations

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Figures

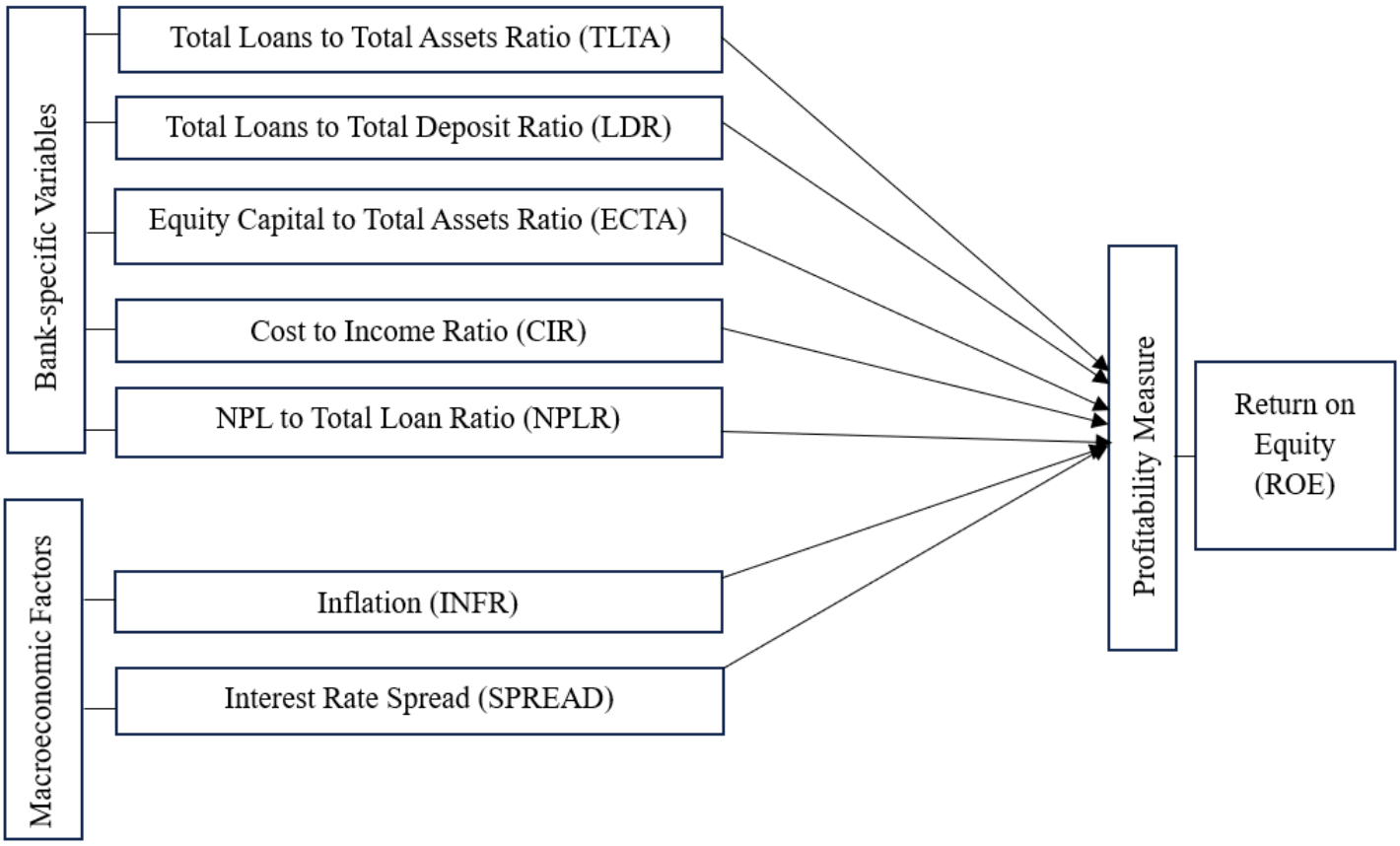


Figure 1

Relationship Between Bank-Specific and Macroeconomic Variables and Bank Profitability