Global Journals LaTeX JournalKaleidoscope™
Artificial Intelligence formulated this projection for compatibility purposes from the original article published at Global Journals. However, this technology is currently in beta. *Therefore, kindly ignore odd layouts, missed formulae, text, tables, or figures.*

An Empirical Investigation of Profitability of Islamic Banks in Bangladesh

Abu Hanifa Md. Noman[1]

[1] University of Malaya, Malaysia

Received: 7 February 2015 Accepted: 28 February 2015 Published: 15 March 2015

Abstract

The paper aims at investigating the effect of bank specific and macroeconomic determinants on profitability of seven Islamic banks in Bangladesh during 2003 to 2013. The study uses pool regression model and system GMM in the investigation process. The study considers ROAA, ROAE and NIM while ROAA is found more preferred profitability indicator for the Islamic banks in Bangladesh. The study reveals a robust negative effect of credit risk, loan ratio, cost efficiency and capitalization on profitability while robust positive effect bank size on profitability of the Islamic banks in Bangladesh. The study further finds that implementation of Basel II accord does not increase profitability of the Islamic bank in Bangladesh. The study suggests some significant policy recommendation in order to improve the profitability of the Islamic banks in Bangladesh.

Index terms— profit determinants, profitability, islamic banks, pool ols, generalized method of moments and bangladesh.

1 I. Introduction

he role of Banks is pivotal for financial sector stability and economic growth (Chan & Koh, 2015). It is more important for the developing economies with under developed capital market (Felix Ayadi et al., 2008;Zhang et al., 2013). A sound and profitable banking system is better able to improve financial system stability and economic growth as it makes the economy more endurable to negative and external shocks (Athanasoglou et al., 2008), conversely, mismanagement in the system creates severe damage in the whole economy which is evident from recent global financial crisis (Chan & Koh, 2015;Chaplinska, 2012;Fang et al., 2014;Fu et al., 2014). Moreover, profitability is considered as a precondition for an innovative, productive and efficient banking system (Chen & Liao, 2011). Therefore, investigation of the determinants of profitability has gained interest of researchers in both single country and cross country studies such as Hassan and Bashir (2003) for 21 countries where Islamic banking is practiced, Samad (2004) for Bahrain, Kosmidou et al. (2005) for UK, Athanasoglou et al. (2008) for Greece, AL-Omar and AL-Mutairi (2008) for Kuwait, Heffernan and Fu (2008) for China, Wasiuzzaman and Tarmizi (2010) for Malaysia, Qin and Dickson (2012) for Tanzania, Wasiuzzaman and Gunasegavan (2013) for Malaysia, Francis (2013) for Sub Sahara Africa, Masood and Ashraf (2012) for twelve Muslim countries, Perera et al. (2013) for four South Asian courtiers. The studies reveal that both bank level and macro level factors are importantly determine the profitability of the banking system of a country.

Sub-prime crisis started in United States during 2008 and became a global financial crisis by infecting quickly outside United States. The crisis affected banking sector most severely where 80 percent of the banks were struggling and most of the financial institutions badly affected (Choon et al., 2012;Wasiuzzaman & Gunasegavan, 2013). Conversely, research found that Islamic banks successfully survived in the crisis (Khediri et al., 2015) due to their Shariah compliance and risk sharing principles (Hasan & Dridi, 2011). Moreover, Cihak and Hesse (2008) found that Islamic banks were found more stable than conventional banks. However, Hassain et al. **??**2009) found that there no difference between Islamic and conventional banks in term of profit efficiency and asset quality. But,

in most recently, Wasiuzzaman and Gunasegavan (2013) found operational efficiency, liquidity, capital adequacy, assets quality and board independence of Islamic banks are better. As a result, Islamic banking has gained attention of academicians, investors and policy makers in recent years.

More than 300 financial institutions including Banks, insurance and non bank financial institutions are operating under Shariah' based Islamic financial system in the world (Khediri et al., 2015). Besides, many international banks among the others Standard Chartered Bank, Citi Bank NA, HSBC have started Islamic wings in order to meet the extended demand of Shariah complient products. Theoritically Islamic banks are different from conventional banks such as interest based contract of conventional banks is replaced with return in islamic banks where both risk and profit or loss are shared between banks and clients. In addition, they use investment deposit and demand deposit in order to collect fund from depositors which are free from interest and based on risk and profit sharing and mark up principles (Ho et al., 2014). However, as both conventional and Islamic banks are regulated in same way and operated in same competitive environment, it is possible for islamic banks to adopt similar startegies as conventional banks adopt.

Bangladesh is one of several least affected countries from the recent global financial crisis. One of the reasons could be the development of Islamic banking system in Bangladesh (Khediri et al., 2015;Wasiuzzaman & Gunasegavan, 2013). Bangladesh is the first country in Southeast Asia where Islamic banking has been introduced with the establishment of Islami Bank Bangladesh Limited in March 30, 1983 (Kabir et al., 2012). The country has been experienced a rapid growth in Islamic banking since it's inception which is attributed to increased market share and assets growth. Now, out of 56 banks in Bangladesh, 8 local private commercial banks are providing full-fledged Islamic banking and 16 conventional commercial banks including 3 foreign banks also involve in Islamic banking with Islamic banking branches. Financial stability report (2014) published by Bangladesh Bank 1 Though the studies explain meaningful analysis at certain level; a few issues are not handled sufficiently. Say for example, firstly, the literatures pay more focus on internal determinants of the banking profitability with a limited attention on the effect of macroeconomic factors on the profitability. Secondly, most of the study do not adequately explain econometric methodology and do not consider some features of the banking profit such as endogeneity and heteroscadesticity which may make the results inconstant, bias and less meaningful. Thirdly, with the recommendation of Basel Committee for Banking Supervision, many countries including Bangladesh, have implemented Basel II accord in order to control credit risk, market risk and operational risk, to reports that Islamic banking industry gains market share of 18.8 percent in total deposit and 21.6 percent in total credit in 2013. In an investigation, Ahmad and Hassan (2007) find the capitalization of Islamic banks is much better than conventional banks. As Bangladesh Bank gives more priority for the growth and development of Islamic banking in Bangladesh, it is warranted to investigate the profitability of Islamic banks and it's determinants.

Most of the studies that focus Islamic banking In order to fulfill the above literature gap the study warrants to investigate the determinants of the profitability considering more macroeconomic variable along with influential bank specific variables, applying both pool OLS and system GMM.

The study is decomposed in the following way. Section II details review of past studies regarding the determinants of profitability and different of profit proxies. Sector II explains methodology of the study in a systematic way. Section III reports and analyzes the results of the study and finally conclusion and recommendation of the study explained in the sector IV. Assets, henceforth, ROAA which is the ratio of net profit to average assets. It is also a good indicator of a bank's financial performance and managerial efficiency. The ratio is expressed as a percentage of total average assets. This ratio displays how efficiently a company is utilizing its assets and is also useful to aide comparison among peers in the same industry. Moreover, Masood and Ashraf (2012) considers Return on Average Equity, hence forth, ROAE which is the ratio of net profit to share holders average equity. This is also a good indicator of a bank's financial performance and managerial efficiency. It shows how competent the management is in using shareholders' equity for generating net profit. In addition, Chortareas et al. Nguyen (2012) consider Net Interest Margin (NIM) as the indicator of profitability of the bank which is the ratio of the net interest to the amount of the earning assets. Higher the ratio is the indication of the better assets management quality for using the assets in profitable way.

2 II. Literature Review

Bank profitability is the function of both internal and external determinants. Internal determinants are the bank specific factors that are mainly affected by bank management decisions such as bank size, capital adequacy, risk management, liquidity management, operating efficiency. External determinants are both industry specific and macro-economic factors that reflect the economic and legal environment. Industry specific determinants describe industry structure variables that influence on bank profitability which is not directly affected by managerial decision. Industry specific variables include industry concentration and ownership structure of the bank. Macro-economic variables include economic growth and inflation.

Bank size provides the evidence of economies or diseconomies of scale in banking. that bank capital adequacy associates with bank profitability significantly and positively. These results authenticate the fact that well-capitalized banks can source deposits and other funding at low cost and pursue business opportunities more effectively and has more time and flexibility to deal with problems arising from unexpected losses, thereby increase profitability. However, Masood and Ashraf (2012) finds the capital adequacy highly significant and negatively relates with return on equity (ROE). Moreover, Qin and Dickson (2012) finds that capital structure

has a negative determinant on profitability. High capital adequacy may lead of low profitability if investors are rigid to make great investment to avoid the losses in future where as it leads to high profitability if banks can avoid the payment of fixed interest expenses but dividends payments is optional can be paid or not paid.

Risk management is another important determinant of bank profitability. Risk is involved in every banking operation due to its nature. A bank may be failed due to low liquidity and poor assets quality. Therefore, bank risk may be grouped in to liquidity risk and credit risk. Among others, Athanasoglou et al.

(2008) and Masood and Ashraf (2012) find that credit risk affects profitability negatively and significantly. This may imply that the tendency of commercial bank to exposure high risk loan generates more unpaid loan resulting these loan loss produces low profit to the commercial banks. Moreover, Francis (2013) finds liquidity is significantly and negatively related to profitability as higher liquid assets reduce the ability of banks to generate income. On the other hand Masood and Ashraf (2012) shows that liquidity has no effect or less effect on profitability.

Bank expenses management is also considered as another important determinant of bank profitability as it relates to managerial efficiency. Athanasoglou et al. (2008) and Heffernan and Fu (2008) establishes operating expenses are negatively and strongly relate to the bank profitability. More recently, Masood and Ashraf (2012) also finds that operational expense ratio is negatively associated to bank profitability. It implies that cost decisions of a bank management are instrumental in influencing its performance. Now, spinning to the external determinants of bank profitability. It is noted that control variables can be classified to the factors that represent market characteristics such as concentration, ownership and industry size and the factors that represent the macro economy such as inflation, GDP per capita. Ownership status is mainly concerned to determine whether the bank is publicly or privately owned. Perera et al. (2013) argues public banks may have other than simply profit consideration which is consistent with the finding of Kosmidou et al. (2005). Athanasoglou et al. (2008), among others, found that the relationship between ownership and profitability is not significant.

Market structure also influences on profitability. Higher concentration ratio leads to higher profitability of the bank which is termed as Structure Performance Hypothesis. The firms with large market shares and welldifferentiated products are able to exercise market power and earn noncompetitive profits, Samad (2008) reports that the profitability of the bank is dependent upon the market structure and the level of competition. Lower the level of competition in the market, higher the economic rent for a firm. Perera et al. (2013) finds that concentration affect bank profitability positively, whereas, Athanasogluou et al. **??**2008) initiates that the concentration affects the bank profitability negatively but the effect is insignificant. Moreover, **??**osmidou (2008) finds that concentration affects the bank profitability also negatively but effect is significant.

Macro-economic control variables are the last group of bank profitability determinants. **??**acro **??**013) has made an attempt to identify the effect of control of corruption and rule of law on the profitability for South Asian Countries. As law and order not only affects foreign investment of those countries but also domestic businesses suffers as well if government fails to enforce the contracts due to corruption. They found that slack legal systems in those countries positively affect profitability as banks probably require high risk premiums on their loan contracts.

3 III. Methodology of the Study a) Variable section

This study uses financial ratios for evaluating the performance of the banking sectors of Bangladesh. The use of ratio in measuring performance is common in the literatures of finance and accounting practices which is evident from the previous studies such as among the others Athanasoglou et al. (2008); Francis (2013); Heffernan and Fu (2008); Perera et al. (2013). The greatest advantage of using ratio for measuring banks' performance is that it compensates bank disparities created by bank size (Samad, 2004). The study has considered all together twelve financial ratios of which three measure profitability, five measure bank characteristics and four measure macroeconomic condition of the country which are explained below:

The study considers three measures of profitability as dependent variables which are Return of Average Assets (ROAA) as ratio of net income to average assets, Return of Average Equity (ROAE) as ratio of net income to average equity and Net Interest Margin (NIM) as the indicator of profitability of the bank which is the ratio of the net interest to the amount of the earning assets.

The explanatory variables of the study include both bank level variables and macro economic variables. Bank level variables are credit risk, liquidity, capital adequacy, bank size and cost efficiency; and macro economic variables are real GDP growth rate, inflation rate, real interest rate and stock market turnover.

We measure credit risk as a ratio of nonperforming loan to gross loan (NPLGL). Theory implies that firm profitability is negatively associated with the high exposure to the credit risk. Therefore, we expect a negative relationship between profitability and credit risk; and banks need to improve the profitability by prudent credit risk management such as enhancing screening and monitoring the risk. Moreover, the central bank determines the policy for the banking industry regarding the level of loan loss reserve based on nonperforming loan and total loan. Considering the bank policy, nonperforming loan and total loan, bank management determines the reserve level for loan loss at the beginning of the period.

In addition we consider the ratio of equity to total assets (ETA) as capitalization ratio or leverage ratio. It measures the bank's ability to absorb loss and exhibits how equity influences on banks profitability. The ratio not only represents banks higher capital adequacy of the bank but also reduce risk and regulatory cost. Higher the

ratio is the indication of the bank is running with profitable investment opportunity and lower the ratio indicates that bank is suffering from capital adequacy problem. The expected effect of ETA may be positive or negative.

Moreover, we consider the ratio of net loan to total assets as a proxy of bank's liquidity. Loan constitutes the largest interest earning assets of the bank and expects to effects profitability positively. If major segment of the deposit is used for loan creation, it is expected that the ratio increases interest income and effects profitability positively. However, high ratio may reduce liquidity level of the banks which may increase funding cost and also increase the credit risk of the bank. In that case, the effect of liquidity ratio may be negative. Therefore, the expected relationship between liquidity and profitability is unclear.

Cost to income (CI) ratio indicates the operational efficiency of the bank indicating the cost of running the bank in compare to it's income. Higher the ratio means that bank is operating at low efficiency and at high competition which negatively affects the profitability of the bank. Therefore, we expect a negative relationship between the CI ratio and profitability.

The size of the bank effects the bank profitability but it remains unclear the optimum level of bank size. Because, it is proven that the effect of growing size is positive but the sign may change due to rise of inefficiency and bureaucracy with the increase of bank size. Therefore, the effect of bank size also remains unclear. We consider bank size as the natural logarithm of total assets. Now we are turning to the control variable. We consider some macroeconomic factors as control variable to control for external factors that determine profitability which is warranted in order to isolate the effect of bank characteristics on profitability. We consider here four macroeconomic variable which are considered as external to the banks such as real GDP per capita, inflation rate, real interest rate and stock market turnover.

The first macroeconomic variable real GDP per capita is expected to affect the banking profitability positively by influencing the factors which indirectly affect the demand and supply of loan and deposit conditions. Such as during the recession when GDP growth rate slowdown, the deposit mobilization, loan creation and credit quality decline which downsize the profitability of the banks.

The inflation rate is considered as the proxy of how macroeconomic risk affects the profitability of the bank. Here we use annual inflation rate based on consumer price index which estimates increase in consumer price index for all goods and services in percentage.

Turnover ratio is the total value of shares traded during the period divided by the average market capitalization for the period. Average market capitalization is calculated as the average of the end-ofperiod values for the current period and the previous period. High inflation rate is related to both high income and high cost (Wasiuzzaman & Tarmizi, 2010). If rise in income exceeds cost, inflation is expected to affect the profitability positively.

High real interest rate increases the loan interest rate which leads to affect the profitability positively (Hassan & Bashir, 2003). Moreover, high real interest rate may also increase Islamic banks' profitability if large portion of the income comes from direct investment (Wasiuzzaman & Tarmizi, 2010). However, high real interest rate influences profitability negatively too if higher loan interest rate reduces the demand of the banking loan. Moreover, market turnover is the indicator of business cycle movement of the country which may also influence on the profitability of the banks. It may affect the profitability positively.

There are three types of local banks in Bangladesh such as public commercial banks, development and private commercial banks with distinct objectives. The divergent objectives of the banks may influence on profitability. To capture this aspect we consider two dummy variables for development banks and private commercial banks. We compare both type of banks with public commercial banks. Hence, ???? ?? indicates dummy for type of banks where i is the type of bank which takes the value one and two for development bank and private commercial bank. These dummy variables show the relative performance of development banks and private commercial banks to public commercial banks in term of profitability.

4 b) Model Specification

In order to investigate the effect of bank level and macro level determinants on profitability of Islamic banks in Bangladesh we use the following basic linear regression model:?? ???? = ?? + ? ?? ???? ?? ???? + ? ?? ???? ?? ???? +?? i Dummy i + ? it ——————————(1)

Where subscript i indicates individual bank and t indicates time period. The dependent variable Yit indicates profitability, the regressors Xit is the vector of bank specific variables, Zit is the vector of macroeconomic variables and DBi indicates dummy for Basel II implementation and ??it is the disturbance or error term, which expresses the effect of all other variables except for the independent variables on the dependent variable that we use in the function. We consider three profit proxies based on the aforementioned literature review which are Return on Average Assets (ROAA), Return on Average Equity (ROAE) and Net Interest Margin (NIM). Moreover, the explanatory variable X is used for indicating bank specific variables which are expected to affect profitability of Islamic banks. Here, the investigation process considers five bank specific factors based on extensive literature review which are the ratio of Nonperforming Loan to Gross loan (NPLGL) as credit risk indicator, Equity to Total Assets ratio (ETA) as capital adequacy or leverage ratio, Cost to Income ratio (CI) as cost efficiency, Loan to TOTAL assets (LTA) as liquidity ratio and natural logarithm of Total Assets (lnTA) as size of the bank. We include some macroeconomic variables which are real GDP growth rate (GDP), inflation rate (INF), real interest rate (RIR) and stock market turnover (STV). In order to identify the effect of the implementation of

Basel II on profitability we use a dummy variable which takes value 1, if the year falls under the coverage of the implementation of Basel II accord, otherwise, 0.

The ordinary least square (OLS) is primarily used in the study for identifying the linear relationship due to the advantage of yielding the best fit of coefficient for the future prediction provided that all the assumptions are met (Molyneux et al., 2013). There are three competing formulations of the panel model which are pooled model, fixed effect model and random effect model with respect to handing error terms in the regression model. Pool model ignores the panel nature of data and considers error term as identically and independently distributed and uncorrelated with regressors where as, fixed effect model considers unobserved firm specific effects which are not included in the regression is correlated with the regressors while random effect model considers as this intercept effect is uncorrelated with regressors. In order to decide the right model there are two basic tests where first one is Breuch-Pagan test which is used to discriminate between Pooled model and Random effect model. Second test is Hausman test to decide between fixed effect and random effect model to be used. However, most important econometric concerns in analyzing banking data are dynamic nature of bank variables, autocorrelation, heteroscadasticity and endogeneity of some exogenous variables (Liu et al., 2014; Schaeck & Cihák, 2014). Therefore, in order to handle the potential dynamic nature of explanatory variables we have also used GMM (Generalized Methods of Moments) as alternative model as it considers econometric concerns for unobserved bank level heterogeneity, potential endogeneity and autoregressiveness in the data on the behavior of dependent variables (Cubillas & Suárez, 2013). We particularly use system GMM system and specify the robust estimator of the variance-covariance matrix which is an alternative of GMM proposed by Arellano and Bond (1991) and developed by Arellano and Bond (1991) and modified by Blundell and Bond (2000).

5 c) Data

In order to investigate the determinants profitability of Islamic banks of Bangladesh we have used both bank specific data and macroeconomic data where, the bank specific data have been collected from Bankscope database and macroeconomic data have been collected from the world bank database from the period of 2003 to 2013. There are eight Islamic banks in Bangaldesh which are Islami Bank Bangladesh limited, Al-Arafah Islami Bank Limited, Export Import Bank of Bangladesh Limited, Social Islami Bank Limited, Shahjalal Islami Bank Limited, First Security Islami Bank Limited, Union Bank Limited and ICB Islamic Bank Limited. The study considers all Islamic banks in Bangladesh except Union bank limited as it comes in operation in 2013. The econometric software package stata has been used for processing our results.

6 IV. Analysis of Empirical Results

The table 1 presents the mean, standard deviation, maximum and minimum value of the performance measures of the Islamic banks of Bangladesh during 2003 to 2013. Here, the means of the profitability indicators NIM, ROAA and ROAE are 3.05, -0.01 and 16.14 respectively. High standard deviations and the gap between minimum value and maximum value of the profitability indicators imply high deviations in profitability among the Islamic banks in Bangladesh. The banks level variables show that Islamic banks are suffering from high credit risk, low capital adequacy and low cost efficiency which make them less profitable. Higher standard deviation of bank characteristics evident that Islamic banks are divergent in risk management and cost management capabilities. The mean of macroeconomic variables real GDP growth rate, inflation rate, real interesest rate and stock market turnover are 6.09, 7.64, 6.12 and 91.58 respectively. Among the macroeconomic variables stock market has highest standard deviation which indicates high volatility and uncertainty of stock market in Bangladesh. Volatile stock market may be a reason for low profitability of Islamic banks in Bangladesh.

The study aims at investigating the effect of bank specific and macroeconomic factors on profitability of Islamic banks. Before going for the investigation we run Pearson's correlation test in order to check multicolin earity among the explanatory variables in order to check whether any explanatory variable in the investigation influences other explanatory variable. Table 2 reports the Pearson's correlation coefficient matrix. The table 2 shows that the correlation values are less than 0.7 indicating that they are not highly correlated with others and free from the multi-colinearity problem. Hence, it is expected that non of the explanatory variable influence other explanatory variable and estimation is unbiased from the data analysis.

We also have conducted pre diagnostic test Breusch and Pagan lagrangian multiplier test in order to decide between pool model and panel model for the analysis with null hypothesis variance across the entities is zero or no panel effect.

We failed to reject Breusch and Pagan Lagrangian multiplier test statistics with low chi square value (0.0) and 1.0 probability value indicating that pool model is more efficient and appropriate than panel model. That is there is no evidence of significance difference across the bank, therefore, we need to run a simple ordinary least square or pool model instead of Table 3 exhibits empirical results based on both simple OLS or pool model and system GMM for an unbalanced panel data of 7 Islamic banks in Bangladesh.

We have used three models under pool model of which first one is based on ROAA, second one is based on ROAE and third one is based on NIM. F statistic of the models based on ROAA and NIM is significant at 1 percent but the model based on ROAE is insignificant which suggest that the models based on only ROAA and NIM are correctly specified and satisfy the condition of goodness of fit. Moreover, Standard errors of the variables

based on ROAA and NIM are low which are less than 0.66 but, standard errors of the variables based on ROAE are higher which indicates that the model based on ROAE is not stable (Y. Chan, 2004). Moreover, it can also be inferred based on low R square and low significant coefficient value that ROAE is not a good indicator of profitability of Islamic banks of Bangladesh. Therefore, we have decided to conduct our analysis based on the models ROAA and NIM. In addition, it is conformed that the models are free from endogeneity problem which is evident from insignificant value of the constant.

Moreover, In case of GMM, insignificant value of Hansen test and significant value of Sargan test base of probability value imply that the models not suffering from the over identification problem while the significant value of Wald test and more number of observation than that of number of instruments conform the true value of the parameters, goodness of fit and correct specification of the GMM model. In addition, significant value of AR(1) and insignificant value AR (2) imply that null of no first order auto correlation is rejected and null of second order auto correlation can not be rejected for the model ROAA and NIM which are expected from the GMM model for ensuring that the original disturbance terms are not serially correlated and unbiased results. As we discussed earlier our analysis is based on pool regression model and we use system GMM for ensuring robustness of the results.

The NPLGL ratio is negatively and significantly related with ROAA in both OLS model and GMM model which is expected as credit is negatively related to the profitability of the banks. Our findings is consistent with the findings of Choon et al. (2012); Kolapo et al. (2012); Sufian (2009); Wasiuzzaman and Tarmizi (2010). The results suggest that non performing loan is a significant determinant of profitability of Islamic banks but reduces the profitability of them. The beta coefficient of the estimate shows that every one unit increases in nonperforming loan decreases ROAA by 0.10 units. One explanation could be that risk appetites among the banks divergent and banks taking more risk may reap immediate high profit margin but at the same time have to keep provision as buffer against large default. Some banks may find a few loan turns to bad which reduces profit margin. Therefore, prudential credit risk management is necessary for Islamic banks in order to improve their profitability.

Capitalization ratio measures the capital stability of the bank. Across all OLS and GMM models capitalization ratio is negatively related to the profitability of the Islamic banks in Bangladesh which is consistent with Choon et al. (2012). The results suggest that Islamic banks of Bangladesh should not increase more attention on equity capitalization for improving the profitability. Though a bulk of literatures such as Athanasoglou et al. (2008); Berger (1995); Kosmidou et al. (2005) argue higher capitalization is a good indicator of banking profitability; it is not applicable for the case of Islamic banks in Bangladesh. Moreover, according to the agency theory of Berger (1995), lower equity capitalization reduces the agency cost and improves firm's profitability. Further more, Wasiuzzaman and Tarmizi (2010) argues efficient banks choose to reduce capitalization ratio in order to reduce cost of bankruptcy and financial distress. Under such circumstance, Islamic banks of Bangladesh can compensate low capitalization with high leverage as optimal capital structure strikes a balance between capitalization and leverage. Therefore, it can be suggested to Islamic banks in Bangladesh to give more reliance on leverage and reduce dependency on equity in order to increase their profitability.

The loan ratio is negatively related with all profitability measures of the Islamic banks in Bangladesh while the effect is significant only in case of NIM. The results show a negative correlation of the loan and bank performance and imply that higher deposit transmission in to loan do not generate profit for the Islamic banks in Bangladesh. Our findings is consistent with Kosmidou et al. (2005), Fu and Heffernan (2009) and Choon et al. (2012).The beta coefficient of LTA indicates that one unit increase in LTA decreases ROAA by 0.01 unit and NIM by 0.06 units. The finding is robust in GMM specification. This may be due to high competition in the credit market and divergent ability of the Islamic banks for generating profit from the credit operations in Bangladesh. The findings suggest that Islamic banks in Bangladesh should keep less liquidity and make more careful investment in profitable projects. Islamic Banks can use their excess liquidity in newly introduced Mudaraba inter bank market in Bangladesh.

Cost to income ratio indicates the cost efficiency of the banks. The results shows that CI ratio is negative and significant with all performance measures implying that more efficient bank in cost management makes more profit. The results is consistent Heffernan and Fu (2008) and Kosmidou et al. (2005). The findings reveal that one unit rise in cost to income ratio reduces ROAA by 0.04 units and NIM by 0.06 unit. The result is found robust in alternative specification. The results suggest Islamic banks in Bangladesh to focus on improving the cost efficiency in order to increase profitability.

Next we find natural log of total assets affects all profitability positively and significantly only in model NIM which implies that bank size also plays a significant role on the bank performance in Bangladesh. The positive effect of bank size suggests that large banks earn higher margin and profit due to benefit of economic of scale on the operations. The results shows that one unit increase in lnTA increases ROAA by 0.71 units and NIM by 0.54 units which suggests that larger the size of the Islamic bank more profitable it will be in Bangladesh. The result is found robust in alternative specification. Now, we turn to investigate the effect of the implementation of Basel II accord on profitability of the Islamic banks in Bangladesh. We use a dummy variable in order to show the Basel II implementation effect. The findings show that Basel II effect profitability negatively in all models except NIM. The result is also found consistent in GMM specifications. The findings suggest that implementation of

Basel II does not bring positive effect on profitability. This may be happed due to lack of corporate governance, efficient portfolio management and risk management quality of Islamic banks in Bangladesh.

7 Global Journal of Management and Business Research

Volume XV Issue IV Version I Year ( ) C Now, we are discussing the effect of macroeconomic factors such as GPD growth, inflation, real interest rate and stock market turnover on profitability of Islamic Banks. The effect of real GDP growth rate on ROAA is negative while it's effect on NIM is positive and but unexpectedly insignificant. The effect of inflation on ROAA is positive same as Choon et al.

(2012) for Malaysia while it is negative for NIM. The effect of real interest rate on both ROAA and NIM is positive but insignificant. The effect of stock market turnover on ROAA is negative but it is positive for NIM. The results are found robust in GMM specification. The results suggest that macroeconomic determinants do not affect much on the profitability of the Islamic banks in Bangladesh. It can be interpreted that volatile economic condition does not make much sense in explaining the profitability of Islamic banks in Bangladesh and our result is consistent with Wasiuzzaman and Tarmizi (2010) for Malaysia.

It is evident from the R square value of Pool models that ROAA is much preferred measure of profitability in compare to ROAE and NIM. The results show that bank level and macroeconomic determinants explain 85.34 percent variability of ROAA, while the influence is 59.59 percent in case of NIM and only 32.0 percent in case of ROAE.

8 V. Conclusion

The paper aims at determining the factors that explains the profitability of Islamic banks in Bangladesh. The study considers seven full-fledged Islamic banks during 2003 to 2013. The study uses pool model based on Breusch and Pagan lagrangian multiplier test. The study also consider system GMM as an additional analysis for ensuring the robustness pool model results. The study considers three measures of profitability such as ROAA, ROAE and NIM. The novelty of our study includes the use of both pool model and system GMM model considering some econometric issues, inclusion of the effect of Basel II implementation and give more focus on macroeconomic determinants besides bank specific determinants on profitability. The results show that ROAA is more preferred measure of profitability based on R square value. The outputs show that all bank specific factors such as credit risk, equity capitalization, investment, cost efficiency and bank size influence on the profitability of Islamic banks in Bangladesh.

The results indicate that size of the Islamic bank effects positively while credit risk, loan ratio, cost efficiency, equity capitalization effect negatively on the profitability in Bangladesh. The result implies that Islamic banks in Bangladesh need to improve credit risk management, portfolio management, cost efficiency and reduce the reliance of equity capitalization in order to improve their profitability. The study further shows that Islamic banks do not get much better results from the implementation of Basel II accord in Bangladesh due to lack of corporate governance. In analyzing macroeconomic determinants, the result shows that GDP growth and stock market turnover effect profitability negatively while inflation and real interest rate influence profitability positively. But, the effect of macroeconomic factor on profitability found unexpectedly insignificant which suggests that Islamic banks do not require to give much importance on give much importance on economic policies. [1]

Figure 1:

[Note: are theoretical in nature(Chong & Liu, 2009; Farook et al., 2012; Hossain, 2014; Khan, 2010; Said et al., 2013).Other extent of study focus on the comparison of Islamic banks with conventional banks in term of regulatory aspects, challenges faced, efficiency, business models, competition and stability(Ariss, 2010; Beck et al., 2013; Elnahass et al., 2014; Johnes et al., 2014; Khediri et al., 2015; Olson & Zoubi, 2008; Saeed & Izzeldin). Moreover, globally there are some significant studies on performance of Islamic banking; the study on profitability is very limited in compare to conventional banks. The existing studies on Islamic banks profitability such as Hassan and Bashir (2003) for 21 countries, Wasiuzzaman and Gunasegavan (2013) and Choon et al.,(2012) for Malaysia apply linear model. 1 Central Bank of Bangladesh the best of]

Figure 2:

Year
Volume XV Issue IV Version I
( )
Global Journal of Management and Business Research

[Note: Cgrowth rate]

Figure 3:

2

	NPLGL	ETA	LTA	C/I	lnTA	GDP	INF	RIR	STV	Dumm
NPLGL	1.00									
ETA	-0.63*	1.00								
LTA	-0.00	-0.26	1.00							
C/I	0.66*	-0.69*	-0.39*	1.00						
lnTA	-0.55*	0.49*	-0.29*	-0.19	1.00					
GDP	-0.18	-0.06	0.05	-0.12	0.00	1.00				
INF	-0.00	0.04	-0.02	-0.05	0.01	0.54*	1.00			
RIR	0.06	0.05	-0.16	0.06	-0.06	-0.24	0.05	1.00		
STV	0.15	0.06	0.10	0.01	0.07	-0.52*	-0.02	0.21	1.00	
Dummy	-0.02	0.11	0.1191	-0.07	0.41*	0.07	0.26*	-0.23	-0.13	1.00

Figure 4: Table 2 :

1

Variable	Mean	Std. Dev.	Min	Max
NIM	3.05	1.92	-6.4	5.42
ROAA	-.01	4.36	-21.97	3.57
ROAE	16.14	30.01	-176.08	92.39
NPLGL	10.27	20.88	.2	80.99
ETA	2.30	23.52	-92.1	66.51
LTA	65.49	15.88	34.11	91.13
CI	51.02	30.25	15.24	180.25
lnTA	13.72	1.03	11.78	15.75
GDP	6.09	.59	5	7.1
INF	7.64	1.58	5.4	10.7
RIR	6.12	3.75	-5.5	11
STV	91.58	55.87	23.2	212.6
Dummy for Basel II implementation, 1 for the year when it is implemented, 0 otherwise)	.47	.50	0	1

Figure 5: Table 1 :

3

Model		Simple OLS			System GMM	
Dep. Variables	ROAA	ROAE	NIM	ROAA	ROAE	NIM
Constant	-.67(8.73)	54.08 (47.15)	.48 (3.28)	3.58 (3.87)	54.08 (36.26)	.482 (2.01)
NPLGL	-.10 (.02)***	.06 (.15)**	.01 (.01)	-.11 (.01)***	.05 (.12)	.01 (.01)
ETA	-.01 (.03)	-.54 (.20)	-.06 (.01)***	-.01 (.02)	-.54 (.15)***	-.06 (.01)***
LTA	-.01 (.03)	-.25 (.20)	-.06 (.01)***	-.01 (.02)	-.25 (.16)	-.06 (.01)***
CI	-.04 (.02)*	-.40 (.15)**	-.06 (.01)***	-.03 (.01)***	-.40 (.11)***	-.06 (.01)***
lnTA	.71 (.62)	1.15 (2.71)	.54 (.19)***	.36 (.22)	1.15 (2.08)	.54 (.12)***
Dummy (Basel II)	-.78 (.60)	-2.73 (4.70)	.87 (.33)***	-.75 (.39)*	-2.72 (3.61)	.87 (.20)***
GDP	-.70 (.66)	-2.52 5.17	.35 (.36)	-.69 (.42)	-2.52 (3.98)	.35 (.22)
INF	.06 (.20)	-.16 (1.54)	-.08 (.11)	.06 (.13)	-.161 (1.18)	-.08 (.07)
RIR	.04 (.07)	-.19 (.55)	.01 (.04)	.04 (.05)	-.193 (.42)	.01 (.02)
STV	-.01 (.01)	.06 (.05)	.01 (.00)	-.01 (.00)*	.062 (.04)*	.01 (.00)**
?? 2	0.8534	0.32	0.5959			
Adjusted ?? 2	0.8114	0.13	0.4867			
Wald chi2(5)	209.51***	16.77**	54.56***	509.83***	28.35***	145.83***
F	21.22***	1.68	5.46***			
Observations				48	48	48
Instrument				48	48	48
Hasen chi2				0.00	0.00	0.00
AR(1)				-2.08**	-1.53	-0.06
AR(2)				3.14**		-0.90
Sargan test				88.90***	62.56***	98.90***

Figure 6: Table 3 :

[Thunderbird International Business Review] , *Thunderbird International Business Review* 49 (2) p. .

[Humanomics] , *Humanomics* 29 (1) p. .

[Hassan and Bashir ()] , M K Hassan , A.-H M Bashir . 2003.

[Johnes et al. ()] 'A comparison of performance of Islamic and conventional banks'. J Johnes , M Izzeldin , V Pappas . 10.1016/j.jebo.2013.07.016. http://dx.doi.org/10.1016/j.jebo.2013.07.016 *Journal of Economic Behavior & Organization* 2014. 2004-2009. 103 p. . (Supplement(0)

[Chen and Liao ()] 'Are foreign banks more profitable than domestic banks? Home-and host-country effects of banking market structure, governance, and supervision'. S.-H Chen , C.-C Liao . 10.1016/j.jbankfin.2010.11.006. *Journal of Banking & Finance* 2011. 35 (4) p. .

[Fu et al. ()] 'Bank competition and financial stability in Asia Pacific'. X Fu , Y Lin , P Molyneux . doi: 10.10 16/j.jbankfin.2013.09.012. *Journal of Banking & Finance* 2014. 38 p. .

[Cubillas and Suárez ()] 'Bank market power after a banking crisis: Some international evidence'. E Cubillas , N Suárez . 10.1016/j.srfe.2013.04.001. *The Spanish Review of Financial Economics* 2013. 11 (1) p. .

[Masood and Ashraf ()] 'Bank-specific and macroeconomic profitability determinants of Islamic banks: The case of different countries'. O Masood , M Ashraf . *Qualitative Research in Financial Markets* 2012. 4 (2/3) p. .

[Al-Omar and Al-Mutairi ()] 'Bank-Specific Determinants of Profitability: The case of Kuwait'. H Al-Omar , A Al-Mutairi . *Journal of Economic and Administrative Sciences* 2008. 24 (2) p. .

[Athanasoglou et al. ()] 'Bank-specific, industry-specific and macroeconomic determinants of bank profitability'. P P Athanasoglou , S N Brissimis , M D Delis . *Journal of International Financial Markets* 2008. 18 (2) p. . (Institutions and Money)

[Chan ()] 'Biostatistics 202: logistic regression analysis'. Y Chan . *Singapore medical journal* 2004. 45 (4) p. .

[Qin and Dickson ()] 'Commercial Banks Profitability Position: The Case of Tanzania'. X Qin , P Dickson . *International Journal of Business and Management* 2012. 7 (13) p. 136.

[Kabir et al. ()] 'Comparative Analysis of Profit Rate of Islamic Banks on Investment (ROI) and Fixed Rate of Interest on Loan of Conventional Banks in'. M R Kabir , M H Ullah , M M Khan . *Bangladesh. World* 2012. 2 (6) .

[Wasiuzzaman and Gunasegavan ()] *Comparative study of the performance of Islamic and conventional banks: The case of Malaysia*, S Wasiuzzaman , N U Gunasegavan . 2013.

[Chortareas et al. ()] 'Competition, efficiency and interest rate margins in Latin American banking'. G E Chortareas , J G Garza-García , C Girardone . 10.1016/j.irfa.2012.08.006. *International Review of Financial Analysis* 2012. 24 p. .

[Schaeck and Cihák ()] 'Competition, efficiency, and stability in banking'. K Schaeck , M Cihák . *Financial Management* 2014. 43 (1) p. .

[Ariss ()] 'Competitive conditions in Islamic and conventional banking: A global perspective'. R T Ariss . 10.1016/j.rfe.2010.03.002. http://dx.doi.org/10.1016/j.rfe.2010.03.002 *Review of Financial Economics* 2010. 19 (3) p. .

[Kolapo et al. ()] 'Credit risk and commercial banks' performance in Nigeria: A panel model approach'. T F Kolapo , R K Ayeni , M O Oke . *Australian Journal of Business and Management Research* 2012. 2 (2) p. .

[Felix Ayadi et al. ()] 'Credit risk management system of a commercial bank in Tanzania'. O Felix Ayadi , E Richard , M Chijoriga , E Kaijage , C Peterson , H Bohman . *International Journal of Emerging Markets* 2008. 3 (3) p. .

[Sufian ()] 'Determinants of bank efficiency during unstable macroeconomic environment: Empirical evidence from Malaysia'. F Sufian . *Research in International Business and Finance* 2009. 23 (1) p. .

[Francis ()] 'Determinants of commercial bank profitability in Sub-Saharan Africa'. M E Francis . *International Journal of Economics and Finance* 2013. 5 (9) p. 134.

[Perera et al. ()] 'Determinants of commercial bank profitability: South Asian evidence'. S Perera , M Skully , Z Chaudhry . *Asian Journal of Finance & Accounting* 2013. 5 (1) p. .

[Determinants of Islamic banking profitability Paper presented at the 10th ERF Annual Conference] 'Determinants of Islamic banking profitability'. *Paper presented at the 10th ERF Annual Conference*, (Morocco)

[Kosmidou et al. ()] *Determinants of profitability of domestic UK commercial banks: panel evidence from the period 1995-2002. Paper presented at the Money Macro and Finance*, K Kosmidou , S Tanna , F Pasiouras . 2005. MMF) Research Group Conference

[Hossain ()] 'Empirical relationships among money, output and consumer prices in nine Muslim-majority countries'. A A Hossain . 10.1016/j.asieco.2014.04.002. http://dx.doi.org/10.1016/j.asieco.2014.04.002 *Journal of Asian Economics* 2014. (0) p. .

[Chaplinska ()] *Evaluation of the borrower's creditworthiness as an important condition for enhancing the effectiveness of lending operations*, A Chaplinska . 2012. (Paper presented at the SHS Web of Conferences)

[Saeed and Izzeldin] 'Examining the relationship between default risk and efficiency in Islamic and conventional banks'. M Saeed , M Izzeldin . 10.1016/j.jebo.2014.02.014. http://dx.doi.org/10.1016/j.jebo.2014.02.014 *Journal of Economic Behavior & Organization* (0) .

[Molyneux et al. ()] 'Foreign bank entry in South East Asia'. P Molyneux , L H Nguyen , R Xie . doi: 10.1016/j.irfa.2013.05.004. *International Review of Financial Analysis* 2013. 30 p. .

[Blundell and Bond ()] 'GMM estimation with persistent panel data: an application to production functions'. R Blundell , S Bond . *Econometric reviews* 2000. 19 (3) p. .

[Khan ()] 'How 'Islamic' is Islamic Banking?'. F Khan . 10.1016/j.jebo.2010.09.015. http://dx.doi.org/10.1016/j.jebo.2010.09.015 *Journal of Economic Behavior & Organization* 2010. 76 (3) p. .

[Fang et al. ()] 'Institutional development and bank stability: Evidence from transition countries'. Y Fang , I Hasan , K Marton . 10.1016/j.jbankfin.2013.11.003. *Journal of Banking & Finance* 2014. 39 p. .

[Chong and Liu ()] 'Islamic banking: Interest-free or interest-based?'. B S Chong , M.-H Liu . 10.1016/j.pacfin.2007.12.003. http://dx.doi.org/10.1016/j.pacfin.2007.12.003 *Pacific-Basin Finance Journal* 2009. 17 (1) p. .

[Cihak and Hesse ()] 'Islamic banks and financial stability: An empirical analysis'. M Cihak , H Hesse . *IMF Working Papers* 2008. p. .

[Khediri et al. ()] 'Islamic versus conventional banks in the GCC countries: A comparative study using classification techniques'. K B Khediri , L Charfeddine , S B Youssef . 10.1016/j.ribaf.2014.07.002. http://dx.doi.org/10.1016/j.ribaf.2014.07.002 *Research in International Business and Finance* 2015. 33 (0) p. .

[Beck et al. ()] 'Islamic vs. conventional banking: Business model, efficiency and stability'. T Beck , A Demirgüç-Kunt , O Merrouche . 10.1016/j.jbankfin.2012.09.016. http://dx.doi.org/10.1016/j.jbankfin.2012.09.016 *Journal of Banking & Finance* 2013. 37 (2) p. .

[Elnahass et al. ()] 'Loan loss provisions, bank valuations and discretion: A comparative study between conventional and Islamic banks'. M Elnahass , M Izzeldin , O Abdelsalam . http://dx.doi.org/1 *Journal of Economic Behavior & Organization* 2014. 103 p. . (Supplement(0)

[Zhang et al. ()] 'Market concentration, risk-taking, and bank performance: Evidence from emerging economies'. J Zhang , C Jiang , B Qu , P Wang . 10.1016/j.irfa.2013.07.016. *International Review of Financial Analysis* 2013. 30 p. .

[Samad ()] 'Market structure, conduct and performance: Evidence from the Bangladesh banking industry'. A Samad . *Journal of Asian Economics* 2008. 19 (2) p. .

[Ho et al. ()] 'Performance of global Islamic versus conventional share indices: International evidence'. C S F Ho , N A Abd Rahman , N H M Yusuf , Z Zamzamin . 10.1016/j.pacfin.2013.09.002. http://dx.doi.org/10.1016/j.pacfin.2013.09.002 *Pacific-Basin Finance Journal* 2014. 28 (0) p. .

[Samad ()] 'Performance of Interest-free Islamic banks vis-à-vis Interest-based Conventional Banks of Bahrain'. A Samad . *International Journal of Economics* 2004. 12 (2) . (Management and Accounting)

[Choon et al. ()] 'Performance of Islamic Commercial Banks in Malaysia: An Empirical study'. Y Choon , C K Thim , B T Kyzy . *Journal of Islamic Economics, Banking and Finance* 2012. 8 (2) p. .

[Said et al. ()] 'Probing Corporate Ethical Identity of Shari'ah Compliant Companies'. R Said , M M Daud , L A Radjeman , N Ismail . org/10.1016/S2212-5671(13)00239-6. *Procedia Economics and Finance* 2013. 7 (0) p. .

[Farook et al. ()] 'Profit distribution management by Islamic banks: An empirical investigation'. S Farook , M K Hassan , G Clinch . 10.1016/j.qref.2012.04.007. http://dx.doi.org/10.1016/j.qref.2012.04.007 *The Quarterly Review of Economics and Finance* 2012. 52 (3) p. .

[Wasiuzzaman and Tarmizi ()] 'Profitability of Islamic banks in Malaysia: an empirical analysis'. S Wasiuzzaman , H Tarmizi . *Journal of Islamic Economics* 2010. 6 (4) p. . (Banking and Finance)

[Ahmad and Hassan ()] *Regulation and performance of Islamic banking in Bangladesh*, A U F Ahmad , M K Hassan . 2007.

[Arellano and Bond ()] 'Some tests of specification for panel data: Monte Carlo evidence and an application to employment equations'. M Arellano , S Bond . *The Review of Economic Studies* 1991. 58 (2) p. .

[Heffernan and Fu ()] *The determinants of bank performance in China*, S Heffernan , M Fu . SSRN 1247713. 2008. (Available at)

[Fu and Heffernan ()] 'The effects of reform on China's bank structure and performance'. X Fu , S Heffernan . 10.1016/j.jbankfin.2006.11.023. *Journal of Banking & Finance* 2009. 33 (1) p. .

[Hasan and Dridi ()] 'The effects of the global crisis on Islamic and conventional banks: A comparative study'. M Hasan , J Dridi . *Journal of International Commerce* 2011. 2 (02) p. . (Economics and Policy)

[Liu et al. ()] 'The impact of bank competition and concentration on industrial growth'. G Liu , A Mirzaei , S Vandoros . 10.1016/j.econlet.2014.04.016. *Economics Letters* 2014. 124 (1) p. .

[Chan and Koh ()] 'The impact of foreign Shareholdings and originating countries on Banking sector efficiencies'. Chan , E H Y Koh . *Seoul Conference for the Society of the Study of Emerging Market (SSEM): Challenges and Opportunites in Emerging Financial Market*, 2015.

[Berger ()] 'The relationship between capital and earnings in banking'. A N Berger . *Journal of Money, Credit and Banking* 1995. p. .

[Nguyen ()] 'The relationship between net interest margin and noninterest income using a system estimation approach'. J Nguyen . *Journal of Banking & Finance* 2012. 36 (9) p. .

[Lee et al. ()] 'The relationship between revenue diversification and bank performance: Do financial structures and financial reforms matter?'. C.-C Lee , M.-F Hsieh , S.-J Yang . 10.1016/j.japwor.2013.11.002. *Japan and the World Economy* 2014. 29 p. .

[Olson and Zoubi ()] 'Using accounting ratios to distinguish between Islamic and conventional banks in the GCC region'. D Olson , T A Zoubi . 10.1016/j.intacc.2008.01.003. http://dx.doi.org/10.1016/j.intacc.2008.01.003 *The International Journal of Accounting* 2008. 43 (1) p. .