Internship Report
On

Factors Affecting the Non-Performing Loans in Bangladesh: A Study on Non-Banking Financial Institutions

Submitted To:

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LETTER OF TRANSMITTAL

Date: 22nd May, 2024

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Subject: Submission of Internship Report titled ***"Factors Affecting the Non-Performing Loans in Bangladesh: A Study on Non-Banking Financial Institutions."***

Dear Sir,

With due respect, it is my great pleasure to submit this report for the completion of my degree. I have checked every source that is available in collecting data and other variables that are significant. Almost everything I learned during the degree and during my internship period has been used to create this report. I hope that you will find this report to be up to par.

I would like to thank you cordially for authorizing this paper.

Sincerely,

Asif Mahmud

ID: 111 201 018

Program: BBA

United International University

ACKNOWLEDGEMENT

I would like to express my sincere gratitude to all those who have contributed to the successful completion of my internship report. Without their guidance, support, and encouragement, this endeavor would not have been possible.

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Furthermore, I extend my sincere appreciation to all the team members of the Corporate Affairs team at IDLC Finance PLC who generously shared their knowledge, expertise, and time with me. Their willingness to answer my queries and offer assistance has been immensely helpful in gaining practical insights and understanding various aspects of the financial field.

I am grateful to my family for their unwavering support, understanding, and encouragement throughout this journey. Their belief in my abilities has been a constant source of motivation, enabling me to persevere through challenges and strive for excellence.

Last but not least, I extend my thanks to all others who have offered support, advice, and encouragement during this internship period. Your contributions, whether big or small, have played a significant role in shaping my learning and growth.

EXECUTIVE SUMMARY

Non-banking financial institutions (NBFIs) are one of the most growing industries of Bangladesh. There are in total of 36 NBFIs in Bangladesh who play a vital role in the economy of Bangladesh. Non-performing loan is one of the major terms that all NBFI are aware of. The growth of NBFI industry highly depends on the management of non-performing loans and this non-performing loan is affected by many factors and variables.

The study uses rigorous quantitative analysis to look at how variables like GDP, inflation, Advance-to-Deposit Ratio (ADR), Debt-to-Equity Ratio (DER), Return on Assets (ROA), Net Interest Margin (NIM), and Gross Domestic Product (GDP) affect top NBFIs in Bangladesh's Non- Performing Loans (NPL). The results provide important new information: ROA negatively affects NPL statistically, indicating that NBFIs must remain profitable in order to control non-performing loans and reduce credit risk. On the other hand, it was discovered that GDP and inflation had a positive and significant impact on NPL, suggesting that macroeconomic factors are crucial in determining the credit risk that these institutions confront. The paper makes extensive recommendations to solve the credit risk management issues that the NBFI sector in Bangladesh are facing by utilizing these insights. These include putting a high priority on managing profitability, keeping a close eye on macroeconomic developments, fortifying thorough frameworks for managing credit risk, and preserving portfolio diversification and regulatory compliance. By putting these suggestions into practice, NBFIs in Bangladesh will be able to efficiently reduce credit risk, handle non- performing loans, and preserve financial stability, all of which will ultimately support the industry's sustainable growth and provide people and companies hope for a better future.

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CHAPTER ONE:

INTRODUCTION

1.1 Background

Non-bank financial institutions (NBFI) play a critical role in a country's financial economy. There are in total of 35 NBFI in Bangladesh who are regulated under the Financial Institution Act and controlled by Bangladesh Bank. The average interest spread for this sector was around 4.55%. This industry was able to prove itself as the model of financial inclusion with around 66 million members and around 44 million borrowers. According to recent statistics, 16 out of 35 NBFI's are having a NPL Ratio over 30%. Because of the high NPL, 25% of loans in the NBFI sector was considered as classified.

They don't accept deposits like banks do. To raise money, they sell their shares, and they use that money to fund direct and indirect loans. A portion of the funds are also invested in the stock market by them. As a result, financial companies greatly influence the efficiency of the capital markets. These non-bank financial firms are primarily vertically integrated companies. They provide many different services, including as capital raising, research coverage, consulting, merger and acquisition, and securities trading.

1.2 Origin of the Study

As doing internship is one of the core requirements of completing BBA degree, I was given the chance to do my internship at one of the top NBFI of Bangladesh which is known as IDLC Finance PLC. I was lucky that I was able to gather practical corporate life experience at organization like IDLC Finance PLC, a leading NBFI of Bangladesh. Through this report, I tried to find out the factors which influence non-performing loan of the NBFI industry.I tried to mention the ways through which NBFI's can get over the challenges regarding the credit risk management through a deep analysis.

1.3 Objectives of the Study

The research objectives of the report are:

- ✓ Examine the factors affecting the non-performing loans of NBFIs.
- ✓ Investigate the impact on credit risk addressed as NPL, considering factors such as DER, ROA, NIM, ADR, GDP and, Inflation.

These objectives collectively aim to provide a comprehensive understanding of the financial health, credit risk exposure, and the interplay between credit risk and performance for the NBFI industry of Bangladesh.

1.4 Methodology

This study primarily relies on secondary data sources to conduct the analysis. The key sourcesof data include:

- ✓ The annual reports of IDLC Finance PLC, IPDC Finance PLC, BangladeshFinance PLC and LankaBangla Finance PLC from 2018 to 2022.
- ✓ The official website of IDLC Finance PLC, IPDC Finance PLC, BangladeshFinance PLC and LankaBangla Finance PLC.
- ✓ Academic articles, reports, and journals related to the research topic.

1.5 Scope

The elements affecting the organization's credit risk are heavily focused in this study. Finding the company's critical elements and analysing how they affect credit default and overall financial performance is the goal.

The study aims to provide useful insights that can guide the organization's decision-making and enhance its overall financial resilience by utilising a variety of statistical analyses. It is anticipated that the study's conclusions would advance knowledge of credit risk management techniques used by Bangladesh's non-bank financial institutions.

1.6 Limitations

The study on factors affecting the non-performing loan of NBFI industry offers valuable insights, yet it is subject to certain limitations:

Scope: The study's sample size, focusing on only four prominent NBFIs listed on the DSE, restricts the breadth of its findings. Including the entire population of NBFIs listed on the DSEX would provide a more comprehensive understanding of profitability drivers across the industry.

Timeframe: The study's validity is constrained by its timeframe, as economic dynamics and regulatory frameworks evolve over time. Regular research updates are necessary to accurately capture the dynamic relationship between economic conditions and profitability factors in the non-bank financial sector.

Focus on NPL: Using Non-Performing Loans (NPL) as a profitability proxy may overlook other key factors such as operational efficiency and market positioning. Considering additional variables could offer a more holistic view of NBFI industry's financial performance.

Addressing these limitations is crucial for enhancing the overall understanding of the FI sector in Bangladesh. It would enable the development of more informed strategies to optimize financial performance and mitigate credit risk for NBFIs.

CHAPTER TWO:

Industry Overview

2.1 Non-Performing Loans and NBFI Industry

Bangladesh's banking industry has been dealing with a serious problem with non-performing loans (NPLs). As of 2017, the ratio of NPLs to total loans in Bangladesh was 9.3%, which is high compared to other countries in Asia and the Pacific. In Bangladesh, non-performing loans (NPLs) have fluctuated over the past few decades, but they have recently begun to rise once again. The total amount of loans disbursed by Bangladesh's banks by December 2023 was close to Tk 16.18 trillion, of which approximately Tk 1.36 trillion, or 9%, were non-performing.

There were 35 NBFIs in operation in Bangladesh as of 2024. The non-performing loan (NPL) ratio exceeded thirty percent for sixteen of these. The fact that six of the 16 had almost 90% of their loans identified by the end of March 2023 is even more concerning.

As a result, NPL management is essential to the prosperity and health of NBFIs in Bangladesh. Some NBFIs in Bangladesh have been able to defy the industry trend of high NPLs by successfully maintaining a lower NPL ratio. But the high percentage of non-performing loans generally continues to be a major obstacle for Bangladesh's NBFI sector.

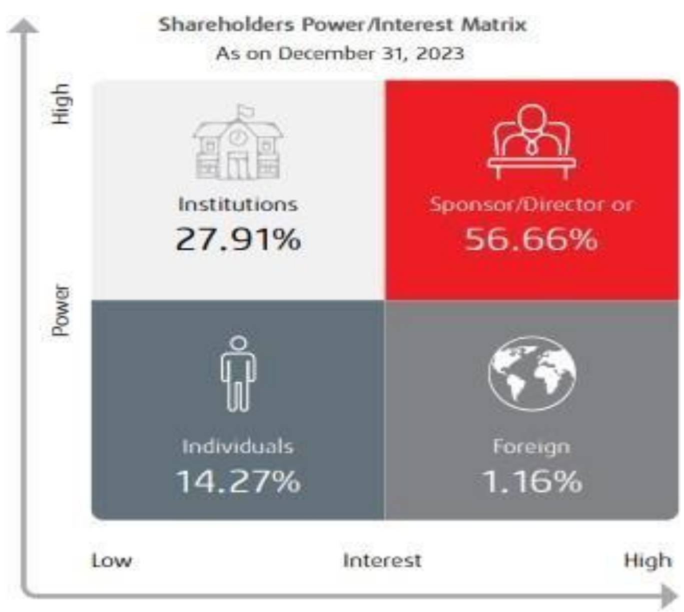
2.2 Introduction of the NBFIs

2.2.1 IDLC Finance PLC

Today, IDLC has established itself in more than 22 districts, with a network comprising 40 branches and booths, employing over 1,700 staff members, and catering to a clientele of over 400,000. However, it would be constricting to say that they are merely in the financing business as they try to do something more. They strive to help people achieve their dreams - the dream of owning a home, the dream of sending their children to a bigger school, the dream of going on a picnic in the family car, the dream of starting a business, or that of expanding it, the dream of generating more employment, the dream of taking the nation to greater heights.

IDLC Group comprises of four companies, which include IDLC Finance Limited, and three subsidiaries namely – IDLC Securities Limited, IDLC Investments Limited, and IDLC Asset Management Limited. The businesses of all four concerns are intertwined and operated under the umbrella of IDLC Group.

IDLC approaches value creation from a stakeholder perspective, incorporating participation at every level. Value generation for customers, suppliers, workers, and the community is given top priority by the organisation, which recognises the significance of matching stakeholder expectations with corporate objectives. Their goal is to satisfy the various requirements and interests of stakeholders while fostering long-lasting connections.



What differentiates IDLC Group is their AAA credit score ratings for 12 consecutive years and their consistent thrive towards ESG leadership.

2.2.2 IPDC Limited

IPDC stands out as one of the prominent NBFIs in Bangladesh with a strong focus on infrastructure development and project financing. The company offers a comprehensive range of financial solutions including corporate finance, SME financing, lease financing, and structured finance. With a commitment to fostering economic growth through infrastructure projects, IPDC plays a vital role in supporting the country's development initiatives. IPDC's reputation for reliability and expertise in specialized financing segments poses a significant competitive challenge to IDLC in capturing market share, especially in infrastructure-related financing.

2.2.3 LankaBangla Finance Limited

LankaBangla Finance has established itself as a leading NBFI in Bangladesh, offering a diverse portfolio of financial products and services. The company caters to both retail and corporate clients, providing solutions such as retail lending, SME financing, corporate advisory, and investment banking services. With a strong emphasis on innovation and customer-centricity, LankaBangla Finance has built a loyal customer base and a robust distribution network across the country.

Its aggressive marketing strategies and innovative product offerings pose a competitive threat to IDLC, particularly in segments such as consumer finance and wealth management.

2.2.4 DBH Finance Corporation Limited

DBH specializes in housing finance and related services, targeting individuals and families seeking home financing solutions. The company offers a range of products including home loans, construction loans, and home improvement loans, catering to the diverse needs of homebuyers. With a focus on customer satisfaction and a deep understanding of the local real estate market, DBH has emerged as a formidable player in the housing finance segment.

IDLC faces direct competition from DBH in the mortgage financing space, where both entities compete for market dominance by offering competitive interest rates, flexible terms, and superior customer service.

2.2.5 Bangladesh Finance and Investment Company Limited

Bangladesh Finance and Investment Company Limited is a seasoned player in the NBFI sector, providing a wide array of financial services including leasing, hire purchase, and investment advisory. The company targets both retail and corporate clients, offering customized financial solutions to meet their specific requirements. With a legacy of trust and reliability, Bangladesh Finance and Investment Company Limited has built enduring relationships with its customers and stakeholders.

CHAPTER THREE:

ANALYSIS METHODOLOGY

This study employs a systematic process to ensure the trustworthiness of the analytical procedure and results. To substantiate the empirical analysis, secondary data are utilized in a quantitative manner. The primary source of data for this research is the annual reports published by the Non-Banking Financial Institutions (NBFIs) in Bangladesh within the timeline of 2018-2022. This choice is supported by the widespread use of annual reports as a reliable source of information regarding NBFIs in both Bangladesh and a similar set of countries (Pal, and Farah, 2019; Ghosh, Bhadra, and Mitra, 2021). Empirical studies (Sarkar, 2022; Zheng, Sarkar, and Nahar, 2018; Mamo, 2020) have demonstrated that annual reports serve as a formal means of information dissemination.

3.1 Data Collection

The dataset used in this study is panel data, obtained from the annual reports of 4 NBFIs listed on the DSE, namely – IDLC Finance PLC, IPDC Finance Limited, LankaBangla Finance Limited, and Bangladesh Finance Limited – which makes it an analysis dependent on secondary data. The selected time frame is 5 years (2018-2022). It is quantitative research, as numerical data has been collected through the secondary data collection method.

3.2 Sampling Method

The study employed a non-probability purposive sampling method. 4 leading NBFIs operating in the line of credit are selected based on their size, performance, relevance in the industry, and data availability.

3.3 Variable Selection

The study used secondary data for a five-year period. The financial statements and annual reports of IDLC Finance PLC, LankaBangla, IPDC and Bangladesh Finance, served as the primary sources for this analysis.

Variable Type	Variable Name	Definition	Calculation	References
Dependent Variable	Non-performing Loans (NPL)	Loans that borrowers have failed to repay according to the agreed terms.	(Total Non-performing Loans / Total Loans) * 100	Zheng, Sarkar, and Nahar (2018), Pomuti (2021)
Independent Variables	Debt to Equity (DER)	A measure of how much debt a company uses compared to its equity.	Total Debt / Total Equity	Musah and Gakpetor (2017), Sarkar (2022)
	Return on Asset (ROA)	A ratio that shows how efficiently a company uses its assets to generate profits.	(Net Income / Average Total Assets) * 100	
	Net Interest Margin (NIM)	The difference between the interest income generated by banks and the amount of interest paid out to lenders relative to their total interest-earning assets.	(Interest Income - Interest Expenses) / Average Earning Assets	Zheng, Sarkar, and Nahar (2018)
	Advance to Deposit Ratio (ADR)	The proportion of loans a bank has compared to its deposits.	Total Loans / Total Deposits	Pomuti (2021)
	Gross Domestic Product Rate (GDP)	The percentage change in the total value of goods and services produced within a country over a specific period reflects its economic growth.	((Current GDP - Previous GDP) / Previous GDP) * 100	Zheng, Sarkar, and Nahar (2018),Pal and Farah (2019),Pomuti (2021)
	Inflation Rate (Inflation)	The percentage change in the general level of prices for goods and services over a specific period, indicates the rate at which prices are rising.	((Current CPI - Previous CPI) / Previous CPI) * 100	

Table 2: Dependent Variable, Independent Variable, & Variable Description

3.4 Model Specification

The study based on the above variables figures the following panel regression models.

$$NPL_{it} = \beta_0 + \beta_1 DER_{it} + \beta_2 ROA_{it} + \beta_3 NIM_{it} + \beta_4 ADR_{it} + \beta_5 GDP_{it} + \beta_6 INFL_{it} + \varepsilon_{it}$$

This equation represents a linear regression model can be interpreted as follows:

$NPL_{it} = \ Non - Performing\ Loans\ for\ firm\ i\ in\ time\ t,$

Function of independent variables with their respective coefficients indicating the magnitude and direction of their effect on NPL.

$\beta_0 = Coefficient\ of\ intercept$

$\beta_1 - \beta_6$

$= \ Coefficient\ of\ the\ independent\ variables\ impacting\ the\ dependent\ variable$

$DER_{it} \ = \ Debt - \ to - Equity\ Ratio\ for\ firm\ i\ in\ time\ t$

$ROA_{it} \ = \ Return\ on\ Assets\ for\ firm\ i\ in\ time\ t$

$NIM_{it} \ = \ Net\ Interest\ Margin\ for\ firm\ i\ in\ time\ t$

$ADR_{it} \ = \ Asset\ Deposit\ Ratio\ for\ firm\ i\ in\ time\ t$

$GDP_{it} \ = \ Gross\ Domestic\ Product\ (GDP)\ at\ time\ t$

$INFL_{it} = \ Inflation\ rate\ at\ time\ t$

ε_{it} = This error term represents the unobserved factors that influence NPL, but are not captured by the independent variables in the model and can not be explained by the independent variables.

CHAPTER FOUR:

ANALYSIS

This report includes panel regression model through which we investigated the study's outcomes focusing on causal relationships and hypothesis testing. We have moved forward step by step which is given below-

- Firstly, **Descriptive Analysis** is used togain initial insights into the data, conducted with IBM SPSS software.
- Secondly, Inferential Analysis is performed using Stata. This includes tests like **Correlation Analysis** to assess the relationships of the variables.
- Thirdly, we used **Fixed or Random Effect Model** analyze the panel data to understand which independent variables affect the dependent variable.
- Furthermore, we conducted **The Hausman Test** to determine whether **Fixed or Random Effects models** is appropriate for the data.
- Moreover, we conducted the Heteroskedasticity Test to assess heterogeneity of variables. Additionally, the VIF test addresses multicollinearity of variables. All these tests ensures if the variables are suitable for the regression analysis.
- Lastly, we analyzed which independent variables affect the dependent variable most and gave our analysis report on it.

4.1 Descriptive Analysis

The descriptive analysis table shows the minimum and maximum observation, mean, and standard deviation for each of the independent and dependent variables relative to 4 NBFIs associated. The test will provide insights into the central tendency, dispersion, and distribution shape of the variables.

Descriptive Statistics						
Variable Name	Unit	N	Mean	Std. Dev.	Maximum	Minimum
NPL	Percentage	20	0.03728	0.01648	0.07220	0.01380
TOTAL_DEBT	Number	20	66,000,000,000	37,100,000,000	130,000,000,000	13,100,000,000
TOTAL_EQUITY	Number	20	7,790,000,000	3,980,000,000	14,200,000,000	2,390,000,000
DER	Decimal	20	3.906	3.165	9.420	1.300
NET_INCOME	Number	20	960,000,000	598,000,000	2,200,000,000	193,000,000
TOTAL_ASSETS	Number	20	73,700,000,000	40,800,000,000	144,000,000,000	15,900,000,000
ROA	Percentage	20	0.026	0.022	0.073	0.010
INTEREST_INCOME	Number	20	2,290,000,000	1,440,000,000	4,650,000,000	379,000,000
NIM	Percentage	20	0.030	0.005	0.037	0.021
LOANS_AND_ADVANCES	Number	20	55,300,000,000	29,200,000,000	104,000,000,000	12,800,000,000
DEPOSITS	Number	20	46,700,000,000	25,800,000,000	82,000,000,000	8,620,000,000
ADR	Percentage	20	1.242	0.143	1.491	1.022
GDP_GROWTH	Percentage	20	0.065	0.016	0.079	0.035
INFLATION	Percentage	20	0.060	0.009	0.077	0.055

Table 1: Descriptive Statistics for Company Data Variables, 2018-2022

Advance-to-deposit ratio (ADR) and Debt to Equity Ratio (DER) have a significant standard deviation which doesn't assure a closer value to the mean for all four NBFIs. Other than these two, the descriptive statistics show a more normal distribution for all other variables. Based on the descriptive statistics provided, Some inferences about potential impacts or relationships between the variables are in the following:

Non-Performing Loans (NPL): The relatively low mean NPL of 0.03728 suggests that, on average, the entities in this study have a manageable level of non-performing loans. However, the maximum NPL of 0.072 indicates that some NBFIs may have higher levels of problematic loans, which could potentially impact their financial performance and stability.

Debt to Equity Ratio (DER): The high mean DER of 3.90550 and a maximum of 9.420 suggest that, on average, the entities have a relatively high level of debt compared to their equity. There could be a potential increase in financial risk that impact the NBFIs' ability to obtain additional financing or meet debt obligations.

Advance to Deposit Ratio (ADR): The mean ADR of 1.24171 suggests that, on average, NBFIs generate higher interest income but also increase credit risk exposure. The maximum ADR of 1.491 indicates that some NBFIs have extended loans significantly higher than their deposit base, which could be a risk concern if not managed properly.

It's important to note that these are general inferences based solely on the descriptive statistics provided. To fully understand the impacts and relationships between these variables, further analysis has been conducted in the following.

4.2 Correlation Matrix

This analysis will be used to identify the relationships between the dependent variable (NPL) and the independent variables (DER, ROA, NIM, ADR, GDP, Inflation).

Table 2: Correlation Matrix

	NPL	*DER*	*ROA*	*NIM*	*ADR*	*GDP*	*Inflation*
NPL	1.0000						
DER	-0.3064	1.0000					
ROA	0.5921	-0.3317	1.0000				
NIM	-0.5806	0.5215	-0.4441	1.0000			
ADR	0.5232	-0.1369	0.0713	-0.2278	1.0000		
GDP	0.2658	-0.0089	-0.0112	0.1880	0.1514	1.0000	
Inflation	0.4467	0.0092	-0.0358	-0.3721	0.2129	0.1214	1.0000

The weakest correlation (-0.5806) exists between NIM and NPL, indicates Net Interest Margin has a very minor impact on Non-performing Loans. On the other hand, a strong correlation (0.5921) between ROA and NPL, indicating Return on Assets has a significant influence on Non-Performing Loans.

In the Correlation Matrix, the coefficients range from -0.7 to 0.7, with -0.7 indicating a strong negative correlation, 0.7 indicating a strong positive correlation, and 0 indicating no correlation. All the variables are set between -0.7 and 0.7, which shows a moderate correlation with each variable

4.3 Random Effect Model

We conducted Random Effect Model to have insights regarding the unobserved heterogeneity. It accounts for differences through the incorporation of random effects.

Table 3: Regression results of Random effect model

Non-performing Loans (NPL)	Coef.	Std. Err.	z	P> |t|	[95% Conf. Interval]	
Debt to Equity (DER)	0.000148	0.008359	0.18	0.859	-.0014904	.0017864
Return on Asset (ROA)	.3648146	.1148282	3.18	0.001	.1397555	.5898737
Net Interest Margin (NIM	-.8085768	.6459438	-1.25	0.211	-2.074603	.4574497
Advance to Deposit Ratio (ADR)	.0396594	.0157911	2.51	0.012	0.0087095	0.0706094
Gross Domestic Product Rate (GDP)	.2407438	.1454349	1.66	.098	-.0443033	.525791
Inflation Rate (Inflation)	.5148783	.2951779	1.74	.081	-.0636598	1.093416
_cons	-.044445	.0360708	-1.23	.218	-.1151425	.0262525
R-sq: within = 0.5056 between = 0.9969 overall = 0.7814					Wald chi2(6)= 46.46 Prob > chi2=0.0000	

4.4 Fixed Effect Model

The Fixed Effects Model analysis conducted provides insights into the impact of various factors on the dependent variable, Non-Performing Loans (NPL). The Fixed Effect model controls for variables that change over time but do not vary across companies.

Table 4: Regression results of Fixed effect model

Non-performing Loans (NPL)	Coef.	Std. Err.	z	P> |t|	[95% Conf. Interval]	
Debt t oEquity (DER)	.0061494	0065897	0.93	0.373	-.0085335	.0208322
Return o nAsset (ROA)	-1.153477	.4877422	-2.36	0.040	-2.240234	-.0667195
Net Interest Margin (NIM	.0896873	.6347573	0.14	0.890	-1.32464	1.504015
Advance to Deposit Ratio (ADR)	.0079736	.0332129	0.24	0.815	-.0660294	.0819766
Gross Domestic Product Rate (GDP)	.2073889	.1097466	1.89	0.088	-.0371418	.4519197
Inflation Rate (Inflation)	.672457	.2777588	2.42	0.036	.0535718	1.291348
_cons	-.0230617	.0511812	-0.45	0.662	-.1371005	.090977
R-sq: within = 0.7830 between = 0.6794 overall = 0.2050					F(6,10)= 6.01 Prob > F=0.0068	

Now, we need to find out which model between random effect model and fixed effect model is preferred more to analyze the impact of independent variables (DER, ROA, NIM, ADR, GDP, Inflation) on the dependent variable (NPL) for NBFI industry.

In order to find it out, we will conduct **Hausman T**

4.5 Hausman Test

The Hausman test is used to determine the appropriate model choice between fixed effects and random effects models. It tests if the unique errors are correlated with the independent variables. The null hypothesis assumes no correlation, favoring the random effects model, while the alternative hypothesis suggests correlation, favoring the fixed effects model.

	---- Coefficients ----			
	(b) FE	(B) RE	(b-B) Difference	sqrt(diag(V_b-V_B)) S.E.
Debt to Equity (DER)	0.0061494	0.000148	0.0060014	0.0065365
Return on Asset (ROA)	-1.153477	0.3648146	-1.518291	0.4740327
Net Interest Margin (NIM)	0.0896873	-0.8085768	0.8982641	.
Advance t oDeposit Ratio (ADR)	0.079736	0.0396594	-0.0316858	0.0292188
Gross Domestic Product Rate (GDP)	0.2073889	0.2407438	-0.0333548	.
Inflation Rat e(Inflation)	0.672457	0.5148783	0.1575786	.

b = consistent under Ho and Ha; obtained from xtreg

B = inconsistent under Ha, efficient under Ho; obtained from xtreg

Test: Ho: difference in coefficients not systematic

chi2(6) = (b-B)'[(V_b-V_B)^(-1)](b-B)

13.69

Prob>chi2 = 0.0334

(V_b-V_B is not positive definite)

The Hausman test statistic (chi2 (6) = 13.69) and the interpretation suggest that the null hypothesis is rejected. As a result, the fixed effects model is preferred over the random effect model for analyzing the impact of independent variables (DER, ROA, NIM, ADR, GDP, Inflation) on the dependent variable (NPL) for non-banking financial institutions in Bangladesh.

4.6 Outcome Analysis Using Fixed Effect Model

Fixed Effect model exhibits a high level of statistical significance, with an F-statistic of 6.00 with a Prob > F value of 0.0068. This indicates that independent variables have a significant impact on the dependent variable (NPL).

From the test, ROA has a statistically significant negative impact (Coefficient = -1.153477, and a P-value = 0.040.) on NPL at the 5% significance level. A higher ROA is associated with lower NPL, which is expected as higher profitability generally leads to better credit risk management.

On the other hand, GDP has a positive and significant impact on NPL, suggesting that higher economic growth influences increased lending and credit risk. Inflation also has a statistically significant positive impact on NPL, as higher inflation rates can erode borrowers' repayment capacity and increase in credit risk.

The result concludes that the ROA, GDP, and Inflation have a strong impact on the credit risk of NBFI. So, it can be suggested that maintaining profitability (ROA), managing macroeconomic conditions (GDP and Inflation), and implementing effective credit risk management strategies are crucial for NBFIs to mitigate non-performing loans and maintain financial stability.

4.7 Diagnostic Test

Here, we conducted the Heteroskedasticity Test to assess heterogeneity of variables. Additionally, the VIF test addresses multicollinearity of variables. All these tests ensures if the variables are suitable for the regression analysis.

4.7.1 Heteroskedasticity Test

Breusch-Pagan / Cook-Weisberg test for heteroskedasticity

Ho: Constant variance

Variables: fitted values of NPL

chi2(1)	0.51
Prob > chi2	0.4747

Table 5 : Heteroskedasticity test

The Breush Pagan test for heteroskedasticity shows that Prob > chi2 is 0.4747 which is more than 0.05. This concludes that heteroscedasticity is not present in the data. The variance of errors is constant across the observations, and the regression analysis can proceed without the need for corrective measures to address heteroskedasticity.

4.7.2 VIF

Variable	VIF	1/VIF
NIM	2.33	0.429630
DER	1.53	0.652967
Inflation	1.42	0.702191
ROA	1.35	0.738816
GDP	1.18	0.847331
ADR	1.11	0.897926
Mean VIF	1.49	

As the Mean VIF is 1.49, there is no indication of multicollinearity among the variables. This indicates that there is no significant concern that would hamper the regression analysis.
So, here we can conclude that the variance of errors is constant across the observations, and the regression analysis can proceed without the need for corrective measures to address heteroskedasticity. Furthermore, there is no indication of multicollinearity among the variables. This indicates that there is no significant concern that would hamper the regression analysis.

4.8 NBFI's Action towards Mitigating Credit Risk

To mitigate the credit risk and management of Non-Performing Loans, many NBFIs have been taking strict policies to ensure the credibility and performance of the organisation as well as the secured payback to customers and clients. All the initiatives propose a better solution to credit risk management of the company that ensures sustainability and profitability of the company. These actions are as follows-

Implementation of Strategies to Minimize Risk:

Many NBFI implement stringent credit risk management framework to minimize potential losses. This framework includes:

- Evaluating a borrower's past payment history before extending credit
- Conducting annual reviews of existing clients to assess their creditworthiness.
- Securing adequate insurance coverage for financed assets.
- Employing a specialized team to actively monitor and collect on outstanding debts.
- Ensuring strict compliance with established credit policies by the Credit Administration Department.
- Taking and thoroughly vetting collateral to mitigate risk.
- Utilizing internal and external legal counsel to address any potential legal issues related to credit agreements.
- Regularly monitoring market conditions and industry exposure to maintain a diversified portfolio.

In addition to the industry best practices for assessing, identifying and measuring risks, NBFI's also consider Guidelines for Managing Core Risks of financial institutions issued by the Country's Central Bank, Bangladesh Bank.

Credit Evaluation:

The Credit Evaluation Committee (CEC) of NBFIs regularly reviews market and credit risk, implements measures to counter risks, and critically assesses projects, considering the global financial climate. Risk Grading Model (RGM) helps understand various dimensions of risks, differentiate individual and group credits, and optimize returns.

Credit Report and Opinions:

NBFIs generally obtain credit reports from the Credit Information Bureau (CIB) of Bangladesh Bank, scrutinized by CRM and CEC for understanding client liability and repayment behavior. Opinions from bankers, suppliers, and buyers provide insights into market position and client reputation. By incorporating these strategies and practices, most NBFIs aim to effectively manage credit risk and optimize its credit portfolio.

Credit Quality and Portfolio Diversification:

NBFIs prioritize diversification across products and sectors to manage credit risk effectively. The company adheres to Central Bank guidelines, setting sectoral threshold limits to minimize the impact of industry-specific challenges. Concentration of credit is carefully avoided to mitigate risk.

NPL Management:

Most NBFIs closely monitor payment arrears and regularly assesses impairment levels on loans and advances to manage non-performing loans. Here is a example of a 3 layered CRM Strategy.

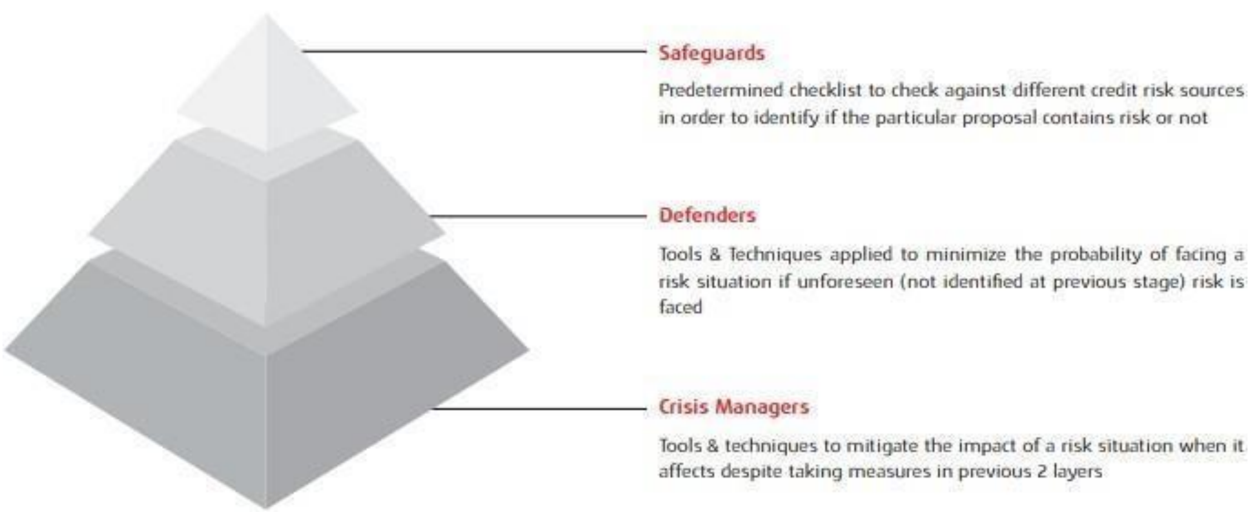


Figure : 3-layered CRM Strategy)

Safeguarding against NPLs:

Most NBFIS prioritize proactive measures to mitigate the risk of Non-Performing Loans (NPLs). Regular monitoring of loan accounts is conducted to ensure early identification of potential defaults. Also, with maintaining a robust credit risk management framework, NBFIs aim to minimize NPL occurrences and safeguard its financial health.

Defending against NPLs:

In response to potential defaults, NBFIs implement a proactive defense strategy to mitigate losses and preserve asset quality. The company engages with borrowers and their personal guarantors to negotiate repayment terms and explore alternative solutions to resolve delinquent accounts. Additionally, NBFIs collaborate with recovery agencies to recover receivables directly from clients or, if necessary, take possession of collateralized assets. Through this approach, NBFIs aim to minimize the impact of NPLs on its financial performance and maintain investor confidence.

Crisis Managing NPLs:

Most NBFIs dedicated Special Asset Management (SAM) team is responsible for effectively managing crises arising from NPLs. The team follows a structured approach, beginning with negotiation as the primary strategy to encourage timely repayment from clients. In cases where direct recovery efforts are unsuccessful, recovery agencies are engaged to assist in recovering receivables and, if necessary, taking possession of clients' assets. NBFIs aim to minimize losses associated with NPLs and maintain the stability of its loan portfolio.

Counter-party Credit Rating:

Most NBFIs collaborate with recognized External Credit Assessment Institutions to rate corporate clients, aiming to increase the proportion of rated clients to mitigate credit risk.

Methods to Measure Credit Risk:

Many NBFIs adopt 'The Standardized Approach' mandated by Bangladesh Bank to measure credit risk effectively.

CHAPTER FIVE: CONCLUSIONS and RECOMMENDATIONS

5.1 Conclusion

The report *"Factors affecting the Non-Performing Loan in Bangladesh: A study on Non-Banking Financial Institutions"* identifies the factors that affects the non-performing loan of NBFI's most. In order to identify this, we ran panel regression model and took panel data which consists of the information of 4 top NBFIs of Bangladesh. We did descriptive analysis, correlation matrix at first. Then we went for random effect model and fixed effect model which were done by using the software named "Stata". After doing so, we did Hausman test in order to identify the best suitable model for our analysis. After doing Hausman test, we found out the fixed effect model is the most suitable choice for this analysis. Then after the analysis, we did Heteroskedasticity Test to assess heterogeneity of variables. Additionally, the VIF test addresses multicollinearity of variables. All these tests ensures if the variables are suitable for the regression analysis.

As for the analysis part, we found out that Fixed Effect model exhibits a high level of statistical significance, with an F-statistic of 6.00 with a Prob > F value of 0.0068. This indicates that independent variables have a significant impact on the dependent variable (NPL). Furthermore, ROA has a statistically significant negative impact (Coefficient = -1.153477, and a P-value = 0.040.) on NPL at the 5% significance level. A higher ROA is associated with lower NPL, which is expected as higher profitability generally leads to better credit risk management.

On the other hand, GDP has a positive and significant impact on NPL, suggesting that higher economic growth influences increased lending and credit risk. Inflation also has a statistically significant positive impact on NPL, as higher inflation rates can erode borrowers' repayment capacity and increase in credit risk.

We can finally conclude that ROA and macroeconomic factors like GDP, inflations are affecting the non-performing loan of NBFI industry the most.

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5.2 Recommendations

Based on the findings from the report, the following recommendations are suggested:

- ✓ Profitability Management: It's crucial for NBFIs to prioritize profitability to mitigate credit risk and manage non-performing loans effectively. This can be achieved through practices such as credit evaluation, portfolio diversification, and regular loan performance monitoring.
- ✓ Macroeconomic Factors Monitoring: Monitoring macroeconomic indicators like GDP growth and inflation rates is vital for NBFIs to anticipate and address credit risk effectively. NBFIs should continue closely tracking these factors and integrating them into its risk management strategies.
- ✓ Effective Credit Risk Management Strategies: Most NBFI's current strategies, including 3- layered CRM approach and early warning systems, are commendable for mitigating credit risk. These strategies should be further refined and implemented to enhance NBFIs risk management capabilities.
- ✓ Diversification and Concentration Monitoring: NBFIs focus on portfolio diversification and adherence to sectoral threshold limits is prudent for managing credit risk. Continued monitoring and maintenance of a balanced sector exposure are recommended to ensure portfolio resilience.
- ✓ Regulatory Compliance and Collaboration: NBFI's commitment to regulatory compliance and collaboration with relevant authorities is essential for strengthening its risk management framework. Maintaining this compliance level and fostering collaboration can further bolster NBFI's stability and contribute to sector-wide resilience.

By adhering to these recommendations, NBFIs in Bangladesh can effectively manage credit risk, handle non-performing loans, and foster sustainable growth in the sector

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Appendix:

https://drive.google.com/file/d/1Du7l59CTcsrluBVqa3kUTaHRO-LuwURy/view?usp=sharing