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Research Article

The Determinants of Loan Disbursement Efficiency in Commercial Banks: Evidence from Bangladesh

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ABSTRACT

Although credit assigned plays a central role in the maintenance of the growth and financial stability of the banking sector, little empirical studies have been conducted on the determinants of loan disbursement by the commercial banks in Bangladesh using the panel data analysis technique. This paper fills that gap by investigating factors that affect loan distribution in twenty commercial banks within a span of 10 years. The Hausman specification test follows a panel regression model, comprising common, random, and fixed effect specification; and concludes that the fixed-effect model is the most suitable estimator. The findings indicate a positive but insignificant effect of on loan disbursement by return on assets (ROA) and negative but insignificant effect on loan disbursement by return on equity (ROE). On the other hand, total assets, liquidity ratio and non-performing loans (NPL) have a statistically significant and positive impact on the loan distribution as compared to tangibility (LOG TAN). The relevance of the F-statistics and the Chi-square tests prove the excellent model. This has policy implications in which it is recommended that the commercial banks need to work on the efficiency of asset management and ensure optimum liquidity levels to reinforce credit capacity. Non-performing loans (NPL) management is very important to the quality of credit, as well as financial stability. The findings provide evidence knowledge to policy makers and regulators to create a balance between profitability and risk management to facilitate sustainable banking development.

Keywords: Commercial banks; Loan disbursement; Panel regression; Fixed effect model; non-performing loans (NPL); Bangladesh.

1. INTRODUCTION

Banks are business ventures that aim at making profit. Financial institution that is in charge of financial transactions is referred to as a bank. Banks are willing to minimize the expense of gathering deposits as well as loaning and advancing at a greater rate. Profit of the bank is the amount of numbers that is obtained by a subtraction between two values. The commercial banks of Bangladesh play an essential role in economic development of the country as they are the central cards of the financial system. The fundraising process is managed and loans are given to sectors that portray growth. The main purpose of

establishing a commercial bank is to enhance profitability through proper management of various types of deposited money. The commercial banks being spread around the country have the role of mobilizing these savings. Most studies on the lending policy in banks have focused on the commercial banks and existing financial markets. The tremendous growth in the loans advanced to the private sector over duration of time can be seen as the testament to the fact that commercial banks have played a vital role in the economy, acting as the driving force (Olokoyo, 2011).

Banking business plays an important role in gathering and administering the savings of the people in various forms of the deposit and regulating the savings by giving the loans to various sectors of the economy. Loans and advances are an essential part of the daily operations of commercial banks as the major part of their asset base and a considerable source of revenue generation (Malede, 2014). The credit policy provides limits of allowable risk, defines a guideline of achieving desired asset quality and profitability, and guides the banking lending services in line with the bank strategic objectives. The credit policy establishes a guideline of fair lending, individual credit examination, portfolio make-up, and control of compliance (Caouette et al., 2011). Credit management is the main and the most difficult task which is performed by commercial banks. Any financial organization's credit management policies largely determine its success or failure. An analytical examination of loans, specifically focusing on the factors that contribute to loan defaults, is crucial for achieving successful company financing. The efficiency of loan decisions is contingent upon the managers' or officers' astute discernment (Adhikari, 2009). Some financial indicators, such as ROA, ROE, Asset Growth, LOG TAN (Logarithm of Tangibility), LOG LIQ (Logarithm of Liquidity), and NPL, have been examined in this study.

2. LITERATURE REVIEW

2.1 Return on Assets: ROA is a financial metric that assesses the profitability of a company in relation to its total assets. To put it simply, ROA is a way to quantify how well a company's management can generate money from the financial resources or assets that are reflected on its balance sheet. The main objective of any business, including those in the banking sector, is to make a profit. A bank that makes a lot of money earns the trust of the general public, which is beneficial for the banking industry. As the amount of money that banks receive increases, their lending portfolios will also grow in size. According to Dendawijaya (2009), the rate of asset-use profits for a bank increase in proportion to its ROA.

2.2 Return on Equity: ROE measures the effectiveness of a firm in using shareholder capital to generate profits. We calculate ROE by dividing net profit by total shareholder equity. When evaluating and comparing similar organizations, the indicator is particularly valuable because it provides a dependable representation of profit performance. Charani et al. (2019) utilized the regression analysis of 143 banks and 723 observations of the Middle East banking industry between 2011 and 2016. According to the study results, overall debt in Middle East countries as well as the short-term debt was important in determining the return on equity (ROE) of the banking sector. These were observed to have adverse effects to the ROA whereas the long term debt fully influenced ROA.

2.3 Economic Growth: Economic development of a country is highly influenced by the stability and robustness of the financial institution of those countries. Financial system is very crucial in enhancing competitiveness of local products in the international market (Islam, M. M. and Hasan, M. M., 2026). It can ensure the economic growth and increase long term sustainability of the economy through affordable financing of the market. There is a close relationship between the prosperity of the banks and the prosperity of the borrowers, and this is indicative to the overall economy. The economic growth is a long process. Economic growth might not always be directly proportional to an increase in output per capita in duration of one or two years; it might also be followed by a decline in output per capita. Therefore, the economic growth phenomenon should have the capacity to self-sustenance. This means that the stage of growth is used as a basis to grow the following stage. The productive financing through the bank credits will help to increase the

economic growth and the income level. Bank loans, therefore, positively influence the growth of the economy (Camba & Camba, 2020). Leroy (2014) and Khan, Ahmad, and Gee (2016) found out that a contra dictionary monetary policy implemented by the government through increasing the benchmark interest rate will not have a strong impact on banks that are highly market participants compared to those with less powerful positions. The increase in bank credit through the extensive market forces is less prone to changes in the bank interest costs (Hasan, M. M. et al., 2019). This implies that banks with high market power maintain a more stable level of credit growth therefore enabling them to achieve higher credit growth than the banks with lower market power.

2.4 Assets Tangibility: The term "current asset" refers to the tangible assets that the institution possesses. The term also refers to the proportion of a company's total assets that are physical and long-lasting. To get loans, small and medium-sized companies would often utilize tangible assets. A company's asset structure must be considered before any financial choice can be made. Physical assets may serve as collateral for loans, according to Campello and Giambona (2013). The degree to which an asset can be physically held depends on the value of the item, as stated by Olakunle and Oni (2014).

2.5 Non-Performing Loan: NPLs are loans that the borrower has not paid back on time or is not expected to pay back. When the borrower surpasses a 90-day delinquency period, we classify commercial loans as nonperforming. To enhance and advance the reform of the banking sector, it is vital to comprehend non-performing loans (NPLs) and their influence on financial stability. To prevent bank failure, regulators such as BI and OJK can make informed policy decisions by comprehending the variables that influence NPLs, the NPL ratio, and the consequences of NPLs. A recent detailed analysis revealed that even with all the research efforts aimed at studying the key factors that can define credit risk in banks, the key factor that can influence non-performing loans has not been determined (Naili and Lahrichi, 2022). Unfortunately, there is dearth of research on the causes of non-performing loans (NPLs) of commercial banks particularly in Bangladesh. Consequently, there is no easy way to identify the effective strategies to reduce NPLs to alleviate the banking crisis. Moreover, the internal elements of the banking industry were not carefully investigated in the previous studies in this area. Therefore, banks should ensure that they identify the factors that are leading to the rise of non-performing loans (NPLs) and make relevant actions to address this issue.

2.6 Liquidity: Liquidity is defined as the capacity of an asset to change into cash in a short period. Although a bank may have enough assets that can meet its obligations and sustain themselves financially, it can experience problems in converting the assets into cash in a short period of time, which happens to be liquidity. This could occur where the bank has a variation between the assets and obligations. According to Pilbeams (2005), the demand of loans greatly influences the amount of liquidity in the banks, as it forms a basis of loan increase. In times when loan demand is low, the banks are more likely to increase their reserves of liquid assets. Conversely, when loan demand is high, banks should tend to have a lower quantity of liquid assets in their possession since long-term loans are usually more profitable. Thus, loans and advances negatively affect the liquidity of banks. Banks might be more risk-takers when they possess a high level of funding liquidity, which is caused by high deposit inflows. This is because the bank managers may be incentivized to apply substantial reductions to the lending rates so as to increase the volume of loans and consequently, the level of their compensation. Increased deposits can cause banks to ease lending regulations since the income of the manager will be pegged on the loans as the performance measurement tool. This may result in applying short term risk factors. In the case where the banks face the lack of money that can be used immediately, they tend to resort to the expensive audits, which look into the credit decisions that the managers have it. The resulting effect of the surge in deposits is that it makes the management of the banks too excited about the fact that they were capable of avoiding a liquidity crisis in future and thus they are not critically examining their lending policies. However, losses occurring due to the tradition of lending

money in a daring and dangerous way might lead to bank shutdown (Bani and Yaya, 2016).

2.7 Previous Literature: Tracey and Leon (2011) have made a study in order to assess the impact of non-performing loans (NPLs) on loan growth. Estrella et al. (2000) observe that banks have been frequently broken down by the non- performing loans (NPLs). The regulators aiming at enhancing the regulation of the banking industry are encouraged to pay attention to the process of identifying credit limits. Greenidge and Grosvenor (2010) indicate that the number of non-performing loans is an important factor in the establishment and escalation of financial and banking crises. According to Aziz et al. (2009) the increase in the number of non-performing loans (NPLs) influences financial institutions by necessitating a reduction in lending operations and focusing on the recovery of the NPLs off its balance sheets. According to Kasmir (2010), profitability ratio determines the capacity of a bank to make profits. The computation of the return on equity (ROE) is realized by measuring the portion of the net revenue after tax to the equity capital of the bank. The ROE ratio is used as a measure of capital efficiency with the higher the ratio, the better the financial stability of the bank (Sayem, M. A. et al., 2024).

Kasmir (2010) and Dendawijaya (2009) point out that the banking management uses ROA as a metric to determine the ability of the banks to realize the overall profits. Rossi et al. (2019) in their work emphasize that there is a positive correlation between profitability and loan disbursement. The evidence is very well supported by the findings of Dang (2019), Antoni and Nasri (2015) and Negara and Sujana (2014). The authors of the study by Paul et al. (2016) found that the relationship between loan growth and profitability was positive, but the correlation was not statistically significant. As Bonner and Eijffinger (2016) argue, bank liquidity restrictions affect long-term interest charged on lending and borrowing, as well as, decrease the interest margins of banks. The authors advised the need to have a good portfolio of quality liquid assets. As demonstrated by Mairafi, Hassan, and Mohammed-Arshad (2018), liquidity has a great impact on the performance of a bank, its risk-taking practices, and the generation of liquidity. The works of Abobakr (2017), Hossain, M. M. et al. (2015), and Khan et al. (2015) demonstrate that the liquidity of a bank has a huge impact on its risk-taking, the creation of liquidity, and general performance. Wahyuni and Azmi (2019) claimed that total assets are used as a measure of completion in the banking sector and bank size, and a reduced total asset base negatively affects the economies of scale of the banks. According to Eldomiaty (2020), the total bank assets can be divided into four categories, which are cash assets, securities assets, financing assets, and fixed assets. This study highlighted that the size of a bank is positively correlated with the volume of assets (Dermawan, Hunainah, Suseno, and Basrowi 2021). The balance sheet lists the bank assets in a way that indicates wealth and which is a result of various sales.

Financial institutions with a substantial proportion of their assets in tangible forms are more prone to exhibit elevated debt levels. Banks with less tangible assets will possess diminished capacity to secure their debt over the long term. Laksana and Widyawati (2016) say that when people are having money problems or filing for bankruptcy, creditors can take physical goods that were offered as collateral because they are so tangible. Iltas & Demirgunes (2020) assert that tangible assets, which offer a high degree of certainty, serve as the primary collateral for business loans. As a result, a business with more physical assets should be able to get external financing for less money, which could improve its financial performance. Tangible assets are typically divided into two categories: Current assets include cash and cash equivalents, marketable securities, accounts receivable, and inventories, all of which are characterized by a duration of one year or less and the ability to be rapidly converted into cash without losing value in emergencies. Fixed assets, including real estate, machinery, and equipment, is intended for long-term use and exhibit relatively low market liquidity (Birch, 2016; Downes and Goodman, 2003). While numerous studies have addressed this topic, no previous research in Bangladesh has used such detailed factors. This study aims to fill the research gap by systematically assessing the specified variables and their impact on bank performance.

3. RESEARCH QUESTIONS

a) What are the major financial predictors that affect the loan disbursement in Bangladesh commercial banks?

b) What does profitability measure (ROA and ROE) reveal about the lending behavior of banks over the long run?

c) How much are asset structure, liquidity ratio, and non-performing loans (NPL) relevant to the loan disbursement performance of banks?

d) What are the policy interventions that can be made to promote sustainable lending and lending standards in the Bangladesh banking sector?

4. METHODOLOGY

This study is quantitative and uses secondary data, focusing on the financial performance analysis of Bangladeshi commercial banks. The research used a multiple regression model utilizing annual reports to analyze the correlations between bank-specific characteristics and profitability indicators, thereby providing an empirical understanding of the primary determinants affecting financial outcomes.

4.1 Sample of the study: The current study depends on secondary data only. The quantitative data have been collected from 20 commercial banks of Bangladesh over the period of 2013-2022 which are stated below:

Table 1: List of Commercial Banks

Bank	Founding year
Sonali Bank Ltd. (SCB)	1972
Janata Bank Ltd. (SCB)	1972
Agrani Bank Ltd. (SCB)	(nationalized 1972; incorporated PLC 2007)
Rupali Bank Ltd. (SCB)	1972
Islami Bank Bangladesh Ltd. (PCB)	1983 (13 Mar 1983)
Dutch-Bangla Bank Ltd. (PCB)	1995 (first joint-venture bank)
BRAC Bank Ltd. (PCB)	2001 (BRAC Bank established in 2001)
Eastern Bank Ltd. (PCB)	1992 (est. 8 Aug 1992)
Prime Bank Ltd. (PCB)	1995 (Prime Bank established mid-1990s)
NCC Bank Ltd. (PCB)	1985 (NCC Bank established)
The City Bank Ltd. (PCB)	1983
Southeast Bank Ltd. (PCB)	1995 (founded mid-1990s)
Mercantile Bank Ltd. (PCB)	1999 (Mercantile founded 1999)
Dhaka Bank Ltd. (PCB)	1995 (Dhaka Bank founded mid-1990s)
Mutual Trust Bank Ltd. (PCB)	1999 (MTB founded 1999)
Standard Chartered Bank (foreign) — Bangladesh	(branch presence historically >100 years; bank established globally 185–1900s)
HSBC — Bangladesh (foreign)	Branch presence dating back many decades (HSBC global long history)
Citibank N.A. (foreign; Bangladesh operations)	Citi has global history; Bangladesh presence focused on corporate/wholesale banking
Commercial Bank of Ceylon PLC (foreign: Sri Lanka) — Bangladesh operations	Commercial Bank of Ceylon (founded 1920s)
State Bank of India (SBI) — Bangladesh branch (foreign)	Very old presence (historical ties; Bangladesh branch reopened 1975, earlier presence in 1800s)

Source: Authors' Compilation

4.2 Variables and their measurement

Table 2: Variable's list

Determinants	Variables	Measurement	Authors
Independent variables	Return on Assets	ROA= after tax Net Profit/Total Assets	Akhter (2023), Anggraeni et al. (2023)
	Return on Equity	ROE = after tax net profit/equity	Akhter (2023), Anggraeni et al. (2023)
	Assets	Assets = The total asset of bank.	Anggraeni et al. (2023)
	Growth	Growth = (previous year asset-current year asset)/current year asset	Dermawan et al. (2021), Anggraeni et al. (2023)
	LOG Tangibility	LOG TAN = Fixed Assets /Total Assets	Anggraeni et al. (2023)
	LOG Liquidity	LOG LIQ = Current Assets/Current Debt	Kajola et al. (2019)
	Non-Performing loan	NPL= ratio of bad loans/ total disbursement.	Lubis and Mulyana (2021), Trung (2022), Kingu et al. (2018)
Dependent Variable	Total Disbursement loan		Anggraeni et al. (2023)

Source: Authors' Compilation

4.3 Model Specification:

Common Effect (CE) model; Random-Effect (RE) model and Fixed -Effect (FE) model have been used for regression analysis. HOANG et al. (2020) and Kajola et al. (2019) had used RE and FE model in their study. Kingu et al. (2018) had used CE, RE and in their study. The models are stated below:

$$Yit = \alpha + Xit\beta + \varepsilon it$$

$$Yit = \alpha + Xit\beta + uit + \varepsilon it$$

$$Yit = \alpha + Xit\beta + \varepsilon it$$

Here, i = 1, 2…, N; t = 1, 2…, T

Where; Yit is the dependent variable (loans) i in period t. Xit is the independent variable (ROA, ROE, Assets, Growth, LOG TAN, LOG LIQ, NPL) i in period t. β is the regression coefficient and εit is the error term; uit is errors within entities.

The regression model that I have used to determine the loan disbursement on commercial bank is given below:

$$Loanit = \alpha it + ROAit\beta 0 + ROEit\beta 1 + Assetsit\beta 2 + Growthit\beta 3 + LOG\ TANit\beta 4 + LOG\ LIQit\beta 5 + NPLit\beta 6 + \varepsilon it \quad (1)$$

$$Loanit = \alpha it + ROAit\beta 0 + ROEit\beta 1 + Assetsit\beta 2 + Growthit\beta 3 + LOG\ TANit\beta 4 + LOG\ LIQit\beta 5 + NPLit\beta 6 + uit + \varepsilon it \quad (2)$$

$$Loanit = \alpha it + ROAit\beta 0 + ROEit\beta 1 + Assetsit\beta 2 + Growthit\beta 3 + LOG\ TANit\beta 4 + LOG\ LIQit\beta 5 + NPLit\beta 6 + \varepsilon it \quad (3)$$

The whole disbursement is represented by Loanit, ROAit is the return on asset, and ROEit is the return on equity. Assetsit is shorthand for a bank's entire asset value; Growthit is the increase in value of assets LOG; LOG Tangibility is represented by TANit, LOG Liquidity by LOG LIQit, and NPLs by NPLit. Banks' loan disbursement in year t is determined using non-performing loans. Regression errors inside entities are represented by α, β0, and β1. All statistical computations were estimated using Microsoft Excel, Microsoft Word, and Stata 15.

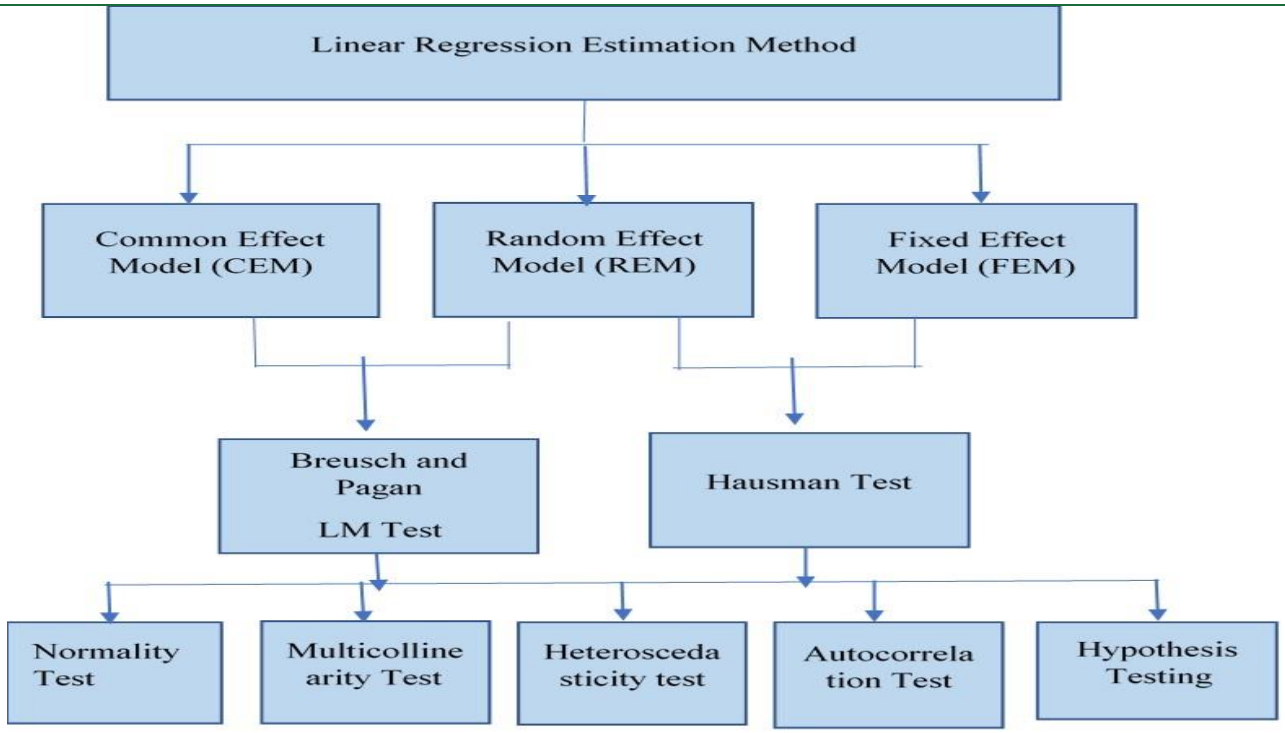

Figure 1: Determination of Panel Data Regression Estimation Model

Source: Author's Illustration

5. HYPOTHESES DEVELOPMENT

The study's hypotheses are based on the following, drawn from the relevant literature review and regression model:

H_1: There is a statistically significant and positive relationship between ROA and loans.

H_2: There is a positive and statistically significant correlation exists between ROE and loan performance.

H_3: Assets demonstrate a positive and statistically significant influence on loans.

H_4: Growth has a beneficial and statistically meaningful effect on loans.

H_5: LOG TAN demonstrates a positive and statistically significant effect on lending.

H_6: LOG LIQ has a positive and statistically significant impact on lending.

H_7: Nonperforming loans significantly enhance loan amounts.

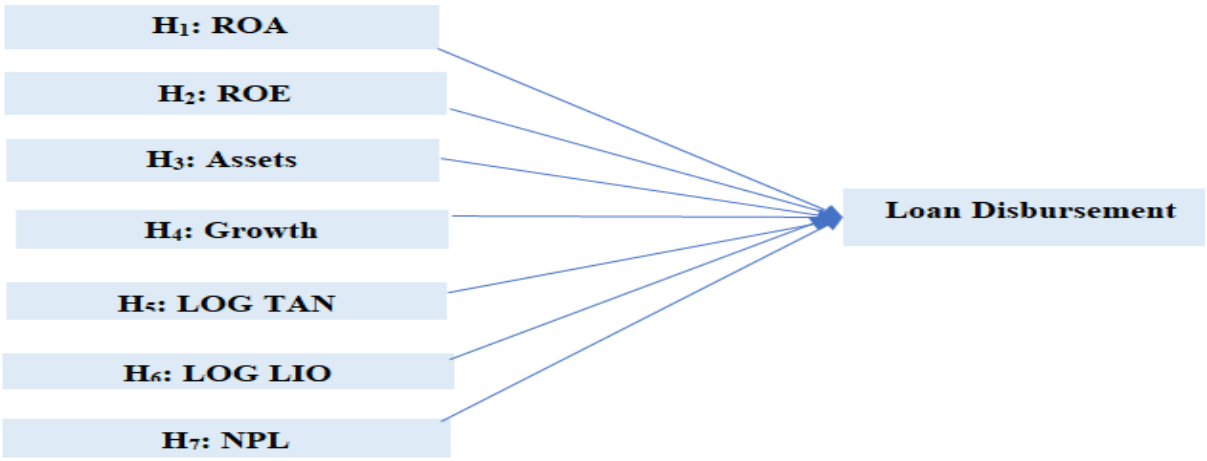

Figure 2: Conceptual Framework of Hypothesis Testing

6. RESULT AND DISCUSSION

Table 3: Normality Test

Loan	Kolmogorov-Smirnov[a]			Sharpio-Wilk		
	Statistic	Df	Sig.	Statistic	Df	Sig.
	.054	200	.200*	.987	200	.067

*. This is a lower bound of the true significance.
a. Lilliefors Significance Correction
Source: *STATA output*

Drezner et al. (2010) indicated that the modified KS test reveals a persuasive p-value of p > 0.2, preventing the refusal of the null hypothesis of normality. Given that the sample originates from a normal distribution, the result derived from our test plan is valid. Table 3 represents the Normality test distribution. The normality test has been done by performing the Kolmogorov-smirnov and Sharpio - Wilk test. The probability of normality test is .200 and .067. The P-value is more than 0.05 which indicates that this model has been normally distributed. Risalah et al. (2018) used Kolmogorov-Smirnov test in their study.

Table 4: Multicollinearity test

Test	Tolerance	VIF
ROA	.163	6.144
ROE	.946	1.058
Assets	.860	1.163
Growth	.149	6.700
LOG TAN	.867	1.153
LOG LIQ	.380	2.634
NPL	.412	2.429

a. Dependent Variable: Loan disbursement
Source: *STATA output*

Oke et al. (2019) established that little multicollinearity exists when the tolerance approaches 1, however a potential multicollinearity issue arises when the tolerance nears 0.Jamal (2017) asserts that multicollinearity signifies that the corresponding regression coefficients are inaccurately estimated if any VIF values exceed 5 or 10. Multicollinearity is signified by one or more low eigenvalues (almost 0) and a substantial condition number. The collinearity test presented in Table 3

demonstrates that the tolerance values for ROA, ROE, Assets, Growth, LOG TAN, LOG LIQ, and NPL exceed 0.10, while the variance inflation factor (VIF) values for these variables remain below 10. Consequently, it signifies the absence of a multicollinearity issue. Akhter (2023) and Patwary and Tasneem (2019) employed this test in their research.

Table 5: Breusch-Pagan / Cook-Weisberg test for heteroskedasticity

chi2(1)	1.94
Prob > chi2	0.1640
Ho: Constant variance Variables: fitted values of Loan	

Source: *STATA output*

Rosopa et al. (2013) describe heteroscedasticity as a phenomenon that violates statistical assumptions, resulting in increased error rates and decreased statistical power. Table 5 shows the results of the Breusch-Pagan / Cook-Weisberg test for heteroskedasticity within the model. H_0: The model does not demonstrate heteroscedasticity problems. If the p-value of the chi-squared test exceeds 0.05, the null hypothesis is accepted. The chi-squared p-value in the table is greater than 0.05. The acceptance of H0 signifies the lack of heteroskedasticity within the model. Trung (2022) utilized the Breusch-Pagan/Cook-Weisberg test to evaluate heteroskedasticity.

Table 6: Durbin-Watson test for autocorrelation test

	Durbin-Watson
Loan	0.629
Dependent variable: Loan Independent Variables: ROA, ROE, Assets, Growth, LOG TAN, LOG LIQ, NPL	

Source: *STATA output*

According to Uyanto (2020), the value of Durbin Watson remains between 0 and 4. Furthermore, his study revealed that without lagged dependent variable Durbin Watson shows better results than another test. Table 6 reveals Durbin-Watson test for autocorrelation testing. If the results of the Durbin-Watson test range from 0 to 2, it indicates positive autocorrelation. A value exceeding 2 indicates negative autocorrelation. The Durbin-Watson test value is 0.629. So, it can be concluded that there is a positive autocorrelation present. Firmansyah (2022) and Risalah et al. (2018) had used durbin-Watson test to test autocorrlaion.

Table 7: Descriptive Statistics

	N	**Minimum**	**Maximum**	**Mean**	**SD**	**Skewness**		**Kurtosis**	
						Statistic	**Std. error**	**Statistic**	**Std. Error**
Loan	200	5891.73	920016.43	92233.72	9223.37	.098	.172	.889	.342
ROA	200	-.07292	.18473	.00725	.01565	6.535	.172	86.695	.342
ROE	200	-1.38138	6.90507	.10753	.50921	11.878	.172	161.936	.342
Assets (Million	200	5966.0	1789772	335974	300927	2.494	.172	7.340	.342
Growth	200	-21.84405	.96393	.00603	1.55641	-14.042	.172	198.121	.342

LOG TAN	200	-2.78774	2.04553	1.66092	.88890	3.330	.172	11.385	.342
LOG LIQ	200	-1.42177	.88542	.21948	.15227	-5.863	.172	69.002	.342
NPL	200	.00000	.59797	.09672	.12302	2.575	.172	6.607	.342
Valid N (list wise)	200								

Source: *STATA output*

Table 7 presents the descriptive statistics for both the dependent and independent variables. The table summarizes the descriptive statistics for all variables used in the study, encompassing mean, maximum, minimum, standard deviation, skewness, and kurtosis. This study identifies the loan as the dependent variable, with independent factors comprising ROA, ROE, Assets, Growth, LOG TAN, LOG LIQ, and NPL. The average loan amount is 92,233.72. Conversely, the average values of ROA, ROE, Assets, Growth, LOG TAN, LOG LIQ, and NPL are 0.00725, 0.10753, 335,974 million, 0.00603, 1.66092, 0.21948, and 0.09672, respectively. Assets have highest mean value and ROA has lowest mean value. Std deviation of loan is 9223.37 and the SD of ROA, ROE, Assets, Growth, LOG TAN, LOG LIQ and NPL are .01565, .50921, 300927 million, 1.55641, .88890,.15227 and .12302. The highest value of Std. Deviation is 300927 million of Assets and lowest value of Std. Deviation is .01565 of ROA. The Skewness of loan is .098. On the other hand, the Skewness of ROA, ROE, Assets, Growth, LOG TAN, LOG LIQ, NPL are 6.535, 11.878, 2.494, -14.042, 3.330, -5.863, 2.575. The kurtosis of loan disbursement is .889. On the other side, the Kurtosis of ROE, ROE, Assets, Growth, LOG TAN, LOG LIQ, NPL are 86.695, 161.936, 7.340, 198.121, 11.385, 69.002, and 6.607.

Table 8: Correlation Matrix

	Loan	ROA	ROE	Assets	Growth	LOG TAN	LOG LIQ	NPL
Loan	1							
ROA	-.109	1						
ROE	-.020	.034	1					
Assets	.850**	-.164*	-.043	1				
Growth	-.029	-.796**	-.002	.065	1			
LOG TAN	.188**	.166*	-.037	.151*	-.106	1		
LOG LIQ	.112	-.562**	.011	.159*	.762**	.081	1	
NPL	.199**	-.454**	.105	.252**	.012	-.199**	-.056	1

**. Correlation is significant at the 0.01 level (2-tailed).
*. Correlation is significant at the 0.05 level (2-tailed).
Source: *STATA output*

Table 8 reveals that loans exhibit a positive correlation with Assets, LOG TAN, LOG LIQ, and NPL, whereas they show a negative correlation with ROA, ROE, and Growth. ROA shows a positive relationship with ROE, LOG TAN, while demonstrating a negative relationship with assets, growth, LOG LIQ, and NPL. On the other hand, ROE exhibits a positive correlation with LOG LIQ and

NPL, while it shows a negative correlation with Assets, Growth, and LOG TAN. Conversely, Assets exhibit a positive correlation with Growth, LOG TAN, LOG LIQ, and NPL. Growth shows a positive relationship with LOG LIQ and NPL, whereas it reveals a negative relationship with LOG TAN. LOG TAN shows a positive relationship with LOG LIQ, while it demonstrates a negative relationship with NPL. On the other hand, LOG LIQ shows a negative correlation with NPL.

Table 9: Regression analysis results (Dependent variable: loan disbursement)

	Common Effect Model (CEM)			**Random Effect Model (REM)**			**Fixed Effect Model (FEM)**		
	Coef.	T	P	Coef.	t	P	Coef.	T	P
ROA	-2706343	-3.15	.002**	46081.36	0.09	0.925	266097.2	0.58	0.563
ROE	11438.45	1.05	.297	-537.8261	-0.10	0.920	2160.322	-0.43	0.666
Assets	4.19007	21.58	.000***	5.65807	27.42	0.000***	-5.61e-07	24.45	0.000***
Growth	-36115.27	-4.01	.000***	-17865.33	-3.43	0.001***	-20367.77	-4.12	0.000***
LOG TAN	6213.64	0.95	.344	-37766.74	-2.59	0.010***	-103163.1	-4.25	0.000***
LOG LIQ	92453.15	1.60	.111	100854.5	2.54	0.011**	104941.7	2.79	0.006***
NPL	-156686.4	-2.28	.024**	106813.4	1.87	0.061*	149565.4	2.59	0.010***
Cons	306459.1	13.83	.000***	138387	4.45	0.000***	24554.7	0.64	0.525
R Square	0.7487			0.8439			0.8509		
F statistic			0.000						0.0000
Chi2						0.0000			

Note: *significant at 0.10, ** significant at 0.05, and ***significant at 0.01 level.

Source: *STATA output*

Table 9 displays the outcomes of the regression analysis. Here, loan is the dependent variable and ROA, ROE, assets, growth, LOG TAN, LOG LIQ, and nonperforming loans are the independent variables. The common effect model (CEM) shows that assets have a affirmative effect on loans, although return on assets (ROA), growth, and nonperforming loans (NPL) all have negative effects. There is a positive but insignificant effect of the other factors on loan, namely ROE, LOG TAN, and LOG LIQ. A small positive influence of ROA on loan and a small negative effect of ROE on loan are observed in the Random influence Model. Loans are greatly influenced favorably by assets, LOG LIQ, and NPL. Growth, on the other side, has a major detrimental effect on loans. Both ROA and ROE have negligible positive and negative effects on loan amounts in the Fixed Effect Model. Loans are greatly influenced favorably by assets, LOG LIQ, and NPL. Growth, on the other side, has a major detrimental effect on loans. Results of significance are indicated by the p-value of the F-statistic and the Chi-square test.

Table 10: Breusch and Pagan Lagrangian multiplier test for random effects

	Var	**Sd=sqrt (Var)**
Loan	2.24e+10	149743.5
E	1.19+09	34447.51
U	4.10e+09	64052.61
Test: Var(u)=0 Chibar2 = 349.99 prob>chibar2 = 0.000		

Source: *STATA output*

The Lagrangian multiplier test developed by Breusch and Pagan to choose between the common effect model and the random effect model is shown in Table 10. The computed p-value is less than 0.05 (0.000<0.05), according to the Breusch and Pagan LM test. Therefore, the REM (Random Effects Model) is the right choice. Supriatna and Faisal (2020) had used this test in their study.

Table 11: Hausman Test

	Coefficient			Std. Error
	(A) Fixed Effect	(B) Random Effect	(A-B) Difference	
ROA	266097.2	46081.36	220015.8	.
ROE	-2160.322	-537.8261	-1622.496	.
Assets	5.61e-07	5.65e-07	-3.64e-09	1.01e-08
Growth	-20367.77	-17865.33	-2502.447	.
LOG TAN	-103163.1	-37766.74	-65396.32	19384.32
LOG LIQ	104941.7	100854.5	4087.238	.
NPL	149565.4	106813.4	42751.98	8774.162
Chi2 =33.63	Prob>chi2 0.0000			

Source: *STATA output*

Table 11 presents the results of the Hausman test, which is employed to determine the appropriate choice between Fixed Effect and Random Effect models. The null hypothesis posits that the Random Effect model is suitable for this scenario. The Fixed Effect model is suitable. The Hausman test shows that the null hypothesis is rejected, given that the calculated p-value (0.000) falls below the significance threshold of 0.05. The Fixed Effect Model is therefore suitable. Akhter (2023), Firmansyah (2022), and HOANG et al. (2020) employed this test in their studies.

Table 12: Hypotheses Testing

Relationships	Results	Decisions
ROA ⟶ Loan performance.	Although the p-value of 0.563 exceeds 0.05, suggesting a minimal effect of ROA on loans, the coefficient value of 266097.2 demonstrates a positive influence of ROA on loans. The findings of the hypothesis testing, including both the positive and insignificant results, are presented.	Rejected
ROE ⟶ Loan performance.	The negative coefficient value of -2160.322 for return on equity (ROE) on loan, along with the insignificant p value of 0.666 (which exceeds 0.05), suggests the presence of an effect. The outcomes of the hypothesis testing indicate a negative result, lacking statistical significance.	Rejected.
Assets ⟶ Loan performance.	The coefficient value of 5.61e-07 suggests that assets positively influence loans, whereas the p value of 0.000 for ROA, which is below 0.05, indicates a significant effect on loans. The findings of the hypothesis test are promising and significant.	Accepted
Economic Growth ⟶ Loan performance.	The analysis reveals that growth negatively affects loans, as evidenced by the coefficient value of 20367.77. However, it also shows a significant relationship, with a p value of 0.000, which is below the threshold of 0.05. The findings of the hypothesis test are noteworthy and unfavorable.	Rejected

LOG TAN ⟶ Lending performance.	The logarithm of TAN exhibits a detrimental impact on loans, with a coefficient of -103163.1. This effect is statistically significant, as indicated by a p-value of 0.000, which is below the threshold of 0.05. The outcomes of the hypothesis testing demonstrate statistical significance and a negative correlation.	Rejected
LOG LIQ ⟶ Lending performance.	The p-value of 0.006, being less than 0.05, indicates that the effect of LOG LIQ on loan is statistically significant. Additionally, the coefficient value of 104941.7 suggests a positive effect. The results from the hypothesis testing are both statistically significant and favorable.	Accepted
NPLs ⟶ Loan amount	The coefficient value of 149565.4 suggests a positive effect of nonperforming loans on loans. The effect is statistically significant, as the p-value of 0.010 is below the threshold of 0.05. The results from the hypothesis testing are statistically significant and favorable.	Accepted

Source: Authors' Compilation

7. IMPLICATIONS

The results of the study indicate that the growth of assets, liquidity and proper management of the non-performing loans (NPL) is very important to maintain good and healthy loan disbursement in Bangladeshi commercial banks. The policy makers must enhance regulatory supervision in order to maintain the appropriate liquidity and quality of assets standards and the banks must consider enhancing profitability by utilizing available resources effectively and managing risks in the credit. Increasing the level of tangibility of assets and NPLs management can increase trust in the operations of the loan, and enhance financial stability. Altogether, sustainable lending growth may be promoted by harmonizing the internal management practices with the sound regulatory policies and lead to the creation of a more robust banking sector in Bangladesh.

8. CONCLUSION

This paper explores the factors of loan disbursement in Bangladesh commercial banks, with reference to major financial and operational variables, such as the ROA, ROE, total assets, growth, tangibility (LOG TAN), liquidity (LOG LIQ), and non-performing loans (NPL). The results of the panel regression analysis of twenty banks over the year ten show that assets, liquidity, and NPL have a significant effect on loan distribution whereas profitability measures (ROA and ROE) are not significant. In particular, banks those have greater asset bases have greater lending capacities indicating better capital positions that can allow them to provide more credit. On the other hand, the higher the liquidity and the tangibility, the less the loan disbursement and this indicates that over cash in possession or overinvestment in non-current assets could be a limiting factor in lending activities. One more significant point regarding non-performing loans that is raised in the study is that in case of low levels of NPL, and then the level of loan disbursement and profitability level is high as there is minimal probability of default. This has enormous policy implications to regulators and the management of the bank. Commercial banks should aim at enhancing the quality of their assets, liquidity management and ensure their credit risk management in an attempt to have sustainable lending development. The financial strategies of maximizing profitability such as efficient resources allocation and efficient loan recovery mechanism are key in financial sustainability. To a greater degree, regulators are able to encourage policies that can create a balance between the liquidity requirement and credit growth objectives that encourage broader economic growth. Overall, the research offers practical suggestions that can be used to guide the commercial banks, other financial institutions, and policymakers to have a stable and effective banking sector in Bangladesh, which, eventually, can result in the increased

accessibility of credit by both manufacturing and non-manufacturing industries.

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