Determinants of Non-Performing Loans: Perception of Bankers in Bangladesh

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ABSTRACT

This study attempts to explore the determinants of non-performing loans in banking sector of Bangladesh based on the perception of bankers. To represent the bank-specific determinants of non-performing loans, bank profitability, lending rate, bank total assets, transparency in loan authorization, credit assessment, bank age, and corporate governance are considered. On the other hand, gross domestic product, inflation rate, unemployment rate, exchange rate, foreign direct investment, and export growth are used to represent macroeconomic determinants. Bankers working in Dhaka city have been considered as the sample of this study. Opinions of 144 bankers regarding the selected determinants of non-performing loans have been collected through a structured questionnaire. Based on the collected data, descriptive analysis, correlation analysis, and regression analysis have been conducted. In the analysis, bank total assets, transparency in loan authorization, bank age, inflation rate, and unemployment rate have depicted a positive impact on non-performing loans where bank profitability, lending rate, credit assessment, corporate governance, gross domestic product, exchange rate, foreign direct investment, and export growth have shown a negative impact. However, among these, significant impact has been identified only for bank total assets, bank age, corporate governance, gross domestic product, inflation rate, and foreign direct investment.

Keywords*:* Bank-Specific Determinants, Macroeconomic Determinants, Non-performing Loans, Banking Sector, Bangladesh

INTRODUCTION

In recent times, the state of non-performing loans (NPL) has become one of the most discussed issues in the banking sector of Bangladesh. There is a logical reason for this increased attention too. From 2006 to June 2019, the amount of non-performing loans in banking sector of Bangladesh has reached from BDT 201.0 billion (Bangladesh Bank, 2014) to BDT 1,124.2 billion (Bangladesh Bank, 2019) which indicates a rise of around 460 percent. This upsurge in non-performing loans signifies the underperformance of the banking sector in loan management which may decrease the depositor's confidence on this sector, consequently, reduce fund collection in coming days (Hamid & Rahman, 2020).

After the liberation war, Bangladeshi Banking sector comprised of 6 nationalized commercial banks, 9 foreign banks, and 3 state-owned specialized banks (Bangladesh Bank, 2021). Presently, in Bangladesh, there are 6 state-owned commercial banks, 3 specialized banks, 43 private commercial banks, 9 foreign commercial banks, and 5 non-scheduled banks (Bangladesh Bank, 2023). In recent times, the rise of non-

performing loans at an alarming rate has contributed to the unsatisfactory performance of this sector ("S&P puts Bangladesh", 2018).

In Bangladesh, for years, the banking sector has been playing a critical role in mobilization of resources and fostering economic growth (Khatun, 2016). Bank ensures that surplus funds in the economy are transferred from the surplus unit to deficit unit in an effective and efficient manner, thus, facilitates the economic growth (Hamid & Rahman, 2020).

Islam (2018) stated that the increase in non-performing loans would have a detrimental effect on the performance of the banking sector as depositors would feel less confident about this sector which may hamper the deposit growth in coming days. So, there is no alternative to be concerned about this issue and take appropriate action for minimizing the non-performing loans in the banking sector. Higher interest rate, nepotism, greediness of bankers, and lack of proper monitoring have been identified as some of the major causes of non-performing loans in a field survey report of Bangladesh Bank(Bangladesh Bank, 2017). It is necessary to ensure the stability of this sector by proper management of non-performing loans. Therefore, the objective of this research is to identify the determinants of non-performing loans in banking sector of Bangladesh.

PROBLEM STATEMENT

Recently, Bangladesh has progressed from least developed country (LDC) to a developing country because of balanced economic growth. To maintain such growth, financial stability is necessary as it contributes to the national output level. The banking sector plays a crucial role in maintaining financial stability by channeling the depositor's money on decent projects (Ahmad et al., 2016). But persistence in financial stability may be hindered when banks invest money on risky projects and do not follow-up rigorously (Kumar et al., 2018). Failure of recovery from those risky lending leads to a loss in loans which is usually termed as non- performing loans (NPL).

Many researchers have identified non-performing loans as a detrimental factor for the long-term sustainability of banks. As mentioned earlier, in Bangladesh, the non-performing loans scenario is very alarming which calls for increased attention on this issue. However, to tackle this problem, we need proper understanding of the factors that are facilitating this rise in non-performing loans. Hence, this study is designed to extensively study the opinions of the bankers regarding various bank-specific and macroeconomic determinants of non-performing loans in Bangladesh.

NON-PERFORMING LOANS IN BANKING SECTOR OF BANGLADESH

Table 1.0 shows the amount of non-performing loans (NPLs) and NPL ratio for the period of 2015-2019. In state-owned commercial banks (SCBs), NPLs has reached BDT 439.9 billion in 2019 from BDT 272.8 billion in 2015 while the NPL ratio has moved from 21.5% in 2015 to 23.9% in 2019. NPL ratio was the highest in 2018 and the lowest in 2015 while, in amount, the highest was seen in 2018 of BDT 487.0 billion and the lowest of BDT 272.8 billion in 2015.

For the state-owned development financial institutions (DFIs), the highest NPLs can be seen in 2016 of BDT 56.8 billion and the lowest was recorded in 2019 of BDT 40.6 billion. In case of NPL ratio, the lowest 15.1% is found in 2019 and the highest was in 2016 of 26%. In case of private commercial banks (PCBs), the lowest of BDT 230.6 billion NPLs can be seen in 2016 and the highest was in 2019 of BDT 441.7 billion. For NPL ratio, the lowest 4.6% is seen in 2016 and highest can be found for 2019 of 5.8%. Foreign Commercial Banks (FCBs) have shown BDT 18.2 billion NPLs in 2015 and BDT 22.9 billion NPLs in 2018. At the same time, the NPL ratio for FCBs moved between 5.7% to 9.6% in this period.

Table 1.0: Amount of NPLs and NPL Ratio in Banking Sector of Bangladesh (2015-2019)

Bank Types		2015	2016	2017	2018	2019
(Amount in billion BDT)						
SCBs	Amount	272.8	310.3	373.30	487.0	439.9
	Ratio	21.5%	25.1%	26.52%	30.0%	23.9%
DFIs	Amount	49.7	56.8	54.3	47.9	40.6
	Ratio	23.2%	26%	23.4%	19.5%	15.1%
PCBs	Amount	253.3	230.6	294.0	381.4	441.7
	Ratio	4.9%	4.6%	4.9%	5.5%	5.8%
FCBs	Amount	18.2	24.1	21.50	22.9	21.0
	Ratio	7.8%	9.6%	7.0%	6.5%	5.7%
Banking Sector	Amount	594.1	621.8	743.0	939.2	943.3
	Ratio	8.8%	9.2%	9.3%	10.3%	9.3%

For the banking sector of Bangladesh, total NPLs has gradually increased from 2015 to 2019. In 2015, NPL amount was BDT 594.1 billion and in 2019, the amount reached BDT 943.3 billion. On the other hand, 8.8% NPL ratio was recorded in 2015 and in 2019, the ratio was 9.3%. For the banking sector, the highest NPL ratio is seen in 2018 of 10.3% and the lowest was in 2015 of 8.8%.

Among different types of banks, state-owned commercial banks have the highest level of NPL ratio. In all the years, SCBs have NPL ratio of higher than 20%. After SCBs, state-owned development financial institutions (DFIs) are also experiencing a higher level of NPL ratio. Private commercial banks (PCBs) have the lowest NPL ratio with the highest of 5.8% in 2019. So, it can be said that, for NPL, PCBs and FCBs are doing better than SCBs and DFIs by keeping the NPL ratio lower than 10% in all these years where SCBs and DFIs have shown the lowest ratio of 15.1% and the highest ratio of 30.0%.

LITERATURE REVIEW

Impact of bank-specific and macroeconomic factors on non-performing loans (NPL) has been studied by many researchers in different contexts.

Impact of Bank-Specific Factors

In context of Fiji, Kumar et al. (2018) studied the influence of different bank-specific factors on the level of non-performing loans for 2000-13. This study used the panel data regression technique and found that net interest margin significantly contributed to the rise of non-performing loans and increase of return on equity and bank size have shown the detrimental impact on the level of non-performing loans. However, solvency and inefficiency have shown no significant influence on non-performing loans.

Ahmed and Bashir (2013) conducted a study in context of Pakistan by incorporating inefficiency ratio, solvency ratio, loan to deposit ratio, market power ratio, return on assets (ROA), return on equity (ROE), credit growth, total liability to income ratio, deposits rate ratio, and reserve ratio. The study identified the presence of significant impact of loan to deposit ratio, ROA, credit growth, and reserve ratio on NPL.

In Pakistan, Hassan et al. (2014) concluded the significant impact of liberal credit terms, ownership concentration, firm size, credit assessment, and differentiated loan products on NPL whereas Sheefani (2015) found ROA, ROE, loan to total asset ratio, and log value of total assets, significant for the banking sector of Namibia. Umar and Sun (2017) considered cost to income ratio, other operating income to net income ratio, total liabilities to total assets ratio, ownership concentration, credit growth, and net interest

income to total income for their study but found no significant impact of cost to income ratio, credit growth, and profitability ratio on NPL.

Rajha (2017) conducted a study on non-performing loans in perspective of Jordan for the study period of 2007 to 2012. This study used lagged non-performing loans, size of bank, and loans to total assets ratio to represent bank-specific factors. It is found that the level of non-performing loans is significantly influenced by two selected factors i.e. lagged NPL and loans to total assets ratio.

To identify the determinants of non-performing loans in cross-country context, Radivojevic and Jovovic (2017) incorporated the NPL data of 25 countries. In this study, they have found that increase in return on assets would lead to the decline in non-performing loans. On the other hand, return on equity, loan loss provision, and capital adequacy ratio have shown significant positive influence on the level of non-performing loans.

Safitri, Andriana, and Sulastri (2023) analyzed the factors affecting NPL in banking sector of Indonesia for 2018-22. They found that loan-to-deposit ratio has a significant positive and capital adequacy ratio has a significant negative effect on NPL. In addition to these researches, this non-performing loans phenomenon has been studied by Ghosh et al. (2019) in Bangladesh, Louzis et al. (2012) in Greece, Fajar and Umanto (2017) in Indonesia, and Park and Zhang (2012) in the United States.

Impact of Macroeconomic Factors

For Italy, Greece, and Spain, Messai and Jouini (2013) identified the significant impact of Gross domestic product (GDP) growth, unemployment rate, and real interest rate on NPL. On the other hand, Shingjergji (2013) found the significant impact of GDP growth, inflation rate, and exchange rate for Albania. In Sri Lanka, Kumarasinghe (2017) studied GDP, unemployment, inflation, interest rate, exchange rate, export growth, and capital market growth and concluded the presence of significant impact of GDP growth and export growth on NPL.

In perspective of Pakistan, Ahmad and Bashir (2013) conducted a study considering different macroeconomic variables for 1990-2011. They have run ordinary least square regression and found that gross domestic product (GDP) growth, industrial production, consumer price index, real interest rate, exports, and inflation rate, significantly influence the non-performing loan ratio. In addition, for selected Asia Pacific and South Asian countries, Endut et al. (2013) found that gross domestic product, interest rate, and inflation rate have significant influence on non-performing loans.

In perspective of Bangladesh, Roy et al. (2014) concluded that GDP growth and inflation rate have significant impact on non-performing loans. Inflation rate was also found significant by Mondal (2016) and Rifat (2016) in Bangladeshi context. In another study, Rahman and Hamid (2019) concluded the presence of significant impact of interest rate spread, exchange rate, unemployment rate, and GDP per capita growth on non-performing loans.In Barbados, Wood and Skinner (2018) identified GDP growth, unemployment rate, and interest rate as influential factors for non-performing loans.

In context of Malaysia, Mohd, Haris, and Kassim (2023) studied inflation rates, lending interest rates, real interest rates, gross domestic product, gross domestic saving and unemployment rates for the period of 1988 to 2020. They concluded that gross domestic product, gross domestic saving, and unemployment have significant impact on non-performing loans in Malaysia. After studying 18 Central-East European Countries (CEEC) for 26 years (1995-2020), Kukeli, Forrester, Deari, and Martinez(2023) concluded that an increase in GDP growth, inflation, and trade decrease NPL and an increase in credit availability, lending rate, and exchange rate increase NPL.

In addition, impact of macroeconomic factors has been studied by Agić and Jeremić (2018) in Bosnia and

Herzegovina, Adeola and Ikpesu (2017) in Nigeria, Sheefeni (2015) in Namibia, Muvingi et al. (2017) in Zimbabwe, and Marouf and Guellil (2017) in Algeria.

THEORETICAL FRAMEWORK

The aim of this study is to explore the influence of bank-specific and macroeconomic factors on non-performing loans (NPL) based on the perception of bankers in Bangladesh context. Non-performing loansis incorporated as the dependent variable which signifies the degree of loan default made by the borrower. For representing bank-specific factors, bank profitability, lending rate, bank total assets, transparency in loan authorization, credit assessment, bank age, and corporate governance have been considered.

In addition, for representing macroeconomic factors gross domestic product, inflation rate, unemployment rate, exchange rate, foreign direct investment, and export growth have been selected. All these bank-specific factors and macroeconomic factors have been considered as independent variables. Figure 1.0 depicts the conceptual framework of this study.
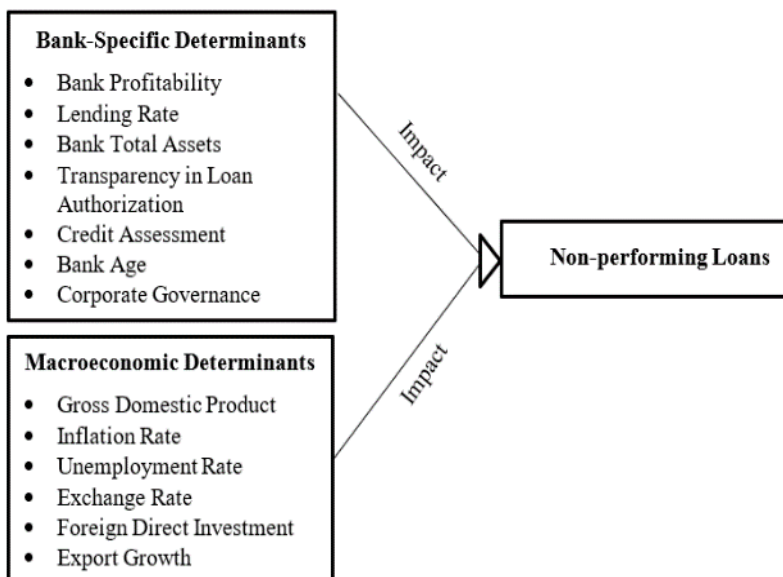

Figure 1.0: Conceptual Framework

HYPOTHESIS DEVELOPMENT

This study has considered 13 hypotheses. The hypotheses are given below.

Hypothesis-1: There is a significant impact of bank profitability on NPL.

Hypothesis-2: There is a significant impact of lending rate on NPL.

Hypothesis-3: There is a significant impact of bank total assets on NPL.

Hypothesis-4: There is a significant impact of transparency in loan authorization on NPL.

Hypothesis-5: There is a significant impact of credit assessment on NPL.

Hypothesis-6: There is a significant impact of bank age on NPL.

Hypothesis-7: There is a significant impact of corporate governance on NPL.

Hypothesis-8: There is a significant impact of gross domestic product on NPL.

Hypothesis-9: There is a significant impact of inflation rateon NPL.

Hypothesis-10: There is a significant impact of unemployment rate on NPL.

Hypothesis-11: There is a significant impact of exchange rate on NPL.

Hypothesis-12: There is a significant impact of foreign direct investment on NPL.

Hypothesis-13: There is a significant impact of export growth on NPL.

METHODOLOGY

In this study correlational research has been used. Data for this study included the perception of the bankers regarding the impact of different bank-specific factors and macroeconomic factors on non-performing loans (NPL). So, a quantitative research approach has been used in the study. A structured questionnaire was used to collect the data as the primary source of data collection. Bankers in Bangladesh who are working in credit related departments are treated as the target population of the study. Judgmental sampling technique has been used as the sampling technique for the current study. The questionnaires were distributed among 280 individuals. Against that, 176 questionnaires were returned, and 144 questionnaires were found complete and usable for further analysis. Other questionnaires were incomplete. Therefore, 144 questionnaires have been used for the analysis.

Table 2.0: Variables of the Study

Dependent Variable	
Non-performing Loans	
Independent Variables	
Bank-Specific Factors	**Macroeconomic Factors**
· Bank Profitability	· Gross Domestic Product
· Lending Rate	· Inflation Rate
· Bank Total Assets	· Unemployment Rate
· Transparency in Loan Authorization	· Exchange Rate
· Credit Assessment	· Foreign Direct Investment
· Bank Age	· Export Growth
· Corporate Governance	

Four demographic variables used in this study were age, gender, education, and industry experience. As the respondents are educated bank employees, to get the actual responses from the respondents, the questionnaire was made in English language. In this study, non-performing loans has been used as the dependent variable. On the hand, to represent bank-specific factors, bank profitability, lending rate, bank total assets, transparency in loan authorization, credit assessment, bank age, and corporate governance are considered. In addition, gross domestic product, inflation rate, unemployment rate, exchange rate, foreign direct investment, and export growth are used to represent macroeconomic factors.

Two software are used for data analysis. Microsoft Excel is used to make the data ready for analysis and to do the descriptive analysis. On the other hand, Statistical Package for Social Sciences (SPSS) is used to conduct the correlation analysis for checking the interrelationship among the variables and multiple regression analysis to explore the influence on bank-specific and macroeconomic factors on non-performing loans.

ANALYSIS AND FINDINGS

Respondent analysis has been done to get an overview of the respondents. After that, descriptive analysis has been conducted on the collected data. Then, correlation analysis has been done to know about the interrelationship among non-performing loans (NPL) and different bank-specific and macroeconomic factors. Finally, regression analysis has been conducted to know about the impact of selected bank-specific and macroeconomic factors on non-performing loans.

Profile of the Respondents

Summarized profile of the respondents is shown in table 3.0. For this study, 4 types of demographic information i.e. age, gender, education and industry experience have been collected. In the table, it can be observed that 10.42% respondents are below 26 age, 27.78% respondents are in 26-30 age group, 29.86% respondents are in 31-35 age group, and 31.94% respondents are of 36 and above. In terms of gender, 61.11% respondents are male, and 38.89% respondents are female. For educational qualification, 9.72% respondents have completed bachelor's degree, 86.11% respondents have completed master's degree, and remaining 4.17% respondents have educational qualifications of above Masters. For industry experience, 53.47% respondents have 1-5 years of experience, 25.00% respondents have 6-10 years of experience, 14.58% respondents have 11-15 years of experience, and 6.94% respondents have experiences of 15 years and above.

Table 3.0: Respondent's Profile

Demographic Profile	Number	Percentage
Age		
Below 26	15	10.42%
26-30	40	27.78%
31-35	43	29.86%
36 and above	46	31.94%
Gender		
Male	88	61.11%
Female	56	38.89%
Education		
Bachelor	14	9.72%
Masters	124	86.11%
Above Masters	6	4.17%
Industry Experience		
1-5 years	77	53.47%
6-10 years	36	25.00%
11-15 years	21	14.58%
15 years and above	10	6.94%

Descriptive Analysis of the Responses

Table 4.0 shows the descriptive statistics of different bank-specific factors, macroeconomic factors, and non-performing loans based on the responses of 144 respondents. From the table, it can be observed that among the bank-specific factors bank profitability (BP), lending rate (LR), bank total assets (BTA), transparency in loan authorization (TLA), credit assessment (CA), bank age (BA), and corporate governance (CG) have mean value of 3.89, 4.18, 4.13, 4.31, 3.63, 4.17, and 4.26 respectively. Here, the lowest standard deviation is observed for TLA of 0.67 and the highest standard deviation of 1.28 is observed for credit assessment. In addition, BP, TLA, CA, and CG have positive kurtosis and LR, BTA, and BA have positive kurtosis value. However, all the factors have negative skewness value.

In case of macroeconomic factors, it can be observed that gross domestic product (GDP), exchange rate (ER), inflation rate (INF), unemployment rate (UR), foreign direct investment (FDI), and export growth (EXG) have mean values of 3.53, 3.83, 3.73, 3.53, 3.73, and 3.99 respectively. Standard deviation of the responses can be observed as 1.28 for GDP, 1.14 for INF, 1.12 for UR, 1.05 for ER, 0.97 for FDI, and 1.05 for EXG. For all the macroeconomic factors, the values of kurtosis and skewness are negative. For non-performing loans (NPL), it can be seen that mean response is 4.24 with standard deviation of 0.85. In addition, kurtosis value for the non-performing loans is -0.25 and skewness value is -0.82.

Table 4.0: Descriptive Statistics of the Response

Particulars	Mean	Mode	Standard Deviation	Kurtosis	Skewness	Range	Minimum	Maximum
BP	3.89	4	1.01	-0.7	-0.6	3	2	5
LR	4.18	4	0.81	0.85	-0.99	3	2	5
BTA	4.13	5	1	1.66	-1.27	4	1	5
TLA	4.31	4	0.67	-0.77	-0.45	2	3	5
CA	3.63	4	1.28	-0.74	-0.65	4	1	5
BA	4.17	4	0.76	0.56	-0.79	3	2	5
CG	4.26	5	0.73	-1	-0.45	2	3	5
GDP	3.53	5	1.28	-0.95	-0.42	4	1	5
INF	3.53	4	1.14	-0.75	-0.34	4	1	5
UR	3.73	4	1.12	-0.24	-0.73	4	1	5
ER	3.83	4	1.05	-0.16	-0.67	4	1	5
FDI	3.73	4	0.97	-0.85	-0.32	3	2	5
EXG	3.99	5	1.05	-1.07	-0.52	3	2	5
NPL	4.24	5	0.85	-0.25	-0.82	3	2	5

Correlation Analysis

Correlation analysis is conducted to check the interrelationship among non-performing loans, bank-specific factors, and macroeconomic factors. The result of correlation analysis is shown in table 5.0. From the table, it can be observed that BP has positive correlation with LR, BTA, TLA, CA, GDP, INF, UR, ER, and EXG with correlation coefficients of 0.085, 0.11, 0.215, 0.011, .310, 0.112, 0.153, .212, and 0.15 respectively. On the other hand, negative correlation coefficients of -.202, -.178, and -0.074 are identified with BA, CG, and FDI. Among these, coefficients with TLA, BA, CG, GDP, and ER are found to be significant.

Lending rate (LR) is found positively correlated with BP, LR, BTA, TLA, CA, CG, GDP, INF, UR, ER, and FDI. LR is negatively correlated with BA and EXG. However, none of these is found significant. In case of bank total assets (BTA), except FDI, all other factors have shown positive correlations though only the correlations with TLA, CA, BA, GDP, INF, and UR are found significant. Transparency in Loan

Authorization (TLA) are found to be positively correlated with BP, LR, BTA, CA, INF, UR, ER, and EXG and negatively correlated with BA, CG, and FDI. Among these BP, BTA, CA, INF, and FDI are found significant. Credit Assessment (CA) is positively correlated with all the factors though only BTA, TLA, GDP, INF, and UR significant. Positive correlations of bank age (BA) is observed with BTA, CA, INF, UR, ER, FDI, and EXG and negative with BP, LR, TLA, and CG. However, BP, BTA, INF, and FDI are found to be significant. Corporate Governance (CG) has depicted positive correlationswith LR, BTA, CA, GDP, INF, UR, ER, FDI, and EXG and negative correlations with BP, TLA, and BA. However, among these the correlations with BP and INF are found significant.

Among the macroeconomic factors, except LR, TLA, CG, and ER, gross domestic product (GDP) has shown significant positive correlations with all other factors. Inflation Rate (INF) is also positively correlated with all the factors though only insignificant with BP and LR. Unemployment Rate (UR) has significant correlations with BTA, CA, GDP, INF, FDI, and EXG. For exchange rate (ER), significant correlations are found with BP, GDP, and INF. In case of foreign direct investment (FDI), BP, BTA, and TLA are found negatively correlated and others are CA, BA, CG, GDP, INF, UR, ER, and EXG are positively correlated. Among these TLA, BA, GDP, INF, and UR are found significant. For export growth (EXG), except LR, all the factors are positively correlated though only GDP, INF, and UR are found significant.

For non-performing loans (NPL), BTA, TLA, CA, BA, INF, UR, ER, and EXG have shown positive correlations of .333, .215, .376, .292, .389, .222, 0.023, and 0.058 respectively. And, BP, LR, CG, GDP, and FDI have depicted negative correlations of -0.099, -0.083, -0.067, -0.001, and -0.108 respectively with NPL. So, NPL has shown the lowest correlation coefficients of -0.001 with GDP and the highest correlation coefficients of .389 with INF. Nevertheless, BTA, TLA, CA, BA, INF, and UR are found significant among these.

Table 5.0: Result of Correlation Analysis

		BP	LR	BTA	TLA	CA	BA	CG	GDP	INF	UR	ER	FDI	EXG	NPL
BP	Pearson Correlation	1	0.085	0.11	.215**	0.011	-.202*	-.178*	.310**	0.112	0.153	.212*	-0.074	0.15	-0.099
	Sig. (2-tailed)		0.313	0.188	0.01	0.892	0.015	0.033	0	0.182	0.068	0.011	0.38	0.073	0.237
LR	Pearson Correlation	0.085	1	0.041	0.001	0.031	-0.097	0.037	0.109	0.116	0.124	0.128	0	-0.013	-0.083
	Sig. (2-tailed)	0.313		0.625	0.993	0.713	0.248	0.657	0.195	0.166	0.138	0.128	0.996	0.872	0.325
BTA	Pearson Correlation	0.11	0.041	1	.223**	.369**	.237**	0.136	.453**	.401**	.349**	0.041	-0.138	0.095	.333**
	Sig. (2-tailed)	0.188	0.625		0.007	0	0.004	0.103	0	0	0	0.629	0.1	0.26	0
TLA	Pearson Correlation	.215**	0.001	.223**	1	.425**	-0.118	-0.109	0.125	.226**	0.027	0.066	-.452**	0.026	.215**
	Sig. (2-tailed)	0.01	0.993	0.007		0	0.158	0.195	0.134	0.006	0.746	0.435	0	0.758	0.01
CA	Pearson Correlation	0.011	0.031	.369**	.425**	1	0.131	0.037	.368**	.715**	.439**	0.072	0.049	0.126	.376**
	Sig. (2-tailed)	0.892	0.713	0	0		0.118	0.656	0	0	0	0.393	0.561	0.131	0
BA	Pearson Correlation	-.202*	-0.097	.237**	-0.118	0.131	1	-0.058	.198*	.208*	0.039	0.02	.178*	0.003	.292**
	Sig. (2-tailed)	0.015	0.248	0.004	0.158	0.118		0.49	0.017	0.012	0.64	0.808	0.033	0.971	0
CG	Pearson Correlation	-.178*	0.037	0.136	-0.109	0.037	-0.058	1	0.02	.294**	0.003	0.005	0.033	0.005	-0.067
	Sig. (2-tailed)	0.033	0.657	0.103	0.195	0.656	0.49		0.812	0	0.976	0.948	0.698	0.954	0.424
GDP	Pearson Correlation	.310**	0.109	.453**	0.125	.368**	.198*	0.02	1	.551**	.550**	.224**	.229**	.202*	-0.001
	Sig. (2-tailed)	0	0.195	0	0.134	0	0.017	0.812		0	0	0.007	0.006	0.015	0.989
INF	Pearson Correlation	0.112	0.116	.401**	.226**	.715**	.208*	.294**	.551**	1	.569**	.252**	.269**	.245**	.389**
	Sig. (2-tailed)	0.182	0.166	0	0.006	0	0.012	0	0		0	0.002	0.001	0.003	0
UR	Pearson Correlation	0.153	0.124	.349**	0.027	.439**	0.039	0.003	.550**	.569**	1	0.15	.280**	.247**	.222**
	Sig. (2-tailed)	0.068	0.138	0	0.746	0	0.64	0.976	0	0		0.073	0.001	0.003	0.008
ER	Pearson Correlation	.212*	0.128	0.041	0.066	0.072	0.02	0.005	.224**	.252**	0.15	1	0.132	0.124	0.023
	Sig. (2-tailed)	0.011	0.128	0.629	0.435	0.393	0.808	0.948	0.007	0.002	0.073		0.116	0.138	0.788
FDI	Pearson Correlation	-0.074	0	-0.138	-.452**	0.049	.178*	0.033	.229**	.269**	.280**	0.132	1	0.14	-0.108
	Sig. (2-tailed)	0.38	0.996	0.1	0	0.561	0.033	0.698	0.006	0.001	0.001	0.116		0.093	0.197
EXG	Pearson Correlation	0.15	-0.013	0.095	0.026	0.126	0.003	0.005	.202*	.245**	.247**	0.124	0.14	1	0.058
	Sig. (2-tailed)	0.073	0.872	0.26	0.758	0.131	0.971	0.954	0.015	0.003	0.003	0.138	0.093		0.488
NPL	Pearson Correlation	-0.099	-0.083	.333**	.215**	.376**	.292**	-0.067	-0.001	.389**	.222**	0.023	-0.108	0.058	1
	Sig. (2-tailed)	0.237	0.325	0	0.01	0	0	0.424	0.989	0	0.008	0.788	0.197	0.488	

Table 6.0: Summary Statistics of Regression Analysis

R	R Square	Adjusted R Square	Std. Error of the Estimate
.666 a	.444	.388	.66705

a. Predictors: (Constant), Export Growth, Bank Age, Corporate Governance, Lending Rate, Transparency in Loan Authorization, Exchange Rate, Unemployment Rate, Bank Profitability, Bank Total Assets, Foreign Direct Investment, Credit Assessment, Gross Domestic Product, Inflation Rate

Table 7.0: Results of Analysis of Variance

	Sum of Squares	df	Mean Square	F	Sig.
Regression	46.128	13	3.548	7.975	.000 b
Residual	57.844	130	.445		
Total	103.972	143			

a. Dependent Variable: Non-Performing Loans

b. Predictors: (Constant), Export Growth, Bank Age, Corporate Governance, Lending Rate, Transparency in Loan Authorization, Exchange Rate, Unemployment Rate, Bank Profitability, Bank Total Assets, Foreign Direct Investment, Credit Assessment, Gross Domestic Product, Inflation Rate

Regression Analysis

In order to fulfill the research objective a multiple regression is conducted by considering non-performing loans (NPL) as the dependent variable and bank-specific factors i.e. bank profitability (BP), lending rate (LR), bank total assets (BTA), transparency in loan authorization (TLA), credit assessment (CA), bank age (BA), and corporate governance (CG), and macroeconomic factors i.e. gross domestic product (GDP), exchange rate (ER), inflation rate (INF), unemployment rate (UR), foreign direct investment (FDI), and export growth (EXG) as the independent variables.

Summary statistics of the regression analysis is shown in table 6.0. The correlation coefficient, R, is +0.666 which indicates a strong positive correlation between dependent and independent variables. Coefficient of determination, R Square, is 0.444 which indicates that 44.40% of the variability of non-performing loans can be explained by the variance of selected bank-specific and macroeconomic factors i.e. bank profitability, lending rate, bank total assets, transparency in loan authorization, credit assessment, bank age, and corporate governance, gross domestic product, exchange rate, inflation rate, unemployment rate, foreign direct investment, and export growth. And, the remaining 55.60% of the change in non-performing loans is due to the variables external to this model.

The result of analysis of variance (ANOVA) is depicted in table 7.0. F statistics of this model is 7.975 and significance of F is 0.000 which is lower than 0.05. So, at 5% level of significance, it can be articulated that this model is significant for studying the impact of selected bank-specific and macroeconomic factors onnon-performing loans in banking sector of Bangladesh.

Table 8.0: Coefficients of the Variables

Coefficients^a					
Model		Unstandardized Coefficients		Standardized Coefficients	Sig.
	B	Std. Error	Beta	t	
(Constant)	4.165	1.023		4.071	.000
Bank Profitability	-.076	.065	-.091	-1.171	.244
Lending Rate	-.098	.071	-.093	-1.376	.171
Bank Total Assets	.202	.071	.238	2.854	.005
Transparency in Loan Authorization	.040	.114	.031	.347	.730
Credit Assessment	-.037	.073	-.055	-.500	.618
Bank Age	.220	.086	.196	2.572	.011
Corporate Governance	-.302	.093	-.258	-3.253	.001
Gross Domestic Product	-.301	.062	-.453	-4.851	.000
Inflation Rate	.452	.100	.605	4.540	.000
Unemployment Rate	.108	.070	.142	1.546	.124
Exchange Rate	-.002	.057	-.002	-.034	.973
Foreign Direct Investment	-.166	.077	-.189	-2.159	.033
Export Growth	-.008	.056	-.010	-.143	.886

a. Dependent Variable: Non-Performing Loans

From table 8.0, it can be identified that bank total assets, transparency in loan authorization, bank age, inflation rate, and unemployment rate have positive impact on non-performing loans with coefficients values of 0.202, 0.040, 0.220, 0.452, and 0.108 respectively. Alternatively, bank profitability, lending rate, credit assessment, corporate governance, gross domestic product, exchange rate, foreign direct investment, and export growth have negative impact on non-performing loans with coefficients values of -0.076, -0.098, -0.037, -0.302, -0.301, -0.002, -0.166, and -0.008 respectively.

Among the bank-specific factors, bank total assets, bank age, and corporate governance have shown significant impact on non-performing loans at 5% level of significance.

Conversely, among the macroeconomic factors, gross domestic product, inflation rate, and foreign direct investment have depicted significant impact on non-performing loans. However, statistically insignificant impacts have been identified for other factors i.e. bank profitability, lending rate, transparency in loan authorization, credit assessment, unemployment rate, exchange rate, and export growth.

RESULT OF HYPOTHESIS TESTING

Table 9.0 shows the results of hypothesis testing. For bank-specific factors, it can be observed that at 5% level of significance, hypothesis 3, 6, and 7 stating the significant impact of bank total assets, bank age, and corporate governance on non-performing loans could be accepted. On the other hand, hypothesis 1, 2, 4, and 5 showing the significant impact of bank profitability, lending rate, transparency in loan authorization, and credit assessment on non-performing loans could be rejected.

For macroeconomic factors, it can be observed that, at 5% level of significance, hypothesis 8, 9, and 12 stating the significant impact of gross domestic product, inflation rate, and foreign direct investment on non-performing loans could be accepted. On the other hand, hypothesis 10, 11, and 13 showing the significant impact of unemployment rate, exchange rate, and export growth on non-performing loans could be rejected.

Table *9*.0: Results of Hypothesis Testing for Bank-Specific Factors

Hypotheses	Level of Significance (P-value)	Decision
Hypothesis-1: There is a significant impact of bankprofitability on NPL.	.244	Rejected
Hypothesis-2: There is a significant impact of lending rate onNPL.	.171	Rejected
Hypothesis-3: There is a significant impact of bank totalassets on NPL.	.005	Accepted
Hypothesis-4: There is a significant impact of transparency inloan authorization on NPL.	.730	Rejected
Hypothesis-5: There is a significant impact of creditassessment on NPL.	.618	Rejected
Hypothesis-6: There is a significant impact of bank age onNPL.	.011	Accepted
Hypothesis-7: There is a significant impact of corporategovernance on NPL.	.001	Accepted
Hypothesis-8: There is a significant impact of gross domesticproduct on NPL.	.000	Accepted
Hypothesis-9: There is a significant impact of inflation rateon NPL.	.000	Accepted
Hypothesis-10: There is a significant impact ofunemployment rate on NPL.	.124	Rejected
Hypothesis-11: There is a significant impact of exchange rateon NPL.	.973	Rejected
Hypothesis-12: There is a significant impact of foreign directinvestment on NPL.	.033	Accepted
Hypothesis-13: There is a significant impact of export growth on NPL.	.886	Rejected

LIMITATION

This research was conducted in Dhaka city of Bangladesh. True representation of the total eligible respondents would require a far larger examination across the other areas of Bangladesh. However, it should be noted that it is expected that levels of knowledge regarding non-performing loan, bank specific factors, and macroeconomic factors may vary from person to person, but the way in which people with similar levels of banking knowledge react to different factors of bank specific and macroeconomic aspects of non-performing loan might be similar. Moreover, this study used cross sectional research design where responses have been collected at specific point of time. Therefore, it was not possible to detect the changes of the respondents regarding the intention and actual behavior. Longitudinal research is helpful to avoid this risk and this study urges the attention of future researcher to carry longitudinal research for this particular area in the context of Bangladesh.

CONCLUSION

Non-performing loans (NPL) has been a major concern in the banking sector of Bangladesh. Over the years, the amount of NPL in the banking sector is increasing. Though many measures have been taken from the changes in loan classification rules to policy actions, the amount of non-performing loans is still at a higher level. In perspective of Bangladesh, this study has attempted to investigate this situation by studying the determinants of NPL in the banking sector based on the perception of bankers. From the relevant analysis, this study has identified the significant influence of bank total assets, bank age, corporate governance, gross domestic product, inflation rate, and foreign direct investment on non-performing loans. Thus, a bank can reduce the non-performing loans by carefully monitoring and managing these factors. In conclusion, it should be mentioned that this study has considered bank profitability, lending rate, bank total assets, transparency in loan authorization, credit assessment, bank age, corporate governance, gross domestic product, inflation rate, unemployment rate, exchange rate, foreign direct investment, and export growth. Further study can be conducted by incorporating other bank-specific and macroeconomic factors.

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