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Impact of credit risk management on financial performance: A study of commercial banks in Bangladesh

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ABSTRACT

As credit risk is affecting the banking industry of Bangladesh, the study aims to analyze the impact of credit risk management on financial performance of commercial banks. The study applied a deductive research design with targeting 6 commercial banks in Bangladesh, all with data spanning ten years between 2010 to 2019 with secondary data by employing panel regression analysis model. Four factors affecting financial performance of commercial banks in Bangladesh were selected and analyzed. In the study Return on asset (ROA) are used as Bank performance measurement tools and non-Performing loan (NPL), Capital Adequacy ratio (CAR) and loan to deposit ratio (LDR) are used as Credit risk indicators. The result of panel data regression analysis showed that Non-performing Loan (NPL), Capital Adequacy Ratio (CAR) had negative and statistically significant impact on financial performance of commercial banks. Whereas Loan to deposit ratio (LDR) had positive and statistically significant impact on financial performance of commercial banks. Therefore, the credit risk is negatively affecting the financial performance of commercial banks.

Key words: Credit risk, Financial performance, Commercial banks

1. INTRODUCTION

As we are facing COVID19 Pandemic, I can't go out for practical knowledge and primary data. So, I made this article with secondary data. The prime aim of this study is to find out how the credit risk affects financial performance of commercial banks in Bangladesh. The financial performance basically is estimated or measured by the money and profit from the continuing operation and means a company's ability to generate more resources, from continuing operations it made over a specific time [1]. In debt derivatives and instruments due to the changes in underlying quality of credit of the counterparties and borrowers, the degree of fluctuations is known as credit risk [2]. Maintaining exposure of credit risk within the acceptable limit to provide the framework for the purpose of understanding the effect of credit risk management on banks profitability, causes credit risk management maximizes a bank's risk adjusted rate of return [3]. Carrying all these things in mind, this study is done to see if Credit risk is positively or negatively, or no effect related to the financial performance of selected commercial banks in Bangladesh.

Importance of credit is realized from both macro and micro aspects of economy. At Macro level credit influences and is influenced by quantity of money, level of economic activity, imports, and net foreign assets. At micro level, credit influences behavior of economic sector (industry, agriculture) and behavior of economic agents (business, financial institutions, households). It is, therefore, imperative that the banks have adequate systems for credit assessment of individual projects and evaluating risk associated therewith as well as the industry. Generally, Banks in Bangladesh evaluate a proposal through the traditional tools of project financing, computing maximum permissible limits, assessing management capabilities, and prescribing a ceiling for an industry exposure. As banks move into a new high-powered world of financial operations and trading with new risks, the need is felt for more sophisticated and versatile instruments for risk assessment, monitoring and controlling risk exposures. It is, therefore, time that banks managements equip themselves fully to grapple with the demands of creating tools and systems capable of assessing, monitoring, and controlling risk exposures in a more scientific manner. In this study I try to find out how the commercial banks in Bangladesh evaluate their risk and what they should do.

Many scholars have done this important research about the impact of credit risk management on financial performance of commercial bank I will be discussing here. Then the related empirical studies and a conceptual framework with discussion of research variables followed by summary of literature and finally research gaps.

For a bank credit creation is the principal income generating activity. When credit borrower or counter party fails to accomplish the coercions on agreed term this is known as credit risk [4]. So, it is important to manage the credit risk. Managing credit risk is a systematic method of identifying, analyzing, measuring, rating, controlling, and expressing risk combined with banks activity or procedure to minimize losses and maximize advantages [5]. Like many banking sectors of developed and developing economy, Bangladeshi banking sector is also facing the problem of financial crime [6].

In the finance literature credit versus profitability is a very common topic. Yet, some researcher finds positive and some negative and many researchers find mixed relationship between credit risk and financial performance of commercial banks from previous research proof incoherent findings. So, it is very necessary to identify the impact of credit risk on various types of performance indicators while taking decision apropos maximizing profitability and minimizing the risk of the banks.

Noor and ACMA (2019) directed this research in Bangladesh on "the impact of Credit Risk Management on the Financial Performance of the Commercial Banks in Bangladesh" [6]. The study consumed that "CAR has positive impact on ROA, but it is not statistically cabalistic". The T-test ROA, ADR, CAR of private commercial bank was significantly high than the state-owned commercial bank. In contrast the NPL of private commercial banks is significantly lower than that of state-owned commercial banks. According to their recommendation to increase sustainable profitability and growth the study suggest a credit risk management guideline. The NPL has statistically significant impact on ROA with -0.032 β1 coefficient at 1% significant level. Whereas the significant value is less than 0.05 NPL significantly impact negative on ROA. Since the significant value is more than 0.05 that means CAR has negative impact on ROA but not statistically significant.

2. METHOD AND MATERIALS

2.1. Research design

This study used the quantitative method. Quantitative data collection methods are structured and it generalizes results from larger sample population.

2.2. Research source and data

To conduct this study the data was collected from secondary source based on the research objectives. Secondary data are existing data that can be retrieved from existing literature, internet, books, articles, journals, magazine, annual reports, and newspaper etc. For this study secondary data were more convenient for the analyses that were to be done. Secondary data used in this study has been extracted from the annual reports of each individual bank which has been obtained from the official web sites published by the commercial banking companies in Bangladesh.

2.3. Target population

In this study the target population are all commercial banks situated in Bangladesh. From where the study selects 6 commercial banks which are, Dhaka Bank Ltd, Prime Bank Ltd, Dutch-Bangla Bank Limited, Standard Bank Limited, City Bank Limited, Premier Bank Limited.

2.4. Sample size and technique

The study's sample size is 60. The study selects 6 commercial banks from Bangladesh as sample which covered 10 years of data from each bank. The data collected from annual report of these 6 banks. The study period was selected between the year 2010 - 2019 of each bank.

2.5. Data collection

The data obtained from banks financial statement used to determine bank specific variables that determine credit risk and profitability of the bank. The study used audited financial statements (balance sheet, income statement and cash flow statement) of each commercial bank sourced to enhance the credibility and reliability of the research. Selecting appropriate and acceptable data gathering instrument help the researchers to combine the strengths and amend some of the inadequacies of any source of data to minimize risk of irrelevant conclusion. Data must be available during the study period from the year 2010 to 2019. Firstly, all the annual reports of the 6 banks were downloaded from the website of the respective banks; the information was then searched manually from the specific annual reports of each 6 banks and then the numerical data such as ratios that is obtained by computing the respective variables concerned with the credit risk and performance measurement in the annual reports of bank constitute the empirical inputs for testing hypotheses. This study's dependent variable is ROA (Return on Asset) which indicates the financial performance of banks, and the independent variables are non-performing loan (NPL), capital adequacy ratio (CAR) and loan to deposit ratio (LDR) which indicates the credit risk.

2.6. *Data Analysis*

For dependent and independent variable calculation over sample period the descriptive statistics is used. The descriptive statistics method helps in picturing the existing situation and allows relevant information.

In statistics, linear regression model is a relationship between a dependent variable and one or more independent relationship. The equation of a linear regression is shown by equation 1

$$Y=a + bX \qquad \textit{...eq. 1}$$

Where:

X = independent variable

Y= dependent variable.

At 5% level of significance the linear regression estimates the statistical relationship. The hugeness of relationship between dependent and independent variable is determines by correlation coefficient (R). Coefficient of ascertainment R-square the Percentage mutation in dependent variable being narrated by the changes in independent variables takes measure information about levels of mutability within a regression model. The fit of a model and overall significance of the relationship between variables is determined by P-value. By running structural model finally, the hypothesis testing is done.

To establish the relationship between dependent and independent variable a general linear regression is used. The study fixed this model by envisaging the variables used in previous studies (eq. 2).

$$ROA=\beta0 + \beta1NPL + \beta2CAR + \beta3LDR + € \qquad \textit{...eq.2}$$

Where,

β0= constant term

NPL= Non-performing Loan

CAR= Capital Adequacy Ratio

LDR= Loan to Deposit Ratio &

€= Regression error term

β1- β3= Coefficient of independent variables.

IBM SPSS 25 is used to analyze the data and for statistical calculation such as Descriptive Statistics, Linear regression analysis, correlation i.e., ANOVA, Coefficient, model summarization etc.

3. RESULT AND DISCUSSION

In this section the study will discuss about the analysis of data and the research findings. The study's findings are related to the research objective that is guided in this study. Findings of credit risk and Return on Asset

3.1. Descriptive Statistics

The above table represents some descriptive statistics for the variable used in this study. From the table, the sample size is seen 60. Return on Asset (ROA) having a mean of 1.1957, where the minimum value is 0.38 and maximum is 2.60 while having a standard deviation of 0.55852. The mean of non-performing loan (NPL) is 4.8992 and minimum and maximum is 1.18 and 9.00 respectively. Regarding the Loan to deposit ratio (LDR), the mean is 81.9263 where minimum and maximum is 69.86 and 93.16 respectively. Finally, the mean of capital adequacy ratio is 12.4637 and bears minimum and maximum 9.01 and 17.42 respectively.

3.2. Regression result of ROA and NPL, CAR, LDR

In the table 2, the norm of R is 0.602 this inform that there remains a high grade of positive relation among the dependent variable ROA and independent variable NPL, CAR, LDR. If the independent variable increases at that spot this will consequence in the dependent variable increase following. Therefore, it can be narrated that credit risk depends on bank performance. The value of adjusted R Square is 0.328 which shows that only 32.8% of the change in the dependent variable return on asset can be narrated by the variables in the independent variable NPL, CAR, LDR. Whereas from the past studies suggested that R square was 89.9% for the model used for calculating ROA [7].

3.3. ANOVA

The table showing the ANOVA trial of the capability of the model including an F statistic of 10.604 and significance 0.000, showing that the data file fits the pattern well and this strikes that the variable specified within the model are authentic predictor of execution.

Table 1. Descriptive analysis of credit risk and Return on Asset

Descriptive Statistics					
	N	Minimum	Maximum	Mean	Std. Deviation
ROA	60	.38	2.60	1.1957	.55852
NPL	60	1.18	9.00	4.8992	1.73422
CAR	60	9.01	17.42	12.4637	1.81033
LDR	60	69.86	93.16	81.9263	5.25546
Valid N (listwise)	60				

Table 2. Regression result of ROA and NPL, CAR, LDR

Model Summary									
Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Change Statistics				
					R Square Change	F Change	df1	df2	Sig. F Change
1	.602[a]	.362	.328	.45781	.362	10.604	3	56	.000

a. Predictors: (Constant), LDR, CAR, NPL

3.4. Coefficient

Test were conducted for significance at 95% conviction level, meaning that whole the above experiment must have p-value under or equalize to 0.05 or the experiment to be important. Unstandardized coefficients strike how much the dependent variable changes with an independent variable, at what time all other independent variable is fixed. This table comprises the beta coefficient of the three-independent variable. The beta coefficient is exhibitor of the individual variables. From the above table the beta constant is negative. The independent variable Non-performing Loan (NPL), Capital adequacy Ratio (CAR) shows a negative beta coefficient implying there is a negative relationship within the dependent variable Return on Asset (ROA). This indicate that a unit change in Non- performing Loan, Capital Adequacy Ratio result to a negative change in effectuation by (0.150, 0.062) respectively. On the other hand, Loan to deposit Ratio (LDR) shows a positive beta coefficient and statistically significant implying that here is a positive relationship within the dependent variable Return on Asset (ROA). This specifies that a component change in Loan to Deposit Ratio (LDR) result to a proportional change in performance by .014 respectively. Accordingly, the findings of the learning by independent variables non-performing loan (NPL), Capital Adequacy Ratio (CAR), Loan to deposit ratio (LDR) has an important relationship on the dependent variable Return on Asset (ROA).

So, the regression model becomes:

ROA=1.570-.150(NPL)-.062(CAR)+.014(LDR)+€

Empirical research has been done in Nigeria to discover the impact of credit risk on the profitability [8]. The researcher used financial ratios for credit risk and gathered secondary data (2004-2008) to measure bank performance

Table 3. ANOVA trial of the capability

ANOVA[a]

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	6.667	3	2.222	10.604	.000[b]
	Residual	11.737	56	.210		
	Total	18.405	59			

a. Dependent Variable: ROA
b. Predictors: (Constant), LDR, CAR, NPL

Table 4. Correlation Coefficient trial of variables

Coefficients[a]

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	1.570	1.238		1.269	.210
	NPL	-.150	.037	-.466	-4.044	.000
	CAR	-.062	.034	-.200	-1.814	.075
	LDR	.014	.012	.130	1.110	.272

a. Dependent Variable: ROA

from annual reports and accounts of examined for the analysis. The empirical results show that, "profitability is inversely impact by the levels of debt and advances, NPL and deposits thereby revealing them to great hazard of liquidity and distress'. According to recommendation they suggested CBN as the policy motive need to assess orderly financial institutions the lending conduct.

Research carries out about the credit risk management's effect on banks' financial performance [9]. The study found out there was an inverse effect on banks financial performance of all these parameters. The empirical outcome also showed that a significant predictor of bank financial performance is credit risk management, which depends on success of a bank performance. According to his recommendation he told "that banks should plan and formulate strategies which will not only minimize the expression of the banks to credit risk but also will increase profitability". He also stated on risk management that bank should shove more disquiet and default rate management require to allocate more possessing and level of capital adequacy should be complied just optimum.

According to Noor, Das and Banik (2018) there is an impact of POCL- Percentage of Classified Loan (independent variable) on ROI, ROE and ROA (Dependent variables) [10]. The study found out "POCL has significant negative effect on ROI. But in ROA and ROE the effect of POCL is not significant. The study also found out among variables co- integration exists and there is short run causality between POCL and ROI. But between POCL and ROE and POCL and ROA has long run causality. That means, there is a significant effect of POCL on ROA and ROE in the long run."

Fredrick (2012) found out in his study that capital adequacy, management efficiency, asset quality and liquidity had weak relationship with financial performance (ROE) where earnings had a strong relationship with financial performance and there was a strong effect of the CAMEL components on the financial performance [11].

4. RECOMMENDATIONS

The following recommendation are given based on the findings and analysis -

- The Non-performing loan is negatively affecting the banks financial performance of commercial banks selected for this study. That's why this study advise the banks manager to try to lower the non-performing loan so that credit risk could be minimize and the profit could maximize. The manager must be very careful while they are giving loan.
- The capital adequacy ratio has also negative relationship with the bank's profitability. So, it is expedient for a bank to maintain an optimum level of core capital and statutory capital to improve banks financial performance and to ensure that they can fund their liabilities when they are expected to do so.
- Loan to deposit ratio has a positive impact with the financial performance. That means the banks are using their asset to generate income and investment that commercial banks deliver to customers are increasing

at the same motion as deposit. This show that banks are investing their asset to market either in the form of loan or other investment.

There are many other recommendations for the bank so that they can decrease the credit risk such as:

i. It should comprise terms and conditions that agglutinate for loans to be elect.
ii. Lending to companies listed on CIB or known defaulters
iii. Properly insured the assets pledged as security
iv. Banks should not grant facilities where the banks security position is inferior to that of any other financial institutions

5. CONCLUSION

A bank basically needs credit to run their operations properly. But Bangladeshi banks are facing the lack of credit. Credit crisis is one of the major problems for Bangladeshi commercial banks. So, keeping this in mind, the study tried to find the relationship between credit risk and financial performance of selected commercial banks. Former research in Bangladesh was very less and studies in general were oracular. To fill this gap in study a descriptive statistics and panel data regression analysis for financial performance was pursed on secondary data collected from 6 commercial banks over a 10-year period (2010-2019) through the variable explaining credit risk. The study chose four variables which affect the credit risk and financial performance of commercial banks were analysed. From the total 3 independent variable 2 variables had negative relationship with dependent variable ROA which are NPL and CAR whereas LDR had a positive relationship with ROA. So, it is concluded that there is a significant impact of credit risk with financial performance of commercial banks.

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7. CONFLICT OF INTEREST

The authors have declared that there is no conflict of interest.

8. SOURCE/S OF FUNDING

NA

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