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An Analytical Overview of the Factors Affecting Non-performing Loans in Selected Banks of Bangladesh

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ABSTRACT

Non-performing loans are a severe hindrance when we consider the fact that the profitability and the liquidity of a bank can be affected by a large margin, considering the sheer volume of such loans that the domestic banks seem to acquire every year. For countries with emerging economies, previous studies state that external and internal factors can influence the determination of credit risk and the level of non-performing loans. This paper studies some bank-related factors like inefficiency, profitability, bank size, leverage, and macroeconomic factors like GDP growth rate, interest rate, and unemployment rate. Fifteen banks and seven years of data are used for the study. A panel data study with the Hausman test was run. Individuality and time factor was considered, and the fixed effect method was applied. The results showed that poor management decisions or inefficiency positively correlated with non-performing loans. Profitability showed a negative relationship, while bank size showed a significantly negative relationship with NPL. GDP growth rate and unemployment rate show a significant positive relationship. But the Interest rate shows a significant negative relationship. The overall findings show that both bank performance and macroeconomic factors play an essential role in the level of non-performing loans in the commercial banks of Bangladesh.

Keywords: Non-performing loans, Internal factors, Analytical overview, Fixed effect, and Individuality.

INTRODUCTION:

A bank is more than just a body to receive deposits and provides loans. It serves a greater purpose of regulating and creating credit and ensuring the flow of finance in an economy. As a developing nation, the flow of credit is of utmost importance. However, a series of factors significantly affect the banking sector's health. One of these factors is the presence of non-performing loans. In essence, a non-performing loan is a loan that bears a greater risk of being defaulted on. The rate of default can increase substan-

tially by internal and external factors. Over the past decade, non-performing loans have increased at an alarming rate in Bangladesh. In an economy that is developing at a constant pace, such as the economy of Bangladesh, it is alarming how much non-performing loans seem to ail this economy. Non-performing loans are a severe hindrance when we consider that a bank's profitability and liquidity can be affected by a large margin, considering the sheer volume of such loans that domestic banks seem to acquire yearly (Hosen *et al.*, 2020). Iterates the financial crisis of 2008, pointing

towards the evident chain effect those factors in the banking sector can have on the industry itself and the economy, both domestic and foreign.

The Non-performing loan rate in Bangladesh is 5 to 6% higher than the standard. As international evidence suggests, the economic development of a nation is deeply interconnected to the banking system. The credit flow, which runs through the veins of the economy, can often be misinterpreted, and as per evidence, the resulting shock does not bear well if NPL is not managed closely. The vulnerability of a country's financial system can contribute to the country-wide let-down as the financial vulnerability can be termed as a risk factor. Prior studies have observed that rivalry among banks can further credit risk since banks tend to make poor credit decisions. Moreover, they can be stuck in this vicious cycle by continuing to make decisions that harm banks' operations. Banks can relax the lending rates in the short term to enhance their loan performance if the rivalry between banks is their prime concern. However, it might not work for banks to mitigate the issue of non-performing loans if there are concerns regarding the screening process and mismanagement of decision-making procedures (Khalid *et al.*, 2021; Marki & Bellas, 2014).

For countries with emerging economies, previous studies state that external and internal factors can influence the determination of credit risk and the level of non-performing loans. Generally, banks play the intermediary for business and trade-related activities. Bangladesh Bank contributes to this system by controlling and supervising banks which is one of its main objectives. Moreover, to reach this goal, they streamlined banks into compliance with the regulatory framework of Bangladesh bank.

Theoretical Discussion

This paper identifies a research gap by focusing on a specific set of banks and analyzing the impact of selected variables on the NPL of these banks. In addition, this paper aims to understand the non-performing loan performance of the designated banks, which include five Islamic Shariah-based banks and ten commercial banks. Therefore, there is a significant gap to contribute and provide a much-detailed look into these banks and the current state of NPL. The objectives of the

study are to know about the state of the NPL of the selected Banks, to understand the factors affecting the NPL, to make suggestions and recommendations for improving the current condition or problem, to test the appropriate model and the relative significance of the study variables on the selected banks.

Context of the study

According to the International Monetary Fund, the percentage of a loan's principal and interest overdue for ninety days or more is considered a non-performing loan. It can be defined as the summation of substandard, doubtful, and loss or bad loans. Because of various reasons, the amount of NPLs in Bangladesh is growing substantially. According to the latest report of Bangladesh bank, the NPL ratio of Bangladesh is 8, 1%, whereas it was 8.9% in the prior quarter. In 2020, it was posited that rescheduling and recoveries of loans have made Bangladesh decrease a significant amount of NPLs. It is noteworthy that Bangladesh experienced an all-time high of almost 28% in March 2003 and an all-time low of 6.1% in December 2011. Non-performing loans in the banking sector of Bangladesh have been a constant nuisance. The graph shows how NPL has risen/fallen in the past ten years. From 2011 till the last quarter of 2020, NPL continued to increase significantly every year, with a slight drop in 2015. Despite the continuous effort from BB, this rate continued to rise. The stringent policies, however, started showing results by the end of the 4th quarter of 2018. As a result, gross NPL saw a declining pattern beginning in 2019, and by the 31st of December 2020, the share of NPL concerning total loans outstanding came down to 7.73%. This decline is attributed to suspending the regular practice of classifying loans into effect by central bank following the covid-19 outbreak. Instead, Bangladesh Bank prepared a consolidated statement for non-performing loans covering domestic and offshore banking units. The following section provides a year-by-year breakdown of Bangladesh's nonperforming loans.

Review of Literature

The literature review unveils the global statistical evidence accumulated by researchers to provide an analytical view of the factors affecting NPL (Waqas *et al.*, 2017), conducted an empirical study in their attempt to identify determinants of credit risk across three coun-

tries. The study period was from 2000 to 2015, and unbalanced panel data from 105 financial firms were used as the basis of the study.

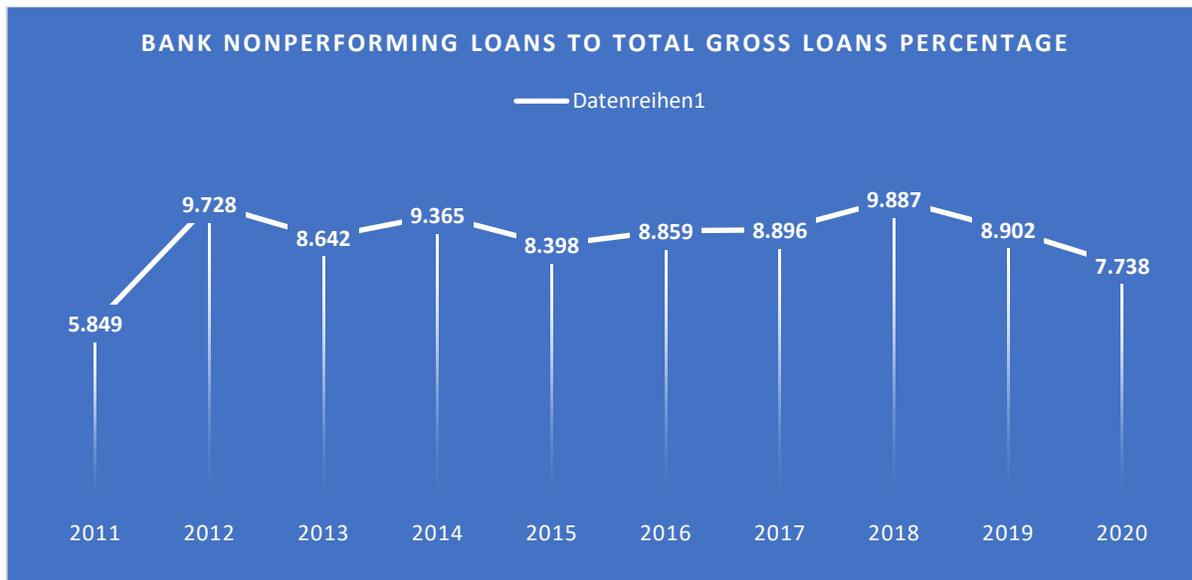


Fig. 1: Bank nonperforming loans to total gross loans percentage.

Macroeconomic factors such as unemployment rate and real interest rate were used, as well as bank-related factors such as profitability and capital ratio. The findings showed that in the case of Bangladesh, contradictions have been predicted, which holds no significant effect on NPL. The overall findings show that credit risk is internal and external, such as management inefficiency and profitability (Saba *et al.*, 2012) quotes that a significantly high level of factors affects non-performing loans. There are firm-level factors as well as macroeconomic-level factors. These factors are all linked to the degree of existence of non-performing loans. This paper used a mix of different variable factors to understand this relationship on a statistical level using empirical analysis. Real GDP per Capita, Total loans, and Inflation were the independent variables used. The findings showed that every independent variable used in the study seems to show significant relationships with the level of non-performing loans. The suggested improvements stated that banks should try to reduce their level of credit advancement policies to see more impact on the level of problem loans (Khatun & Ghosh, 2019) conducted an inspection of panel data to explain the association and relationship between levels of problem loans and corporate governance factors. The authors cited the increasing problem

of non-performing loans in the banking sector of Bangladesh. According to the paper, the rising number of non-performing loans may hinder the country's economic growth, which is consistent with previous research. It also reduces the loan-giving capacity of the banks, as bad debts lead to funds being lost. Data from 30 listed commercial banks were analyzed over ten years, from 2008 to 2017. The findings present that the commercial bank of Bangladesh follows the corporate governance code on just a compliance basis. Still, the tested variables showed a positive and significant relationship with non-performing loans. This study further complimented the findings that are present in the study of (Waqas *et al.*, 2017; Boudriga *et al.*, 2009) they have carried out an empirical analysis to determine cross-countries determinants of non-performing loans (NPLs). They studied the probable effect of institutional environment and devices of supervision on credit risk exposure. The research was designed using data from 59 countries from 2002 to 2006. The study's empirical findings showed that strict provisioning practices appear to reduce the amount of non-performing loans. A greater capital adequacy ratio also indicated a decrease in the number of problem loans. However, suppose a country has weak institutional structures, corruption in the system and environment, and a

lower level of democracy. In that case, regulations and policies do not seem to decrease the level of problem loans. This paper also suggested that foreign and private ownerships ensure healthier financial systems in less developed economies (Rifat, 2016) conducted a panel data analysis and found that Loan expansion has a considerable positive effect on defaulted debts at a one percent level of significance. He also found that bank size has significant positive effects on non-performing loans, which means a bigger bank is not necessarily efficient at managing its loan. However, this contradicts the previous results of (Ranjan & Dhal, 2003), who found that the larger the bank, the more efficiently they can recover the loan, reducing their total non-performing loan. They found that if a bank asset increased by 1 percent, the non-performing loan would be reduced by 1.8 percent. They also found that if a bank's interest rate is high, that bank's non-performing loan tends to be higher (Chowdhury & Jannah, 2020) conducted research to determine the causes of non-performing loans related to bank operations and customer operations. The research found that bank operations-related causes of non-performing loans are caused 30 percent by fund diversion, 30 percent by credit assessment, 20 percent by fraud from bank officers, and others for various reasons. The customer operations-related causes of non-performing loans are lack of business knowledge of the customer to operate the business, lack of accounting knowledge of customers, and inadequacy in financial management (Hosen *et al.*, 2020) carried out an empirical analysis to investigate the impact of macroeconomic elements on non-performing loans. They found that inefficiency and bank size positively impact non-performing loans.

They describe it as the bank grows, its internal control decreases, so it increases non-performing loans. However, they discovered a negative correlation between economic expansion and defaulting loans. They describe it as the economy getting better, and people tend to repay their loans. By analyzing and reflecting on the prior literature, the following hypotheses were held to test the relative significance and the state of the association between NPL and the observed variables.

Hypothesis Development

According to the results of (Waqas *et al.*, 2017), this paper holds its first Hypothesis:

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H1: The non-performing loan ratio positively and significantly correlates with management inefficiency. This study takes the natural logarithm of NPL to formulate the dependent variable based on information derived from (Khatun & Ghosh, 2019; Louzis *et al.*, 2012) Documented in their study that profitability bears a negative correlation with NPL. So, the second Hypothesis states:

H2: The ratio of non-performing loans has a negative association with profitability.

The third Hypothesis is derived from the findings of (Waqas *et al.*, 2017), and as found in this literature, states:

H3: Leverage has a negative relationship with the non-performing loan ratio.

The fourth Hypothesis is also derived from (Waqas *et al.*, 2017). Given the rising NPL levels of the listed banks in Bangladesh and the contradictions obtained in the study of (Waqas *et al.*, 2017), we state the fourth Hypothesis:

H4: Bank size is negatively correlated with non-performing loans.

Macroeconomic factors are described as features that inform us about non-controlling failures experienced by banks as a result of changes in their operations. Their study (Chaibi & Ftiti, 2015) established that the economy, based on macroeconomic considerations, has a substantial impact on the economic environment, where business units engage in monetary operations that financial institutions handle. Our last three Hypotheses are based on macroeconomic factors that substantially impact the overall business environment and ultimately impact the non-performing loans.

H5: Non-performing loans are positively associated with GDP Growth.

H6: The interest rate is positively correlated with non-performing loans.

H7: Non-performing loans are positively associated with the unemployment rate.

METHODOLOGY:

Sample Selection

Dhaka stock exchange (DSE) has 33 sectors listed. From these 33 sectors, this research focuses on the

banking sector. For this study, 15 listed banks have been selected from the banking sector.

Selection Period

This study was conducted in 2022. To ensure that the latest data is used, we have used the recently published annual report of the company. The study period is from 2014 to 2020.

Data sources

This research has been conducted by using secondary data. The selected companies' annual reports were used to get the secondary data, along with certain information taken from the websites of the respected companies. Maximum annual reports were collected from respective companies' websites, and journals were collected from websites such as -

www.emeraldinsight.com and www.google.com to enrich this study's literature. Macroeconomic data are collected for the website of the World Bank. Bangladesh Bank Annual Financial Stability Reports were also used.

Variable Specification

Non-performing loans

(Festić *et al.*, 2011), Define a non-performing loan as an amount of past-due debt that cannot be repaid within the agreed-upon time frame. Non-performing loans are ones where the bank can't get the money back from the borrower. When debtors fail to repay the principal or interest within the agreed-upon time frame, usually three months or 90 days, the loan is deemed non-performing. A non-performing loan is also known as a classified loan and consists of sub-standard, doubtful debts, and bad debts/losses.

Inefficiency

To evaluate inefficiency, overall operational expenditure is divided by the period's total operating income. In corporate failures, inefficiency highlights bad management, unethical behaviors, and skimming. An inefficiency ratio (operating expense to operating income) is used to categorize corporate failures. Similarly (Abid *et al.*, 2014) characterized inefficiency as a symbol of poor management and skimming, implying that corporate executives are overconfident in their non-performing loans of all types. They said terrible management is defined as a lack of control over operating

expenses and a high degree of ineffectiveness, which increases the likelihood of a bank defaulting.

Profitability

Profitability is the proportion of net earnings to the total shareholder equity over a specified time frame. The profitability or performance (ROE) of a company is employed as a proxy for management quality in the second Hypothesis. Profitability and NPLs have a negative association, according to (Louzis *et al.*, 2012). Furthermore, implying that this negative correlation is a sign of poor management. Similarly (Abid *et al.*, 2014) discovered a negative and statistically significant relationship between performance and NPLs, implying that poor loan allocation policies and procedures lead to default risk.

Leverage

Leverage refers to how much outside money is employed to back up a company's assets. These are funds with negotiated payback terms and conditions. The ideal capital structure is predicted by leverage, which states that enterprises have a proportionate amount of owner capital and the rest of the debt holders' funds. The ratio of total debt to total assets or total debt to total equity is used to calculate leverage. We are using book value data here, so the ratio we use is total debt to total assets. The banking industry's leverage has a considerable impact on credit risk. Leverage and NPLs have a positive and significant relationship (Chaibi & Ftiti, 2015).

Bank size

Bank size is measured by taking the natural logarithm of total assets. Empirical studies use the log of total assets as Bank size.

GDP Growth

The GDP growth rate measures how quickly the economy is expanding. The rate compares the country's economic output in the most recent quarter to the prior quarter. GDP is a measure of economic output. The GDP growth rate is the most significant indication of a country's financial health. When the economy is booming, the GDP growth rate is positive. Businesses, jobs, and personal income will increase if the GDP growth rate increases. GDP growth is taken from the World Bank website.

Interest Rate

Interest rate refers to the amount charged to the borrower by the lender in addition to the principal amount. The lending rate has a substantial and positive effect on loan defaults, according to (Louzis *et al.*, 2012). They claim that during boom times, banks can quickly refinance consumer loans, renegotiate debt terms and pay off debts with the corporate world. Similarly, (Washington, 2014) discovered a positive and significant link between interest rate and default risk. They examine whether an increase in interest rates will lead to a rise in non-performing loans (NPLs) since financial institutions are more likely to trade at a floating rate. As a result, borrowers repay the loan amount in an uncomfortable manner.

Unemployment Rate

Unemployment refers to the percentage of the unemployed labor force yet looking for a job. Numerous studies have found a two-way increase in unemployment. First, an increase in the unemployment rate would reduce cash flows at the consumer level. Second, an increase in the unemployment rate would

result in decreased production and usage of products and services at the personal level. For that reason, as unemployment rises, so does the rate of defaulters, and vice versa.

Appropriate model selection (Hausman test) and Fixed Effect Regression Analysis

To address the time factor and the individuality of the selected banks, the Hausman test was conducted to determine the appropriate model for this study. After the results of the Hausman test confirmed the appropriate model, Random Effect Regression was carried out based on the derived model for this study.

Techniques used for data analysis

Stata software version 16 was used to analyze the data.

Model Development

This model assessed the relationship between the selected variables and non-performing loans. The following regression model specification was used:

$$NPL_rat_{it} = \beta_0 + \beta_1 In_eff_{it} + \beta_2 Profitability_{it} + \beta_3 Lev_{it} + \beta_4 B_size_{it} + \beta_5 GDP + \beta_6 int_rate + \beta_7 Unemp_rate + E_{it}$$

Table 1: Highlight of the Model specification and Variable Measurement.

Abbreviated Name	Full name	Description of the variable	Predicted sign	Data source
NPL_rat	Non-performing loan ratio	Natural logarithm of non-performing loan		Annual Reports
In_eff	Inefficiency	The ratio of operating expense to operating income	+/-	Annual reports
Profitability	Profitability	Return on Equity= Net income/Total Equity	-	Annual Reports
Lev	Leverage	Total Debt/Total Asset	-	Annual Reports
B_Size	Bank Size	Natural logarithm of Total Assets	-	Annual Reports
GDP	GDP growth rate	GDP growth rate	+	World Bank Website
Int_rate	Interest rate	Interest rate	+	World Bank Website
Unemp_rate	Unemployment rate	Unemployment rate	+	World Bank Website
E	Random Error			
it	Item (i) for period (t)			

Research Findings and Analysis

Hausman Test: Appropriate Model Selection

For the analysis, panel data analysis was conducted. At first, Fixed-effect regression and Random-effect GLS regression were run consecutively to consider the time variable and the individuality of the sample data. Both models showed results that indicated that they were reasonably fit. So, to choose the best model for our data, we run the Hausman test.

The following is our Hypothesis for the Hausman test: Null Hypothesis, H0: Random-effect model is appropriate.

Alternative Hypothesis, H1: Fixed-effect model is appropriate.

Test: H0: difference in coefficients not systematic

$$\begin{aligned}
 Chi2(7) &= (b-B)[(V_b - V_B)^{-1}](b-B) \\
 &= 47.02 \\
 Prob > chi2 &= 0.00
 \end{aligned}$$

($V_b - V_B$ is not positive definite)

The Hausman test shows that the P-value is less than 5 percent, so we can reject the null Hypothesis. So, we accept the alternative Hypothesis. The alternate hypotheses stated that the fixed-effect model is appropriate.

We will now use the Fixed-effect regression model results to verify the hypothesized relationships of this study.

Fixed-effect regression model

Table 2: Fixed-effect regression.

Fixed-effects (within) regression					Number of obs = 105	
Group variable: Company Code					Number of groups = 15	
R-sq:					Obs per group:	
within =	0.424				min =	7
between =	0.503				avg =	7
overall =	0.429				max =	7
					F(7,83) = 17.15	
corr(u_i, Xb) =	-0.886				Prob > F = 0	
NPL	Coef.	Std.Err.	t	P>t	[95% Conf. Interval]	
Inefficiency	0.893	0.319	2.8	0.006	0.257	1.528
Profitability	-0.296	0.58	-0.51	0.61	-1.451	0.857
Leverage	-0.539	1.055	-0.51	0.611	-2.637	1.559
Banksize	-2.572	0.789	-3.26	0.002	-4.142	-1.003
GDP	0.352	0.082	4.29	0	0.189	0.515
Interest Rate	-0.109	0.037	-2.94	0.004	-0.182	-0.035
UNEM	1.571	0.413	3.8	0	0.75	2.393
_cons	31.156	7.574	4.11	0	16.091	46.22
sigma_u	0.558					
sigma_e	0.178					
Rho	0.907					
F test that all u_i=0: F(14, 83) = 3.88					Prob > F = 0.00	

From the fixed-effect regression model, we can see that the p-value is 0. So, the model is a reasonable fit for our data. From the table, we can see that the inefficiency of the management has a positive and significant relationship with the non-performing loan ratio. Therefore, hypothesis 1 is accepted, indicating that poor managerial decisions, embezzlement, and skimming significantly increase nonperforming loans. This result is also consistent with the findings of (Waqas *et al.*, 2017). They observed that management inefficiency positively and significantly affects the non-performing loan ratio. Hypothesis 2 stated that the bank's profitability negatively correlates with the non-performing loan ratio. The table shows a negative but not significant relationship with the non-performing loan ratio (Louzis *et al.*, 2012). Documents in their study show that profitability bears a negative association with NPL. The effect is not significant on a statistical level, but the observed relationship is in direct

accordance with prior literature. Hence, hypothesis 2 is accepted. This Hypothesis may show consistent results with past findings if the sample size of the observation is increased. So, there is scope to work with more observations for more accurate results. Hypothesis 3 states a negative correlation between leverage and non-performing loan ratio. Leverage explains how much of the banks' assets are secured by outside funds. The findings indicate a negative correlation between the non-performing loan ratio and leverage. So, hypothesis 3 is accepted. Our finding is inconsistent with past literature, such as the findings of (Chaibi & Ftiti, 2015), which found a strong positive correlation between leverage and non-performing loans. The fourth hypothesis is that bank size has a significant negative association with the non-performing loan ratio. The result shows a significant negative correlation between bank size and the non-performing loan ratio. So, hypothesis 4 is accepted. Bank size is used to describe the

degree of diversity in the allocation of resources of the bank. This finding is consistent with the findings of (Louzis *et al.*, 2012). Prior literature found empirical evidence that bank size negatively correlates with NPL. Hypothesis 5 states a positive and significant relationship between GDP growth and non-performing loans. The results also show a positive and significant relationship between non-performing loans and GDP growth. So, hypothesis 5 is accepted. The result is contradictory to the previous result of (Zaib *et al.*, 2014), who found that the GDP growth rate negatively impacts the non-performing loan. The result shows that interest rates negatively and significantly affect non-performing loans. Our hypothesis 6 stated that interest rates positively and significantly impact non-performing loans. So, hypothesis 6 is rejected. This result is inconsistent with the previous literature of (Castro, 2013) and (Beck *et al.*, 2013), who found that a Non-performing loan has a positive and statistically significant relationship with the interest rate/ lending rate of the bank. Concerning the unemployment rate, we found a positive and significant relationship with the ratio of non-performing loans. Hypothesis 7 also stated that the unemployment rate has a significant positive relationship with non-performing loans. This result is consistent with the previous literature of (Angela & Irina, 2015; Klein, 2013). Empirical research by (Angela & Irina, 2015) found that unemployment is significant and strongly connected with non-performing loans. They show that because of the economic downturn and limited ability to repay the loan, a high unemployment rate leads to a higher ratio of non-performing loans. His empirical study (Klein, 2013) discovered that a country's unemployment rate correlates with its default risk. Furthermore, macroeconomic considerations have been observed to validate the evidence of a considerable impact on credit risk.

RESULTS AND DISCUSSION:

According to **Table 2**, most of the Hypothesis of this study has been accepted. The study demonstrates the bank-specific and macroeconomic factors that influence the number of non-performing loans. The study's first finding is that inefficiency has a significant and positive relationship with non-performing loans. This indicates that poor management decisions, corruption, and skimming cause a substantial increase in non-

performing loans. This result is consistent with the previous literature (Matthews *et al.*, 2007; Abid *et al.*, 2014) found that poor management decisions, cost inefficiency, and skimming lead to growth in non-performing loans. Our second finding indicates a negative association between profitability and non-performing loans. However, the result does not show a significant relationship. Profitability decreases the non-performing loan but not as much as the inefficiency increases. So, if a bank's profitability is increasing and non-performing loan is also increasing, it can be assumed that its management is inefficient (Waqas *et al.*, 2017) also found a similar result for Bangladeshi banks. The result shows a negative correlation between leverage and non-performing loans. The result is inconsistent with previous literature of (Berger & DeYoung, 1997). They found that leverage has a positive effect on non-performing loans. They described it this way when a bank gains a lot of assets, and they think it is too big to fall. This kind of behavior promotes bad loans. However, in Bangladesh, the impact is negative. This is because of the extra pressure that comes with the additional debt. Whenever a third party lends money to a bank, they want their money to be safe. So, they put extra pressure on banks and restrict them from financing risky projects. These results in more internal control and fewer non-performing loans. Bank size shows a negative and significant relationship with non-performing loans. It is consistent with the previous literature of (Dietrich & Wanzenried, 2014). They found that larger banks have fewer problems with loans than small banks. The reason can be the resources of the big banks. The big bank has more assets and a skilled and experienced labor force than the small banks. As the big banks have enough money, they can diversify their portfolio and lessen their portfolio concentration, leading to fewer problematic loans. Also, they got experienced and skilled labor, which helped them operate the business more efficiently. This is why bank size shows a negative and significant relationship with non-performing loans. Macroeconomic factors show a significant impact on non-performing loans. The GDP growth rate shows a positive and significant correlation with non-performing loans. This result is inconsistent with the result of (Salas & Saurina, 2002; Zaib *et al.*, 2014). They found that the GDP growth rate was negatively and significantly correlated with non-per-

forming loans in Sri Lanka and India. However, (Waqas *et al.*, 2017) demonstrated that GDP growth and non-performing loans in Bangladesh have a positive correlation. This is because of the increasing GDP and non-performing loans in Bangladesh. The interest rate or lending rate plays a vital role in recovering outstanding loans. Our study shows a negative and significant relationship with non-performing loans.

The result contradicts the previous findings (Beck *et al.*, 2013). They concluded that as rates of interest rise, the proportion of nonperforming loans increases consistently. However, in Bangladesh, the rate of interest is decreasing every year. In 2014 the average interest rate was 12.94, but in 2020 it was 8.3. Where the non-performing loan increase every year, which is why it shows a negative relationship in Bangladesh. The result suggests that the unemployment rate is positively and significantly associated with non-performing loans. Previous research has found that as unemployment grows, so does the ratio of non-performing loans. (Waqas *et al.*, 2017) findings confirm the connection between the unemployment rate and non-performing loans in India and Sri Lanka. According to (Angela & Irina, 2015; Klein, 2013) their studies, a one percentile rise in unemployment correlates to a 0.13 percent to 0.34 percent increase in the ratio of non-performing loans. As a result, revenue and economic shortfalls worsen, borrowers cannot repay their loans, and banks face failure to collect loans.

CONCLUSION AND RECOMMENDATIONS:

For a panel of 15 commercial banks in Bangladesh, this study tried to find the bank-specific and macroeconomic causes of non-performing loans. The conclusions of this investigation are supported by current literature. It is found that bank-specific factors can significantly impact the level of NPL. Non-performing loans continue to rise in the banking sector of Bangladesh. It is vital that banks consider the sheer necessity to control credit policies better and comprehend the ramifications of NPL properly. While the last quarter of 2019 saw a decrease in overall NPL in the banking sector, this has again been reversed as the opening quarters of 2021 saw a growth in problem loans. This study contributes to the literature by studying bank-specific factors, including poor management practices, proxies by inefficiency, and the profitability

of the fifteen selected banks. The findings were consistent with prior research, with inefficiency showing a significantly positive relationship with problem loans. This paper considered the banks' individuality, and the results demonstrated that inefficiency plays a pivotal role in increasing NPL in Bangladesh. On the other hand, Bank size, profitability, and leverage play a significant role in keeping the non-performing loan in check. Macroeconomic factors such as GDP growth,

Interest rate and the Unemployment rate significantly impact the amount of non-performing loans. The study recommends that the bank increase its operational efficiency to reduce the amount of non-performing loans. The concerned government should create and implement rules and regulations to prevent large non-performing loans (NPLs) in Bangladesh's banking industry. Banks should make reasonable loans to inexperienced or inefficient customers and only make a limited number of loans. The asset's value provided by the borrower as collateral should be correctly assessed and a client's credit risk should be evaluated depending on the country's area (Sarker, 2019). This study can be further enhanced by replicating cues from the rich literature in the field of problem loans. The study's future recommendations include examining credit risk determinants in banking sectors using additional macroeconomic factors such as sovereign debt, foreign direct investment, exchange rate, and Inflation rate.

Other internal elements that drive default failures, such as loan loss provision, spread, and earnings volatility, are also vital to examine in the future. Including a larger sample, such as the entire banking sector, may also alter the findings and provide a more consistent and noteworthy depth into the deciding factors of problem loans.

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CONFLICTS OF INTEREST:

We have no conflicts of interest to disclose.

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