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The Effect of Lending Decision Quality on the Performance of Shariah Based Banks: Empirical Evidence from Bangladesh

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Abstract: *The study tries to find how lending decision quality impacts the financial performance of shariah-based banks from a Bangladeshi perspective. A strongly balanced panel data set encompassing eleven years of data from seven shariah-based banks has been used to run the econometric model required for this paper. The study uses the total Classified Loan to Total Loans (CLTL), Provision Maintained to Total Loan (PMTL), Provision Maintained to Classified Loan (PMCL), and Capital Adequacy Ratio (CAR) as a proxy for lending decision quality, whereas the Return on Asset (ROA) and Net Interest Margin (NIM) serves the role of performance indicator. Bank Size is also used here as a control independent variable. This paper finds that both CLTL and Bank Size have a significant negative relationship with profitability, and PMCL shows a positive impact on performance. The study does not find any meaningful relationship between CAR and PMTL with bank performance. The contribution from this study suggests that any additional nonperforming loan strain on the shariah-based banking system could result in catastrophic implications such as a negative return or a capital deficiency.*

Keyword: *Islamic Banking, Lending Decision, Non Performing Loan, Bank Performance*

1. Introduction

It is a common trend in developing economies that the financial assets are controlled by commercial banks mainly. The size of financial assets controlled by commercial banks is almost 90 percent (ADB, 2013). So, to increase the economic growth of the developing economies, commercial banks' efficient performance is mandatory, while those banks' insolvency will result in an economic crisis. Nevertheless, the intermediation role banks play involves different sorts of risks of a different extent, such as liquidity risk, operational risk, credit risk, market risk, and so forth (Van Gestel and Baesens, 2008). Kargi (2011) argued that credit risk and risk involved in the bank's operational activities could hamper the bank's efficient operations, which eventually can be resulted in bankruptcy. Compared to other banking risks, the most significant is credit risk (Hussain and Al-Ajmi, 2012; Perera et al., 2014). Additionally, among all the balance sheet components, credit risk is found above 80 percent (Van Greuning

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and Brajovic Bratanovic, 2009). Besides, researchers found that aggressive expansion of credit, bad lending quality, and insufficient efforts in managing credit risk are the prime causes of failure of banks, leading to global economic crisis (Gropp et al., 2011; Romānova, 2012).

Basel Committee for Banking Supervision initiated Basel I policy in 1988 and Basel II in 2004 for providing a proper credit risk management guideline taking the consequences caused by credit risk into account. Making necessary amendments addressing the flaws of the past accords to cope with credit risk while confronting the financial crisis, Basel III is in effect now (Jayadev, 2013; Ouamar, 2013).

The global financial recession in 2007 made financial experts look differently at shariah or Islamic religious practice backed banking concept as several researchers presented shariah based banking as a sustainable solution to financial crises in the banking system (Said, 2012; Zarrouk, 2012; Hasan and Dridi, 2011). Many studies argue that interest-free shariah-based banks have a higher chance to deal with financial shock efficiently than the conventional or traditional financial institutions (Zehri and AL-Herch, 2013; Ftiti et al., 2013; Mat Rahim and Zakaria, 2013). This situation gives rise to the popularity of shariah-compliant banks as these banks seem to follow better risk management practices.

At present, Islamic banking is being practiced by many Muslim countries, whereas few non-Muslim countries are also practicing this. During the period of upsetting global economic crisis, particularly in 2008, some Islamic banks were started, for example, Gatehouse Bank in 2008. A report on the competitiveness of Islamic banks estimated that by 2020 Islamic banking will achieve a banking market of 1.6 trillion U.S. Dollars (EY, 2016).

Bangladesh is one of those Muslim countries that has a substantial Muslim population. So, people here who lead their lives according to the Quran and hadith accepted and greeted Islamic Banking warmly when this Islamic banking system was established for the first time in 1983. In 1983, the first completely Shariah-compliant bank of Bangladesh, 'Islamic Bank Bangladesh Limited (IBBL)' was established. After that, seven more banks were established in Bangladesh. Recently three more conventional banks got permission from Bangladesh Bank (central bank of Bangladesh) to convert their existing operation to shariah-compliant operation. Inspired by the success and popularity of these Islamic banks, several conventional banks started Islamic branches of their own. Since the beginning, these shariah-based banks demonstrated their contribution to the money market of the country and continuously showed harmonious growth along with the growth of the economy. According to Bangladesh Bank (June, 2018), in Bangladesh, full-grown Islamic banks were 8, with 1134 branches; 9 conventional banks operate Islamic banking through their 19 branches, and 8 conventional scheduled commercial banks give Islamic banking services by their twenty-five Shariah banking windows. Again, regarding deposits as well as investments, the Islamic banking sector of Bangladesh occupied more than 1/5 share of the whole banking industry (Bangladesh Bank, 2018). Compared to the

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conventional method of the banking system, Islamic banking shows impressive steady growth worldwide. The reason for this remarkable growth in the case of Islamic banks is their efficient performances and the extreme demand for Shariah-based banking products derived from the increasing number of Muslim population (Derbel et al., 2011). The investment of Islamic banking follows the principle that allows only the profit and loss sharing (PLS) and does not allow maysir (speculation), riba, which means interest, gharar (uncertainty), etc. This specialty facilitated steady growth all over the world.

However, the unique model of financing (PLS) in Islamic banks makes them exposed to a different level of credit risk exposure. In PLS, Islamic shariah-compliant banks may face relatively higher default cases as there is a psychological factor of borrowers associated with the possibility of sharing loss with banks (El-Hawary et al., 2007). The religious limitation on applying different sorts of conventional credit risk easing approaches such as credit derivatives also gives rise to shariah-compliant banks' exposure to credit risk (Errico and Farahbaksh, 1998). On the other hand, this PLS system requires the creation of a business partnership between borrowers and banks which can reasonably reduce the probability of non-repayment of loans as banks can have better capability to judge customers' default probability here (Errico and Farahbaksh, 1998). Abedifar et al. (2013) argue that borrowers' religious sentiment also decreases the chance of loan default.

Therefore, to manage the credit risk, the quality of lending decisions is a significant factor for Shariah-based banks as it is linked to the performance of the bank. The Researcher finds an increasing trend of non-performing loans and decreasing trend of profitability in Bangladeshi Islamic banks[1] (Figure-01 and Figure-02).

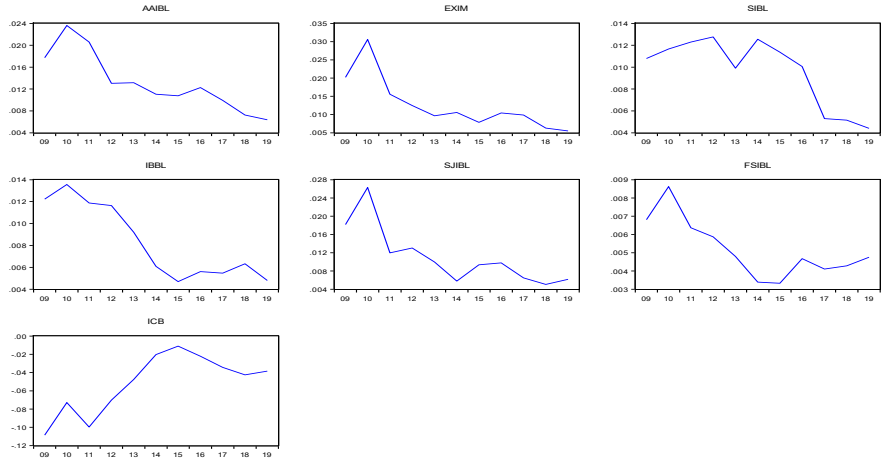

Figure 01: Bank-wise Return on Asset trend.

[1] **List of banks:** Al-Arafah Islami Bank PLC (AAIBL), EXIM Bank Limited (EXIM), First Security Islami Bank PLC (FSIBL), ICB Islamic Bank Ltd (ICB), Islami Bank Bangladesh PLC (IBBL), Shahjalal Islami Bank PLC (SJIBL), and Social Islami Bank PLC (SIBL)

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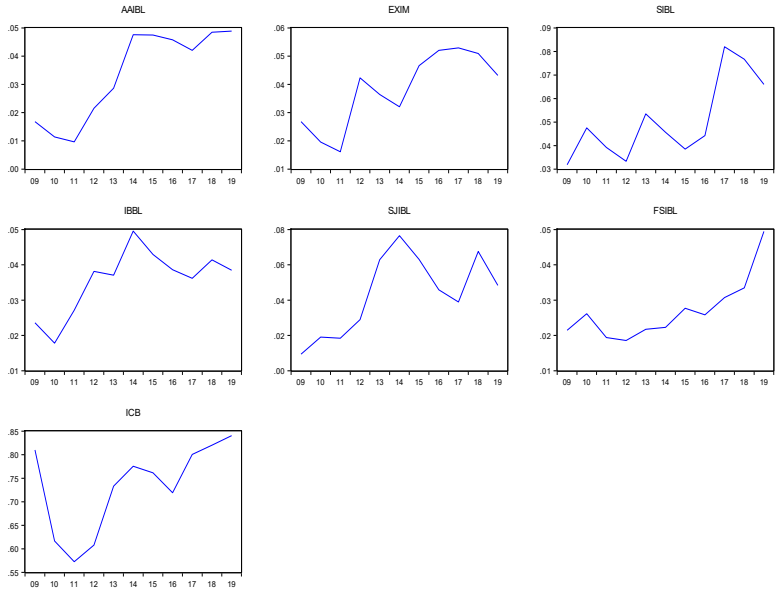

Figure 2: Bank-wise classified loan trend.

This creates a necessity to inquire about the impact of lending decision quality on Islamic banks' performance in Bangladesh. While previous studies have explored the banking industry in Bangladesh, they have predominantly focused on conventional banks, neglecting the distinctive features of Islamic banking (Mozumder et al., 2022). Furthermore, the existing research on Islamic banks in Bangladesh has predominantly centered around Shariah compliance (Ahmad and Hassan, 2007; Alam et al., 2022).

Thus, the broad goal of this study is to analyze the effect of the quality of lending decisions on the financial performance of Shariah-based banks in Bangladesh. The specific objectives include identifying the nature of the relationship between lending decision quality and Shariah-based banks' performance and proposing some recommendations to policymakers based on the empirical result of this study.

2. Literature Review

This paper makes an attempt to examine the effect of lending decision quality on the financial performance of Bangladeshi banks which comply with Shariah. The review of the existing literature in these areas will guide this research. Many studies also tried to contribute to the literature on the relationship of credit performance and profitability of banks (Hosna et al., 2009; Kithinji, 2010; Kolapo et al., 2012; Ruziqa, 2013).

Haslem (1968), in earlier work on banking profitability, found that the managerial capacity of bank executives, location, and time has an effect on a bank's profitability. Researchers showed a great curiosity to inquire how credit risk affects profitability. For instance, Berger (1995) discovered that there

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remains a strong positive relationship between the capital adequacy ratio and US bank's profitability during the 1980s. However, he postulated that this relationship could take the opposite direction too under certain conditions. In a further study, Berger and DeYoung (1997) posited that poorly capitalized banks could face the problem of higher non-performing assets as these banks tend to take more risks in credit granting. Goddard et al. (2004) studied the profitability of banks in Europe and found that profitability is greatly affected by capital to asset ratio. Bofondi and Gobbi (2003) showed that poor lending decisions like selecting borrowers with questionable capacity caused piling up banks' non-performing assets, which eventually led to higher credit risk exposure. In another study conducted in the Indian context, Rajan and Dhal (2003) showed better credit practices help to lower the poorly performing assets in the bank's portfolio.

Analyzing the data of commercial banks, Kithinji (2010) found that credit risk impacts financial performance neutrally. A study on Sweden's commercial banks throughout 2000-2008 discovered a positive connection between profitability and credit risk (Hosna et al., 2009). However, some papers found a negative relationship between credit risk exposure and profitability (Kolapo et al., 2012; Ruziqa, 2013). Ruziqa (2013) also found that liquidity risk has a positive effect on bank profitability.

There are some studies on the profitability of shariah-compliant banks. Focusing on the finding determinants of the shariah-based banks' profitability worldwide, Hassan and Bashir (2003) conducted a study and found that Islamic banks' profitability increases with the capital increase, but it does not change with reserve. Their study also postulated a negative relationship between size and profitability. Muhamad et al. (2013) identified the deposit ratio as a determinant of the profitability of Islamic banks, and the direction of their relationship is positive. The work of Shah and Khan (2017) also confirmed a significant positive association of deposit and profitability.

Most of the research on Islamic banking in Bangladesh tried to shed light on profitability and legal issues concerning shariah-compliant banking. In an early study, Sarker (1999) used ratio analysis and found that the first shariah-compliant Bangladeshi bank (Islami Bank Bangladesh Limited (IBBL)) had been successful in maintaining positive growth in profitability since inception. Ahmad and Hassan (2007) stressed the necessity of a clear framework for shariah compliance in the banking system of Bangladesh as they found the present framework is not sufficient. They pointed out that the constraints in the investment in the capital market, absence of shariah-compliant money market, and unjust reserve requirement made it troublesome for shariah-based banks to operate efficiently in Bangladesh. They recommended a completely different banking regulation for banks that are shariah-compliant. Through the data envelopment technique, Abduh, et al. (2013) examined the efficiency level of the Islamic banking system of Bangladesh and showed evidence of improving the trend of bank efficiency. Alam, et al. (2022) confirmed that the quality of management of Shariah practices impacted the performance of Islamic banks in Bangladesh, both

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positively and negatively. Some other papers also confirmed the satisfactory level of performance and better future of shariah-compliant banking in Bangladesh (Sadekin et al., 2014; Ibrahim et al., 2014).

Many studies on lending decision quality and profitability in the banking industry have been undertaken. Those studies attempted to determine the nature of their association. Similarly, the profitability of shariah-based banking has been investigated in several academic papers. The researcher attempts to establish a link between these two fields of study. Keeping the peculiarities of Islamic banking in mind, this paper empirically investigates how lending decision quality affects profitability in the context of Bangladesh where Islamic banking has been experiencing rapid growth.

3. Research Methodology

3.1 Selection of Variables

Existing literature emphasizes the importance of lending decision quality in conventional banking (Al-Husainy and Jadah, 2021; Ekinci and Poyraz, 2019). There is a discernible research gap regarding its specific impact within the unique context of Islamic banking in Bangladesh. To identify the effect of lending decision quality on the financial performance of Shariah-based banks, the following hypothesis has been tested here in this paper.

Null Hypothesis: Lending decision quality does not have a significant impact on shariah based banks' financial performance.

Different financial ratios have been used here to test the hypothesis mentioned above. Classified Loan to Total Loan (CLTL) is one of the significant indicators of the quality of loans of any bank's investment portfolio. A classified loan or non –performing loan is a bank loan that is at risk of nonpayment. Hence, lower CLTL indicates better quality of the lending decision. Many of the previous studies have used this ratio and identified this ratio as an indicator of lending decision quality (Berger and DeYoung, 1997; Rajan and Dhal, 2003; Brewer and Jackson; 2006; Kolapo et al., 2012; Noman et al., 2015)

Provision Maintained to Total Loan (PMTL), and Provision Maintained to Classified Loan (PMCL) indicates the amount of fund is kept reserved for loan loss relative to total loans and total classified loans, respectively. These are used as a proxy for credit decision quality in multiple works of literature (Samad, 2004; Boahene et al., 2012; Kolapo et al., 2012; Noman et al., 2015). The higher value of PMTL indicates a poorer loan portfolio as provision is mainly kept for the classified loan. An increase in the non-performing loan will result in an increase in PMTL. Conversely, the higher PMCL indicates the better quality of loan portfolio as sufficient provision kept against classified loans communicates the soundness of the bank's financial health.

Basel Accord considers the requirement of minimum capital for banks as a cushion against exposure to credit risk (Rafique et al., 2020). A Higher Capital adequacy ratio (CAR) helps banks to reduce the credit risk exposure and

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consequently to have better asset quality (Boudriga et al., 2009). Saha and Fatema (2018) also found the capital adequacy ratio to positively contribute to profitability. Therefore, this study uses CLTL, PMTL, PMCL, and CAR as indicators of lending quality. Additionally, Bank size has been incorporated as a control variable in this study as many previous studies find a significant impact of size on the profitability of banks (Mullineaux, 1978; Drake and Hall, 2003; Redmond and Bohnsack, 2007; Murthy et al., 2008). However, there is no conclusive finding on the direction of impact of bank size on profitability.

As for indicators of the financial performance of banks, Return on Asset (ROA) and Net Interest Margin (NIM) serve as dependent variables in this study. ROA helps to understand the profit made by the bank in comparison to the size of the bank. In contrast, NIM gives information about the gap between investment income and profit paid on deposits in the case of shariah-compliant banks. The use of these two ratios as profitability indicators is consistent with many studies similar to this one (Lee et al., 2014; Noman et al., 2015; Tan et al., 2017; Saha and Fatema, 2018). Measures of all the variables used here in this study are shown in Table 1.

Table 1: Notation, Measurement, and Expected Impact of Different Variables.

Variable	Notation	Measurement	Expected Impact
Return on Asset	ROA	Net Profit after Tax/Total Asset	Dependent Variable
Net Interest Margin	NIM	Net Income from Investments/Average Earning Asset	Dependent Variable
Classified Loan to Total Loan	CLTL	Total Classified Loan/Total Investments	-
Provision Maintained to Total Loan	PMTL	Total Provision maintained/ Total Investments	-
Provision Maintained to Classified Loan	PMCL	Total Provision maintained/ Total Classified Loan	+
Capital Adequacy Ratio	CAR	Tier I capital + Tier II capital/ Risk-Weighted Assets	+
Bank Size	SIZE	Total Asset	+/-

3.2 Sampling & Data Collection

This study considers 7 out of 8 shariah-based banks of Bangladesh over the study period (2009-2019). The researchers excluded one from the study as that bank started its operation in 2013. Three conventional banks got permission of converting their operation into shariah-based ones after 2019. Those banks were not also included in this study. These seven fully-fledged Islamic banks accounted for 89.23% of the total investment made by Islamic financial institutions (Bangladesh Bank, 2020). This shows that data of these seven banks is reflective of the Islamic banking industry of Bangladesh. Annual reports of the

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selected banks have been collected from the Dhaka Stock Exchange library. Data of selected variables have been collected from those yearly reports.

3.3 Model Specification

This paper deals with the panel data of 7 banks (cross-sectional units) over the period of 2009 to 2019. Usually, three different models, namely pooled ordinary least square (OLS) model, fixed-effect model, and random effect model, are estimated when research involves panel dataset. Pooled OLS estimation ignores variation in the data set due to different cross-sections and time periods involved in the observations (Hill et al., 2011). This model also assumes that error terms originating from several cross-sections across different observed periods will not be correlated $COV(\varepsilon_{it}, \varepsilon_{ju})=E(\varepsilon_{it}, \varepsilon_{ju})=0$ for $i \neq j$ or $t \neq u$. According to Park (2011), pooled OLS estimation provides efficient results only when there is no individual effect ($\mu_i = 0$) due to cross-sectional units or time period in the observations of consideration. If this assumption holds true, the pooled OLS models of this study can be formed as follows:

$$ROA_{it} = \beta_0 + \beta_1 CLTL_{it} + \beta_2 PMTL_{it} + \beta_3 PMCL_{it} + \beta_4 CAR_{it} + \beta_5 SIZE_{it} + \varepsilon_{it} \ldots\ldots\ldots \text{(1a)}$$

$$NIM_{it} = \beta_0 + \beta_1 CLTL_{it} + \beta_2 PMTL_{it} + \beta_3 PMCL_{it} + \beta_4 CAR_{it} + \beta_5 SIZE_{it} + \varepsilon_{it} \ldots\ldots\ldots \text{(2a)}$$

The fixed-effect model addresses heterogeneity at the individual level by allowing individual intercepts to change across the cross-sections but assumes individual intercepts are time-invariant. Additionally, the presence of individual fixed effects eases the assumption of pooled OLS that states the error terms of different cross-sections will not be correlated over the period ($COV(\varepsilon_{it}, \varepsilon_{ju})=0$).

The fixed-effect model required for this study can be shown in the following equations:

$$ROA_{it} = (\beta_0 + \mu_i) + \beta_1 CLTL_{it} + \beta_2 PMTL_{it} + \beta_3 PMCL_{it} + \beta_4 CAR_{it} + \beta_5 SIZE_{it} + \varepsilon_{it} \ldots\text{(1b)}$$

$$NIM_{it} = (\beta_0 + \mu_i) + \beta_1 CLTL_{it} + \beta_2 PMTL_{it} + \beta_3 PMCL_{it} + \beta_4 CAR_{it} + \beta_5 SIZE_{it} + \varepsilon_{it} \ldots \text{(2b)}$$

Contrary to fixed-effect estimation, the random effect model allows intercept terms to be constant across all individual entities over all the time periods when individual effect, μ_i is considered as part of a variable called composite error term, δ_{it}. This term includes individual effect and random disturbance term of the regression model: $\delta_{it} = \mu_i + \varepsilon_{it}$. The following equations will present the random effect model for this study:

$$ROA_{it} = \beta_0 + \beta_1 CLTL_{it} + \beta_2 PMTL_{it} + \beta_3 PMCL_{it} + \beta_4 CAR_{it} + \beta_5 SIZE_{it} + (\mu_i + \varepsilon_{it}) \ldots\text{(1c)}$$

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$$NIM_{it} = \beta_0 + \beta_1 CLTL_{it} + \beta_2 PMTL_{it} + \beta_3 PMCL_{it} + \beta_4 CAR_{it} + \beta_5 SIZE_{it} + (\mu_i + \varepsilon_{it}) \ldots(2c)$$

4. Findings

4.1 Descriptive Statistics

The descriptive statistics of the variables included in this study are presented below.

Table 2: Presentation of Descriptive Statistics.

	Mean	Median	Maximum	Minimum	Std. Dev.
ROA	0.001220006	0.00786935	0.030589055	-0.10853413	0.025178725
NIM	0.036640451	0.03741534	0.061157014	-0.01056068	0.012883228
CLTL	0.1372552	0.042057197	0.840401439	0.009400604	0.24735961
PMTL	0.077235392	0.025947396	0.446691564	0.013614925	0.129362009
PMCL	0.744272603	0.667088814	1.846451104	0.293382759	0.300300059
CAR	-0.022436364	0.1159	0.153	-1.3311	0.374468568
SIZE	237876931471.81	173161626610.00	1142181887387.00	11240140191	229597482037.86

From table 2, it is evident that median values of variables, namely ROA, NIM, and CAR, are greater than their mean values, which suggests that these variables are left-skewed. Additionally, the Standard deviations of most of the variables presented here are high, which shows the variability of the performances of the selected banks. Positive mean and median values of ROA and NIM show that shariah-based banks in Bangladesh are operating profitably. The CLTL is used as a proxy of the quality of lending of banks. The mean value of CLTL is 13 % which is an alarming sign for the industry. This means a great portion of the loan portfolio maintained by shariah-compliant banks is considered a nonperforming loan. Moreover, the mean value of PMCL (Total Provision Maintained to Total Classified Loan) is 74 percent which indicates provision is not kept for more than 25% of the classified loan portfolio. The mean capital adequacy ratio is negative, which is actually not reflective of the overall scenario. Researcher finds that serious shortfall of capital in ICB Islamic bank is the reason behind this negative mean ROA. From the year 2019 central bank of Bangladesh required all the banks to preserve CAR of 12.50 % to be consistent with best global practice. The researcher finds that except for ICB Islamic Bank (-122%) and First Security Islami Bank (11.26%), all other banks maintain CAR more than 12.50 % in the year 2019.

4.2 Diagnostic Test

The pair-wise correlation between the variables included in the study is illustrated below.

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Table 3: Presentation of the correlation matrix.

Correlation Matrix							
	ROA	**NIM**	**CLTL**	**PMTL**	**PMCL**	**CAR**	**SIZE**
ROA	1.0000						
NIM	0.5696	1.0000					
CLTL	-0.6244	-0.2565	1.0000				
PMTL	-0.7219	-0.3128	0.7674	1.0000			
PMCL	0.2650	0.0503	-0.7729	-0.2328	1.0000		
CAR	0.3455	0.3547	-0.0922	-0.2455	-0.0718	1.0000	
SIZE	0.0104	0.2830	-0.1107	0.0157	0.2056	0.5238	1.0000

Table 3 shows that the pair-wise correlation coefficients between the variables considered here are below 0.80. These findings demonstrate that severe multicollinearity is not present in this data set. This study uses two models considering ROA and NIM as the dependent variable. The researcher ran tests for detecting problems, namely heteroscedasticity, autocorrelation, and cross-sectional dependence in all two models.

Modified Wald test has been conducted to identify heteroscedasticity, whereas Pesaran CD test and Wooldridge test have been run to detect cross-sectional dependence and autocorrelation in the data set. The result of these tests is presented in the following table.

Table 4: Summary of Diagnostic tests for the models.

Model 1: ROA as Dependent Variable			
Test Name	**Wooldridge Test**	**Modified Wald Test**	**Pesaran CD Test**
Null Hypothesis	No first order Autocorrelation.	Homoscedasticity	No cross-sectional Dependence.
Test Statistic	F (Prob> F)	Chi^2 (Prob> Chi^2)	Pesaran's CD Statistic
Result	37.362***(0.0009)	8364.82 ***(0.0000)	0.011 (0.9910)
Model 2: NIM as Dependent Variable			
Test Name	**Wooldridge Test**	**Modified Wald Test**	**Pesaran CD Test**
Null Hypothesis	No first order Autocorrelation.	Homoscedasticity	No cross-sectional Dependence.
Test Statistic	F (Prob> F)	Chi^2 (Prob> Chi^2))	Pesaran's CD Statistic
Result	5.340 *(0.0602)	75.78 ***(0.0000)	6.227 ***(0.0000)

***, **, and * denote significance at 1%, 5%, and 10% level respectively

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The result from table 4 concludes the presence of autocorrelation and heteroscedasticity in both cases. However, Cross-sectional dependence is found only when NIM has been used as a dependent variable.

4.3 Appropriate Model Selection

In this study, to select the best possible model for the precise estimation, an approach suggested by Park (2011) has been used. The researcher began with a simpler pooled OLS regression model. According to Park (2011), the random effect is preferred when individual variability is represented in the disturbance term and the individual (group or temporal) effect is not connected with any regressors. In contrast, if heterogeneity can be managed with individual intercepts and that individual effect can be associated with any regressor, the fixed effect model is preferred over pooled OLS. To decide the better model between Pooled OLS and Fixed effect model, F test has been used. Likewise, the Breusch-Pagan *LM* test introduced by Breusch and Pagan (1980) has been used to find an appropriate model between pooled OLS and random effect model. The result of these two tests is shown below.

Table 5: Result of the *F* test and Breusch-Pagan *LM* test.

Test Groups		
Model 1: ROA as Dependent Variable		
Test Name	F-test	Breusch-Pagan LM test
Null Hypothesis	(Pooled OLS is suggested)	(Pooled OLS is suggested)
Test Statistic	F (Prob> F)	Chi^2 (Prob> Chi^2)
Result	7.71*** (0.0000)	2.68* (0.0509)
Model 2: NIM as Dependent Variable		
Test Name	F-test	Breusch-Pagan LM test
Null Hypothesis	(Pooled OLS is suggested)	(Pooled OLS is suggested)
Test Statistic	F (Prob> F)	Chi^2 (Prob> Chi^2)
Result	5.67*** (0.0001)	14.34 ***(0.0001)

***, **, and * denote significance at 1%, 5%, and 10% level respectively

The findings from Table 5 show the evidence of rejection of null hypotheses for all the cases. This confirms that both the random effect model and fixed effect model provide a better result than pooled OLS for both the cases investigated here. Therefore, the researcher estimates both fixed effect and random effect models and uses the Hausman test, a test proposed by Hausman (1978), to decide the better model between the two. The result of the Hausman test is presented below.

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Table 6: Summary of Hausman Test.

	Model 1: ROA as Dependent Variable			Model 2: NIM as Dependent Variable		
	Coefficients			Coefficients		
	Fe	RE	Difference	Fe	RE	Difference
CLTL	-.0454261	-.2205439	.1751178	-.0773101	-.0251519	-.0521582
PMTL	.1233762	-.0870726	.2104489	.0969955	.1604603	-.0634649
PMCL	.0047521	-.0021219	.006874	-.0069427	-.0031812	-.0037615
CAR	-.0595367	-.1256314	.0660947	.0455277	.0666012	-.0210735
SIZE	-1.88e-14	-1.37e-15	-1.74e-14	-1.58e-14	-1.20e-14	-3.71e-15
Chi^2	25.46***			15.38***		
Chi^ 2 (prob)	0.0000			0.0040		
Decision:	**As prob. Chi^2 < 0.05 (i.e. significant) use fixed effect**			**As prob. Chi^2 < 0.05 (i.e. significant) use fixed effect**		

*** denote significance at 10% level

Table 6 confirms fixed-effect model gives a better estimate in both cases. Moreover, as this dataset suffers from problems like heteroscedasticity, autocorrelation, and cross-sectional dependence, Driscoll-Kraay standard error estimation is used. When a panel dataset suffers from such issues, this estimate can provide robust estimates (Driscoll and Kraay, 1998).

5. Discussion

Table 7 demonstrates the outcome of all the projected models in addition to the finally selected fixed effect model ((Drisc/Kraay Std. Error). The selected model for ROA in the table 7 shows that PMCL and SIZE significantly impact the profitability of shariah-based banks of Bangladesh. These findings suggest if provision maintained against classified loan increases, profitability also increases. This finding is consistent with several previous studies (Boahene et al., 2012; Kolapo et al. 2012; Noman et al., 2015). Conversely, size affects the bank's profitability negatively which is consistent with the findings of previous works (Hassan and Bashir, 2003; Redmond and Bohnsack, 2007).

On the other hand, the final model for NIM shows that there is a significant negative impact of CLTL on the profitability of Banks. This result indicates poor lending decision quality will result in a reduction in profit. This result conforms to the findings of previous research (Rajan and Dhal, 2003; Brewer and Jackson, 2006; Kolapo et al., 2012, Noman et al., 2015).

However, this study finds no significant impact of CAR and PMCL on the performance of the shariah-compliant banks. R-sq value of the selected models, which is 65 % for the ROA model and 44% for the NIM model, show reasonable explanatory power.

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Table 7: Estimated Result.

	ROA as Dependent Variable			NIM as Dependent Variable		
	Coefficients of Variables					
Variables	Pooled OLS (Drisc/Kraay Std. Error)	**Fixed Effect (Drisc/Kraay Std. Error)**	Random Effect (Drisc/Kraay Std. Error)	Pooled OLS (Drisc/Kraay Std. Error)	**Fixed Effect (Drisc/Kraay Std. Error)**	Random Effect (Drisc/Kraay Std. Error)
CLTL	-.2247548 (.0256602)***	**-.0454261 (.0738284)**	-.2205439 (.0181619)***	-.0211699 (.0121821)	**-.0773101 (.0314631)****	-.0251519 (.0120761)**
PMTL	-.081705 (.1839671)	**.1233762 (.1847865)**	-.0870726 (.1917645)	.1710126 (.0583952)**	**.0969955 (.0913734)**	.1604603 (.0581989)**
PMCL	-.0048215 (.0033568)	**.0047521 (.0019345)****	-.0021219 (.0025092)	-.0023041 (.0054003)	**-.0069427 (.0043439)**	-.0031812 (.005463)
CAR	-.1228253 (.0458712)**	**-.0595367 (.0465781)**	-.1256314 (.0494561)	.0711016 (.0163897)***	**0455277 (.0262467)**	.0666012 (.0159387)***
SIZE	-1.48e-15 (5.68e-15)	**-1.88e-14 (8.57e-15)***	-1.37e-15 (7.17e-15)	-7.46e-15 (5.70e-15)	**-1.58e-14 (9.97e-15)**	-1.20e-14 (6.39e-15)*
_CONS	.039569 (.0069643)***	**-.0024768 (.0185649)**	.0373091 (.0074717)***	.0314263 (.0055235)***	**.0497009 (.0081365)*****	.0344306 (.0062079)***
R-sq.	0.8563	**0.6589**	0.8543	0.5818	**0.4486**	0.5741
F or Chi^2	431.51	**66.17**	824.58	156.28	**8.29**	353.80
Prob> F or Prob>Chi^2	0.0000	**0.0000**	0.0000	0.0000	**0.0000**	0.0000

Note: Drisc/Kraay std. errors of estimates are given in parentheses. *, **, and *** denote significance at 10%, 5%, and 1% level respectively.

6. Recommendations

Due to popular demand, the Islamic banking sector in Bangladesh has experienced rapid growth, which is accounting for more than a quarter of the total banking sector (Bangladesh Bank, 2020). The recent increase in the amount of classified loans in the banking sector presents critical hurdles for Islamic banking institutions as it is hurting profitability. The findings of this study will help the banks to prioritize their actions. Analyzing the estimated result of the tested models, the researcher points out the following areas that may require the respective authorities' attention.

1. As CLTL, a proxy used to portray the condition of lending decision quality, negatively affects the performance of Shariah-compliant banks, the responsible authority should take the initiative of strengthening the present credit granting and monitoring policy incorporating the globally applied effective practices. The amount of classified loans in the current investment portfolio of the banks studied is alarming. Therefore, any more pressure of nonperforming loans on the banking system may lead to severe consequences like a negative return or capital shortfall.

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2. According to the final estimation, PMCL (Provision maintained to classified loan) positively impacts the Return on Asset of shariah-compliant banks in Bangladesh. This result indicates that proper maintenance of provision against classified loans helps to improve the overall financial performance of the shariah-based banks. Though maintaining provision results in less funds for investment, it indicates the sound financial condition of the banks, which helps the banks to have a positive image among the depositors. So, banks should try to maintain provision as per the guideline of the regulatory authority.
3. This study finds a negative relationship between bank size and financial performance in the case of shariah-compliant banks of Bangladesh. This suggests that small and mid-sized banks' financial performance is relatively better than that of larger-sized shariah-based banks. The plausible reason for this could be the higher portion of classified loans in the bank's investment portfolio. Hence, bank management should try to increase their asset size or investment portfolio by ensuring proper due diligence so that risk of rising non-performing loans can be reduced. Aggressive expansion of asset size should be avoided.

7. Conclusion

The central drive for this research is to examine how lending decision quality affects the profitability of shariah-compliant banks in the context of Bangladesh. To achieve this goal, this research has used financial ratios as a proxy for lending decision quality and profitability. Return on Asset and Net Interest Margin have been used as an indicator of profitability, whereas four different ratios have been used as a proxy for the quality of the lending decision. Bank size as calculated by total asset size is also incorporated in this study as a control variable. Additionally, this paper tries to give some recommendations for bank management for better financial performance. The researcher estimates the best model explaining the relationship between financial performance and lending decision quality by using the panel dataset of seven shariah-based banks of Bangladesh over the period of 11 years (2009-2019). This paper finds classified loans to total loan ratio, and bank size hurt profitability, and provision maintained to classified loans positively impact the financial performance of shariah-based banks negatively. Capital adequacy ratio and Provision Maintained to Total Loan ratio have no significant relationship with any of the proxy indicators of profitability. The researcher recommends that banks should maintain proper due diligence in credit granting and monitoring to control the increasing trend of non-performing loans. Sufficient provisioning should be maintained against the classified loans as this has a positive impact on profitability. This insight from the study would help policymakers and bank management to manage the banks properly.

This study leaves scope for further investigation in this area of banking. As this paper solely focuses on the context of shariah-based banks in Bangladesh, future studies can try to present a comparative analysis between conventional banks and Islamic banks. Cross-country data can also be used to determine the magnitude of the relationship across different countries.

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