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Bank-Specific and Macroeconomic Profitability Determinants of Islamic Banks: Evidence from Bangladesh

Abstract

This study investigates the determinants of profitability of Islamic banks in Bangladesh, considering different bank-specific and macroeconomic variables. This study used ROA and ROE as indicators of Islamic banks' profitability. The study comprised data from eight Islamic banks spanned from the years of 2011 to 2020. Applying the Fixed Effect Model (FEM), Random Effect Model (REM), and Pooled OLS, the estimated result shows that, in all the three methods classified investment ratio and cost-to-income ratio negatively affect the Islamic bank's profitability indicators ROA. Whereas the investment-to-deposit ratio and inflation rate positively affect the Islamic bank's ROE. Conversely, investment to total asset ratio, classified investment ratio, and capital adequacy ratio negatively affect the bank's profitability of ROE. After applying the robustness method of FGLS, this study found that classified investment ratio, investment to deposit ratio, and the inflation rate is a strong predictor of increasing banks' overall profitability, and the capital adequacy ratio, cost income ratio, and interest rate are a strong predictor of reducing Islamic banks profitability.

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1. Introduction

Islamic banking is a rapidly growing sector of the world economy since it has first emerged in 1970. Nearly 500 Islamic banks are operating worldwide having around 1.99 trillion U.S dollars of assets which is nearly 6% of the assets of the global banking sector. The annual growth rate of Islamic banking worldwide is near 20%. The Islamic banking sector of Bangladesh is not different from the rest of the world. Islamic banking in Bangladesh has started its journey with the establishment of Islami Bank Bangladesh Limited which is considered to be the pioneer among the Islamic banks in the Southeast Asia. At present there are 61 scheduled banks in Bangladesh among them there are ten Islamic banks. Besides this, many private commercial banks have started the Islamic window from which they provide Islamic financing to their customers (Bangladesh Bank, 2014).

The operations of Islamic banking are quite different from the operations of interest-bearing commercial banks. The major difference is that in Islamic banking transaction based on interest or Riba is highly prohibited. All the operations of Islamic banking are conducted according to the Shariah rules of Islam. In Islam interest or Riba is considered Haram or prohibited that is why in Islamic finance interest is not acceptable. The Islamic banking system put

emphasize on the values of equality, justice, efficiency, productivity, and growth. Bank profitability is the major component for the smooth operations of a bank. Without making an adequate profit, a bank cannot survive in the long run in the competitive market. Islamic banks are no exception to that. All the banks are operating to make a profit. In commercial banking, the major source of profit is earning from the interest of loans. But in Islamic banking, the major source of profit is the return from different investment modes.

Bangladesh is one of South Asia's growing economies. Three decades ago, Islamic finance began its beautiful journey in this nation. This banking system now accounts for one-fifth of all banking in the country. Bangladesh ranks 12th in the worldwide Islamic bank ranking based on asset value (asset size). Regarding financial inclusion or 'the character of distribution' rather than 'asset size,' the status of Islamic banking in Bangladesh is fairly good.

This paper tries to explore the rising Islamic bank's profitability determinants in Bangladesh. As per the author's knowledge, this is the first study conducted during this period considering the period of 2011-2020 consisting of eight Islamic banks in Bangladesh. Bangladesh has the potential to be an important center of Islamic banking on the global map with competent leadership, incentives, and appropriate branding, with more than one-fifth of the country's market share, one-third of global Islamic banking customers, and fifty percent of global Islamic micro credit (Bangladesh Bank, 2014).In this study total eight Islamic banks were studied to explore the determinants of banks profitability. ROA and ROE are used as the dependent variable and eight banks specific and four macroeconomic variables are used as independent variables. This study applies Pooled OLS, Fixed Effect method, and Random Effect method to find out the determinants of profitability. Additionally this study applies FGLS method which is corrected for autocorrelation and heteroscedasticity.

Measuring bank profitability is important to identify a bank's position in defending any financial crisis. The negative trend in the profitability of the banking sector can affect the financial stability of the economy. All the Islamic banks are regulated under the regulations of the Bangladesh Bank and trying to maintain an adequate level of profit. This study aims at showing the determinants and the effects of those determinants for changing the profitability of the Islamic banking sector of Bangladesh.

2. Literature Review

Bank profitability is one of the most studied topics in Finance and Banking literature. Short conducted research to determine the link between bank profitability and banking operations (Short, 1979). Short had studied the paucity of capital as the dependent variable; he found from his investigation that bank profitability is positively connected to several factors such as the central bank discount rate, the interest rate on government securities, and so on. A study on determinants of bank profitability of Islamic banks was conducted by Bashir (2003). For the study, Bashir had used cross-country analysis. Five years of data were used in the study in which return on asset and return on equity was used as determinants of profitability. He found that return on assets and return on equity are positively affected by bank capital and loan ratios. Several studies have shown a significant relationship

between bank size and profitability.

Tamimi (2006) conducted a study on banks of United Arab Emirate mostly on the national and international banks and found that size of the bank which has a positive impact on bank profitability by influencing ROA and ROE. Hasan (2009) conducted a study on the largest Islamic banks and other banks in Bangladesh and found that Islami Bank Bangladesh Limited was doing better in terms of deposit growth and investment growth than that of many commercial banks.

Al-zafari (2014) conducted a study in Syria and found a significant relationship of inflation and real GDP growth rate to ROA and ROE as bank profitability. The HHI (Herfindahl–Hirschman Index) and CAP (capitalization) ratio had no impact on ROA and ROE. However, Liquidity ratio, bank size, operational efficiency, and PL significantly affect bank profitability measured by ROA and ROE. Antwi (2019) investigated bank profitability in Europe and discovered no evidence of a size-profitability link, but a favorable influence of capital assets ratio on bank profit.

Fachrurrozie et al., (2021) conducted a study on Indonesian banks where he used ROA as independent variable and capital adequacy ratio (CAR), classified investment to total investment ratio (CLASSINV), investment to total assets ratios as independent variables (INVTA). The study revealed that, CAR, CLASSINV, and INVTA simultaneously have closely related and significant influence to ROA. Meanwhile, partially CAR is not significantly influence ROA, CLASSINV has negative effect and significant to ROA, and LDR has positive effect and significant to ROA. Internal drivers such as bank size, capital adequacy, liquidity, credit risk, and expenditure management effect were investigated. According to the experts, only the fluctuating size of banks statistically influences the profitability of Islamic banks in Malaysia (Asma et al., 2011). Izhar and asutay (2007) performed a research on Indonesian banks to investigate the profitability factors of Islamic banks. According to the study's findings, service operations have no effect on the profitability of Indonesian Islamic banks and are statistically negligible. The study's findings show a favorable and statistically significant association between inflation and Islamic bank profitability. Ahmad and Ahmad (2004) did a research on the credit risk of Malaysian Islamic banks. The study shows that the effects of asset size, hazardous asset ratio, and Islamic bank management efficiency on Islamic bank credit risk are statistically significant. Hassan and Bashir (2003) conducted research on the influence of several factors on the profitability of Islamic banks. Hassan and Bashir discovered a statistically significant and beneficial influence of the loans activities ratio and capital adequacy on the profitability of Islamic banks.

A study conducted by Ullah et al., (2021) on a comparative analysis of conventional banks and Islamic banks profitability of Bangladesh and found that balances with other banks, money at call, investment in securities, total loans, borrowings from other banks, and total deposits all contributed significantly to the operational profitability of the group of conventional banks. On the other hand balances with other banks, investment in securities, and total deposits, on the other hand, contributed significantly to the group of Islamic banks' operational earnings. Rana et al., (2016) showed that loan deposit

ratio, current ratio net loan to total asset ratio has positive impact on Islamic banks ROA and ROE.

Uddin et al., (2017) examined the determinants of profitability of Islamic banks of Bangladesh for the period of 2010-2014 based on banks CAMELS rating and found that Capital adequacy and liquidity position have positive impact on Islamic banks profitability of Bangladesh.

The majority of research on the factors influencing bank profitability has focused on commercial banks. Though the principles of commercial and Islamic banks differ, their functions and objectives are very similar. More research should be conducted to determine the impact of various variables on the profitability of Islamic banks (Hasan, 2009). Jahan (2014) conducted DuPont analysis to determine the indicators of Islami bank's profitability of Bangladesh and found that bank size, return on deposit have significant impact on banks ROA and ROE.

Farah (2015) uses ordinary least square regression (OLS) to evaluate the factors that impact bank profitability on a sample of 42 commercial banks in Bangladesh from 2009 to 2001. To capture the macroeconomic influence, he employs both internal unique features of banks (such as bank sizes, operational efficiency, capital efficiency, and financial risk) and economic growth as an external element. According to the findings, banks' operational efficiency and capital efficiency have a significant positive effect on bank profitability; banks' financial risk has a significant negative effect on bank profitability; and economic growth and bank size have no effect on bank profitability.

Noman (2015) studies the influence of macroeconomic and bank-specific variables on the profitability of seven Islamic Bangladeshi banks between 2003 and 2013. The results of the pool regression model and the GMM model show that there is a negative relationship between bank profitability and capitalization, cost efficiency, and loan ratio, a positive relationship between bank size and bank profitability, and macroeconomic factors such as GDP, inflation, real interest rate, and stock market turnover have no significant effect on the bank's profitability. Rahman and Akhter (2015) conducted a study on Islamic banks in Bangladesh and revealed that bank size and deposit have significant negative impact on banks profitability. On the other hand equity has a positive impact on banks ROA.

3. Methodology of the study

This study aims at determining the profitability of Islamic banks of Bangladesh. In the methodology section, the types of data used for the study, types of study, sampling design, data analysis process, etc. are discussed in detail.

3.1 Study Type

This study is quantitative in nature that explores the bank specific and macroeconomic determinants of profitability for Islamic banks in Bangladesh. For measuring the relationship among different dependent and independent variables, statistical program has been used to obtain the results.

3.2 Sample Design

For this study, all the eight full-fledged Islamic banks are used as a sample. The sample includes- Islami Bank Bangladesh Limited, ICB Islamic Bank Bangladesh Limited, Al-Arafah Islami Bank Limited, Social Islami Bank Limited, Shahjalal Islami Bank Limited, Export-Import Bank of Bangladesh Limited, First Security Islami Bank Limited, and Union Bank of Bangladesh Limited. For the study panel data are collected for ten consecutive years which starts from 2011 to 2020.

3.3 Data Type

In this study return on assets and return on equity are two major determinants of profitability which are used as dependent variables. Independent variables for the study are divided into two classes. One is bank-specific factors and another is a macroeconomic factor. Eight bank-specific factors used as independent variables are – investment deposit ratio, total equity to total asset ratio, deposit-asset ratio, investment-asset ratio, and cost-income ratio, classified to total investment ratio, capital adequacy ratio, and total assets of the banks as a proxy of bank size. Three macroeconomic factors have been used as the independent variables for the study are the inflation rate, GDP growth rate and real interest rates. Secondary data have been collected for the last ten years since 2011 of eight Islamic banks of Bangladesh.

3.4 Empirical Models

Usually the model to be estimated for identifying the determinants of profitability for Islamic banks in Bangladesh has been constructed as follows:

$$ROA_{it} = \alpha_0 + \beta_1 INVDEP_{it} + \beta_2 EQTA_{it} + \beta_3 DEPTA_{it} + \beta_4 INVTA_{it} + \beta_5 COSTINC_{it} + \beta_6 CLASINV_{it} + \beta_7 LNTA_t + \beta_8 CAR_t + \beta_9 GDP_{it} + \beta_{10} INF_{it} + \beta_{11} INT_{it} + u_{it} \quad \text{.....(1)}$$

$$ROE_{it} = \alpha_0 + \beta_1 INVDEP_{it} + \beta_2 EQTA_{it} + \beta_3 DEPTA_{it} + \beta_4 INVTA_{it} + \beta_5 COSTINC_{it} + \beta_6 CLASINV_{it} + \beta_7 LNTA_t + \beta_8 CAR_t + \beta_9 GDP_{it} + \beta_{10} INF_{it} + \beta_{11} INT_{it} + u_{it} \quad \text{.....(2)}$$

Here,

ROA = Return on Assets calculated with dividing net income by total assets. ROE = Return on Equity calculated with dividing the net income by total equity. α_0 = intercept or constant, $\beta_1 - \beta_2$ .coefficient of the independent variables, u_{it} = Error term of the model.

3.5 Empirical Method

In this study both OLS, Fixed effect method, Random effect method and FGLS method have been used to find the determinants of banks profitability for Islamic banks in Bangladesh. In the following table-1 the description of the variables used in the study has been presented

Table 1: Description of the variables included in the model

Dependent Variables	Notation	Measurement Method	Expected Impact
Return on Assets	ROA	Net Income to Total Assets	
Return on Equity	ROE	Net Income to Total Equity	
Independent Variables			
Investment to Deposit Ratio	INVDEP	Total Investment to Total Deposit	+
Equity to Total Assets Ratio	EQTA	Equity to Total Assets	+
Deposit to Total Assets Ratio	DEPTA	Deposit to Total Assets	+
Investment to Total Assets Ratio	INVTA	Investment to Total Assets	+
Cost Income Ratio	COSTINC	Cost to Total Income	+/-
Classified Investment to Total Investment Ratio	CLASINV	Classified Investment to Total Investment	-
Bank Size	BANKSIZE	Natural log of Total Assets	+
Capital Adequacy Ratio	CAR	Aggregate Capital Adequacy Ratio	-/+
Inflation	INF	Inflation	-
GDP Growth	GDP	GDP growth Rate	+/-
Real Interest Rate	INTRATE	Real Interest Rate	-/+

4. Empirical Results and Findings

4.1 Model Specification Tests

Using Hausman Test (Random effect vs Fixed effect): The Hausman test is used to determine which model is suitable between Fixed Effect Model (FEM) and Random Effect Model (REM). The hypothesis under this test is (Green 2008)

H_0= The random effect model is suitable

H_1= The fixed effect model is suitable

In fact, it tests whether the unique errors followed by u_i are correlated with regressors, the null hypothesis is they are not. The Chi-square value is1.08, which is not statistically significant at 5% level of significance so that we can accept the null hypothesis or random-effect model and reject the alternative hypothesis that means accepting a random-effect model.

Table 2: Hausman Test (ROA as dependent variable)

Variables	Coefficients		Diff. (b-B)	S.E
	Coef. FE (b)	Coef. RE (B)		
INVDEP	-.00754	.00709	-.01464	.03757
EQTA	.00659	.01641	-.00981	.03921
DEPTA	-.03823	.01498	-.05322	.03644
INVTA	-.03821	-.05455	.01624	.04852

COSTINC	-.00358	-.00414	.00056	.00048
CLASINV	-.07451	-.09318	.01866	.02902
LNTA	-.04807	.12315	-.16546	.18967
CAR	-.04807	-.03021	-.01786	.02892
GDP	-.01146	.01593	-.02739	.03276
INFLATION	.10114	.07236	.02877	.04099
INTRATE	-.02050	-.02635	.00584	.00533

b = consistent under Ho and Ha; obtained from xtreg
B = inconsistent under Ha, efficient under Ho; obtained from xtreg
Test: Ho: difference in coefficients not systematic
$chi^2(10) = (b-B)'[(V\_b-V\_B)^{(-1)}](b-B)$
= 1.08 Prob>chi^2 = 0.9999

Source: Authors' estimations based on STATA 16.0

But when it comes for equation two where ROE is used as dependent variable, The Chi-square value is 186.48, which is statistically significant at 1% level of significance so that we can reject the null hypothesis or random-effect model and accept the alternative hypothesis that means accepting a fixed-effect model.

Table 3: Hausman Test (ROE as dependent variable)

Variables	Coefficients		Diff. (b-B)	S.E
	Coef. FE (b)	Coef. RE (B)		
INVDEP	.13777	.00709	.13067	.17032
EQTA	.35556	.01641	.33914	.25098
DEPTA	-.00909	.01498	-.02408	.15529
INVTA	-.11924	-.05455	-.06469	.21528
COSTINC	.00888	-.00414	.01303	.00243
CLASINV	-.28457	-.09318	-.19139	.14031
LNTA	.28819	.12315	.16503	.92846
GDP	-.39725	-.03021	-.36704	.20559
GDP	.11737	.01593	.10144	.28902
INFLATION	.64261	.07236	.57024	.29405
INTRATE	-.09794	-.02635	-.07158	.06265

b = consistent under Ho and Ha; obtained from xtreg
B = inconsistent under Ha, efficient under Ho; obtained from xtreg
Test: Ho: difference in coefficients not systematic
$chi^2(10) = (b-B)'[(V\_b-V\_B)^{(-1)}](b-B)$
= 186.48 Prob>chi^2 = 0.0000

Source: Authors' estimations based on STATA 16.0

4.2 Empirical Results and Findings

Table 4: Summary statistics of all variables included in the models

Variables	Mean	Standard Deviation	Minimum	Maximum
ROA	.00307	.01963	-.09970	.02800
ROE	.10556	.04173	.01000	.24000
INVDEP	.86833	.06777	.60000	1.13000
EQTA	-.03692	.29713	-1.0400	.26000
DEPTA	.83307	.06859	.70000	1.1000
INVTA	.74358	.05702	.43000	.86000
COSTINC	.57102	2.30272	-2.50000	17.8000
CLASINV	.17647	.27141	.00570	.84000
LNTA	12.11610	1.22539	9.32724	14.24559
CAR	-.03214	.40853	-1.33160	.16650
GDP	.06400	.01142	.03400	.07900
INF	.06630	.01724	.05500	.11400
INT	.03310	.05743	-.13600	.06900

Source: Authors' estimations based on STATA 16.0

The descriptive statistics of the data seems consistent with minimum values of standard deviation of the both independent and dependent variables and having lower gaps in ranges. According to the output reported in the above table the mean ROA is .003 which is less than 1percent. Islamic banking sector includes one loss making bank whose name is ICB Islamic bank ltd. In terms of ROA the maximum ROA reported for eight banks is almost 2 percent. The mean ROE reported was more than 10 percent and the minimum ROE reported was 1 percent. This minimum ROE is produced by ICB Islamic bank in its ten years of journey.

Table 5: Summary of the output of coefficient of models (Equation 1)

Variable ROA Dependent Variable	Model 1 Pooled OLS Coefficient	Model 2 Fixed Effect Model Coefficient	Model 3 Random Effect Model Coefficient
INVDEP	.00709 (.03559)	-.00754 (.05175)	.00709 (.06283)
EQTA	.01641 (.06653)	.00659 (.07723)	.01641 (.06653)
DEPTA	.01498 (.02972)	-.03823 (.04703)	.01498 (.02972)

INVTA	-.05455	-.03831	-.05455
	(.04376)	(.06534)	(.04376)
COSTINC	-.040414*	-.03058*	-.04014*
	(.00056)	(.00074)	(.00056)
CLASINV	-.09318*	-.07451***	-.09318 *
	(.03141)	(.04277)	(.03141)
LNTA	.00123	-.00042	.00123
	(.00210)	(.00283)	(.00210)
CAR	-.03021	-.04807	-.03021
	(.05643)	(.06341)	(.05643)
GDP	.01593	-.01146	.01593
	(.08325)	(.08946)	(.08325)
INF	.07236	.10114	.07236
	(.08092)	(.09071)	(.08092)
INT	-.02635	-.02050	-.02635
	(.01870)	(.01944)	(.01870)
Constant	.0212224	.07956	.02122
	(.03364)	(.06283)	(.03364)
F Statistic	49.9*		
N	80	80	80
R Square	0.9274	.7933	0.9756

Legend: *p<.01; **p<.05;***p<.10

Source: Authors' estimations based on STATA 16.0

Table 5 shows the regression output of equations 1 and 3 measured through pooled OLS, fixed effect, and random effect methods using data from all eight Islamic banks in Bangladesh for 2011-2020. In this analysis, ROA was used as the dependent variable, and eight bank-specific variables were used as the explanatory variable. In this study, three other macroeconomic variables were used to predict the determinants of bank profitability. The first column of the table presents the list of the dependent and the explanatory variables while each column of models 1, 2, and 3 represents the coefficient and standard error respectively. Among the bank-specific variables, only two variables are statistically significant. The cost-income ratio negatively influences the profitability indicator ROA at a significance level of 1 percentage point. The coefficient is about four percent, which means a one percent increase in the cost-income ratio will hurt banks' ROA by four percent.

On the other hand, as expected for Islamic banks, the ratio of classified investment to total investment ratio was significant and negatively influenced the bank's profit ROA by nine percent. This variable is also significant at a 1% level of significance. The other six bank-specific variables under pooled OLS found statistically insignificant. Under pooled OLS, all three macroeconomic variables were found statistically insignificant. The overall prediction capacity of the pooled OLS method expressed in R square was ninety-two percent. In model 2, the same result was found under the fixed effect method, meaning that the cost-income ratio and

classified investment to total investment ratios are statistically significant at 1% and 10% levels of significance, respectively. In model two, under the random effect method, consistency was found with the findings of the pooled OLS and random effect methods; their coefficients are different in value. For, macroeconomic variables both in model 1 and in model 2 were found statistically insignificant.

Table 6: Summary of the output of coefficient of models (Equation 2)

	Model 1	Model 2	Model 3
Variable	**Pooled OLS**	**Fixed Effect Model**	**Random Effect Model**
ROE	**Coefficient**	**Coefficient**	**Coefficient**
Dependent Variable			
INVDEP	.27418 *	.13777	.27418 *
	(.11726)	(.17400)	(.11726)
EQTA	.27224	.35556	.27224
	(.21919)	(.25965)	(.21919)
DEPTA	-.02364	-.00909	-.02364
	(.09791)	(.15811)	(.09791)
INVTA	-.26755***	-.11924	-.26755***
	(.14417)	(.21969)	(.14417)
COSTINC	.07087*	.08088 *	.07087*
	(.01085)	(.02500)	(.18005)
CLASINV	-.37685*	-.28457 *	-.37685*
	(.10350)	(.14379)	(.10350)
LNTA	.00140	.00288	.00140
	(.00692)	(.00951)	(.00692)
CAR	-.39476*	-.39725***	-.39476*
	(.18592)	(.21320)	(.18592)
GDP	.08495	.11737	.08495
	(.27426)	(.30078)	(.27426)
INF	.50281***	.64261*	.50281**
	(.26660)	(.30498)	(.26660)
INT	-.09254	-.09794	-.09254
	(.06161)	(.065389)	(.06161)
Constant	.08595)	.04404	.08595
	(.11083)	(.21125)	(.11083)
F Statistic	14.41		
N	80	80	80
R Square	0.7866	0.7447	0.8254

Legend: *p<.01; **p<.05;***p<.10

Source: Authors' estimations based on STATA 16.0

The above table 6 represents the regression coefficients of the determinants of profitability of Islamic banks in Bangladesh. In this table the study used (ROE) return on equity as determinants of profitability. This table measures the

equation 1 and 2 from methodology section. The first column of the table presents the list of the dependent and the explanatory variables while each column of models 1, 2, and 3 represents the coefficient and standard error respectively. In each model eleven explanatory variables includes both bank specific and macroeconomic variables. In pooled OLS (Ordinary Least Squares) method six variables has been found statistically significant. The study showed that investment to deposit ratio has a significant positive impact on firms' profitability. Equivalently equity to total asset ratio and cost to total income ratio positively increased the Islamic banks profitability. On the other hand investment to total asset has negative influence on banks profitability which is significant at 10% level of significance. A significant finding of the study is the negative association between classified investment to total investment ratio and ROE, which is an expected outcome of the study. Banks must take care of their classified investment. In case of macroeconomic determinants inflation rate was positively associated with banks profitability at a 10% level of significance. The R square value of the model was 78% approximately. In model 2 which represents the fixed effect model has found four variables which are statistically significant. Inflation rate and cost to total income ratio positively influence the banks overall profitability whereas capital adequacy ratio and classified investment ratio negatively influence the bank profitability indicator. Whenever the study compares the outcomes between equation 1and 2, it revealed that equation 2 provides better prediction of the hypothesis.

Table 7: Summary of the output of coefficient of models (Robustness)

Variable	MODEL 1 (ROA)	MODEL 2 (ROE)
	Coefficient	Coefficient
INVDEP	.00709	.27418*
	(.03147)	(.10368)
EQTA	.01641	.27224
	(.05883)	(.19381)
DEPTA	.01498	-.02364*
	(.02627)	(.08657)
INVTA	-.05455	-.26755
	(.03869)	(.12747)
COSTINC	-.00414*	.00787*
	(.00049)	(.00164)
CLASINV	-.09318*	-.37685*
	(.02778)	(.09152)
LNTA	.00123	.00140
	(.00185)	(.00612)
CAR	-.03021	-.39476*
	(.04990)	(.16439)
GDP	.01593	.08495
	(.07361)	(.24250)

INF	.07236 (.07155)	.50281* (.23573)
INT	-.02635 (.01653)	-.09254*** (.05448)
Constant	.02122 (02974)	.08595 (.09799)
N	80	80

Legend: *p<.01; **p<.05;***p<.10

Source: Authors' estimations based on STATA 16.0

The above table shows the regression coefficient of Generalized Least Squares (GLS) method. Generally GLS is used where there is a chance of autocorrelation and heteroscedasticity problem. GLS shows the coefficients by correcting those two problems. In this study GLS was applied for both ROA and ROE model where ROA and ROE were used as dependent variable. In model 1 cost income ratio is statistically significant but it is economically insignificant because the coefficient value is zero percent. But the ratio of classified investment to total investment is statistically significant at 1% level of significance and it influences the ROA by nine percentage point. In model 2 where ROE is the dependent variable, the study found seven variables as statistically significant. Investment to deposit ratio and inflation positively influence the Islamic banks ROE where as interest rates, capital adequacy ratio, classified investment ratio and deposit to total asset ratio negatively influence the banks ROE. The cost income ratio was statistically significant but here it is also economically insignificant as it has a coefficient of zero.

5. Conclusion

The main objective of this study was to observe into the effect of economic variables on the profitability of the Islamic banks operating in Bangladesh based on the samples of eight Islamic banks for the period of 2011-2020. Accordingly this study has already accomplished the objectives and hypothesis set at an earlier stage to reveal the causation between Islamic banks profitability measured with ROA and ROE and several bank specific and macroeconomic factors. The independent variables were estimated with Pooled OLS, Cross sectional GLS approach, Fixed effect and Random effect approach. The estimated output reveals that out of three macroeconomic variables only two which are inflation and interest rates were statistically significant. In equation one and three macroeconomic variables were found insignificant with Islamic banks profitability indicator ROA. But in equation two and four inflation rate was found significant and positively influence the forms ROE, which is a new contribution of the study. This study adopted eight bank specific variables and found that classified investment to total investment ratio strongly influence the bank's profitability indicators ROA and ROE. This study also incorporates the GLS method to see the performance of the models by removing autocorrelation and heteroscedassticity. The findings of the GLS method suggested that classified investment to total investment strongly played a significant role in reducing banks profitability indicated by ROA and ROE. Other variables were found statistically

significant mentioned in different tables of regression results. This paper is different from previous studies because it seeks to examine the impact on firm's profitability by applying OLS, Fixed effect, Random effect and GLS method. No other studies have been conducted earlier on the Islamic banks in Bangladesh using the said methods simultaneously.

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