

NON-PERFORMING LOAN AS ERODING FACTOR OF CAPITAL ADEQUACY: EVIDENCE FROM BANKING INDUSTRY IN BANGLADESH

Mohammad Ziaul Islam,
Mohammad Saiful Islam*

Abstract

The purpose of the research paper is to investigate the impact of Non-Performing Loan (NPL) on Capital Adequacy (CA) of bank in a developing country as Bangladesh. The study is important in the context of Bangladesh as growing non-performing loan is eroding significant portion of bank's capital as an assumed factor without empirical evidence to show the extent of the impact. The study employs a sample size of 40 consisting of the data of Capital Adequacy Ratio (CAR) against Non-Performing Loan (NPL) ratio for last 10 years (2008-2017) generated from four categories of bank. Test of hypothesis, correlation, regression analysis and trend analysis have been conducted using SPSS software. The paper provides empirical evidence that non-performing loan has significant impact on capital adequacy of bank. This study will help the policy makers to control to the desired NPL ratio for ensuring CAR prescribed by the prudential regulatory requirement of central bank. This study seems to be the first attempts to address such an issue in the context of Bangladesh.

Key Words: Non Performing Loan (NPL), Capital Adequacy Ratio (CAR).

JEL Classification: E22, E44, M15

1. Introduction

The working capital of bank consists of the deposit of the depositors (90%) and the capital provided by the directors (10%). Non-performing loan means those financial assets from which banks no longer receive interest or installment payments according to schedules. NPL constitutes the problem of economic stagnation. The minimization of NPL is an obligatory condition for improving economic growth.

In Bangladesh, NPL is a major worsening factor for the performance of banks. The issue of NPL has become one of the major problems for more than a decade in the banking sector of Bangladesh. Banks having capital adequacy ratio less than the regulatory minimum requirement are compelled to adjust their balance sheet to comply with the regulatory requirements either by raising more capital by holding assets constant or reducing risk-weighted assets while capital constant (Fries et al. 2001). These adjustments make a beneficial impact on the bank performance and soundness. According to research by Dickson and Marobhe (2012), capital adequacy has a great influence on the

* Mohammad Ziaul Islam and Mohammad Saiful Islam are at the Leading University, Sylhet, Bangladesh.

asset quality where increase in capital ratios sometimes reduced the levels of non-performing loans and increase in non-performing asset was accompanied by an increase in capital ratios (Dickson and Marobhe, 2012).

Existing literatures mostly show the impact of NPL on profitability. Research evidence has been rarely found that has taken into consideration the impact of NPL on capital adequacy in the context of Bangladesh.

To meet up the gaps of existing literatures, the objective of the research paper is to investigate the impact of non-performing loan on the capital adequacy in the banking sector of Bangladesh from the empirical evidence. Besides, some problems have been identified that can be resulted from the impact. At the end of the paper some measures have been recommended to get rid of the problem of NPL.

The paper consists of following four sections. Review of previous literatures has been shown in section 2 which is followed by the research methodology in section 3. Section 4 describes the statistical results and discussions. Finally, section 5 concludes the paper with key findings and recommendations.

2. Review of Literature

Commercial banks expose themselves to the risks of default borrowers due to the nature of their business (Waweru & Kalami, 2009). The loss of loan is a total loss of time, money and effort by a loop of Capital formation-Investment-Recovery (Chowdhury et al. 2002). Hou (2007) argued that NPLs hamper economic growth and reduce the economic efficiency (as cited by Dhar & Bakshi, 2015). Lata (2015) studied that non-performing loan of state owned commercial banks are very high where they hold more than 50 percent of total NPLs of the industry in Bangladesh from FY 2006 to FY 2013. Adhikari (2007) argued that the lack of effective monitoring and supervision of the banks, lack of effective lenders', weakness of legal infrastructure and lack of effective debt recovery strategies are the usual causes of NPLs. Poor enforcement of laws for settlement of NPLs and insufficient debt recovery measurements have also aggravated the financial malaise (Cited as Lata, 2015). Banks that charge relatively higher interest rates and lend excessively are likely to be incurred higher levels of non-performing loans (Khemraj et al., 2009). Banks' lending behavior can restrict economic activity, especially in periods of stress when non-performing loans are high (Tracery, 2011; Sinkery & Greenwalt, 1991).

3. Research Methodology

3.1 Sample Size

The initial sample size of this study is 40 consisting of NPL ratio and CAR data of last 10 years generated from four categories of banks namely- State-owned Commercial Bank (SCB), Specialized Bank (SB), Private Commercial Bank (PCB) and Foreign Commercial Bank (FCB).

3.2 Sources of Data

The research paper is based on secondary data only collected from annual reports 2008 to 2017 of Bangladesh Bank. Summary of data has drawn on appendix table-4.

3.3 Data and Description of the Variables

The dependent variable is Capital Adequacy Ratio which is termed as CAR and the independent variable is Non-Performing Loan which is termed as NPL.

3.4 Linear Regression Model

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

$$CAR = \alpha_0 + \beta_1 NPL \dots \dots \dots (i)$$

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

3.5 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.

4. Statistical Results and Discussions

Findings of the study have been categorically discussed in the following subsections:

4.1 Results on Regression Analysis

Based on the equation (i) the fitted regression model is:

$$CAR = 22.456 + (-0.719) NPL \dots \dots \dots (ii)$$

According to the table-2 of appendix, the correlation between CAR and NPL has been found negative. According to the above model (ii), if NPL increases by 1 percent then CAR will decrease by 0.719 percent. The value of coefficient of determination, R^2 is 0.517 or 51.70% which indicates that around 52% of variation in the dependent variable (CAR) can be explained by the independent variable (NPL) in the above mentioned regression model. According to the table-1 of appendix, the value of adjusted R^2 is 0.504 or 50.40% which suggests that addition of other independent variable may make more contribution to explain the variation in the dependent variable.

From the above mentioned regression model, it has been evidenced that forecasted controlled average NPL ratio is 17.32% and 13.85% to maintain 10% and 12.50% CAR respectively according to BASEL II and BASEL III regulatory requirement. NPL ratio of both PCBs and FCBs are below the average with 5.80% and 7.90% respectively as of 2017. However, the NPL of SCBs and SBs were 26.80% and 23.80% respectively in 2017.

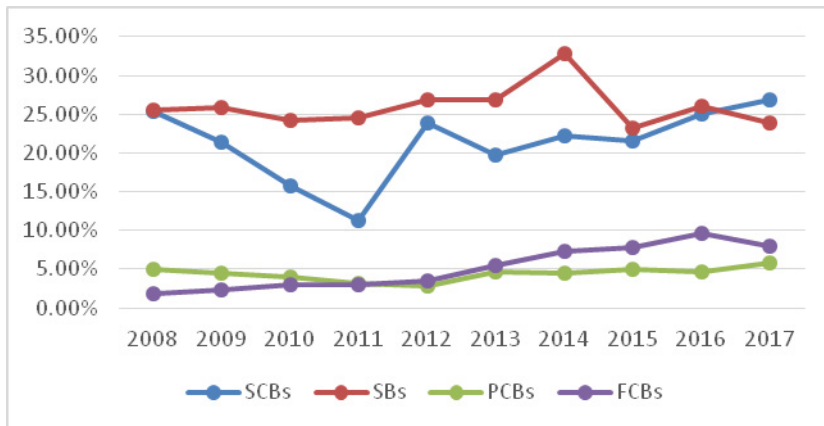
4.2 Results of Test of Hypothesis

It has been found from appendix table 3, the statistical output 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 negative relationship between the independent variable named Non Performing Loan (NPL) and dependent variable named Capital Adequacy Ratio (CAR).

4.3 Trend Analysis

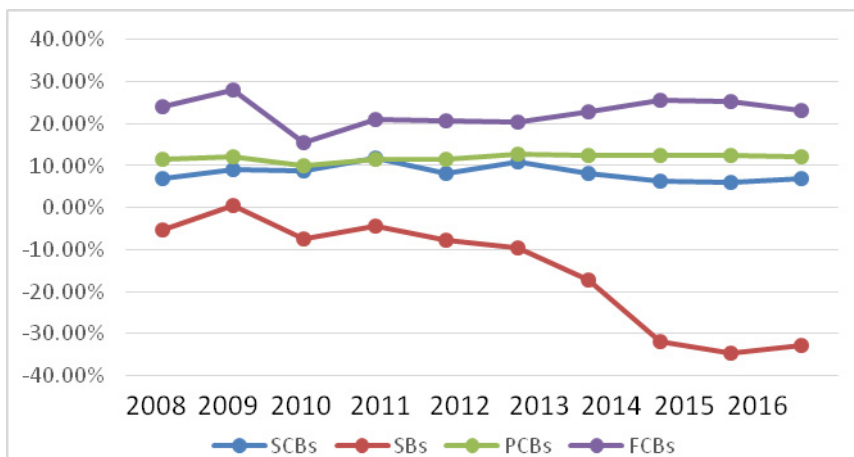
Figure 01: Trend Analysis of NPL of Last Ten Years (2008-17) in Four Categories of Banks



Data Source: Developed by Authors from Annual Report 2008-2017, Bangladesh Bank

Above figure provides information about NPL ratio of recent 10 years for four categories of bank namely SCB, SB, PCB and FCB where the SCBs has gradually increasing NPL compared to other categories of bank. NPL is higher in both SCBs and SBs bearing above 20% in last half of the decade. Besides SBs experienced the worst condition with above 25% NPL in most of the years compared to other categories of bank. The NPL of both PCBs and FCBs is also increasing gradually in recent years but it is below 10% showing better condition comparatively.

Figure 02: Trend Analysis of CAR of Last Ten Years (2008-17) in Four Categories of Banks



Data Source: Developed by Authors from Annual Report 2015-2016, Bangladesh Bank

Above graph denotes that SBs have capital adequacy ratio with negative figure among most of the years of recent 10 years which is leading to reverse of required capital as a result of increased level of NPL and other reasons. Besides, SCBs are also having downward capital adequacy ratio in trend following upward movement of NPL ratio. In both of the cases, capital adequacy ratio is below the regulatory requirement of 10% according to BASEL II. It is also clear that PCBs and FCBs maintain adequate capital against the regulatory requirements of BASEL II. Noticeably, FCBs have stronger capital adequacy ratio which is almost double of minimum regulatory requirement of CAR according to both BASEL II and BASEL III.

5. Conclusions and Recommendations

It has been evidenced from the study that NPL ratio has statistically significant negative impact on CAR. However, NPL ratio covers only 52% variations in CAR but as a single variable it seems a significant determine of level of CAR. This higher degree of influence can result lower profitability, lower deposit, interest rate, liquidity crisis, higher lending interest rate and bad corporate governance. 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 capital shortage problem is acute in these two categories of bank. However, controlling NPL ratio for both these categories of banks is urgent need as the trend analysis also shows that NPL ratio and CAR of both these categories of bank are deteriorating rapidly compared to other two categories of bank. It will be more difficult for the banks to maintain required levels of CAR when it will become 12.50% from 10% through full implementation of BASEL III replacing BASEL II in whole banking sector. Hence, banks need to be well prepared to face the challenge in this regard focusing on controlling NPL ratio immediately.

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APPENDIX

Table -01

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	.719 ^a	.517	.504	10.83346	.517	40.681	1	38	.000	.455
a. Predictors: (Constant), NPL										
b. Dependent Variable: CAR										

Table -02

Coefficients ^a													
Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.	95.0% Confidence Interval for B		Correlations			Collinearity Statistics	
		B	Std. Error	Beta			Lower Bound	Upper Bound	Zero-order	Partial	Part	Tolerance	VIF
1	(Constant)	22.456	2.973		7.553	.000	16.437	28.475					
	NPL	-1.091	.171	-.719	-6.378	.000	-1.437	-.745	-.719	-.719	-.719	1.000	1.000
a. Dependent Variable: CAR													

Table -03

ANOVA ^a						
Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	4774.531	1	4774.531	40.681	.000 ^b
	Residual	4459.828	38	117.364		
	Total	9234.359	39			
a. Dependent Variable: CAR						
b. Predictors: (Constant), NPL						

Table -04

Year	NPL (%)				CAR (%)			
	SCBs	SBs	PCBs	FCBs	SCBs	SBs	PCBs	FCBs
2008	25.4	25.5	5.0	1.9	6.9	-5.3	11.4	24
2009	21.4	25.9	4.4	2.3	9	0.4	12.1	28.1
2010	15.7	24.2	3.9	3.0	8.9	-7.3	10.1	15.6
2011	11.3	24.6	3.2	3.0	11.7	-4.5	11.5	21
2012	23.9	26.8	2.9	3.5	8.1	-7.8	11.4	20.6
2013	19.8	26.8	4.6	5.5	10.8	-9.7	12.6	20.3
2014	22.2	32.8	4.5	7.3	8.3	-17.3	12.5	22.7
2015	21.5	23.2	4.9	7.8	6.4	-32	12.4	25.6
2016	25.1	26.0	4.6	9.6	5.9	-33.7	12.4	25.4
2017	26.8	23.8	5.8	7.9	7	-32.8	12.2	23.3

Source: Banking Regulation and Policy Department, Bangladesh Bank.