



Bank's specific and macro economic factors behind the non-performing loan: a study on Bangladesh

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Abstract

Non-performing loan, a bid signal for banking industry since it affects the principles of banking system. Loan becomes non-performing when it doesn't have any periodic return and principal repayment. Bangladesh is faster economic country where banking industry is considered as second largest industry. The study aims to identify the facts both bank and macro precise behind then on performing (NPL) of the banks in Bangladesh. Data from 2012 to 2016 have been assessed for five selected banks of Bangladesh. The study found that NPL of the Sonali Bank is highest in position followed by other sample banks. The growth of the nonperforming loan is higher for the BASIC Bank and lowest growth is for Sonali Bank. Finally by using simple regression model the study finds that among 8 variables capital adequacy and asset management have undesirable significant effect on non-performing loan of sample banks where loan to deposit, profitability, inflation rate and unemployment rate have positive significant on non-performing loan.

Keywords: Non-performing loan, Bangladesh, bank specific, macro specific.

Introduction

In an economy bank plays an intermediary role between the savers and borrowers. In a sentence bank provides capital flow to the economy. The way which the bank provides capital to the economy is known as loan and advances. Loan, from bank side is considered as asset because by giving loan to the clients' bank invests its funds. The aims of the loan providing by the bank are many but the basic aim is to earn to profit on loan. As the fund is invested the loan is considered as asset for bank. In bank terminology, if any client is default to pay the loan interest for three consecutive months then the loan is treated as non-performing loan¹. Non-performing loan is the loan which does not contribute the revenue earnings of the bank². Behind the non-performing loan there are so many factors are related. Both bank specific and macro factors are liable for non-performing loan. Bangladesh is a growing economic country where the economy depends on so many sectors. The two most giants of financial system are capital market and money market. Basically, money market is led by the banking sector where in total 57 schedules banks are currently operating in this sector. From last few years this banking sector has been facing a critical stage. Most of the banks were marked by Bangladesh Bank (Central Bank) as risky due to excess default loan.

Now the amount of non-performing loan in Bangladesh is one lac Eighteen thousand core taka. Latest information of Bangladesh Bank difference of the last one year from this year non-performing loan increases fourteen thousand core taka³. In last year in this time non-performing loan was fifty-nine thousand four hundred eleven core takas. But Running year this

time. the amount of non-performing loan is reached in seventy-three thousand four hundred nine core takas. We hope in future the Banking sector of Bangladesh is performing better than previous time.

This report is designed in to seven sections. Where the next section discusses the literature review. The section of three (3) discuss Objectives and methodology of the study and the section four (4) provides an overview of the sample banks. The present scenario of non-performing loan of sample banks discussed in section five (5). Section six (6) presents the empirical results and finally, s seven (7) cover the findings, recommendations and conclusion.

Literature Review

Makri, Tsagkanos, and Bellas examined both macro and micro variables factor that influence the Eurozone banking system's non-performing loan for the period 2000–2008. They disclosed in their report that there is a heavy-duty link among microeconomic and non-performing loans⁴.

Econometrically defined debt losses across multiple banking & macroeconomic factors, apply the panel data for the period 1985-1997 from savings banks and Spanish commercial banks. In This study showed that the rate of GDP growth has a bad impact on default loans, causing default loans to rise in periods of depression. They have also determined that bank proportions are negatively linked to default loans, while credit growth, security loans, net border attention and market impact positively⁵.

The Article implements a panel data on the delineation ally constant data now presented for finished in 1999 to 2000 that was five more times, on problem loans of the commercial banks. The implementation is confined to twenty-seven public zone banks, so as to consider differences within a period that is similar on the proprietorship dimension. Weak banks recognized by the Varmus Group, India United Bank and Indian Bank, drop in this grouping⁶.

They are illuminated the impression of the variables on the bank presentation as per ordinary banking functioning exemplary. They have suggested about reminiscent events concluded which the NPLL maybe less⁷. An amended and programmed ASP-delivered lend workout System, complete of communication construction and Easy ware system that supports an user in cultivating the discussion and counseling Conferences between borrower, user and other Intricate festivities, and which rises loan Supplier efficiency while reducing the while and expense essential to procedure loss moderation cases-including sympathy of an proper financial weightlifting Solution, by the use of reasonable conclusion tree-based dialogs growths the rate of documentation of viable damage mitigation selections, and Chooses and accomplishes the best forfeiture mitigation Resolution, all in the real-time within lender and investor requirements, within loan sponsor and insurer surroundings, and in acquiescence with government guidelines⁸.

This involvement of this investigation is that consequence originate by income of econometric model can be rummage sale for forecasting and gaging NPLs in imminent years, not only for Bangladesh but also its implementation for developing and uncommencing economies⁹.

Zeng¹⁰ in his article supports the subsequent hypothesis by looking at the situation in China: the NPL bank's equilibrium rate relies on microeconomic elements but, predisposed by macroeconomic elements, contains the point of sincerity with regard to foreign government policy and the world. Under his model, the internal management of the commitment of the banks must be superior to achieve a decline in default lending in China.

Murthy et al¹¹. They studied In Selangor that is state of Malaysia the factors operating default loans in marketable banks. Based on four (4) gaps in surviving literature independent variables that are Covering regular of living, the country economy, the income of consumers' and the bank interest rates. This is the quantitative research they take 200 respondents sampled for they are research approach. this research they are using the SPSS software. They are founded that four hypothesized connections of the study, three were buoyed only one were not.

Methodology

Objectives of the Study: The main objective of this study is to trace out the driving factors of nonperforming loan in Bangladesh.

To attain the main objectives the study covers following specific objectives: i. To know the overview of sample banks, ii. To know the current position non-performing loan of sample banks. iii. To recommend some policies on NPL.

Methodology of the Study: As the study is related with the Macro exact and bank exact data so the study is fully based on secondary data source.

Sample Size: The study covers only five banks among fifty seven scheduled banks. The sample size has been selected based on the market information of Bangladesh banking system. According to Bangladesh Bank report and market information there are eight banks have more non performing loan. In this study only five banks are selected for analysis and others are excluded due to data insufficiency.

Data Collection: Bank specific data for this study have been collected from respective banks' websites and macroeconomic data from Bangladesh Economic Review over the year 2012 to 2016.

Model Specification: $Y = \alpha + \beta_1 X_1 + \beta_2 X_2 + \beta_3 X_3 + \beta_4 X_4 + \beta_5 X_5 + \beta_6 X_6 + \beta_7 X_7 + \beta_8 X_8 + \varepsilon$

Here, Y = Non Performing Loan, α = Intercept, $\beta_1 + \dots + \beta_8$ = Slope, X_1 = Capital Adequacy ratio of sample banks, X_2 = Loan deposit ratio of sample banks, X_3 = Profitability of sample banks, X_4 = Efficiency of sample banks, X_5 = GDP means Gross domestic product, X_6 = Unemployment rate, X_7 = Interest rate, X_8 = Inflation rate, ε = Standard error.

Data Analysis: Based on previous studies following regression analysis has been used to attain the main objective of this study.

Reliability Test: We have complete multicollinearity if the association between two independent variables is equal to 1 or -1 for example as in the above equation Multicollinearity indicates a similarity between two variables creating uncertainty in a sample because the variables are too closely related to each other¹². The thesis examine (VIF) to identify multicollinearity, and found no multicollinearity among the results.

$$\text{Var}(b_k)_{\min} = \alpha^2 / \sum_{i=1}^n (x_{ik} - \bar{x}_k)^2$$

Present Scenario of Non-performing Loan of Sample Banks:

Present situation of Non Performing loan of Sonali Bank: The Non-Performing loan of Sonali bank for the five years is illustrated by the above table and the growth trend of Non-Performing loan is shown by the graph which is shown below. The average Non Performing loan was 84718656281 and the maximum was 99777402122 in 2012 and the minimum was 69049879254 in 2014. In 2013, 2014 the growth trend was negative and the last two years, it is turned into positive growth.

Present situation of non Performing loan of BDBL: The Non-Performing loan of Bangladesh development bank limited

(DBBL) for the five years is illustrated by the above table and the growth trend of loan and advances is by the graph which is shown below. The average Non Performing loan was 4885742836 and the maximum Non-Performing loan was 6040741000 in 2016 and the minimum was 3421185049 in 2012. There was a positive growth in Non-Performing loan without the year of 2014. In 2014, the growth was negative.

Present situation of Non-Performing loan of BASIC Bank: The Non-Performing loan of BASIC bank for the five years is illustrated by the above table and the growth trend of Non-Performing loan is shown by the graph which is shown below. The average loan and advances was 115690.58 and the

maximum Non-Performing loan was 69874986460 in 2016 and the minimum was 4457696044 in 2012. There was a positive trend in BASIC Bank for Non-Performing loan.

Present situation of Non-Performing loan of BKB: The Non-Performing loan of BKB bank for the five years is illustrated by the above table and the growth trend of Non-Performing loan is shown by the graph which is shown below. The average Non-Performing loan was 31717692694 and the maximum Non-Performing loan was 40311300168 in 2016 and the minimum was 24060036000 in 2012. In 2013, 2014 and 2016, there was a positive trend but in the year of 2015 There was a Negative trend in BKB for Non-Performing loan.

Table-1: Present situation of Non Performing loan of Sonali Bank¹³.

Year	2012	2013	2014	2015	2016	Ave.	Max.	Min.
Non performing loan	99777402122	93816201030	69049879254	73305500000	87644299000	84718656281	99777402122	69049879254
Growth		-5.97%	-26.40%	6.16%	19.56%	-1.66%	19.56%	-26.40%

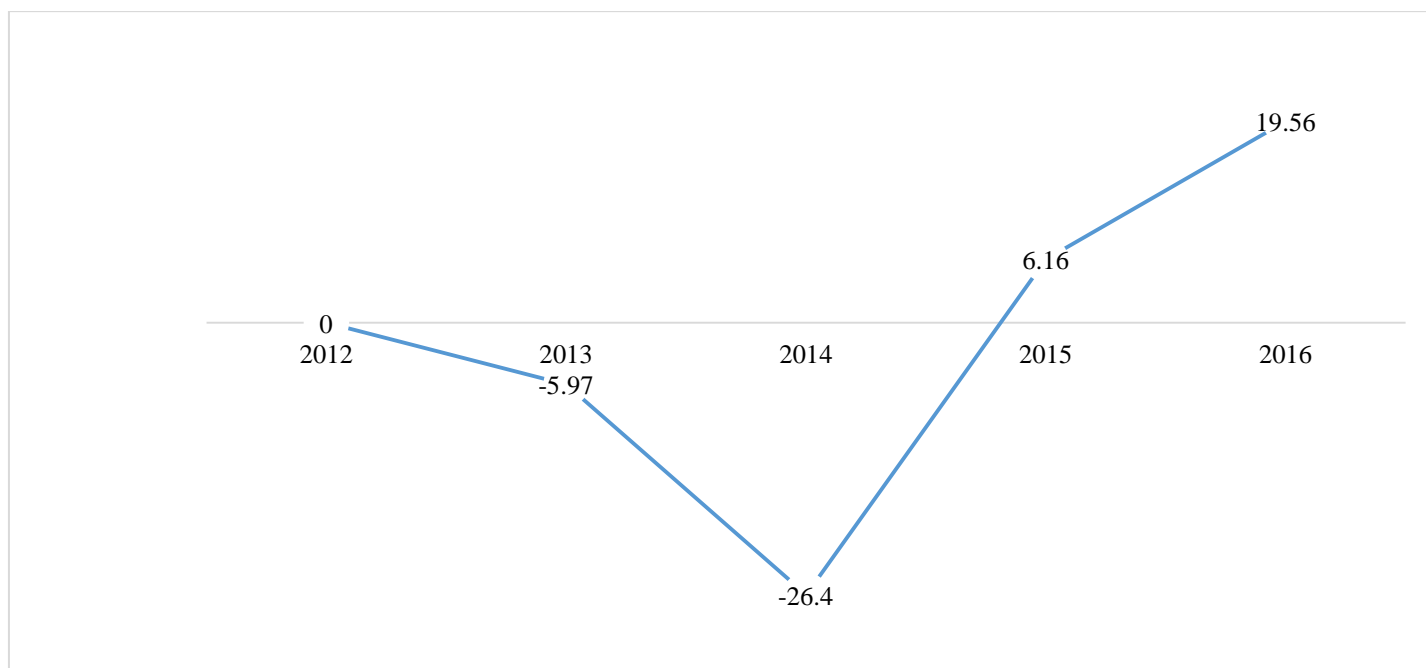


Figure-1: Present situation of Non Performing loan of Sonali Bank.

Table-2: Present situation of Non Performing loan of BDBL¹⁴.

Year	2012	2013	2014	2015	2016	Ave.	Max.	Min.
Non performing loan	3421185049	5,037,384,132	4,619,179,000	5310225000	6040741000	4885742836	6040741000	3421185049
Growth		47.24%	-8.30%	14.96%	13.76%	16.91%	47.24%	-8.30%

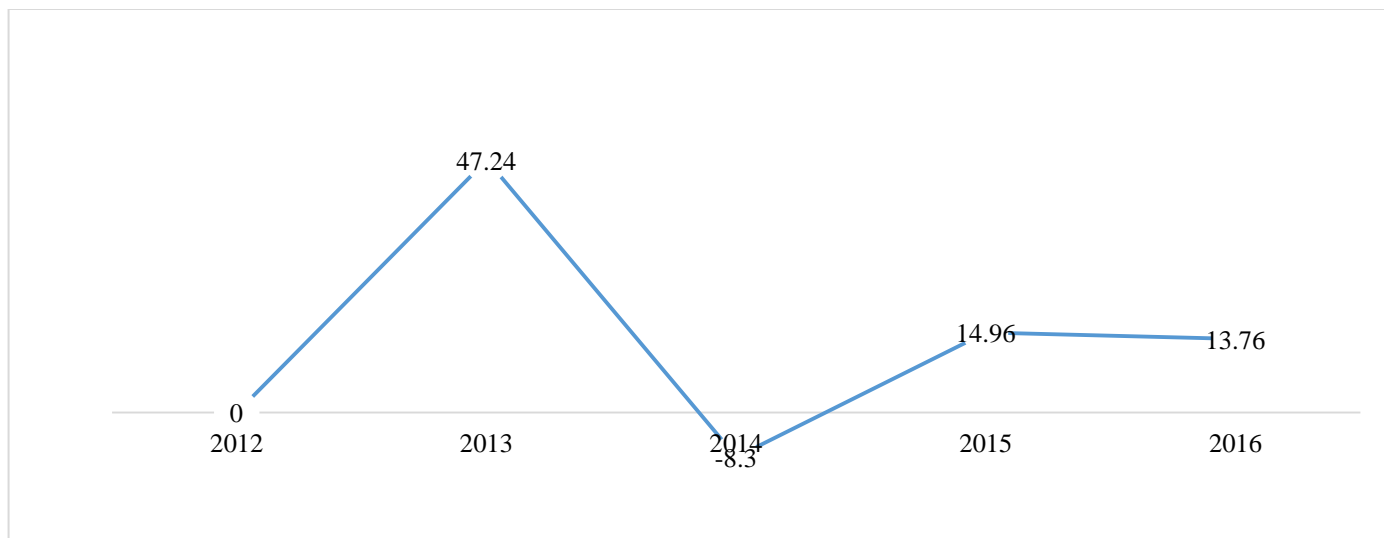


Figure-2: Present situation of Non Performing loan of BDBL.

Table-3: Present situation of Non-Performing loan of BASIC Bank¹⁵.

Year	2012	2013	2014	2015	2016	Ave.	Max.	Min.
Non-Performing loan	4457696044	17887767767	37700975377	60951394588	69874986460	38174564047	69874986460	4457696044
Growth		301.27%	110.76%	61.671%	14.641%	122.09%	301.28%	14.64%

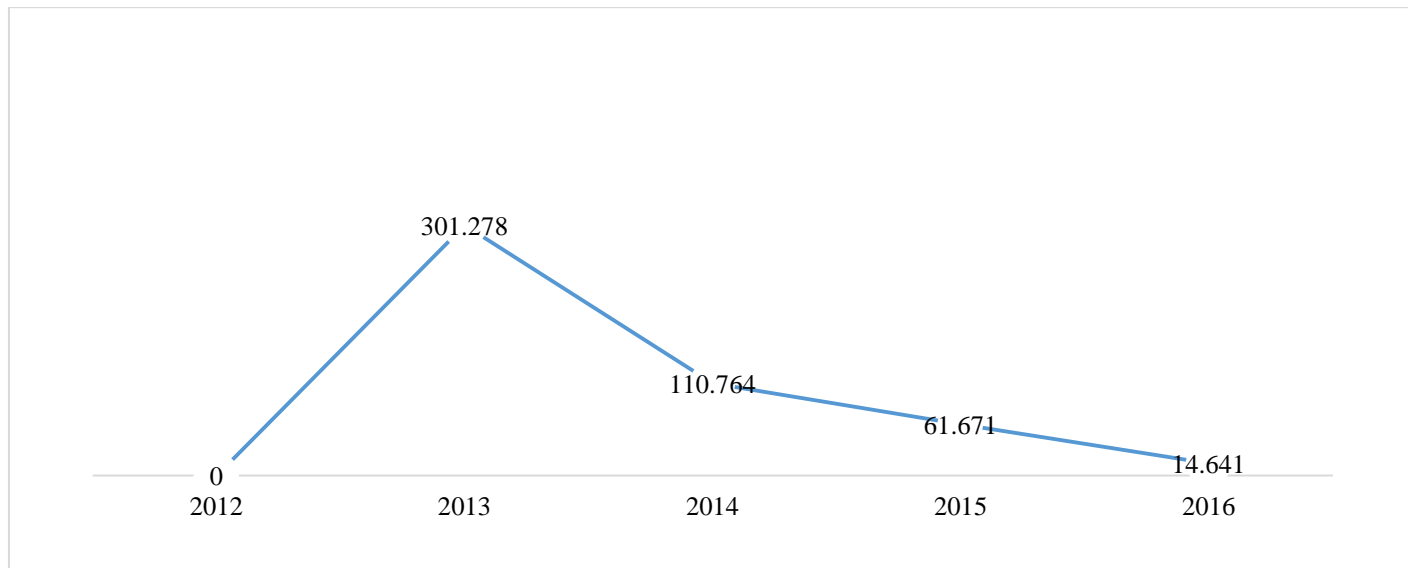


Figure-3: Present situation of Non-Performing loan of BASIC Bank.

Table-4: Present situation of Non-Performing loan of BKB¹⁶.

Year	2012	2013	2014	2015	2016	Ave.	Max.	Min.
Non-performing loan	24060036000	30528037914	32507666726	31181422661	40311300168	31717692694	40311300168	24060036000
Growth		26.88%	6.48%	-4.08%	29.28%	14.64%	29.28%	-4.08%

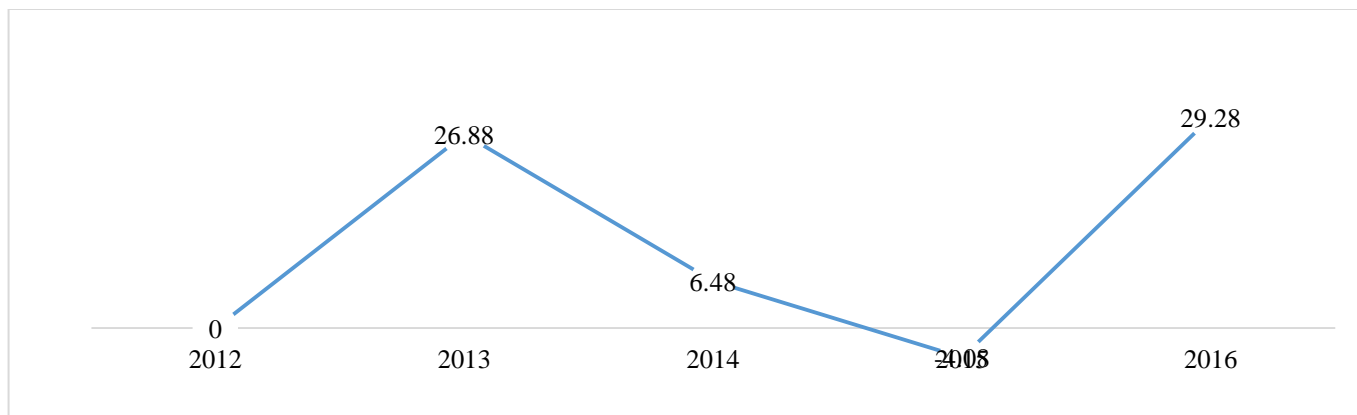


Figure-4: Present situation of Non-Performing loan of BKB.

Table-5: Present situation of Non-Performing loan of ICB Islamic Bank¹⁷.

Year	2012	2013	2014	2015	2016	Ave.	Max.	Min.
Non-performing loan	6321377660	7078382533	7134517539	6895960554	6621407680	6810329193	7134517539	6321377660
Growth		11.98%	0.79%	-3.34%	-3.98%	1.36%	11.98%	-3.98%

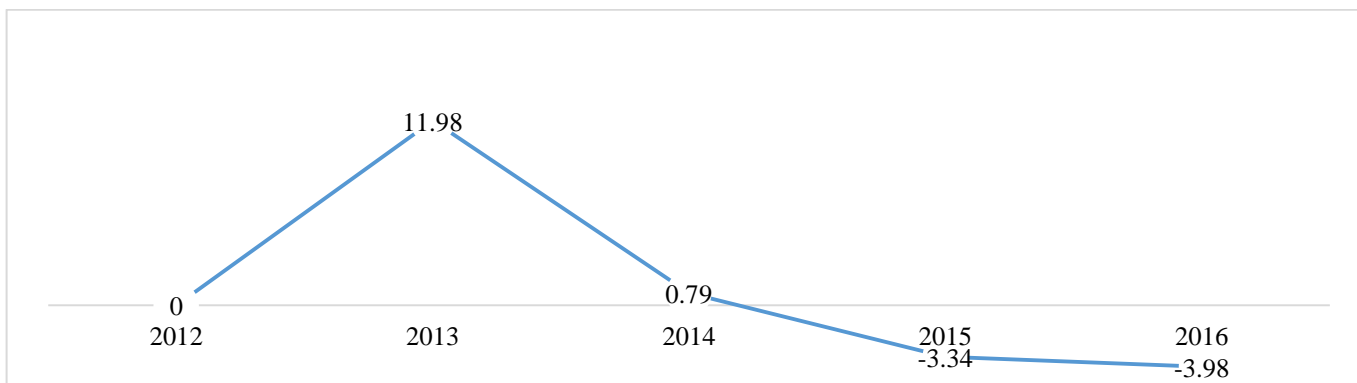


Figure-5: Present situation of Non-Performing loan of ICB Islamic Bank.

Present situation of Non-Performing loan of ICB Islamic Bank: The Non-Performing loan ICB Islamic Bank for the five years is illustrated by the above table and the growth trend of Non-Performing loan is by the graph which is shown below. The average Non-Performing loan was 6810329193 and the maximum Non-Performing loan was 7134517539 in 2014 and the minimum was 6321377660 in 2012. There was a positive growth in Non-Performing loan for first two years (2013 and 2014) and the last two years (2015 and 2016) was faced negative growth on its Non-Performing loan.

Results and Discussion

Reliability Results: In this study, Variance inflation factor (VIF) is used for the detect multicollinearity. We have no multicollinearity in our study. We have got significant result in our Analysis. We know that if VIF is three or less than three the

result is significant. The value of variance inflation factor (VIF) is non-grater then three.

The Variance inflation factor (VIF) is, in statistics, the ratio of variance in a model with multiple terms, separated by the variance of a model with one term alone¹⁸. It quantifies the magnitude of multicollinearity in an ordinary minus squares' regression study. This includes an index, which calculates how much the variance of an estimated coefficient of regression increased due to collinearity.

In our studies we get a value of Variance inflation factor (VIF) of variables is Capital Adequacy ratio =1.01, Loan to deposit ratio =1.76, ratio Return on Asset of sample bank = 1.17, Asset Management of the sample banks = 1.7, Gross domestic product = 1.17, Inflation rate = 1.7, Interest rate= 2.89, Unemployment rate =3.01.

Table-6: Regression results.

Model	R	R Square	Adjusted R Square	F-Value	Sig.
1	.860 ^a	.740	.610	5.69	0.002
a. Predictors: (Constant), Unemployment rate, Capital adequacy ratio, Inflation rate, Return on asset of sample bank, Loan to deposit ratio, Asset management of the sample banks, Gross domestic product, Interest rate					
Predictors		Coefficients	Sig.	VIF	
Constant		1.89	0.52		
Capital Adequacy ratio		-3.2	0.01	1.01	
Loan to deposit ratio		4.56	0.01	1.76	
Return on Asset of sample bank		2.18	0.09	1.17	
Asset Management of the sample banks		-2.99	0.01	1.7	
Gross domestic product		-6.57	0.83	1.17	
Inflation rate		5.17	0.05	1.7	
Interest rate		3.57	0.51	2.89	
Unemployment rate		4.37	0.05	3.01	

It has been found in this report that capital adequacy has a substantial negative effect on non-performing loans. It may mean that the non-performing loan may be reduced with the sample banks' increase in capital adequacy. Capital adequacy is a bank's capability to absorb. Higher value of the ratio implies greater capacity to withstand financial shocks. Non-performing loan is a bank's financial shock that can be resolved by the bank's greater capacity.

Here the Loan to Deposit ratio has been shown to have a substantial positive effect on the non-performing loan. This can mean that if the loan to deposit ratio rises by 1 unit then the Banks' non-performing loan rises by 4.56.

We recognize that the loan-to-deposit ratio (LTD) is a metric widely used to measure the liquidity of a bank by dividing the bank's total loans by its total deposits.

As a percentage this number is expressed. If the ratio is too high, it means that the bank may not have sufficient liquidity to meet any unexpected fund requirements, and the bank may not gain as much as it could be if the ratio is too low.

In terms of profitability calculated by sample bank's return on assets, the banks' non-performing loan has a substantial positive effect. With higher profitability banks offer further loans without careful review, but most of the time banks are unable to collect real sums. If the lenders do not pay their debts then the default would be the loan.

It has been found in this analysis that sample banks' Asset Management has a major negative effect on non-performing loans. This may mean that the non-performing loan will be reduced with the increase of the sample banks' Asset Management. The most common use of the term "investment manager" applies to investment management, the financial services business division that oversees investment funds and segregated investor accounts Investment management is part of a financial firm that hires professionals who manage capital and handle client assets. By analyzing the client's assets to planning and looking after the investments, the fund managers take care of these that, and decisions are made based on each client's financial safety.

As regards gross domestic product (GDP), a major negative effect has been observed where the banks' non-performing loan will decrease by rising GDP. GDP represents the total economic production. Higher GDP is representative of the economic growth. If the economy is high then this economy's business will be well enough. The other variables such as inflation, unemployment etc. do not impact anything. For that borrower would be able to pay the banks for their obligations. Unless the lenders pay their debts otherwise there will be no default on loans.

In this regard, the inflation rate has been shown to have a substantial positive effect on the non-performing loans. This could mean that if Bangladesh's inflation rate rises by 1 per cent, banks' non-performing loans would grow by 5.17. We

recognize that inflation rate decreases consumers' buying power as well as credit holders' ability to pay back the loan. When they fail to pay the loans otherwise the loans will become non-performing.

Discussion: i. From the analysis it has been found that the growth of non-performing loan of Sonali Bank is gradually increasing from the 2015 and the maximum was in 2016. ii. In this studies it has been found that the growth of non-performing loan of BDBL is positive trend but in 2014 there growth was negative. Average growth of non-performing loan of BDBL is high. iii. BASIC bank is able to keep its positive growth trend but initially its growth was higher than the following year. Non-performing loan of BASIC bank is positively decreasing. Average growth of non-performing loan of BASIC bank is very high. iv. From the analysis it has been found that the growth of non-performing loan of the BKB had a consecutive positive trend but in 2015 there growth of Non performing loan was negative and average growth of non-performing loan of BKB was 14.64 percent. v. From the analysis it has been found that the growth of non-performing loan of ICB Islamic bank had decreased there growth. There average growth is 1.36 percent.

Conclusion

Recommendations: i. Sonali Bank Ltd. should lower their non-performing loan position by introducing more recovery units as it has maximum non-performing loan over all sample banks in this study. ii. BDBL should keep present negative growth on non-performing loan. Though it has highest average growth but the bank is trying to reduce the growth of the non-performing loan. iii. As like as BDBL, BASIC bank is also trying to reduce its non-performing loan growth. It should maintain the present strategy to recover its loan from the market. iv. Between Bangladesh Krishi Bank and ICB Islamic Bank Ltd, Krishi Bank has a maximum non-performing loan. It should modify existing loan portfolio to achieve lower non-performing loan.

Conclusion: The way which the bank provides capital to the economy is known as loan and advances. Loan, from bank side is considered as asset because by giving loan to the clients bank invests its funds. The aims of the loan providing by the bank are many but the basic aim is to earn to profit on loan.

The study covers only five banks among fifty seven scheduled banks. The sample size has been selected based on the market information of Bangladesh banking system. According to Bangladesh Bank report and market information there are eight banks have more non performing loan. In this study only five banks are selected for analysis and others are excluded due to data insufficiency. Bank specific data for this study have been collected from respective banks' websites and macroeconomic data from Bangladesh Economic Review over the year 2012 to 2016.

There were some limitations to do the thesis one of them data insufficiency was the major limitation. The study only covers

only five years bank and macro scope data. Again 8 variables were assessed both from bank specific and macro specific. The study only covers five banks where many banks are facing non-performing loan problems.

References

1. Zheng, C., Bhowmik, P. K., & Sarker, N. (2020). Industry-specific and macroeconomic determinants of non-performing loans: a comparative analysis of ARDL and VECM. *Sustainability*, 12(1), 325.
2. Hennie, F. (2003). *Iterative arrays of logical circuits*: MIT-Press
3. Rzina (2020) Non-Performing Loan in Bangladesh: A Comparative Study on the Islamic Banks and Conventional Banks. *Indian Journal of Finance and Banking*, 4(1), 2574-6081
4. Makri, V., Tsagkanos, A., & Bellas, A. (2014). Determinants of non-performing loans: The case of Eurozone. *Panoeconomicus*, 61(2), 193-206.
5. De Lis, F. S., Pagés, J. M., & Saurina, J. (2001). Credit growth, problem loans and credit risk provisioning in Spain. *BIS papers*, 1, 331-353.
6. Rajaraman, I., & Vasishtha, G. (2002). Non-performing loans of PSU banks: Some panel results. *Economic and Political weekly*, 429-435
7. Rezina, S. (2020). Non-Performing Loan in Bangladesh: A Comparative Study on the Islamic Banks and Conventional Banks. *Indian Journal of Finance and Banking*, 4(1). 2574-6081
8. Friedman, M., Melchiorre, C., Dungee, T., Rusli, H., & Dahiwadkar, S. (2005). U.S. Patent Application No. 10/867,533.
9. Zheng, C., Bhowmik, P. K., & Sarker, N. (2020). Industry-specific and macroeconomic determinants of non-performing loans: a comparative analysis of ARDL and VECM. *Sustainability*, 12(1), 325.
10. Zeng, S. (2012). Bank non-performing loans (NPLS): A dynamic model and analysis in China. *Modern Economy*, 3(01), 100
11. Murthy, U., Kamil, N. M., Mariadas, P. A., & Devi, D. (2017). Factors Influencing Non-Performing Loans in Commercial Banks: The Case of Banks in Selangor. *International Journal of Business and Management*, 12(2), 246
12. Mansfield, E. R., & Helms, B. P. (1982). Detecting multicollinearity. *The American Statistician*, 36(3a), 158-160
13. Sonali Bank Limited www.sonalibank.com.bd. Accessed on 7th January 2018

14. www.bdbl.com.bd. Accessed on 5th January 2018
15. Bangladesh Bank www.bb.org.bd/en/index.php. Accessed on 9th January 2018
16. Bangladesh Krishi Bank www.krishibank.org.bd. Accessed on 8th January 2018
17. ICB Islamic Bank Limited, www.icbislamibank-bd.com Accessed on 7th January 2018
18. Miles, J. (2009). Tolerance and variance inflation factor. Wiley Stats Ref: Statistics Reference Online.