

# Financial Performance Analysis of DSE Listed Shariah-Based Islami Banks in Bangladesh

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## Abstract

The aim of this paper is to show the impact of selected firm specific factors on the performance Dhaka Stock Exchange- DSE listed Sharia-based Islamic banks of Bangladesh. The quantitative research method STATA 14.2 is used in this study. Secondary panel data of 5 Banking Companies spanning from 2016 to 2022 (35 observations) has been used for this study. The Return On Assets serves as the dependent variable, whereas Investment Deposit Ratio, Capital Adequacy Ratio, Classified Investment to total Investment, Inward remittance, and Cost of Fund serves as independent variables. Pearson's correlation matrix, ordinary least square regression, and a few econometrics tests have been employed for the analysis purpose. The empirical results found that inward remittance has significant and positive association with the changes in Return on Assets. All other explanatory variables other than Classified Investment to total Investment have positive but insignificant impact on the changes in the explained variable. All the econometrics tests for testing the fitness of the OLS regression model advocate that the developed regression model is fit.

**Keywords:** Capital Adequacy Ratio, Investment Deposit Ratio, Total Investment, Sharia-based, Inward Remittance.

## 1.0 Introduction

The banking industry is widely recognized as a crucial component of the financial infrastructure of developing nations. Consequently, the economic growth of each given country is ensured by its own expansion. The current state of affairs in Bangladesh has resemblance to the aforementioned scenario. The banking sector plays a crucial role in facilitating the economic progress of Bangladesh. The banking industry relies on a significant foundation to facilitate domestic company operations. Islamic banking is widely recognized for its rapid global expansion within the financial industry. The presence of the Islamic financial sector in Bangladesh has spanned a period of more than three decades. Currently, Bangladesh has a total of 60 banks that have been officially designated. The banks can be classified into several categories, including public limited banks, specialized banks, private commercial banks, and foreign banks, among other classifications. In addition to the aforementioned, there exist an additional five

prominent non-scheduled banks. The category of scheduled banks consists of a total of sixty institutions, comprising six public limited banks, five specialized banks, forty private commercial banks, and nine foreign commercial banks.

Islamic banking, in contrast to traditional banking, is an industry seeing rapid growth and widespread global acceptance. There is a notable worldwide presence of over three hundred Islamic financial organizations, which jointly oversee investments with a total value exceeding \$400 billion. The inception of "Islamic Bank Bangladesh PLC" in 1983 represented a noteworthy achievement in the advancement of shariah-based banking in Bangladesh, as it introduced an innovative structure for financial transactions that aligns with shariah-based principles. The institution's utilization of interest-free banking procedures serves as a catalyst for other banks to consider and incorporate Shariah-compliant operations inside the national financial system. A number of prominent financial institutions have successfully implemented shariah-based banking divisions. shariah-based banking refers to a system of financial transactions that align with the principles of shariah-based law, which strictly prohibits the concept of interest. The organization adheres to the norms and laws of shariah-based law in its operations. Interest-based banking, sometimes known as conventional banking, encompasses the financial services provided by traditional banking institutions. Islamic banking encompasses financial activities that are conducted in accordance with Islamic law, which strictly prohibits the idea of interest. The organization operates in accordance with the principles of Islamic Shariah law. Interest-based banking, often known as conventional banking, is a financial system that operates on the basis of charging and earning interest on loans and deposits. Deficit units receive loans from them, while surplus units provide them with borrowed funds. The deficit unit is subject to interest charges, while the surplus unit receives a portion of the interest. The concept of balance is commonly understood as a component of an organization's operational revenue. Moreover, they provide additional services. These entities are currently designated as business conglomerates according to this rationale. Firms derive advantages from economies of scale, increased revenue streams, and risk mitigation through diversification.

## 2.0 Objective of The Study

The main objective of this study is to analyze financial performance of DSE listed shariah-based Islami banks of Bangladesh. To achieve this objective, the following specific objectives are set to be accomplished-

- Find the relationship between firm specific factors and performance of shariah-based banking companies of Bangladesh.
- Determine the impact of the selected firm specific factors that may have an effect on the performance of the shariah-based banking companies in Bangladesh.

## 3.0 Overview of Banking Company: Overall Situation and Contribution to Bangladesh's Economy

The first bank named Dacca Bank was established in 1846 in the region of East Bengal. It had a very limited scope of operation and it could not issue banknotes. The journey from the first modern bank to today's banking industry in Bangladesh is very emerging. Currently, in Bangladesh, the total bank is 66 among them 61 are scheduled banks and 5 are non-scheduled banks. Scheduled banks operate under the complete supervision of Bangladesh Bank which is the central bank of Bangladesh. There are 43 commercial banks currently operating of which 33 are traditional commercial banks and 10 are Shariah-based banks. There are 9 foreign banks, 3 specialized banks, and 6 state-owned commercial banks.

The banking industry has played a crucial role in the economy of Bangladesh. Bangladesh which previously belonged to an underdeveloped economy is now operating as a developing economy. From the very beginning of the journey of our development, the banking sector has been one of the leading sectors of Bangladesh's economy (Pervin et al., 2019). The banking sector contributes about 7.7% of GDP directly. Moreover, Bank provides the funds as the capital of business both in the public sector and private sector. Banks provide the safety of the deposited money and provide a risk-free return which encourages people to save more. The savings of people are rendered as capital to those who require money (Hidayat et al., 2017).

Commercial banks have played a very important role in Bangladesh's economic development. Bangladesh is mainly an import-oriented country and also exports products globally (Sumona et al., 2020). The banking sector helps to ease international trade by facilitating payment and risk management services. Banks also play an important role in remittances sent by foreign Bangladeshi workforce. Banking companies are encouraging SMEs (short and medium enterprises) and agricultural activities by providing capital assistance to them (Rashid et al., 2010). Large numbers of people are appointed in the banking sector each year. In the year 2018-19, 1454955 employees are in the scheduled banking companies in different positions.

The service of the banking sector is now following developed economies' banking sector. The banking service is mostly digitalized now (Pervin et al., 2019). People are taking the benefits of the internet in banking activities. The strengths of the banking industry include a versatile range of services, availability of banking facilities all over the country, digital banking services, a wide range of clients, convenient locations, rich and friendly working culture, social and local community engagement, easy access to services, information technology, and effective customer services. The weakness of the industry are mixed quality staff, poor management, and leadership, undifferentiated products, lower cost efficiencies, no distinct feature of the products, poor social media access, non-compliance with ethical standards, banking scams such as corruption and money laundering, non-performing loans (NPLs).

Some amazing opportunities are also prevailing here. Some of them namely the expansion of product mix, digital marketing, rich customer relationship culture, the emergence of price inelastic customers, information technology, etc. However, there exist some threats in the context of Bangladesh, including increasing fixed cost, disruptive technology, slow adoption of technology, increasing competition, online fraud, rising inflation, breach of privacy, cost of big data, etc. (Hidayat et al., 2017).

As the banking sector is one of the booming sectors which creates a lot of employment every year, the government should provide proper attention and undertake initiatives that can contribute to the improvement of this industry (Rashid et al., 2018). Rules and regulations must be in favor of the operation of the banking companies. Moreover, this sector needs pieces of training in the workforce to adapt to the rapid technological changes. Better working culture and job security should also be ensured to have efficient and effective performances from the employees of this sector (Sumona et al., 2020).

### **3.1 Islami Shariah based Banking in Bangladesh**

The establishment of shariah-based banking in Bangladesh may be dated back to the year 1983, marking its formal inception. The establishment of this development was preceded by the adoption of the Charter of the IDB in 1974, which served as the basis for the implementation of Islamic banking principles across the nation. According to the study conducted by Mahmud et al. (2015), it has been established that Islami Bank Bangladesh PLC is recognized as the first bank to promote the concept of shariah-based banking in

Bangladesh. Following the establishment of the first shariah-based commercial bank in the country, there was an increasing tendency among investors to establish more shariah-based banks (Abduh et al., 2013). Based on recent statistical data, the growth of shariah-based banking in Bangladesh is demonstrating a constant upward trajectory, which stands in contrast to the present performance of traditional banks. A study conducted by Ahsan (2016) reveals that shariah-based banks in Bangladesh have demonstrated a higher level of performance in terms of loan recovery and several financial indicators in comparison to conventional banks. Shariah-based banking in Bangladesh is increasingly gaining prominence as a significant participant in the global mainstream banking sector. Given the current presence of supportive elements, it is plausible to anticipate a sustained trajectory of expansion in the realm of Islamic banking. Nevertheless, it is vital to prioritize and address areas of deficiency through ongoing endeavors for enhancement (Chakraborty, 2015).

According to Mamun (2007), there exists a significant need for financial services that operate on an interest-free basis in Bangladesh. This demand mostly stems from a specific part of the population that possesses a strong inclination to adhere to the principles and regulations prescribed by Shariah. In addition to religious obligations, economic imperatives offer a fresh perspective on the function of banking in facilitating investment and productive endeavors, shaping income distribution, and enhancing economic stability (Sarker et al., 2019). The Islamic banking sector, meanwhile, faces criticism from conventional bankers on various grounds. It is widely considered that banks do not fully adhere to the principles of Shariah. According to Sarker et al. (2015), it is suggested that Islamic banks incorporate interest in their transactions as a means to effectively compete with conventional banks. Furthermore, it is believed that conventional banks that provide Islamic banking as a supplementary service do so primarily to enhance their profitability. The organization aims to appeal to those who place a high value on the Shariah-based system and are interested in availing themselves of the advantageous provisions provided by the Central bank. The rapid growth of Islamic finance over the last ten years has attracted the attention of authorities and international bodies (Bhuiyan et al., 2011). There is a growing recognition of the potential influence that Islamic finance can exert on the goals of social and economic growth (Sarker et al., 2017). At an alternate level, the growing scale of the industry underscores the importance of a strong public policy stance in ensuring that the regulatory and legal structures are adequate in fostering systematic growth and flexibility (Sarker et al., 2017). The aforementioned two overarching categories of concerns hold significant pertinence in the context of Bangladesh, a nation that possesses a substantial and expanding Islamic finance sector (Grewal et al., 2014).

### **3.2 Challenges of Shariah Based Islamic Banks in Bangladesh**

According to Islam et al. (2017), the establishment and successful operation of Islamic banking necessitates the presence of a robust regulatory framework specific to Islamic banking, a knowledgeable team of professionals in Islamic banking and finance, scholars well-versed in Islamic law, a supportive Islamic capital market, and government backing. However, the country lacks the necessary conditions for creating an appropriate environment, mostly due to ongoing political instability, the mismanagement of Islamic banking instruments, and a general lack of understanding among the population. Due to its reliance on an interest-free mechanism, this particular investing strategy has challenges when it comes to short-term investments. In addition, it occasionally accepts deposits from customers on a fixed return basis. In Bangladesh, Islamic banking institutions allocate approximately 60-70% of their investments on a mark-up basis. Occasionally, the optimal investing strategy may be unavailable. The Islamic banking sector

faces several significant challenges, including the absence of an Islamic money market, a shortage of suitable long-term assets, inadequate supportive and link institutions, weak connections with foreign banks, limited availability of long-term financing, the absence of a separate legal framework, a lack of accessible Islamic money market instruments, an overreliance on Murabaha, Bai-muajjal, and Ijara financing, a small proportion of financing in social sectors (Rahaman & Akhter, 2015), insufficient government project financing (Rahaman, 2016), a scarcity of Islamic insurance companies (Safiullah, 2010), a dearth of skilled manpower (Sarker, 1999), and a lack of Islamic financial literacy programs (Mahmood et al., 2015).

### 3.3 Prospects of Shariah Based Islamic Banks in Bangladesh

For the shariah-based banking industry to thrive in the future, it is imperative to have a range of key elements in place. These include individuals with expertise in shariah-based finance, scholars well-versed in shariah-based law, the establishment of a sustainable framework for shariah-based banking, the presence of a regulatory body to oversee operations, and the development of a strong capital market based on shariah-based principles. The complex task of promoting and sustaining shariah-based banks in Bangladesh is further complicated by the need to thoroughly examine the challenges faced by Islamic banking as a whole, as well as the unique concerns encountered by shariah-based banks in Bangladesh. According to Yousuf et al. (2014), shariah-based banks are required to adopt a novel approach to banking and undertake a comprehensive restructuring of the overall financial system. The following regulations are essential for the successful implementation of shariah-based banks and are essential to shariah-based banking.

- According to Rashid and Nishat (2009), the Islamic bank has the ability to be discerning in its selection of clients for financing through PLS modalities in order to optimize distributional efficiency.
- Rashid and Nishat (2009) argue that Islamic banks possess the capacity to use discretion when choosing clients for financing through Profit and Loss Sharing (PLS) mechanisms, with the aim of maximizing distributional efficiency.
- The active consideration of the government is necessary for the promotion of Islamic banking in Bangladesh, taking into account its positive impact on development (Chakraborty, 2015). It is recommended that Bangladesh Bank undertake the development of Islamic Monetary and Saving instruments, as well as establish a dedicated window for transactions with Islamic banks. Additionally, the establishment of a comprehensive Islamic banking Department is advised, which would be responsible for the analysis, supervision, monitoring, and guidance of Islamic banks in order to facilitate their seamless development within Bangladesh (Bhuiyan et al., 2011).
- Ensuring inter-Islamic bank cooperation and the implementation of a prospective plan is crucial. The authors Abduh et al. (2013) propose a novel banking philosophy aimed at bridging the discrepancy between the established criteria and the current operational practices of Islamic banks in Bangladesh.
- The banking industry as a whole needs to update its policies and procedures (Bhuiyan et al., 2011).

### 4.0 Literature Review

The evaluation of banks' performance is a fundamental component of the financial sector, as it provides valuable insights into the efficiency, reliability, and profitability of banking institutions. Over the course of an extended period, numerous researchers and experts have extensively explored this subject matter, employed diverse methodologies and focused on distinct geographical regions. The purpose of this writing

survey is to synthesize the significant findings from selected scholarly papers in order to provide a comprehensive understanding of the issue.

According to **Francesco (2022)** a scholarly literature, research on bank performance analysis commenced in the late 1980s and early 1990s. These examinations revolve around several hypotheses. The flagging hypothesis posits a correlation between capital and profitability, suggesting that a larger capital level serves as a favorable indicator to the market regarding a bank's value.

Another study by Carlson (1998) found that a lesser degree of impact indicates that banks outperform their competitors who are unable to enhance their worth without incurring further detriments. The bankruptcy cost hypothesis posits that when faced with unexpectedly high bankruptcy costs, banks opt to increase their equity holdings as a precautionary measure against potential periods of financial crisis. Therefore, both the flagging hypothesis and insolvency cost prediction provide evidence for the existence of a positive correlation between capital and profit. However, the theory of gambling return suggests that when risks increase and the firm's influence expands, there is a corresponding increase in the expected return (profitability) on one hand, and a decrease in the value-to-asset ratio (represented by capital) on the other hand. Risk-return theory posits a negative relationship between capital and profit.

**Aburime (2008)** argues that the evaluation of bank productivity holds importance both at the microeconomic and macroeconomic levels. At the micro level, the advantage lies in the fundamental necessity of establishing a robust financial base and accessing the most cost-effective source of resources. It is not solely an outcome, but also a necessity for successful banking in an era of increasing competition in financial markets. Therefore, the primary objective of bank management is to optimize profits, which is an essential requirement for operating a firm. Various literary works authored by scholars also assert that productivity is the factual or ultimate outcome reflecting the net effects of banking policies and operations within a fiscal period. Indeed, a bank's profitability can be influenced by a multitude of elements, such as expansion, accounting approach, heightened level of competition, and other relevant considerations. Various proportions of the profitability of commercial banks have been presented after careful examination of a wide range of ratios at the proper juncture (**Harsha, 2012**).

**Chowdhury (2013)** identified and subsequently employed metrics such as Net Interest Margin (NIM), Return on Assets (ROA), and Return on Equity in the subsequent discourse. The profitability measurements identified by **Akinola (2008)** include Profit before Tax (PBT), Profit after Tax (PAT), Return on Equity (ROE), and Return on Capital (ROC). According to Francis (2013), additional studies examining productivity have also employed metrics such as returns on average bank assets, net interest margin (NIM), and return on average equity (ROAE) to assess profitability. However, due to varying opinions among scholars regarding the prevalence of one indicator over others as measures of productivity, there is no clear consensus on which one is most suitable. Nevertheless, the majority of scholarly literature restricts the examination of productivity measures to the three commonly employed methodologies, namely Return on Assets (ROA), Return on Equity (ROE), and Net Interest Margin (NIM). As such, certain researchers choose for a combination of the three, while others choose to simultaneously instruct on all three. Based on the preceding discourse, the analyst has incorporated Return on Assets (ROA) as a measure of productivity for the present evaluation, taking into account the limitations imposed by Net Interest Margin (NIM) and Return on Equity (ROE). The NIM model is recognized to possess two notable limitations. Firstly, the measurement does not capture the whole advantage of the bank, as most banks generate revenue from fees and other non-interest income through services such as business and deposit

account services, without taking into account operational expenses such as personnel and office costs, or credit expenses.

The Return on Equity (ROE) metric (**ECB, 2010**) is also found to possess numerous limitations. Initially, it does not exhibit a propensity for danger. The decline in return on equity (ROE) indicates that the inclusion of a risk component, influenced by external factors, can have a substantial positive impact on ROE. The Return on Equity (ROE) metric is unable to accurately reflect the presence of hazardous assets and their potential for dissolution. The analysis conducted by ROE failed to differentiate the top-performing banks from the rest, specifically in terms of the sustainability of their performance throughout the 2008 financial crises. The Return on Equity (ROE) serves as a transient indicator that warrants interpretation as a preliminary assessment of the ongoing financial health of organizations. The analysis fails to take into account the protracted nature of the establishment's system or the protracted negative consequences resulting from the crisis. The limitations of the aforementioned are particularly evident during periods of stress, when there is a prevailing sense of fragility surrounding the long-term viability of institutions.

According to **Flamini et al. (2009)**, it has been argued that the analysis of return on equity (ROE) fails to consider financial leverage and the associated risk. Therefore, based on the aforementioned justifications, it is widely acknowledged that Return on Assets (ROA) plays a crucial role as an intermediate for assessing bank productivity, as opposed to Return on Equity (ROE) and Net Interest Margin (NIM). The assessment of return on assets (ROA) encompasses all resources of a corporation, including those that arise from the commitment of financial backers. Moreover, the inclusion of liabilities enhances the significance of Return on Assets (ROA) as an internal measurement tool, particularly when evaluating the performance of different departments or divisions within a company.

According to **Tlemsani and Al Suwaidi (2016)**, an examination of the banking systems in the UAE indicates that the financial crisis had a notable effect on the performance of Islamic banks, particularly in relation to their return on assets (ROA) and return on equity (ROE). Islamic banks outperformed conventional banks in terms of mitigating the risk of insolvency and maintaining a substantial amount of liquid assets.

**Jaffar and Manarvi (2011)** conducted a study that revealed Islamic banks to exhibit superior performance in terms of quality management and profit potential compared to conventional banks. Islamic banks are exhibiting inferior performance compared to conventional banks in various aspects, including advances, investment, liquidity, deposits, and capital. . Specifically, Islamic banks demonstrated greater capital adequacy and a stronger liquidity position. The loan loss ratios of conventional banks had a notable decline, suggesting an enhancement in their loan recovery program. Conversely, the examination of the UNCOL ratio indicated a relatively better performance for Islamic banks.

In a similar way **Alzghoul (2015)** conducted a study which revealed that Islamic banks exhibit superior performance compared to conventional banks in terms of managerial effectiveness, liquidity management, and return on assets (ROA). According to their analysis, there are notable distinctions between conventional and Islamic banks in Bangladesh with regards to profitability, credit risk, capitalization, and bank size. In contrast, the study conducted by Noman et al. (2015) revealed that Islamic banks in Bangladesh exhibit comparatively lower levels of productivity, performance, liquidity, and volume when compared to conventional banks. In relation to performance throughout the specified time period, conventional banks emerged as the leading entities, while Islamic banks generally occupied positions beyond the 12th rank.

However, according to **Rashid et al. (2015)** the progress ratio indicates that the performance of Islamic banks in 2012 was superior to that of 2006. Furthermore, the study's overarching conclusion indicates that traditional banks in Pakistan exhibited greater efficacy in fulfilling their roles during the period from 2008 to 2010 in comparison to Islamic banks.

**Carlson, J. A., (1998)** have utilized CAMEL components for the assessment of bank performance, while a predominant number of researchers have relied on the usage of Return on Assets (ROA) as a metric to gauge the financial robustness of banks. Many academics have utilized conventional approaches to assess performance, such as single ratio evaluation. However, this method may not accurately reflect the actual situation, making it difficult to design appropriate policies. Nevertheless, the exploration of a composite performance metric has not been undertaken by any researcher.

#### 4.0 Research Methodology

This report is prepared based on secondary panel data for 7 years (2016 to 2022) from 5 DSE- Dhaka Stock Exchange- listed 5 (five) Shariah-based Islami Banks chosen from 9 Islamic banks operating in Bbangladesh such as EXIM Bank Ltd., Islami Bank Bangladesh PLC, Shahjalal Islami Bank Ltd., Social Islami Bank Ltd and Standard Bank Ltd. Website of each selected bank has been used to access the annual reports from which the required data for this study amalgamated. Along with these websites, Annual reports of selected banks for the study, various journals, research papers, websites have been used to collect necessary information to prepare this report. The multicollinearity test results exhibited in appendix table: 2. Variance inflation factor (VIF) greater than 10 which is the acceptable threshold. STATA 14.2, Pearson Correlation and Regression techniques has been used for data analysis. Furthermore, the examination of multicollinearity involves the utilization of the variance inflation factor, or VIF, and the tolerance value. The utilization of the Ordinary Least Squares Regression model(OLS) is employed to assess the hypotheses pertaining to the connection between the variables that were both dependent and independent.

#### 4.1 Variables Definition

The factors and their proxies have been extensively taken from existing research in order to provide a real comparison of our findings with those of earlier empirical investigations. As a result, the Return On Assets(ROA) will serve as the dependent variable, while the other factors such as Shareholders' Equity, Total Deposit, Total Investment, Investment Deposit Ratio, Capital Adequacy Ratio, Classified Investment to Total Investment, Remittances, Number of branches, Cost of Fund of banks are primarily selected to serve as the independent variables.

#### Definitions of the variables

**Table 4.1: Dependent Variable**

Variable	Proxy	Symbol
Return on Assets	$\frac{\text{Net profit after tax}}{\text{Total assets}}$	ROA



**Table 4.2: Independent Variables**

Variable	Proxy	Symbol
Shareholders' Equity	Equity capital	EQCAP
Investment Deposit Ratio	$\frac{\text{Total investment(DPST)}}{\text{Total deposit (INVST)}}$	IDR
Capital Adequacy Ratio	$\frac{\text{Tier 1 capital + Tier 2 capital}}{\text{Risk weighted assets}}$	CAR
Classified Investment to Total Investment	$\frac{\text{Classified investment}}{\text{Total investment}}$	CITI
Remittance	Inward remittance	REM
Number of Branches	Number of branches in operation	BRANCH
Cost of Fund	Cost of fund used in the business	COF

#### 4.2 Regression model

This is an essential and broadly utilized tool for the current study (Bruce and Bruce, 2017). These regression assessments are utilized to depict the connection between dependent variable and independent variable.

$$y = c + \beta * x$$

where,

y = the estimated score of the dependent variable,

c = constant,

$\beta$  = the regression coefficient,

x = the score on the independent variable,

defines the simplest form of the regression equation with one dependent and one independent variable.

The following regression model has been developed for this study.

$$ROA = c + \beta_1 IDR + \beta_2 CAR + \beta_3 CITI + \beta_4 REM + \beta_5 COF + e$$

Where,

c = constant,  $\beta_1$  = beta coefficient of IDR,  $\beta_2$  = beta coefficient of CAR,  $\beta_3$  = beta coefficient of CITI,  $\beta_4$  = beta coefficient of REM,  $\beta_5$  = beta coefficient of COF and e = error term.

To establish the regression analysis assumptions for the following test has also been run within this study- test for heteroskedasticity, multicollinearity test, and normality test.

#### 5.0 Results and discussions

The descriptive analysis uses statistical approaches to explain or summarize data. Descriptive analysis is a prominent sort of data analysis because it can generate insights from uninterpreted data. Descriptive

analysis doesn't make future predictions, unlike other forms. Instead, it pulls conclusions from manipulated historical data.

**Table 5.1: Descriptive Statistics**

Variable	Obs	Mean	Std. Dev.	Min	Max
ROA	35	.007	.004	0	.021
IDR	35	.886	.049	.796	1.006
CAR	35	.128	.014	.1	.156
CITI	35	.051	.015	.033	.084
REM	35	80867.58	150408.19	3361	505175
COF	35	.073	.012	.048	.097

Source: Annual reports(2016-2022)

Note: Data have been compiled by authors using STATA 14.2

Descriptive statistics for Return on Assets (ROA), Investment to Deposit ratio (IDR), capital adequacy ratio (CAR), classified investment to total investment (CITI), Inward remittance (REM), and Cost of fund (COF) are shown in the above-mentioned table 5.1. There are 35 observations for each of the variables over the period of (2016 to 2022). Since mean equals central value, ROA, IDR, CAR, CITI, REM, and COF each has respective central values of 0.7%, 88.6%, 12.8%, 5.1%, 80,867.58 million, and 7.3%. The observations of all the variables other than REM are much clustered around the mean. On contrary, the observations of REM are much scattered around the mean value.

## 5.2 Regression Analysis

The objective of regression analysis is to ascertain an approximation of the relationship between the variable considered as the dependent and the variables that constitute the independent variables. This methodology can be employed to forecast the future interactions between two or more variables and to assess the magnitude of existing associations. The selection of the appropriate regression output between fixed-effects regression and random-effects regression in panel data analysis sometimes necessitates the use of the Hausman test. Prior executing Hausman test, two different form of regression- fixed effect, and random effect- are required to run and stored. Appendix table 3 and 4 exhibit the outputs of fixed effect, and random effect. Appendix table 5 consists of the result of the Hausman specification test that advocates that the fixed effect form of regression is appropriate for this study.

**Table 5.2: Regression Analysis**

<b>ROA = c + β<sub>1</sub> IDR + β<sub>2</sub> CAR + β<sub>3</sub> CITI + β<sub>4</sub> REM + β<sub>5</sub> COF + e</b>					
CoD	Coef.	St.Err.	t-value	p-value	Sig
IDR	1157.105	5573.403	0.21	.837	
CAR	198.769	348.688	0.57	.574	
CITI	-56.858	77.908	-0.73	.472	
REM	22358450	7301549	3.06	.005	***
COF	138.185	142.471	0.97	.341	
Constant	-5547.849	6852.511	-0.81	.426	

Mean dependent var	448.909	SD dependent var	1629.055
R-squared	0.353	Number of obs	35
F-test	2.733	Prob > F	<b>0.023***</b>
Akaike crit. (AIC)	608.637	Bayesian crit. (BIC)	617.969

\*\*\*p<.01,\*\*p<.05,\*p<.1

Note: Data have been compiled by authors using STATA 14.2

$$\text{ROA} = -5547.849 + 1157.105 \text{ IDR} + 198.769 \text{ CAR} - 56.858 \text{ CITI} + 22358450 \text{ REM}^{***} + 138.185 \text{ COF} + e$$

The results of the model’s regression are displayed in the above table 5.3. This table displays the coefficients of the independent variables, together with their respective standard errors, t-values, p-values, and the level of significance. Here, the return on assets is the dependent variable and rest of other variables (ROA, IDR, CAR, CITI, REM, and COF) are independent variables. So, we need to find out how much independent variables affect the dependent variable. Table 5.2 shows the regression analysis between these dependent variables and the independent variable. From this regression analysis we found that only REM has positive and significant association with ROA at 5% significant level. All other explanatory variables other than CITI have positive but insignificant association whereas CITI has negative but insignificant association with ROA at 5% significance level. The overall regression model is statistically reliable at 5% significance level as the p-value of F-test is 0.023 which is less than 0.05. The R-squared value of 35.3% illustrates that 35.3% changes of the return on assets of shariah-based Islami banks of Bangladesh can be explained by the selected independent variable.

### 5.3 Multicollinearity Test

The assessment of multicollinearity across variables is commonly conducted using the VIF (variance inflation factor) and the tolerance value. These techniques provide valuable insights into the extent of multicollinearity in a given dataset. The definition of the tolerance value is given as the reciprocal of the

VIF (Variance Inflation Factor), which represents the influence of the other parameters on the standard deviation of the coefficient of regression (Hair et al., 2016).

**Table 5.3: Multicollinearity test**

Variable	VIF	1/VIF
CITI	1.309	.764
COF	1.28	.782
IDR	1.136	.88
CAR	1.106	.904
REM	1.039	.962
Mean VIF	1.174	.

Note: Data have been complied by authors using STATA 14.2

A high value of the Variance Inflation Factor (VIF) indicates a strong presence of collinearity between the independent variable and the other variables. Low multicollinearity occurs when both the variable of interest (VIF) and the tolerance value exhibit high values. The analysis reveals a lack of significant connections among the independent variables. A commonly accepted criterion for the Variance Inflation Factor (VIF) is a value of 10 or less. Similarly, a widely recognized threshold for a tolerance threshold is 0.10 or greater. According to the information in table 5.3, the average VIF for the models is identical (1.174). VIF for each variable is less than 10 and each variable’s tolerance value is greater than 0.10. Consequently, the multicollinearity issue does not exist in these models.

#### 5.4 Jarque-Bera Normality Test

The Jarque-Bera test is a statistical test used to assess the normality of a distribution. This method is employed to assess the degree to which a provided dataset exhibits a kurtosis and skewness that aligns with the characteristics of a normal distribution. The Jarque-Bera test is a statistical test used to assess the goodness-of-fit of a distribution to the normal distribution. It relies on the sample's Skewness and Kurtosis, as proposed by Jarque and Bera (1987).

**Table 5.4: Normality Test**

H <sub>0</sub> : Residuals are normally distributed
Prob > chi <sup>2</sup> : 0.0705

Table 5.4 represents the results of Jarque-Bera Normality Test and the test results failed to reject the null hypothesis that the residuals are normally distributed.

#### 5.5 Test of Heteroskedasticity

The statistical procedure known as the White test (White, 1980) is widely employed for the purpose of finding heteroscedasticity. The primary objective of this analysis is to examine the residuals derived by regression models in order to detect the presence of heteroscedasticity. The hypothesis of the test is evaluated using the Chi-square distribution.

**Table 5.6: Test of Heteroskedasticity**

H <sub>0</sub> : Homoskedasticity	
chi <sup>2</sup> : 28.90	Prob > chi <sup>2</sup> : 0.0897

Table 5.6 exhibits the results of white test for heteroskedasticity. The results advocates that the error terms are homoscedastic.

## 6.0 Conclusion

The purpose of this study is to investigate how the performance of shariah-based Islami banks are affected by the selected variables. There is one dependent variable and five independent variables that are taken into consideration in order to check the result of how the company specific factors affects the overall return of the Islami banks. The return on assets serves as the dependent variable, whereas investment deposit ratio, capital adequacy ratio, classified investment to total investment, inward remittance, and cost of fund serve as independent variables. Meeting the assumptions regarding homoskedasticity, normality, and no existence of multicollinearity, ordinary least square regression model has been developed to serve the purpose of analysis. The OLS regression has found that inward remittance has positive and significant impact in the changes in the performance of the DSE listed shariah-based Islami banks of Bangladesh. The study has its limits. Inclusion of other important firm specific and macro-economic variables may better explain the changes in the return on assets, the proxy measurement of DSE listed shariah-based Islami banks of Bangladesh. A larger timeframe of data may provide better understanding of the movements of the return on assets of this study.

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**Appendixes**

Appendix Table 2: Test of Multicollinearity for The Selection of Independent Variables

	VIF	1/VIF
INVST	111.6	.009
DPST	89.653	.011
BRANCH	18.963	.053
EQCAP	12.597	.079
REM	8.427	.119
CITI	3.055	.327
COF	2.372	.422
IDR	2.187	.457
CAR	1.353	.739
Mean VIF	27.801	.

Appendix Table 3: Regression Results (Fixed Effect)

ROA	Coef.	St.Err.	t-value	p-value	[95% Conf Interval]	Sig
IDR	1157.105	5573.403	0.21	.837	-10321.533 12635.742	
CAR	198.769	348.688	0.57	.574	-519.368 916.906	
CITI	-56.858	77.908	-0.73	.472	-217.313 103.596	
REM	22358450	7301549	3.06	.005	7320628.5 37396272	***
COF	138.185	142.471	0.97	.341	-155.239 431.608	
Constant	-5547.849	6852.511	-0.81	.426	-19660.86 8565.162	
Mean dependent var	448.909		SD dependent var		1629.055	
R-squared	0.353		Number of obs		35	
F-test	2.733		Prob > F		0.023	
Akaike crit. (AIC)	608.637		Bayesian crit. (BIC)		617.969	
*** p<.01, ** p<.05, * p<.1						

Appendix Table 4: Regression Results (Random Effect)

ROA	Coef.	St.Err.	t-value	p-value	[95% Conf Interval]	Sig
IDR	1878.32	4572.899	0.41	.681	-7084.397 10841.036	
CAR	186.536	329.972	0.57	.572	-460.198 833.271	
CITI	30.058	59.175	0.51	.611	-85.922 146.039	
REM	8426319.5	3387477.3	2.49	.013	1786985.9 15065653	**
COF	-90.256	114.007	-0.79	.429	-313.706 133.194	
Constant	-3398.743	6360.42	-0.53	.593	-15864.937 9067.45	
Mean dependent var	448.909		SD dependent var		1629.055	
Overall r-squared	0.206		Number of obs		35	
Chi-square	7.534		Prob > chi2		0.184	
R-squared within	0.243		R-squared between		0.189	
*** p<.01, ** p<.05, * p<.1						

Appendix Table 5: Hausman (1978) Specification Test

	Coef.
Chi-square test value	4.852
P-value	.088