NON-PERFORMING LOAN AND ASSET UTILIZATION OF BANKS: EVIDENCE FROM BANGLADESH

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Abstract

The purpose of the research paper is to investigate the impact of non-performing loan (NPL) on return on asset (ROA) of banks in a least developed country as Bangladesh. The research employs a sample size of 40 consisting of the data of non-performing loan ratio against return on asset ratio for last 10 years (2008-2017) generated from four categories of banks namely- State Owned Commercial Banks (SCBs), Specialized Banks (SBs), Private Commercial Banks (PCBs) and Foreign Commercial Banks FCBs). The paper provides empirical evidence that non-performing loan has significant impact on return on asset of Bank. This study will help the policy makers to maintain desired level of NPL ratio for ensuring ROA targeted by the bank. This research seems to be the first attempt to address such an issue in the context of Bangladesh because most of the literature shows impact of NPL on profitability only ignoring the issue of asset utilization of banks.

1. Introduction

Banks are the most promising as well as established institutions of any economy nowadays which play crucial role in the economic development as financial intermediary through mobilization of fund. Banks channel funds from the surplus units (depositors) to deficit units (borrowers). As a result of this intermediation process, banking sector is pivotal in the economic growth and stability of any country. Modern trade and commerce would almost not be possible in the absence of banking products and services (Chowdhury and Ahmed, 2009). Bangladesh as a least developed country is also dependent mostly on the banks for its financial transactions. Commercial banks are playing major role to the growth of the economy of Bangladesh. Greuning and Bratanovic

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(2003) argued that commercial banks have a critical role to emerging economies in which most borrowers have no access to capital markets. Commercial banks which are functioning well accelerate economic growth whereas poorly functioning commercial banks are obstacle to economic progress (Khan and Senhadji, 2001, Richard, 2011). Financial performance is a subjective measure of how well banks are utilizing their assets from primary mode of business and generate revenue. This term is also used to measure overall financial health of a firm over a certain period of time, and are useful to compare similar firms in the same industry or in comparison to industries or sectors in aggregation.

The theme of non-performing loan (NPL) has fascinated more attention in recent decades especially in asian countries. Non-performing loan means those financial assets from which banks no longer receive interest or installment payments according to schedules. Banks have sophisticated impaired loans before the event of bankruptcy. Hence, the huge amount of bad loans in the banking system generally consequences bank failure. The NPL constitutes the problem of economic stagnation. The minimization of NPL is an obligatory condition for improving economic growth. Non-performing loan is a major worsening factor for the performance of banks more than a decade in the banking sector of Bangladesh (Ahmed, 2005). NPL is viewed as an obverse mirror image of an ailing unprofitable enterprise (Muniappan, 2002). Well capitalized banks face lower need to external funding and lower bankruptcy and funding costs; and this facilitates into profitability (Bourke, 1989; Abreu and Mendes, 2002; Naceur, 2003). Malimi (2017) found that capital adequacy and profitability posed insignificant impact on non-performing loans whereas loans to asset ratio and interest margin had a significant influence.

In several existing literatures mostly show the impact of NPL on profitability. Research evidence rarely found that has taken into consideration the impact of NPL on return on asset (ROA). Besides, no evidence has been found that can show the forecasted required level of controlled NPL against targeted level of ROA. To meet up the gaps of existing literatures, **the aim of research paper** is to investigate the impact of NPL on ROA in the banking sector of Bangladesh. Besides, another objective of the research paper is to develop a regression model to forecast the required level of controlled NPL for four categories of bank against the desired level of targeted ROA.

The paper consists of following four sections. Section 2 depicts the literature review to find out research gap which is followed by the research methodology in section 3. Section 4 describes the statistical results and discussions. Finally, section 5 concludes the paper together with recommendations.

2. Review of Literature

Islam and Nishiyama (2016) described the moral hazard problem between the bank management and the depositors as well as the bank management and the shareholders. They showed that the adverse selection of borrowers by the bank significantly increase the bank's credit risk. NPL can be orchestrated as the signal of banking crisis (Reinhart and Rogoff, 2011). There is strong relationship between the credit risk and the household disposable income, rate of unemployment and the monetary conditions of a country (Rinaldi and Sanchis, 2006). Keeton and Morris, 1987 investigated that banks face greater loss for excess lending in higher risk. Banks credit portfolios are significantly ascertained

by the regulatory capital and the management quality of banks in the developed and emerging economies (Ahmad and Ariff, 2007).

Messai and Jouini (2013) detected the problem loans as negatively related with the growth rate of GDP, the profitability of banks' assets and positively with the unemployment rate, the loan loss reserves to total loans and the real interest rate. Economic growth and real interest rate are significant determinants of bad loans in the sub-saharan african countries (Fofack, 2005). Muniappan (2002) argued that a bank with high level of NPL is forced to incur carrying costs on non-income yielding assets that not only strike at profitability but also at the capital adequacy of a bank, and in consequence, the bank faces difficulties in augmenting capital resources. Kwack (2000) found that the 3-months LIBOR interest rate and NPL rates of banks were the major determinants of the asian financial crisis.

Balango and Rao (2017) showed that there is a significant relationship between performance (in terms of profitability) and the amount of non-performing loans (in terms of loan performance and capital adequacy) where non-performing loans have significantly negative impact whereas capital adequacy ratio has positive and relatively insignificant impact on return on asset (ROA). Lata (2015) found that non-performing loans of state owned commercial banks is very high where they held more than 50% of total NPL of the banking industry in Bangladesh from FY 2006 to FY 2013. Mondal (2016) examined that non-performing loan is negatively sensitive to inflation rate and interest rate spread and positively sensitive to GDP and unemployment rate.

Alam et al. (2015) identified the causes (fund diversion, political and board of directors' interference, political instability, engagement of corrupt bankers, aggressive banking due to enhanced competition, falling in real estate business, weak monitoring and lack of coordination of related parties) of significant increase of non-performing loans with their impact on the sustainability of the banking industry of Bangladesh. Akter and Roy (2017) investigated that non-performing loan was very high holding more than 50% of total loans which had significant negative impact on net profit margin of listed banks in Dhaka Stock Exchange (DSE) for the year 2008 to 2013.

3. Research Methodology

This study aims at assessing the NPL status and its impact on ROA of banking industry of least developed country as Bangladesh.

3.1 Sample Size

The initial sample size of this study is 40 consisting of NPL ratio against ROA ratio data of last 10 years generated from four categories of banks- SCBs, SBs, PCBs and FCBs.

3.2 Sources of Data

The research paper is based on secondary data only. The kernel of the research was developed based on secondary data which were collected from annual reports (from 2008 to 2017) of Bangladesh Bank. Table-4 of appendix represents numerical data used for the study.

3.3 Data and Description of the Variables

The dependent variable is return on asset (ROA) ratio and the independent variable is non-performing loans (NPL) ratio.

3.4 Test of Hypothesis

In this study, following hypothesis have been developed:

H_0: The coefficient of determination in the population is zero.

H_1: The coefficient of determination in the population is not zero.

Due to the nature of variables and availability of information, analysis of variance (ANOVA) has been used to test the above hypothesis. The statistical method of F-test has been used at 5% level of significance to identify whether there is significant relationship between return on asset (ROA) and non-performing loan (NPL). In this regard, null hypothesis will be accepted if the calculated p value is greater than 0.05 and null hypothesis will be rejected if the calculated p value is less than 0.05 at 5 percent level of significance.

3.5 Linear Regression Model

Linear regression model has been developed using SPSS. The standardized regression model is:

$$ROA = \alpha_0 + \beta_1 NPL \qquad (i)$$

Where, ROA is the dependent variable which is to be estimated against NPL, α_0= intercept which represents the estimated value of ROA when NPL is zero, β_1= average change in ROA for each percent change in NPL. NPL is the independent variable that is fixed in advance.

4 Statistical Results and Discussions

For econometric analysis, return on asset (ROA) has been considered as dependent variable and non-performing loan (NPL) has been taken into consideration as independent variable. Findings of the study have been categorically discussed in the following subsections:

4.1 Results of Test of Hypothesis

From the table-1 of appendix, it has been found that the p value is 0.000 which is less than 0.05. Hence, the null hypothesis is rejected. As a result, there is significant relationship between the independent variable named non-performing loan (NPL) and dependent variable named return on asset (ROA). Besides, the value of R^2 is 0.656 according to table-2 of appendix which indicates that there is positive correlation between the independent and dependent variable.

4.2 Results of Regression Analysis

Based on the equation (i) the fitted regression model has been constructed as,

$$ROA = 2.609 + (-0.810)\ NPL \qquad (ii)$$

According to table-2 of appendix, the value of coefficient of determination, R^2 is 0.656 or 65.60% which indicates that around 66% of variation in the dependent variable (ROA) can be explained by the independent variable (NPL) in the above mentioned

regression model. The value of adjusted R^2 is 0.647 or 64.70% which suggests that addition of other independent variable can make significant contribution to explain the variation in the dependent variable.

4.3 Trend Analysis

Figure 01: Trend analysis of NPL of last ten years (2008-17) in four categories of bank
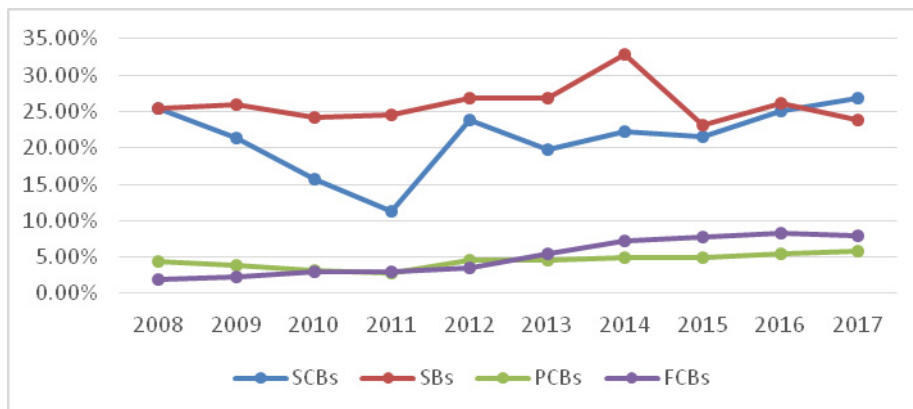
Source: Annual Report 2008-2017, Bangladesh Bank

Above figure provides information about past ten years NPL ratio of four categories of bank namely SCBs, SBs, PCBs and FCBs where SCBs and SBs have gradually increasing but rapidly fluctuating NPL compared to other categories of bank. It can be clearly seen that NPL is higher in both SCBs and SBs whereas SCBs had plunging NPL in earlier four years. Later on their NPL started increasing dramatically. The NPL of both PCBs and FCBs is also increasing gradually in recent years. Noticeably, the trends are upward which indicate that the non-performing loans are rising in all categories of bank together.

Figure 02: Trend analysis of ROA of last ten years (2008-17) in four categories of bank
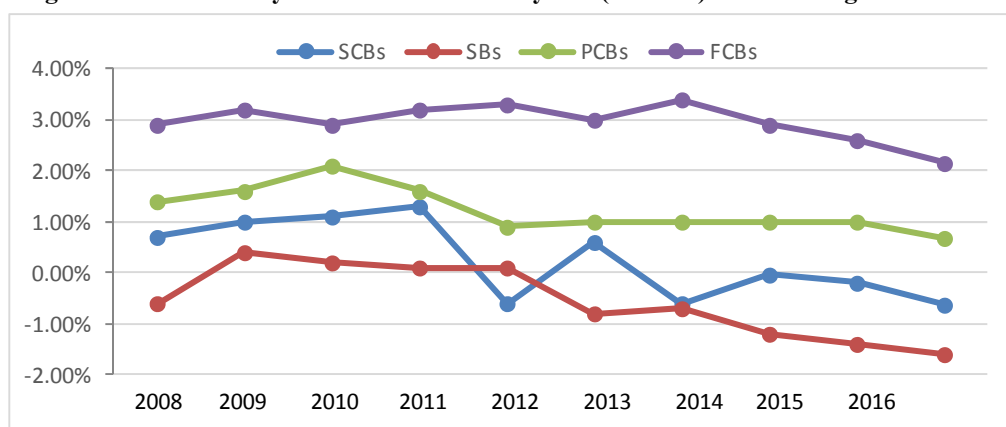
Source: Annual Report 2008-2017, Bangladesh Bank

The above graph denotes information about previous ten years ROA of four categories of bank. It is clearly seen that specialized banks have ROA with negative figure which is result of increased level of NPL as evidenced from the value of R^2 (64.70%). Besides, state owned banks have downward return on asset which are half of the private commercial banks in most of the years that is also a consequence of the upward movement of NPL level. It is also clear that private commercial banks maintain positive ROA. Noticeably, foreign commercial banks have highest ROA among all categories of bank but they are also facing downward movement due to their lending behavior. Astonishingly, the return on asset in all categories of bank shows downward trend indicating that majority of assets are getting non-performing.

5 Conclusions and Recommendations

It has been found from the study that NPL ratio has statistically significant negative impact on ROA ratio. However, NPL ratio covers only 65.60% variations in ROA but as a single variable it seems a significant determinant of ROA. Hence, banks need to control the NPL ratio with proper credit assessment and recovery measures mainly in state owned commercial banks and specialized banks as asset utilization problem is acute in these two categories of bank resulting gradual declining ROA even negative especially in last four years. However, controlling NPL ratio for both these categories of bank is urgent need as the trend analysis also shows that NPL and ROA of both these categories of bank are deteriorating rapidly compared to other two categories of bank. It has been recommended that it will be more difficult for the banks to maintain targeted level of ROA with reasonable lending interest rate maintaining regularly interest rate spread of 5 percent if the loan assets cannot be utilized properly to generate return. Hence, banks need to be well furnished to face the challenge of asset utilization by focusing on controlling NPL ratio urgently.

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APPENDIX

Table -01

	Model	Sum of Squares	df	Mean Square	F	Sig.
		ANOVA ^a				
1	Regression	53.097	1	53.097	72.477	.000^b
	Residual	27.839	38	.733		
	Total	80.936	39			
a. Dependent Variable: ROA						
b. Predictors: (Constant), NPL						

Table -02

					Model Summary ^b					
Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Change Statistics					Durbin-Watson
					R Square Change	F Change	df1	df2	Sig. F Change	
1	.810^a	.656	.647	.85593	.656	72.477	1	38	.000	.512
a. Predictors: (Constant), NPL										
b. Dependent Variable: ROA										

Table -03

	Model	Unstandardized Coefficients		Standardized Coefficients	t	Sig.	95.0% Confidence Interval for B		Correlations			Collinearity Statistics	
												Coefficients ^a	
		B	Std. Error	Beta			Lower Bound	Upper Bound	Zero-order	Partial	Part	Tolerance	VIF
1	(Constant)	2.609	.235		11.105	.000	2.133	3.084					
	NPL	-.115	.014	-.810	-8.513	.000	-.142	-.088	-.810	-.810	-.810	1.000	1.000
a. Dependent Variable: ROA													

Table -04

Year	NPL (%)				ROA (%)			
	SCBs	SBs	PCBs	FCBs	SCBs	SBs	PCBs	FCBs
2008	25.4	25.5	5.0	1.9	0.7	-0.3	1.3	3.1
2009	21.4	25.9	4.4	2.3	1.0	-0.6	1.4	2.9
2010	15.7	24.2	3.9	3.0	1.1	0.4	1.6	3.2
2011	11.3	24.6	3.2	3.0	1.3	0.2	2.1	2.9
2012	23.9	26.8	2.9	3.5	-0.6	0.1	1.6	3.2
2013	19.8	26.8	4.6	5.5	0.6	0.1	0.9	3.3
2014	22.2	32.8	4.5	7.3	-0.6	-0.8	1	3
2015	21.5	23.2	4.9	7.8	-0.04	-0.7	1	3.4
2016	25.1	26.0	4.6	9.6	-0.20	-1.2	1	2.9
2017	26.8	23.8	5.8	7.9	-0.63	-1.4	1	2.6

Source: Banking Regulation and Policy Department, Bangladesh Bank.