Impact of Bank-Specific and Macroeconomic Variables on Return : A Study on Islamic Banks in Bangladesh

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ABSTRACT

Islamic banking has now become a proven model of banking business worldwide as it offers stable return from both the perspective of assets and capital of a commercial bank. Within a very short span of time, Islamic banks in Bangladesh depicted a commendable growth. This innovative banking mechanism is widely accepted from the bankers as well as customers' standpoint. This study analyzes the impact of some selected bank-specific and macroeconomic variables on the profitability of all the seven Islamic banks in Bangladesh with panel data from 2003 to 2014. The study findings conclude that some of the bank-specific and macroeconomic variables have a significant influence on the profitability of Islamic banks.

JEL Classifications : C51, E02, M21, L25

Keywords : Islamic banking, profitability, bank-specific variables, macroeconomic variables, ROAA, ROAE, quantitative methods

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INTRODUCTION

Around the world, the banking sector has been undergoing a number of significant transformations in recent times. Such changes, both internal and external, have contributed in shaping the concurrent operating environment of banks. Regulatory reforms, industry-wide changes, and internal practices of offering bank services are much experienced in the last decade. These transformations have had a considerable

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impact on the banks' performance and structure, which have an ultimate impact on the economy as banks finance the economic activities and mobilize the money flow. Therefore, any unpleasant instance of this industry would have a severe impact on the overall economic stability of any country. In addition, a robust and profitable banking industry can better absorb economic shocks and keep the financial systems stable in economic adversities.

According to Khan & Bhatti (2008), a number of breakthrough developments have been accommodated in Islamic banking industry and such improvements have placed Islamic financial system as a competent substitute to traditional financial systems worldwide. In South East, Middle East, and South East Asia, Islamic banking has been experiencing remarkable growth due to banking product innovation, positive attitude towards regulators' advancements and adoption of information technology in a greater scale (Khan & Bhatti, 2008). Khan & Bhatti (2008) found a significant relationship between the development of Islamic finance and economic growth in both short and long run. As per The World Islamic Banking Competitiveness Report 2014-15, assets of Islamic banks with commercial banks has exceeded USD 778 billion in 2014 and, with a double-digit growth per annum, the collective profit of Islamic banking industry would reach USD 40 billion approximately. By 2019, such profit pool is expected to be tripled and the asset base of Islamic banks in six major markets (Qatar, Indonesia, Saudi Arabia, UAE, Malaysia, and Turkey) is projected to reach about USD 2 trillion.

According to Bangladesh Bank's report (April-June, 2015) entitled as "Developments of Islamic Banking in Bangladesh", the total deposit holding of Islamic banking industry reached the mark of USD 20 billion due to noteworthy market demand and support. This industry has had a tremendous contribution in generating employment and economic growth with a total investment volume of USD 16.38 billion. Currently, Islamic banking sector is experiencing a rapid pace of growth, which is reflected on its 1000 branches mark approximately. Such expansion proves the spurring demand for Islamic banking products and a strong footing of Islamic banks in every corner of Bangladesh. At present, Islamic banks hold more than 20% of the market share with 86% investment to deposit ratio and about 28000 executives. Islamic banks collected about one-third of the total foreign remittances (USD 1.16 billion) up to June 2015. Therefore, the role of Islamic banks in accomplishing the government's vision of converting Bangladesh as a middle-income country by 2020 is obvious as this sector is ensuring dominant contribution in deposit mobilizing and financing real sector industries. Consequently, alongside the regulators, players in financial markets, bank management, and academic researchers found interests over analyzing the determinants that influence the financial performance and profitability of Islamic banks.

The specific objective of the study was to find out the factors that offer a significant impact on the profitability of Islamic banks. Thus, the models used in this paper identified Return on Average Assets (ROAA) and Return on Average Equity (ROAE) of the Islamic banks in Bangladesh as the dependent variables. To explain the variation in these dependent variables, the models used some bank-specific and macroeconomic variables as independent variables. Panel data for this paper was gathered from all the seven Islamic banks in Bangladeshi banking industry over the period of 2003 to 2014. Therefore, the analysis, findings, and managerial implications are based on the context of Islamic banks in Bangladesh.

This study attempted to bridge the research gap in existing literature by scrutinizing the separate and combined impact of bank-specific factors and macroeconomic factors in a single study over the Islamic banking industry. Alongside common variables, bank-specific factors included a specialized variable such as liquidity position and the macroeconomic variables incorporated money supply, government borrowing from the banking sector and share market index. The inclusion of these variables certainly offered gainful insights about their impact on Islamic bank's profitability and added a significant contribution to the existing knowledge base. Apart from this, the Bangladeshi context of Islamic banking was rarely highlighted in the prevailing studies that analyzed impacts of specific factors over banks' profitability. Hence, from the perspective of literature and contextual gap, this study's primary contribution accounts for addressing the impacts of both the bank-specific and macroeconomic factors from the specific viewpoint of Islamic banking industry in Bangladesh.

This paper is arranged into several segments. It starts with a literature review, which presents the picture of studies previously done over Islamic banking in diverse contexts and model constructs. A detailed explanation of the conceptual model used in this study is presented in the methodology, variables, and data section. This section also contains the hypotheses that were particularly adopted for this study. The following section offers a detailed analysis of study's results with different statistical tools. The discussion section presents the study findings and managerial implications for improving the practical business scenario of Islamic banking in Bangladesh. The discussion part also contains gained insights with their limitations and suggests future developments of this study. The conclusion summarizes the study's core findings, especially the primary contribution and recommended actions for the development of Islamic banking scenario in Bangladesh.

LITERATURE REVIEW

Researchers of banking field studied a variety of areas within the commercial banking realm. Return on investment or equity of commercial banks has always been at the

center-point of researchers' interest. On introducing the Islamic banking mechanism, a lot many studies can be found on diverse aspects of Islamic banking and a noteworthy part of which are related to the profitability criteria where researchers studied the role of different factors on the return of Islamic banks. Every bank is required to measure the adequacy of capital for its smooth operation and sustainability. In order to measure the capital adequacy of a bank, the capital ratio or equity to asset ratio (EA) is used mostly. According to Said & Tumin (2011), since an increase in profit may lead to an increase in capital through the increase in retained earnings, capital is a vital internal factor of bank profitability. Hence, bank capital has a higher and positive impact on profitability (Lee & Hsieh, 2013; Flamini et al., 2009). Besides, it is found from other studies that higher net interest margin and profitability tend to be associated with the banks that hold a relatively higher amount of capital (Naceur, 2003). Moreover, the ability of the bank to withstand the asset losses will be stronger with an overall increase in capital (Samad, 2004).

Verghese (1983) found that, in India, the slackening productivity has led to a declining trend in the profits and profitability of the banks. Besides, Bodla & Verma (2006) suggested that an efficient management of banking operations, aimed at ensuring growth in profits and the efficiency of banking, requires up-to-date knowledge of all those factors on which the bank's profit depends on. To increase the state of profitability, it is highly required that the banks manage their expenses very efficiently. In this case, Bourke (1989) found that the level of staff expenses appears to have a negative impact on banks' ROA. On the other hand, Casu & Molyneux (2003) found a positive relationship between staff expenses and total profits, which might be due to the motivating power of financial incentives. Besides, operating expenses and other variables such as non-interest income, provision & contingencies and spread have significant relationships with the net profit (Bodla & Verma, 2006). In addition, Wall & Peterson (1987) emphasized on the non-interest cost controls with banks' asset-liability management and its funding management since all of them have significant effects on the profitability record.

Investment risk, traditionally known as credit risk for conventional banks, has been identified as an important element to influence profitability. Zadebagher, Bani, Jalili, & Sarfi, (2016a) and (2016b) have found a significant negative relationship of investment risk with Islamic banks profitability. In a study by Miller & Noulas (1997), credit risk was identified to have a negative effect on conventional banks' profitability. Athanasoglou et al. (2008) explained the reasons behind such low profitability in a more practical way that more exposure to high-risk credits results into higher accumulation of bad loans, which in turn, cause returns to get low for many commercial banks.

While analyzing the effects of credit risk on bank profitability, Flamini et al. (2009) found that, apart from credit risk, higher returns on assets are associated with larger bank size. Although bank size measured by assets is an internal factor influencing the profitability of the bank, some researchers (e.g. Bourke, 1989) used it as an external factor while analyzing the same relationship. The size has mostly negative and significant coefficients on the profitability measured by the net interest margins. This result may simply reflect the scale inefficiencies (Naceur, 2003). However, Flamini et al. (2009) have found a positive relation of bank assets with profitability for Sub-Saharan African banks. While measuring the profitability of a bank in terms of ROE and NIM, Ha (2014) found that these have a significant association with the bank size. The large banks can promote economies of scale and can eventually increase its profitability (Boyd & Runkle, 1993). Hassan & Bashir (2003) also found that large banks are able to provide more services and increase their profitability.

Non-investment income, non-interest income for conventional banks, contributes to a substantial share of overall profitability for both conventional and Islamic banks. In recent times, banks have been serving the customers with a wide array of services based on fees, commissions, and charges. Sufian & Chong (2008) has reported a positive effect of non-investment income in Islamic bank's profitability. In a study with traditional commercial banks, non-interest income has been found to have significant positive effect on banks' profit (Anbar & Alper, 2011). For the period of 1994 to 98 in European banking industry, non-interest income contributed significantly to stabilize profit for most categories of banks (Smith, Staikouras, & Wood, 2003). In a study with subsamples of both developing and industrial countries, Micco, Panizza, & Yanez (2007) found no correlation of non-interest income with ROA in developing nations but a positive association was found in the case of industrial ones. However, Naceur (2003) concluded that interest bearing assets contribute mostly to the profitability as non-interest bearing assets had no significant impact on profitability ratios. While investigating the impact of liberalization and harmonization in financial systems on small European credit institutions, Mercieca, Schaeck, & Wolfe (2007) found non-interest income to have an inverse correlation with bank performance.

Enhanced employee productivity can also be a major constituent of banking revenue and profit. Employees' salary, bonuses, and other financial benefits comprise a noteworthy share of banks' operating costs. Productive employees can save a significant portion of operating costs and thus can contribute to increased profit for banks (Oxenburgh, Marlow, & Oxenburgh, 2004). Staff expenses have been found to have an inverse relationship with the profitability measures of banks (Bourke, 1989). In addition, liquidity ratio measures the ability of banks to pay its debts as they come due. It can also be compared with the fund banks keep in hand or invest in liquid assets so

that it can be easily converted into cash. The previous study shows a significant relationship between liquidity and bank profitability (Saleem & Rehman, 2011).

Profitability can also be explained by the level of inflation of a country. In almost all the previous studies, the researchers (Athanasoglou et al., 2008; Kosmidou et al., 2007; and Demirguc-Kunt & Huizinga, 1999; Revell 1979; Flamini et al., 2009; Bourke et al., 1989; Hoggarth et.al. 1998) have found a positive association between inflation and bank profitability as it seems that stable and lower inflation and output growth will increase the demand for bank credit and at the same time, it will impact the interest rate and net interest margin of the bank. However, banks can only make a profit if they can correctly anticipate the inflation on time and adjust their interest revenue over interest expenses (Kosmidou et al., 2007). The Islamic banking system, however, is not based on the fixed income rather their income from the investment varies with the profit of the firms on which they have invested. Thus, the increase in the price level will bring more profit for the business and for the banks too. Besides, inflation may influence the performance of Islamic banks positively, since larger portions of their profits accrue from service charges and trade activities.

Theoretically, the GDP of a country captures the upswings and downswings manifested in the business cycles. Consequently, the movements in general activity level are expected to have direct impacts on the profitability of banks. Gul et al. (2011) have found a positive relationship between GDP and banks' ROA. However, a larger ratio of bank assets to gross domestic product leads to lower margins and profits (Demirgüç-Kunt & Huizinga, 1999). Nevertheless, the expected sign of the relationship between GDP and bank profitability should be positive since higher growth implies lower probabilities of loan default and the easiest access to credit (Hoggarth et al., 1998). Several researchers (Kosmidou et al., 2007; Heffernan & Fu, 2008; and Kosmidou et al., 2006) have found the expected positive association between real GDP growth rate and bank profitability. Besides, Kosmidou et al. (2006) and Hassan & Bashir (2003) concluded that the growth rate of GDP increases the demand for bank loans and leads to higher bank profitability. In the US, per capita income exerts a strong positive statistical effect on state bank earnings while their income growth explains a relatively small amount of the variation in bank's earnings (Nelly & Wheelock, 1997). However, Heggestad (1977) has found that per capita income does not affect bank profits.

While examining the macroeconomic indicators' impact on the commercial banks' profitability, both Islamic and conventional, the growth of money supply has been found to have a significant positive association with banks' profitability (Srairi, 2009). Haron (2004) reported an insignificant positive effect of money supply growth on

Islamic banks' profitability. However, Kosmidou (2008) concluded with no significant impact of the growth of money supply on bank's profit and similar findings were found by Sufian, & Chong (2008) and Sufian & Habibullah (2009). Foreign exchange rate plays a vital role in determining the gains or losses of banks businesses related to foreign currencies. Banks earn a mentionable sum of income in each financial period through services with foreign currencies. Fluctuations in exchange rate exert positive effects on the banks' profitability measures (Bagheri, 2007), where exchange rate fluctuations can result in decreased international trade volume (Koray & Lastrapes, 1989; Chowdhury, 1993). However, foreign exchange positions were found to have no considerable effects on banks' profitability (Ammer & Brunner, 1994) and no significant relationship was concluded between banks' stock performance and exchange rates (Chi Jing, Tripe & Young, 2010).

In times of budget deficit, governments are commonly found to borrow funds from local banks to cover up the deficit and realize the development plans. Such sort of government borrowings from banking sector creates a crowding out effect and reduces the amount of loanable fund of banks that can be invested to profitable loan proposals. Therefore, government borrowing can be expected to explain a negative movement in bank's profit. Similarly, commercial banks' involvement in share market comprises a substantial portion of their investment income. In times of booming stock markets, banks earn noteworthy returns through wider interest margins from merchant banking activities, investment banking commissions and capital gains from investments in shares (Athanasoglou, Brissimis & Delis, 2008). Therefore, the stock market index can also be attributed as one of the influential macroeconomic variables to explain profitability of banks.

Though a number of studies can be related to the influencing variables of profitability measures, no concrete study had offered a direct approach to examine the separate and combined impact of bank-specific factors and macroeconomic factors over the profitability of Islamic banking industry. This study attempted to bridge the research gap in existing literature by scrutinizing the separate and combined impact of bank-specific factors and macroeconomic factors. Some specialized variables, from both bank-specific and macroeconomic aspects, are also included under the study's consideration, which offered gainful insights about their impact on Islamic banks' profitability. Apart from this, the Bangladeshi context of Islamic banking was rarely highlighted in the prevailing studies. Therefore, from the perspective of literature and contextual gap, this study's primary contribution accounts for addressing the impacts of both the bank-specific and macroeconomic factors in a single study with a specific focus on Islamic banking industry in Bangladesh.

METHODOLOGICAL ASPECTS

Sample

At present, there are eight Islamic banks in Bangladesh, namely Islami Bank Bangladesh Limited, Export Import Bank of Bangladesh Limited, Al-Arafah Islami Bank Limited, Shahjalal Islami Bank Limited, Social Islami Bank Limited, First Security Islami Bank Limited, ICB Islamic Bank Limited and Union Bank Limited. The study comprised and analyzed data for the period of 2003-2014 and included all the Islamic banks that have the data available for the study's considered variables over the 12 years' period. Therefore, the sample panel data constitutes all Bangladeshi Islamic banks except Union Bank Limited as the bank started its operation from 2013. In line with García-Herrero, Gavilá & Santabárbara (2009), the study used unconsolidated financial statements to prevent differences in income statements and balance sheets.

Dependent variables

Profitability measures can be used as indicators of financial performance of Islamic banks. Among a number of profitability proxies, return on Assets (ROA) encompasses how efficiently an Islamic bank converts its assets into net income. ROA also includes financial leverage and the associated risks relating to such leverage in its consideration (Athanasoglou et al., 2005). On another note, ROA acts a helpful measure while comparing firms in terms of performance and it retains its validation in comparison for the similar industry as well as across industry. However, banks earn a noteworthy amount from off-balance sheet assets, which is not considered in ROA and using return on equity (ROE) as a measure of profit is argued to eliminate such drawbacks (Goddard et al, 2004). The average values of assets and equity offer an accurate measure of bank profitability than the year-end values and thus, ROAA and ROAE will be the appropriate measure of performance (Petria et al., 2015). The core problem of this study was to analyze the factors that influence the profitability of Islamic banks. Therefore, ROAA and ROAE offer sufficient validity to be the dependent variables for adequately addressing the study's specific objective. The literature related to banks' profitability also offered a good support for the stated dependent variables to act as good proxies of profitability.

Independent Variables

After analyzing the existing literature surrounding this study's problem, several

independent variables were taken under considerations. The independent variables were categorized into two broad categories, namely the bank-specific factors and the macroeconomic factors. The study considered capital, expense management, investment risk, size of the bank, non-investment income ratio, employee productivity and liquidity position as bank specific factors. On the other hand, macroeconomic factors included inflation, real GDP growth rate, growth rate of money supply, variability in foreign exchange rate, government borrowing from the banking sector and share market index. These variables are quantitative in nature and are believed to have a significant impact on the dependent variables of this study.

TABLE 1. VARIABLES' DEFINITION

Symbol	Variables	Proxy	Expected Relation
Dependent Variables			
ROAA	Return on Average Assets	Net profit ÷ Average assets	
ROAE	Return on Average Equity	Net profit ÷ Average equity	
Independent Variables			
Bank Specific Factors			
CAP	Capital	Equity ÷ Total assets	+
EM	Expense Management	Operating expenses ÷ Total assets	-
IR	Investment Risk	Provision for investment ÷ Total investments	-
SIZE	Size of the bank	Log of assets per branch	+
NII	Non-investment income ratio	Non-investment income ÷ Total assets	+
EPGR	Employee productivity	Growth rate of (Total income ÷ No. of employees)	+
LP	Liquidity position	Total investment ÷ Total deposit	-
Macroeconomic Factors			
INF	Inflation	Expected inflation rate	+
GDPGR	GDP	Growth rate of real GDP	+
MSGR	Money Supply	Growth rate of money supply	-
FX	Foreign exchange rate	Change in foreign exchange rate	+
GBGR	Government borrowing	Growth rate of government borrowing from banking sector	-
MI	Share market index	DSE general index	+

Hypotheses

Along with literature support, below mentioned discussion offers intuitive arguments behind the independent variables to be included in the model, each followed by the respective hypotheses.

Capital hypothesis

The more a bank will have its own capital the more it will have public confidence, loss absorption capacity and lesser risk of failure. Hence, we expect a positive relationship between capital and bank profitability.

Hypothesis 01_a: The capital has a positive impact on bank ROAA.

Hypothesis 01_b: The capital has a positive impact on bank ROAE.

Operating expense hypothesis

Banks managing its operating expenses efficiently are always able to increase their profitability by cost leadership strategy and vice versa. Therefore, a negative relationship is expected between expense management and bank profitability.

Hypothesis 02_a: Operating expense has a negative impact on bank ROAA.

Hypothesis 02_b: Operating expense has a negative impact on bank ROAE.

Investment risk hypothesis

Credit risk or investment risk for the Islamic banks influences the banks to increase the provision for bad debts and, as a result, reduces the profitability of the bank. So, a negative relationship between investment risk and bank profitability is expected.

Hypothesis 03_a: Investment risk has a negative impact on bank ROAA.

Hypothesis 03_b: Investment risk has a negative impact on bank ROAE.

Bank size hypothesis

Management of the bank is responsible for expanding their organization by acquiring additional assets and liabilities. Larger asset base enables a bank to provide a long array of financial services to their customers, mobilize more funds, and make a profit. Thus, there is a positive relationship between bank assets and bank profitability.

Hypothesis 04_a: Bank size has a positive impact on bank ROAA.

Hypothesis 04_b: Bank size has a positive impact on bank ROAE.

Non-investment income hypothesis

Banks generate a considerable amount of revenue from activities other than credit or investment (for Islamic banks) as the range of services banks provide has increased in the recent decades. Therefore, non-investment income increases the profitability of the bank if it is managed properly.

Hypothesis 05_a: Non-investment income has a positive impact on bank ROAA.

Hypothesis 05_b: Non-investment income has a positive impact on bank ROAE.

Employee productivity hypothesis

Being in the service industry, efficient employees in banks can greatly influence the bank's profitability. Banks can enjoy economies of scale if the employees render comparatively better productivity in the form of services. So, a positive association

between employee productivity and bank profitability is expected.

Hypothesis 06_a: Employee productivity has a positive impact on bank ROAA.

Hypothesis 06_b: Employee productivity has a positive impact on bank ROAE.

Liquidity position hypothesis

Theoretically liquidity and profitability are negatively correlated because higher liquidity means less investment and credit. Thus, we also expect a negative relation between the liquidity position of the bank and its profitability.

Hypothesis 07_a: Liquidity position has a negative impact on bank ROAA.

Hypothesis 07_b: Liquidity position has a negative impact on bank ROAE.

Inflation hypothesis

Almost all the literature supports a positive association between inflation and profitability. The Islamic banks can also gain from the rising inflation in the economy. Therefore, we also expect a positive association between the inflation and bank profitability.

Hypothesis 8_a: Inflation has a positive impact on bank ROAA.

Hypothesis 8_b: Inflation has a positive impact on bank ROAE.

GDP hypothesis

A growing economy is measured by higher GDP, which means more businesses and productions, expanding needs of bank credit by the business units. Therefore, the growth rate of GDP will positively impact the bank profitability.

Hypothesis 9_a: GDP growth rate has a positive impact on bank ROAA.

Hypothesis 9_b: GDP growth rate has a positive impact on bank ROAE.

Money supply hypothesis

Banking sector is used as the channel of the money supply by the central banks. The loanable funds available to banks and the interest rate are dependent on the amount of money supply. The higher the money supply the lower will be the bank interest rate. Therefore, we expect a negative relation between money supply and bank profitability.

Hypothesis 10_a: Money supply has a negative impact on bank ROAA.

Hypothesis 10_b: Money supply has a negative impact on bank ROAE.

Foreign exchange rate hypothesis

The variability in the foreign exchange rate of a country largely influences the export-import business or international trade, where bank is an integral part. The spread from the foreign exchange trade mainly results from the bank's engagement in international trade. Furthermore, the balance sheet condition of a bank is also

influenced by variability in the exchange rate. Anticipated increase in the foreign exchange rate can bring more business for a bank.

Hypothesis 11_a: Foreign exchange rate has a positive impact on bank ROAA.

Hypothesis 11_b: foreign exchange rate has a positive impact on bank ROAE.

Government borrowing hypothesis

Countries facing a high ratio of debt to GDP should encourage investment and foster entrepreneurial plans, that cause in turn economic growth, unemployment reduction as well as an equal income distribution, and thus social unrest will be avoided (Georgiou, 2011). Government borrowing from the banking sector exerts burden on the banking sector through crowding out effects which reduce loanable funds. In such a situation, banks face hurdles in financing the lucrative loan proposals from industrialists and entrepreneurs and lose a substantial portion of the potential profit. Thus, government borrowing from banking sector is assumed to influence banks' profitability negatively.

Hypothesis 12_a: Government borrowing from banking sector has a negative impact on bank ROAA.

Hypothesis 12_b: Government borrowing from banking sector has a negative impact on bank ROAE.

Share market index hypothesis

The share market indices are the barometers of how well the organizations are performing as share prices reflect firm performance. Bank is an active institutional participant in the share market and the income from the investment in securities is also a major source of revenue for the bank. So we expect a positive impact of the share market index on the bank profitability.

Hypothesis 13_a: Share market index has a negative impact on bank ROAA.

Hypothesis 13_b: Share market index has a negative impact on bank ROAE.

Regression Models

To investigate the impact of bank-specific and macroeconomic variables on Islamic Bank's profitability, the following regression models were used where the dependent variables are ROAA and ROAE. The specific regression equations used in this study are as follows:

[Model 01]

$ROAAit = \beta 0 + \beta 1\ CAPit + \beta 2\ EMit + \beta 3\ IRit + \beta 4\ SIZEit + \beta 5\ NIIit + \beta 6\ EPGRit +$

$\beta 7\ LPit + \beta 8\ year + \varepsilon it$

[Model 02]

$ROAAit = \beta 0 + \beta 1\ INFit + \beta 2\ GDPGRit + \beta 3\ MSGRit + \beta 4\ FXit + \beta 5\ GBGRit + \beta 6MIit + \beta 7\ year + \varepsilon it$

[Model 03]

$ROAAit = \beta 0 + \beta 1\ CAPit + \beta 2\ EMit + \beta 3\ IRit + \beta 4\ SIZEit + \beta 5\ NIIit + \beta 6\ EPGRit + \beta 7\ LPit + \beta 8\ INFit + \beta 9\ GDPGRit + \beta 10\ MSGRit + \beta 11\ FXit + \beta 12\ GBGRit + \beta 13MIit + \beta 14\ year + \varepsilon it$

[Model 04]

$ROAEit = \beta 0 + \beta 1\ CAPit + \beta 2\ EMit + \beta 3\ IRit + \beta 4\ SIZEit + \beta 5\ NIIit + \beta 6\ EPGRit + \beta 7\ LPit + \beta 8\ year + \varepsilon it$

[Model 05]

$ROAEit = \beta 0 + \beta 1\ INFit + \beta 2\ GDPGRit + \beta 3\ MSGRit + \beta 4\ FXit + \beta 5\ GBGRit + \beta 6MIit + \beta 7\ year + \varepsilon it$

[Model 06]

$ROAEit = \beta 0 + \beta 1\ CAPit + \beta 2\ EMit + \beta 3\ IRit + \beta 4\ SIZEit + \beta 5\ NIIit + \beta 6\ EPGRit + \beta 7\ LPit + \beta 8\ INFit + \beta 9\ GDPGRit + \beta 10\ MSGRit + \beta 11\ FXit + \beta 12\ GBGRit + \beta 13MIit + \beta 14\ year + \varepsilon it$

The model specified above were estimated using the regression-based framework of fixed effects modeling with a dummy variable for year. The models of used ROAA and ROAE as dependent variables, which are two comprehensive measures of profitability and included bank specific and macroeconomy specific explanatory variables. The data set used for this part was pooled across banks and years, which accumulated a strongly balanced panel data set while controlling for outliers.

RESULTS AND ANALYSIS

The following table offers a brief picture of the Islamic banking industry in the last decade under different profitability criteria. The micro-level determinants and the influential exogenous factors are also summarized with their mean values and standard deviations in parentheses. Before 2007, the profitability ratios were fluctuating in both the ROAA and ROAE criteria. However, the ratios were showing positive moves and remained somewhat stable since then. Such a finding is quite interesting because the global banking business scenario has not been so promising after the financial crisis, while the Islamic banking industry in Bangladesh has been operating with quite a

However, the Islamic banks did manage to reduce investment risks after 2012 and in recent years, the risk measurement showed a sizeable improvement. Non-investment income ratio and employee productivity have remained stable in the 12-year period of this study. Macroeconomic indicators maintained a stable picture over the study period except for government borrowing from the banking sector, the growth rate of foreign exchange rate and DSE index. Share market index, captured with DSE index, exhibited a balloon effect until the crisis of 2010 and has been slowly recovering in recent years.

TABLE 2. SUMMARY STATISTICS OF ISLAMIC BANKS IN BANGLADESH

	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	All Years
ROAA	0.001	0.003	0.009	-0.011	0.012	0.013	0.006	0.016	0.007	0.010	0.010	0.007	0.007
	(0.037)	(0.034)	(0.024)	(0.085)	(0.022)	(0.026)	(0.050)	(0.040)	(0.048)	(0.035)	(0.028)	(0.014)	(0.007)
ROAE	0.190	0.180	0.353	0.438	0.293	0.311	0.360	0.366	0.297	0.297	0.259	0.243	0.299
	(0.840)	(0.816)	(0.157)	(0.209)	(0.202)	(0.193)	(0.211)	(0.224)	(0.237)	(0.247)	(0.255)	(0.271)	(0.074)
CAP	0.032	-0.044	0.026	-0.008	-0.005	0.037	0.158	0.167	0.024	-0.007	-0.016	0.055	0.035
	(0.051)	(0.257)	(0.083)	(0.186)	(0.207)	(0.082)	(0.359)	(0.398)	(0.197)	(0.249)	(0.281)	(0.432)	(0.065)
EM	0.016	0.032	0.016	0.016	0.016	0.016	0.017	0.019	0.019	0.019	0.022	0.035	0.020
	(0.006)	(0.044)	(0.003)	(0.002)	(0.002)	(0.002)	(0.003)	(0.004)	(0.005)	(0.008)	(0.008)	(0.050)	(0.006)
IR	0.009	0.010	0.006	0.006	0.007	0.017	0.028	0.020	0.026	0.022	0.012	0.010	0.014
	(0.005)	(0.007)	(0.003)	(0.003)	(0.004)	(0.015)	(0.053)	(0.032)	(0.045)	(0.035)	(0.013)	(0.005)	(0.007)
SIZE	7.065	6.995	7.174	7.196	7.260	7.309	7.257	7.300	7.367	7.414	7.413	7.738	7.291
	(2.818)	(2.786)	(2.904)	(2.929)	(2.906)	(2.928)	(2.989)	(2.985)	(2.957)	(2.937)	(2.936)	(2.439)	(0.190)
NII	0.017	0.030	0.015	0.018	0.018	0.018	0.017	0.022	0.017	0.014	0.011	0.021	0.018
	(0.004)	(0.04)	(0.008)	(0.004)	(0.007)	(0.007)	(0.008)	(0.013)	(0.006)	(0.003)	(0.004)	(0.035)	(0.005)
EPGR	0.478	0.328	0.209	1.316	0.104	0.516	0.586	0.573	0.440	0.435	0.273	0.364	0.468
	(0.656)	(0.712)	(0.9)	(2.339)	(0.693)	(0.643)	(0.796)	(0.764)	(1.18)	(1.321)	(1.228)	(1.406)	(0.304)
LP	0.753	0.800	0.868	0.891	0.894	0.951	0.940	0.950	0.944	0.879	0.854	0.836	0.880
	(0.121)	(0.115)	(0.078)	(0.087)	(0.072)	(0.083)	(0.047)	(0.041)	(0.085)	(0.024)	(0.031)	(0.047)	(0.012)
INF	0.058	0.065	0.070	0.072	0.099	0.067	0.073	0.088	0.086	0.068	0.078	0.064	0.074
GDPGR	0.053	0.063	0.060	0.066	0.064	0.062	0.057	0.061	0.067	0.062	0.060	0.061	0.061
MSGR	0.138	0.167	0.193	0.171	0.176	0.192	0.223	0.213	0.174	0.167	0.161	0.124	0.175
FX	0.050	0.042	0.093	0.029	-0.006	0.003	0.006	0.029	0.111	0.010	-0.028	-0.001	0.028
GBGR	0.054	0.064	0.264	0.219	0.126	0.299	0.288	-0.074	0.319	0.257	0.283	0.094	0.183
MI	0.558	0.588	0.299	-0.218	0.605	0.396	0.003	1.044	-0.006	-0.252	-0.041	0.022	0.250

Notes: (i) The table represents the mean and the standard deviation (in parentheses) by year for the entire sample data.
(ii) The variables' definitions are given in Table 1.

Pearson correlation coefficients were calculated for pairs of the dependent and independent variables. In table 3, the overall results show that the variables were not strongly correlated to each other except for the NII and ROAA, LP and ROAA, LP and IR with a correlation coefficient of more than 0.30. A strong negative correlation, coefficient above -0.30, can also be found between MSGR and ROAA, GPDGR and IR, MSGR and NII. Such significant positive and negative correlations were expected and practically justified. Correlation between the other variables is positive, though not significant.

TABLE 3. PEARSON CORRELATION COEFFICIENT

	ROAA	ROAE	CAP	EM	IR	SIZE	NII	EPGR	LP	INF	GDPGR	MSGR	FX	GBGR	MI
ROAA	1														
ROAE	0.088	1													
CAP	0.176	0.032	1												
EM	0.107	0.007	0.038	1											
IR	0.052	0.191	0.023	0.101	1										
SIZE	0.016	0.178	0.133	0.008	0.064	1									
NII	**0.462**	0.146	0.191	0.273	0.052	0.063	1								
EPGR	0.151	0.072	0.108	0.033	0.096	0.151	0.077	1							
LP	**0.353**	0.204	0.014	0.181	**0.419**	0.079	0.119	0.003	1						
INF	0.118	0.068	0.187	0.071	0.217	0.004	0.086	0.138	0.203	1					
GDPGR	0.112	0.022	-0.134	0.135	**-0.549**	0.096	0.142	0.132	0.012	0.203	1				
MSGR	**-0.387**	0.089	0.172	0.102	-0.183	0.063	**-0.301**	0.132	0.065	0.067	0.219	1			
FX	0.016	0.158	0.142	0.101	0.019	0.086	0.076	0.034	0.107	0.207	0.112	0.064	1		
GBGR	0.045	0.133	0.249	0.205	0.058	0.069	0.072	0.224	0.177	0.257	0.045	0.165	0.147	1	
MI	0.107	0.075	0.101	0.157	0.129	0.043	0.074	0.074	0.065	0.073	0.025	0.182	0.298	0.232	1

Note : The variables definitions are given at Table 01

Determining the effect of bank-specific and macroeconomic factors on ROAA and ROAE

The panel data can be analyzed by the Fixed Effects Model (FEM) or the Random Effects Model (REM). In the REM, a single common intercept term is assumed, and the intercepts for individual firms will randomly vary from the common intercept. To choose between FEM and REM, Hausman test was performed, which rejected the null hypothesis in favor of random effects model and thus, a fixed effects framework is employed in this study. The year dummies have captured the time effect for fixed effects in panel level. Estimation of robust standard errors is done to confirm that heteroscedasticity of unknown form is well managed. The model fit, adjusted R-squares of all the models, is poor which may be due to adequate observations. Table 04 represents the results of regression models 1 to 6.

TABLE 4. REGRESSIONS STATISTICS

	ROAA			ROAE		
	Model 01	Model 02	Model 03	Model 04	Model 05	Model 06
CAP	0.037*		0.011**	0.092**		0.051**
EM	- 0.078		0.041	0.149		0.063
IR	- 0.031**		-0.128	-0.083**		0.112**
SIZE	0.005**		0.147**	0.075*		-0.106
NII	0.018		0.089	0.051**		0.157**
EPGR	0.001		-0.151	0.040		0.094
LP	-0.110		0.517*	-0.055		0.043**
INF		0.031**	0.107		0.087*	0.127*
GDPGR		0.015**	0.461*		0.008**	0.153**
MSGR		0.223	-0.117		0.046	0.104**
FX		0.171	0.082**		0.108**	-0.017
GBGR		-0.044**	0.211**		-0.053*	-0.057*
MI		-0.085	0.659		0.002*	0.501**
Adjusted R^2	0.18	0.21	0.19	0.17	0.18	0.22

*Notes: (i) Robust standard errors in parentheses; * $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$*

(ii) The variables definitions are given at Table 01

The fixed effect model between ROAA and bank-specific variables is presented in model 01 and the results show that the return on average assets of the Islamic banks is significantly influenced by CAP, IR, and SIZE. While considering the return on average equity (ROAE) in model 04, NII has significant influence over the return. Similar to the ROAA model, the variables CAP, IR, and SIZE have also been significant while considering ROAE. Though we have considered a number of macroeconomic variables to study their impact on ROAA, only GDPGR and GBGR showed significant influence in explaining returns of Islamic banks. However, ROAE has been influenced by several macroeconomic variables namely INF, GDPGR, FX, GBGR, and MI. In model 03, while considering the combined impact of bank-specific and macro-level variables, CAP, SIZE, LP, GDPGR, FX, and GBGR influenced ROAA in a statistically significant manner. Similarly, in model 06, CAP, IR, NII, LP, INF, GDPGR, MSGR, GBGR and MI have had a significant impact on ROAE. No significant relationship has been found for the rest of the variables and thus, the respective hypotheses were rejected. A limited number of observations may have caused the model fit being poor.

DISCUSSION

This study conducted an empirical analysis of the core factors that have a significant influence towards the profitability of Islamic banks in Bangladesh for the period of 2003 to 2014 with a strongly balanced panel dataset. Return on average assets (ROAA) and return on average equity (ROAE) acted as the proxies of profitability for the Islamic banks. Some selected bank-specific and macroeconomic factors were taken into consideration as the study's independent variables after having a thorough literature review. Six different regression models were tested to observe the impacts of bank-specific variables, macroeconomic variables, and the combined effect respectively.

From the analyses, it is observed that, while scrutinizing the bank-specific factors, Islamic Banks' capital and size positively influence the banks' return on average asset as well as return on average equity in a significant fashion. The findings were supported by previous studies where capital has been found influencing profitability (Berger & Bouwman, 2013; Trujillo?Ponce, 2013). Athanasoglou et al. (2008) found the impact of size on profitability as a nonlinear one where banks can have enhanced profit initially with an increase in bank size. However, Almazari (2014) and Barros et al. (2007) concluded that bank size has a negative impact on profitability. The study finding supports that non-investment income had been significant in explaining the enhancements of return on average equity. Similar findings have been reported by Sufian & Chong (2008), Anbar & Alper (2011), Micco, Panizza, & Yanez, 2007) and

Smith, Staikouras, & Wood (2003) where non-investment income (non-interest income for conventional banks) has been instrumental to enhance profitability. Conversely, an inverse association has been found by Naceur (2003) and Mercieca, Schaeck, & Wolfe (2007). In addition, Islamic banks' investment risk or provision for investment has a significant negative relation with the return on average assets. Zadebagher, Bani, Jalili, & Sarfi, (2016a) and (2016b) have concluded the similar finding in their research, whereas Boahene, Dasah, & Agyei (2012) did not find any significant evidence to support such negative relationship.

While analyzing the exogenous macroeconomic variables, inflation, and gross domestic product were found to have a significant positive relation with the return on average assets. The study results are consistent with the research findings from Pasiouras, & Kosmidou (2007); Kosmidou (2008); Kosmidou et al. (2005) and Hassan & Bashir (2003). A number of variables, namely inflation, gross domestic product of the country, foreign exchange rate, and share market index, has exhibited positive impact when the relationship of macroeconomic variables with return on average equity was assessed. Athanasoglou, Brissimis & Delis (2008) found that movements in business cycle have a positive impact on banks profitability, where enhanced stock market transactions would offer banks higher return in terms of wider interest margins, higher commission, and capital gains. Thus, stock market index acts one of the significant indicators of profitability, which is in line with the findings of this study's conclusion regarding the Islamic banks in Bangladesh. Government borrowing from the banking sector has a significant negative relation with the Islamic banks' ROAA and ROAE.

With regard to examining the combined impact of bank-specific and macroeconomic variables, the study results confirm that capital, size, liquidity position, gross domestic product, foreign exchange rate have a significant impact on ROAA. Furthermore, the ROAE of Islamic banks was positively influenced by capital, investment risk, Net Investment Income, liquidity position, inflation, gross domestic product, money supply and share market index. However, Kosmidou (2008) found no significant influence of money supply on the banks profitability. Government borrowing from banking sector has had a negative impact on ROAE. The study reveals that capital and size from the bank-specific factors and gross domestic product from the macroeconomic elements are the most influential variables as they have a significant positive association with profitability measures in an overall manner.

MANAGERIAL IMPLICATIONS

After analyzing the study's findings, it is obvious that the Islamic commercial banks should focus more on the bank-specific factors as these factors are more controllable

by banks' management. Therefore, the banks should offer more focus and policies should be directed more strategically on the significant bank-specific variables so found in the study results. As the banks cannot influence macroeconomic movements, such exogenous influential factors should be forecasted ahead of time and policy decisions should be made accordingly.

LIMITATIONS

The study does not have an adequate number of bank-year observations as, in Bangladesh, only eight Islamic banks are available, and the study covered seven of them because of data unavailability. In addition, data before 2003 was unavailable for some of the considered banks, as they did not exist before 2003. Thus, this study captured only 12 years of data, from 2003 to 2014, to make a more balanced panel data. This study considered the scenario of Islamic banks in Bangladesh only. Therefore, the generalizability of this study's outcome can be limited.

OPPORTUNITIES FOR FUTURE RESEARCH

To explore more about the role of bank-specific and macroeconomic factors, future research is suggested with a comparatively large panel data. A more comprehensive study with more bank-year observations could present better comprehension of the study's problem. A comparative study with other developing countries of the same problem can offer more generalizable results. Other emerging variables, for example, investment in automation, price-earnings ratio, service distribution network, the condition of foreign exchange business and CSR expenditure can be included to gain insights about impacts of bank-specific variables in future studies. A possible extension of analysis could be performed by including macroeconomic issues such as growth rate of per capita income, foreign currency reserve etc. to scrutinize their impact over Islamic banks profitability.

CONCLUSION

Islamic banking has been experiencing a commendable growth in developing countries, especially among Muslim populations. The study attempted to bridge the literature gap by including specialized bank-specific and macroeconomic variables to analyze their impact on the return generated by Islamic banks in Bangladesh. Capital and size of the banks have been the most influential bank-specific variables to influence profitability. On the other hand, gross domestic product had a significant impact on the return potential of Islamic banking industry. A better supervision for capital adequacy and liquidity provision is suggested. Decision makers at banks are advised to take timely strategies for non-investment income and continuously monitor

the investment risk in diverse sectors. Given proper attention of bank's management body and policymakers, Islamic banks have the potential to improve more in generating returns on assets and equity.

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