Determinants of Islamic Banking Industry's Profitability in Pakistan for the Period 2004-2012

M. Abubakar Siddique
M. Khaleequzzaman
Atiq-ur-Rehman*

Abstract

To explore how Islamic banking could be promoted in Pakistan, one of the crucial factors is exploring the factors that determine the profitability of Islamic Banking Industry (IBI). The studies on the determinants of Islamic banking growth focus on a number of such internal and external determinants. Because of not taking into account both internal and external factors simultaneously, most of the studies are subject to some biases. This study takes into account both internal and external determinants, empirically investigates the core determinants of growth of Islamic banking in Pakistan and evaluates the relative importance of internal and external factors in IBI's growth during the period 2004-2012. Quarterly unbalanced panel data have been used for nine Islamic banks: Five full-fledged Islamic banks and four standalone Islamic branches of conventional banks. Encompassing Approach and General to Specific (GTS) methodology have been used to select the most appropriate model. The study found that internal factors were relatively more important than external factors, because according to GTS approach, comparatively some external variables were found highly insignificant and were dropped. Internal factors like total assets, operating expenses over total assets, number of branches, capital ratio (total equity to total asset) and liquidity, and external factors like inflation and interest rate were significantly related to return on asset in both long run and short run while only inflation did not show any significant immediate impact on ROA in the short run. These findings propose that banks with high capital ratio are relatively more profitable. Efficient management of bank operations can enhance bank profitability. Islamic banks will have to improve their capability to predict inflation to adjust profit rates accordingly.

* **M. Abubakar Siddique**, Ph.D. Scholar, is Lecturer at Shariah Academy, International Islamic University, Islamabad (IIUI) (Corresponding author): muhammad.abubakar@iiu.edu.pk, **Dr. M. Khaleequzzaman** is Head Training & Seminars, School of Islamic Banking and Finance, IIUI, Pakistan; **Dr. Atiq-ur-Rehman** is Assistant Professor at Pakistan Institute of Development Economics (PIDE), Islamabad, Pakistan.

Keywords: Islamic Banking, Determinants of Profitability, Encompassing Approach, General to Specific methodology.

KAUJIE Classification: L25, L3
JEL Classification: C12, G15, G2, P47

1. Introduction

Islamic banking development in Pakistan can be segregated into two phases. First phase is theoretical evolvement and non-interest based banking (NIB) during 1980-2002 when efforts at different levels were made to transform the whole banking and finance system of the country. Second phase is the development of Islamic banks working in parallel with the conventional banking initiated as per new approach of the Government and the State Bank of Pakistan since 2003 (Janjua M. Ashraf, 2002). Since then, Islamic banking has covered 10.4 % of total banking business as indicated in EY 2016. This study has been undertaken by using data for the period 2004-2012.

By the end of 2012, there were five full-fledged Islamic banks and thirteen conventional banks operating Islamic banking branches. IBI showed rapid growth till 2012.[1] To pave the way for next phases, it is crucial to find out what are the most important profitability determinants of IBI in Pakistan, because an understanding of the determinants of the profitability of financial institutions is essential and crucial to the stability of the economy (Kutsienyo, 2011). A number of studies have been conducted to find out the determinants of the Islamic banking growth and profitability in different countries e.g. Haron, 1996; Bashir, 2000; Alkassim, 2004; Al-Tamimi, 2005; Haron & Nursofiza, 2009; Kutsienyo, 2011; Husni *et al*. 2011; Akhter, Raza, Orangzab & Akram, 2011; Faizulayev, 2011.There are also some studies on Pakistan in specific e.g. Awan, 2009; Khan, Bakhtiar, Hussain & Javed, 2012; Ali, Shafique, Razi & Aslam, 2012; Manzoor, Aqeel & Sattar, 2010; Ramzan et al., 2012: Salman Ahmad Shaikh, 2015: Ijaz, Akmal and Batool (2015). These studies have been conducted in different frameworks such as saving theory, profitability, demand and supply and efficiency of the sector focusing either on internal or on external determinants. Because of, not

[1] Islamic banking branches (IBB) network reached 1094 in December 2012 out of which 727 branches were operated by full-fledged Islamic banks and 367 standalone Islamic branches were operated by Conventional banks (See Annexure: Figure-1). Asset size of IBI constantly expanded from Rs. 44 billion in December 2004 to Rs. 837 billion in December (See Annexure: Figure-2) and the share of this industry to total banking in term of assets also remained increasing at high pace (See Annexure: Figure-3).

taking into account both internal and external factors collectively, the studies are subject to missing variables bias. They used different models and variables taking sample of one, two or a few Islamic banks which may not represent the industry. Moreover, they ignored standalone Islamic branches of conventional banks. Further, they used small sample of annual data not capable of providing precise measurement of the coefficients of a model.

This study is to fill the gap; by using models and variables of previous studies it will select the most relevant variables employing Encompassing Approach and General to Specific method, using the available unbalanced quarterly panel data for the period 2004-2012, and considering sample of nine banks, including five full-fledged Islamic banks and four conventional banks operating through stand-alone Islamic banking system.[2] The main objectives of the study are to empirically investigate the determinants of profitability of the IBI in Pakistan and to evaluate the relative importance of internal and external factors in Islamic banks' profitability. The significance of the study is that it identifies the factors which enhance the profitability of this sector.

The next section 2 reviews the literature on the determinants of banking profitability in both conventional and Islamic perspectives. Section 3 discusses the Methodology and Data. Empirical findings are presented in section 4. Finally, section 5 presents conclusion and recommendations.

2. Literature Review

2.1 Measure of Profitability

There are multiple indicators of the profitability of banking sector, including Return on asset (ROA), Return on equity (ROE), etc. However, the most commonly used measure is ROA, because it is the main ratio for the evaluation of profitability of banks (Golin, 2001). Many of the researchers[3] used ROA as a measure of profitability for banking sector. According to Bashir (2000), ROA is the best measure of efficiency of the banking sector. This proxy has several advantages such as one can analyze, by looking at ROA, whether bank's management is capable to

[2] We selected four conventional banks offering Islamic banking because of unavailability of data regarding our variables. Moreover other banks started Islamic banking very late, so their relative data was not available.

[3] See Hassan and Bashir, 2003; Alkassim, 2005; Athanasoglou, Brissimis & Delis, 2005; Imad, Qais & Tahir, 2011; Belayneh, 2011; Tobias & Themba, 2011; Kutsienyo, 2011; Husni, *et al.* 2011; Gul, Irshad & Zaman, 2011 and Ijaz, Akmal and Batool, 2015

generate profit from its assets. Also, ROA is a common indicator of performance of management (Ross, Westerfield & Jaffe, 2005) and computes profit on asset reflecting how effectively the management of the bank has used assets to generate higher profit (Naceur, 2003).

2.2 Determinants of Bank's Profitability

The literature divides the determinants of banking profitability into two broad groups, namely external and internal. Internal variables can be further classified into two categories *viz* financial statement variables and non-financial statement variables. Financial statement variables relate to the factors which directly involve items in the balance sheet and income statement. Non-financial statement factors have no direct bearing as the financial statements factors have, e.g., number of branches, status of the branch, location and size of the bank (Haroon, 2004). External determinants are those factors which are not in the control of the bank's management, e.g. inflation, GDP, etc. (Kharawish, 2011).

2.2.1 Effects of Internal Determinants on Profitability

Asset size[4] and Deposit to Asset ratio[5] are reported having three types of relationships with ROA: positive, negative and insignificant. Regarding negative relationship of asset size, researchers argue that large asset size increases the bureaucratic procedure; therefore efficiency decreases. Mustafa et al (2012) explain that negative association of deposits to asset ratio with ROA indicates high competition in the banking sector due to which banks often pay higher profits to attract depositors. This eventually decreases profits of banks (Davydenko, 2010).

Liquidity[6], expenses[7], asset quality[8] and advances to deposit ratios[9] are reported positively related to ROA in some studies and negatively

[4] Positive relationship is reported by Kahf, 2004;Al-Tamimi, 2005; Sufian, 2009; Akhtar Ali & Sadaqat, 2011; Idris *et al*., 2011; Husni, *et al.*, 2011; Saeed et al., 2013. Negative relationship is reported by Hassan, 2001; Hassan and Bashir, 2003; Naceur, 2003; Koasmidou, 2008; Naceur and Goaied, 2008; Husni, et al., 2011; Kutsienyo, 2011; Akhtar *et al*. (2011). Whereas Emery, 1971; Vernon, 1971; Heggested, 1977; Kwast & Rose, 1982; Smirlock, 1985 reports insignificant relationship between the two.

[5] Positive relationship is reported by Kutsienyo (2011), Gul,*et al*. (2011) and negative relationship is found by Ali et al (2011), Mustafa et al (2012), whereas Singh and Chaudary (2009) reports insignificant relationship.

[6] Bourke (1989), Kunt and Huizingha (1997), Kosmidou *et al*. (2005), Kutsienyo (2011), and Akhtar *et al*. (2011) find that Liquidity is positively related with ROA. Negative relationship is found by Molyneux and Thornton (1992), Hassan and Bashir (2003) and Husni, *et al.* (2011).

related in some other studies. Vong & Chan (2005) says that higher liquidity ratio does not necessarily generate higher profits which means that liquidity relates negatively to ROA. According to Berger and DeYoung (1997) negative relation of expenses with ROA indicates that expenses are not being properly monitored by management. Beatty and Liao (2009) say that asset quality is critical to judge the stability of the financial system, so it is a main contributor for variations in profitability of banks. Usually banks take deposits from people and issue loans and advances. So advances to deposit ratio is critical in a sense that low ratio can cause bank failure.

The Capital ratio (total equity to total assets ratio) is also an important profitability determinant for the banking sector. Many researchers[10] use this ratio considering that higher the capital ratio, lower the risk; they also consider that higher capital ratio is a guarantee of safety for banks. They report that capital ratio is significantly positively related to ROA.

According to Hester and Zoellner (1966), there is no significant relationship between number of branches (NBR) and ROA, but later studies[11] examined the relationship of different types of the banks' branches (statewide, limited branch and unit branch) and ROA and found a significant positive relationship between the two.

2.2.2 Effects of External Determinants on Profitability

GDP, a commonly used economic indicator, is used to evaluate economic activity of an economy (Kutsienyo, 2011). Hogarth *et al.* (1998) conclude that the behavior of GDP failed to explain a larger variety of banking sector profits in the UK as compared to in Germany, and later different studies[12] confirmed their finding. Some other studies[13] report positive

---

[7] Bashir (2003), Haron (2004), Izhar and Asutay (2007) and Ahmad and Noor (2011) reports positive relationship, whereas Berger and DeYoung (1997), Kosmidou et al., (2005), Sufian and Habibullah (2010), Ramadan et al., (2011) and Teng et al., (2012) found a negative relationship.

[8] Abreu and Mendes (2000), Naceur (2003) and Mustafa et al (2012) have documented that provisioning for bad debt to asset ratio was positively related to ROA, while Bashir and Hassan (2003) found negative relationship between them.

[9] Bourke (1989) and Kosmidou *et al*. (2005) found positive relationship, while Molyneux *et al.*, (1992), and Teng et al (2011) documented inverse relationship.

[10] Bourke, 1989; Kunt and Huizingha, 1997;Bashir, 1999; Bashir, 2000; Naceur, 2003; Bashir, 2003; Hassan and Bashir, 2003; Haron, 2004; Kosmidou, 2007; Kutsienyo, 2011; Gul,*et al*. 2011; Husni, *et al.*, 2011; Mughees and Ishaq (2011).

[11] Emery (1971); Owizy (2007); Mukhlisin (2010).

[12] Athanasoglou *et al*. (2005), Naceur and Goaied (2006) and Teng, *et al.* (2012).

impact of GDP on profitability of banks, but Husni *et al.* (2011) find that ROA is significantly negatively related to annual growth rate of GDP.

Inflation[14] and money supply[15] are reported to be positively related to ROA in some studies and negatively related in some other studies. Revell (1979) is the first researcher who discussed the impact of inflation on profitability of banks. He contended that inflation could be a factor to cause variation in bank's profits. Bourke (1989) and Molyneux and Thornton (1992) tested this hypothesis and found a significant relationship between inflation and profit. Haron (1996), using OLS technique, empirically proved that inflation has significant positive impact on the profits of both conventional and Islamic banks. Staunton *et al.* (2002) also reported a positive impact of inflation on banks' performance over the period 1986-1995 in Malaysia. Teng, *et al.* (2012) applied OLS model and found that money supply was the major determinant having positive impact on Islamic banks' profitability.

According to earlier studies, there is no significant impact of market share on banks profitability (Haroon, 2004), but later studies[16] report positive relationship between market share and profitability of banks. Heggested (1977) and Mullineaux (1978) find a negative relationship between the two and it is confirmed by Haroon (2004) who further explains that larger the market share, larger would be the bank's profitability. A larger market share also means that banks can have a power to control the prices and services it offers to secure customers. Arnold and John (1976) indicate that greater market share would cause more power to bank to control the market in terms of prices and the services it offers.

Competition is also used as an external determinant of bank's profitability. According to Teng *et al*., (2012), in order to stay in the competition, banks need to improve themselves to attract clientele and generate higher profit. Whalen (1988) and Rasiah (2010) report that there is no significant relationship between competition and ROA, but later

---

[13] Bashir (2003); Haroon (2004); Athanasoglou *et al.*, (2008); Kosmidou (2008), Sufian and Habibullah (2010), Ramadan et al. (2011), Kutsienyo (2011) and Kharawish et al. (2011).

[14] Boyd et al (2000), Kosmidou (2008), Mukhlisin (2010)and Husni et al. (2011) found negative relationship.

[15] Molyneux and Thornton (1992), Haroon (1996), Haron and Azmi (2004), Kutsienyo (2011) reported significant positive relationship, while Sufian and Habibullah (2009) and Kutsienyo (2011) found a negative relationship.

[16] Heggested and Mingo (1976) and Smirlock (1985).

studies[17] documented negative impact of competition on banking performance. Kunt and Huizinga (2001) also present the same result which indicates that high competition reduced the bank's profits.

The banking institution is among one of the most heavily regulated institutions in the world. A strong, stable and vigorous healthy financial system cannot be established without regulatory framework. To empirically test the impact of regulation on the bank's performance, Kabir and Bashir (2003) use reserve requirement as a proxy for regulation and find that regulation doesn't have a strong impact on ROA. Kunt and Huizinga (1999), Bashir (2000) and Tang *et al* (2003) use tax as regulatory proxy and find strong positive impact of tax on profitability.

Nienhaus (1983) attempted to find a connection between interest rates and Islamic bank's profitability using the simple equilibrium model and concluded that Islamic banks returns are positively related to conventional bank lending rates, but he did not present any empirical evidence to support his hypothesis. Khan (1986) extended his study and documented same relationship. Like Nienhaus, Khan's theory was also not approved by any empirical proof. The reason might be that these studies were conducted in very earlier stage of Islamic banks operations. Haron (1996), using OLS technique, empirically proved that interest rate had significant positive impact on the profits of both conventional and Islamic banks. Haron and Ahmad (2000) verified and approved these results. Hassan and Bashir (2003) found negative impact of interest rate on bank's profits. Kasri (2010) reported that Islamic banking growth is significantly determined by the dynamics of the real rate of return and real interest rate. Higher rate of return increases the industry's growth while the higher interest rate hinders it.

3. Data and Methodology

3.1 Data

Secondary quarterly unbalanced panel data[18] is used in this study for the nine banks for the period 2004-2012. Five Full-fledged Islamic banks included: Al-Baraka Islamic Bank (Pakistan) (AIB); ii) Bank al-Islami Pakistan (BIP); iii) Burj Islamic Bank (BIB), iv) Dubai Islamic Bank Pakistan (DIB) and v) Meezan Bank Limited (MBL). Four IBBs of the

[17] Haron (1996) and Hassan and Bashir (2003).

[18] The main sources of data were SBP reports (annual and quarterly), financial statements for each concerned bank (annual and quarterly reports) and Pakistan Economic surveys.

convemtional banks included: Askari Bank (ASK), Bank Alfalah (ALF), MCB Bank (MCB) and United Bank Limited (UBL).

3.2 Methodology

A number of variables and models have been used in previous studies focusing banks's growth and profitability. Omitting any of these variables might cause omitted variables bias, while considering all variables used in past studies simultaneously will result in a too big model leading to low precision and insignificant results. Therefore, this study follows an encompassing approach which represents the relationship between different models, intending to select the best illustration among the available ones (Chao, 2002). The encompassing assessment is to check whether the present theory can make the link between the findings concluded by the others. So, encompassing approach has been used to find out appropriate model and the variables. The approach is suggested as follows;

i. Suppose M1, M2… Mn models have been proposed by previous researchers.

ii. Estimate M1, M2… Mn rank all models according to their prediction error. It is a necessary condition for the model, which will encompass the other models, that it must have a smallest prediction error of regression (Hoover and Perez, 1999).

iii. Suppose Mi be the model that has smallest prediction error, then the following test;

H_o (1): Mi encompasses M1

H_o (2): Mi encompasses M2

H_o (n): Mi encompasses Mn

The models, for which H_o is not rejected, will be ignored since their prediction power is already present in Mi. The models that are not encompassed by Mi, will construct a most general model containing variables of Mi and the models that are not encompassed (Bontemps and Mizon, 2008). This model will again be simplified using General to Specific methodology.

The most general model may contain some variables which have insignificant effect on the dependent variable. To get the efficient estimates, the variables may be tested for their significance. We estimated

an unbalanced panel data model and applied the Wald-Coefficient Restrictions to all variables. The variables which appear to be insignificant are excluded from the study.

To avoid the occurrence of spurious regression, unit root and Co-integration tests will be employed. Econometric literature suggests that panel based unit root test has higher power than univariate unit root based on individual time series. Therefore, Im, Pesaran and Shin (2003) panel unit root test will be employed to test the stationarity of variables included in this study. This technique begins with separate ADF regression for every cross section by individual effect with no time trend. The equation of the Im, Pesaran and Shin panel unit root test is as under:

$$\Delta\, y_{it} = \alpha\, y_{it-1} + \sum_{j=1}^{pi} \beta_{it}\, y_{it-j} + X'_{it}\, \delta + \epsilon_{it}$$

Where the null hypothesis is $\alpha=0$ for all "i" series and alternative hypothesis is $\alpha<0$, for i = 1, 2, 3… N1. The rejection of Null hypothesis implies rejection of a unit root.

The panel co-integration testing proceeds in three steps; First, Verify that all the regressors are unit root. Second, run the panel regressions

$$\boldsymbol{y_{it} = \alpha_i + \beta_i X_{it} + \varepsilon_{it}} (\mathrm{X_{it}}\ \text{is a vector of all regressors.})$$

Third, applypanel unit root test to the residuals ε_{it} obtained in second step, if the residuals are stationary, co-integration exists.The Error Correction Model will be employed to find out short run relationship between dependent and independent variables.

4. Results and Discussion

4.1 Model Building by Encompassing

The encompassing approach worked as follow; following four models M1, M2…M5[19] have been proposed by previous researchers.

Model 1

$$ROA_{it} = \beta_0 + \beta_1 \mathrm{LSIZE}_{it} + \beta_2 \mathrm{TETA}_{it} + \beta_3 \mathrm{ADDEP}_{it} + \beta_4 PRTA_{it} + \beta_5 \mathrm{LGDP}_{it} + \beta_6 \mathrm{INF}_{it} + \beta_7 \mathrm{LM2}_{it} + \mu_{it}$$

Model 2

$$ROA_{it} = \beta_0 + \beta_1 (\mathrm{LSIZE})_{it} + \beta_2 (\mathrm{PRAD})_{it} + \beta_3 (\mathrm{TLTA})_{it} + \beta_4 (\mathrm{LGDP})_{it} + \beta_5 (\mathrm{INF})_{it} + \mu_{it}$$

Model 3

[19] Five models are selected from studies made by Kutsienyo (2011), Sehrish, *et al.* (2011), Husni, *et al.* (2011), Voghan et al. (2003) and Teng, *et al.* (2012) respectively

$$\boldsymbol{ROA_{it}} = \beta_0 + \beta_1(\mathrm{DETA})_{it} + \beta_2(\mathrm{MKTSHB})_{it} + \beta_3(\mathrm{NBR})_{it} + \beta_4(\mathrm{INT})_{it} + \beta_5 LM2_{it} + \mu_{it}$$

Model 4

$$\boldsymbol{ROA_{it}} = \beta_0 + \beta_1(\mathrm{TETA})_{it} + \beta_2(\mathrm{LSIZE})_{it} + \beta_3(\mathrm{TLTA})_{it} + \beta_4(\mathrm{PRTA})_{it} + \beta_5(\mathrm{EXTA})_{it} + \beta_6\mathrm{COMPET}_{it} + \beta_7\mathrm{INF}_{it} + \beta_8\mathrm{LM2}_{it} + \beta_9\mathrm{LGDP}_{it} + \mu_{it}$$

Table-A List of the Variables used in previous four models

Nature of variable	Variables	Description of variables
Measurement of growth	ROA	Return on asset of bank (Net income / Total asset)
Internal factors		
Independent Variables	SIZE	Total assets of bank
	TETA	The total equity of bank to its total asset.
	TLTA	Total loan of bank to total asset.
	PRTA	Provisions for non performing finances[20] to total asset of bank.
	EXTA	Operating expenses to total asset of bank
	NBR	Total number of branches
	ADDEP	Advances to Deposits of bank
	DETA	Deposit to Total asset
	PRAD	Provisions for non performing finances to advances of banks
External Factors		
	GDP	Gross Domestic Product
	M2	Money supply (IFS 2011, line no- 129)
	INF	Inflation
	INT	Interest rate (Discount rate, IFS 2011 line-132)
	MKTSHB	Market share of bank (Total deposits of an Islamic bank as a percentage of a country's total deposits)
	COMPET	Market share of the bank (Total deposit of bank to total deposit of Islamic banking industry).

Models M1, M2, M3and M4 were estimated and then ranked according to their prediction error. M1 was the model that had smallest prediction error at an average (0.00289) (See Annexure; Table 1). Then we tested the following two null hypotheses;

[20] Islamic banks deal through financing rather than loans; therefore Islamic banks make their provisions under the heading of provision for non performing finances.

H_o (1): M1 encompasses M2

H_o (2): M1 encompasses M3

H_o (3): M1 encompasses M4

First H_o (1) was not rejected, because M2 was fully encompassed by M1, but M3 and M4 were not encompassed by M1, so H_o (2) and H_o (3) were rejected (see Annexure; Table-2).

The variables of model M2 were ignored for which H_o (1) is not rejected, since its prediction power is already present in M1, but models M3 and M4 were not encompassed by M1, so following most general model (eq. 5) was constructed containing variables of the M1, M3 and M4.

$$\mathbf{ROA}_{it}=\beta_0+\beta_1(\mathrm{LSIZE})_{it}+\beta_2(\mathrm{TETA})_{it}+\beta_3(\mathrm{ADDEP})_{it}+\beta_4(\mathrm{PRTA})_{it}+\beta_5(\mathrm{DETA})_{it}+\beta_6(\mathrm{EXTA})_{it}+\beta_7(\mathrm{COMPET})_{it}+\beta_8(\mathrm{MKTSHB})_{it}+\beta_9(\mathrm{NBR})_{it}+\beta_{10}(\mathrm{LGDP})_{it}+\beta_{12}(\mathrm{LM2})_{it}+\beta_{13}(INT)_{it}+\beta_{14}(\mathrm{INF})_{it}+\mu_{it}$$

This new model is too big containing fourteen independent variables. The encompassing filed a large model given in Eq (5). Some of the variables in Eq (5) might be insignificant. Therefore General to Specific methodology is applied to simplify Eq (5).

4.2 General to Specific Methodology

The General to specific approach relates to the encompassing approach (Mizon 1995, Hoover and Perez 1997; and Handery and Richard 1987). According to General to Specific methodology, Eq (4) was estimated and found that seven variables were highly significant at level 5%and two variables LGDP and LM2 were significant at level 10%, while remaining variables were highly insignificant and did not have any impact on ROA (see Annexure; Table-3). According to GTS approach, restriction is applied on highly insignificant variable and it is found that all variables could be dropped with F-statistic 0.1071 (see Annexure; table-4).

4.3 Final Model

After dropping highly insignificant variables, we developed and estimated following model.

$$\mathbf{ROA}_{it}=\beta_0+\beta_1(LSIZE)_{it}+\beta_2(\mathrm{EXTA})_{it}+\beta_3(TETA)_{it}+\beta_4(DETA)_{it}+\beta_5(\mathrm{NBR})_{it}+\beta_6(\mathrm{INT})_{it}+\beta_7(INF)_{it}+\mu_{it}\ldots\ldots\ldots \mathbf{(5)}$$

4.4 Description of Variables

Return on Asset (ROA) refers to the profitability on the assets of an Islamic bank after deducting expenses and taxes (Van Horne and Wachowicz, 2005). It measures the amount a firm is earning after tax for each rupee invested in assets of an Islamic bank. Generally, a higher ratio indicates efficient utilization of assets of the Islamic banks and better managerial performance while a lower ratio means inefficient use of assets.

LSIZE is log of Total assets of an Islamic bank. Many studies used the total asset to measure the bank size. Bank size is usually used to account for potential economies or diseconomies of scale in the banking sector. Expenses to total assets (EXTA) is used to determine whether the usage of operational cost could affect the banks' profitability. The expenses of a bank reflect the cost used by the bank as a percentage of its income. Thus, it can be measured as a proxy of operating expenses to total assets. It is expected that there would be negative relationship between operating expenses to total assets. Capital Ratio is measured by bank equity to total assets (TETA). TETA is a valuable tool for assessing safety and soundness of banks, some of the researchers explain that a bank with high Capital ratio or more equity capital shows that the bank is safer and is in advantage to get higher profitability (Vong and Chan, 2009). The ratio of deposits to total assets (DETA) is a good liquidity indicator. Deposits are the main source of funds of bank which it uses in different financing modes and hence it is expected to have a positive impact on the profitability of the banks.

Number of branches (NBR), the proxy for employment, is used as explanatory variable in any profitability study to find out whether NBR affect or do not affect the profitability of bank (Hester and Zoellner, 1966). For Interest rate (INT), discount rate is used. Inflation (INF) is defined as a rise in the level of prices of goods and services in an economy, and it could reduce the purchasing power of money.

4.5 Long Run relationship between ROA and Independent Variables

The results as per Eq. 5 show significant long-run relationship between dependent and independent variables as depicted in table-5 (Annexure). All variables were stationary. So there was no need for Co-integration test (see Annexure Table-6).

The table-5 summarizes the empirical results for eq.5. LSIZE (Total assets) shows the negative relationship with ROA which means there is a diseconomy of scale. Kutsienyo (2011) suggested that banks having large size might show negative relation between ROA and SIZE as a result of

administration and agency cost. Moreover, according to Hassan (2001), if larger banks are increasing diversification of portfolio which is leading to higher risk and low return then there would be negative relationship between bank size and its profitability. EXTA shows negative and significant relationship with ROA. It suggests that higher returns can be generated by decreasing expenses. According to Berger (1995), negative relationship of expenses with returns indicates that expenses are not being controlled and properly monitored by the management. This study confirms the results presented by Kosmidou, Tanna and Pasiours (2005), Sufian and Habibullah (2010), Ramadan, Kilani and Kaddumi (2011) and Teng et al. (2012). TETA is also positively related with profitability which implies that the large size of equity of Islamic banks reduces their risk on capital; Islamic banks may have the advantage of providing a larger menu of financial services to their customers, and hence couldmobilize more funds. This study confirms the results presented by Bashir (1999) and Shaukat and Ishaq (2011) who reported that well capitalized banks were found to operate at higher efficiency. DETA has also positive impact over ROA which means increasing deposits are generating more returns for IBI.

NBR shows the positive and significant relation with ROA and confirms the result presented by Berger et al. (1995). Interest rate (INT) shows positive impact over ROA which implies that larger portion of Islamic banks' profits accrues from direct investment, shareholding and/or other trading activities e.g. *Murābaḥah, Mushārakah, Ijārah, Salam* etc. Inflation has negative relationship with profitability. Boyd *et al* (1993) found there is a negative relationship between inflation and profitability. According to Perry (1992), in the situation where inflation is unanticipated, bank managers are slow in adjusting the rate on bank loans so that the rate of increase of operating cost is faster than the rate of increase of bank revenue resulting in an adverse impact on profitability.

4.6 Short Run relationship between ROA and Independent Variables

To check the significance of relationship between dependent and independent variables in short-run, we applied following Error Correction Model (ECM) (see Annexure; Table-7).

$$\Delta \boldsymbol{ROA_{it}} = \beta_0 + \beta_1 \Delta\,(LSIZE)_{it} + \beta_2 \Delta(\mathrm{EXTA})_{it} + \beta_3 \Delta(LTETA)_{it} + \beta_4 \Delta\,(DETA)_{it}$$
$$+ \beta_5 \Delta(\mathrm{NBR})_{it} + + \beta_6 \Delta\,(\mathrm{INT})_{it} + + \beta_7 \Delta\,(INF)_{it} + \mu_{it} \qquad \text{.....}\mathbf{6}$$

Results showed that Inflation (INF) was insignificant which means that it did not have any immediate impact over profitability. So we skipped INF

because it was insignificant with F-statistics 0.1791 after applying restriction. Model with remaining variables was estimated and it was found that remaining variables were highly significant in short run (see Annexure; table-8). Results showed that SIZE, INT, DETA, TETA, NBR and EXTA had significant impact over profitability of Islamic banks even in short run.

5. Conclusion and Recommendation

The results show that significant determinants of profitability include the variables of both types, internal and eternal. Therefore, banks should take care of both kinds of factors. The significant determinants of profitability include size, expense management, employment, interest rate, liquidity, capital ratio and inflation. The results suggest that well capitalized banks are more profitable. Also, larger banks tend to enjoy economy of scale impacting positively their profitability. Efficient management of bank operations can enhance bank profitability. Islamic banks should improve their capability to predict inflation and as result, adjust financing rates accordingly. Number of branches and deposits to asset ratio also shows positive impact over profitability. Theory of economies of scale explains the negative relationship between the bank size and ROA which implies that greater the size of bank, lesser the profits it earns.

The findings provide an insight into the characteristics and practices of successful Islamic banks in terms of profitably. In view of these findings, we recommend for management of Islamic banks and policy makers that banks capitalization should be enhanced to improve their profitability. A well-capitalized banking system enhances financial stability. It also makes the industry more resistant to external shocks and risks and enables the banks to survive financial crisis. To save banks from insolvency, bank managers should employ efficient and effective liquidity management policies. Islamic banks should improve diversification of their asset portfolio and reduce their agency and operational cost to maximize their returns and to obtain economies of scale. Islamic banks should also expand their branches network as it will generate more deposit and returns.

****

References

Akhter, W., Raza, A., Orangzab, Akram, M., (2011), "*Efficiency and Performance of Islamic Banking: The case of Pakistan*", Far East Research Centre, 2 (2), 54-70

Ali, Atif Shafique, Azam, Razi Amir and Aslam, Umair (2012),"*Determinants of Profitability of Islamic banks, a case study of Pakistan*", Interdisciplinary Journal of Contemporary Research in Business, 3(11), p: 86-100.

Ali, Khizer, Farhan, A. and Zafar, A. (2011), "*Bank-Specific and Macroeconomic Indicators of Profitability: Empirical Evidence from the Commercial Banks of Pakistan*", International Journal of Business and Social Science 2(6), p: 235-242.

Bashir, M. Abdel-Hameed (2003), "*Determinants of Profitability in Islamic Banks: Some Evidence from the Middle East*".Islamic Economic Studies, 11(1), p: 31-56

Bashir, M. Abdel-Hameed (2000), "*Determinants of Profitability rate of return Margins in Islamic Banks: Some Evidence from the Middle East*". The ERF 7th annual Conference, downloaded from: http://www.erf.org.eg/CMS/uploads/pdf/1184758745_Kabir_Bashir.pdf

Bashir, A. (1999), "*Risk and Profitability Measures in Islamic Banks: The Case of Two Sudanese Banks*", Islamic Economic Studies, 6(2), p: 1-23.

Berger, A. N. (1995), "The Profit-Relationship in Banking- Test of Market-Power and Efficient-Structure Hypotheses", *Journal of Money, Credit and Banking*, 27 (2), p: 405.

Bontemps, Christophe and Mizon, Grayham E. (2008), "Encompassing: Concepts and Implementation", *Oxford Bulletin of Economics and Statistics*, 70, 721–750.

Bourke, Philip (1989), "Concentration and Other Determinants of Bank Profitability in Europe, North America and Australia", *Journal of banking and finance*, 13(1), p: 65-67.

Boyd, J.H. and Runkle, D. E. (1993),"Size and performance of banking firms: Testing the predictions of theory", *Journal of Monetary Economics*, 31(1),p:47-67.

Chao, H. K. (2002), "Professor Hendry's Econometric Methodology Reconsidered: Congruence and Structural Empiricism", *Journal of Money, Credit, and Banking*, 27, p: 404.

Gul, Sehrish, Irshad, Faiza and Zaman, Khalid (2011),"Factors affecting Banking Profitability in Pakistan", The Roman Economic Journal, 39, P: 61-87

Haron, Saudin. (2004),"Determinants of Islamic Bank Profitability", Working paper, *Global Journal of Finance and Economics, USA*, 1 (1).

Haron, S. and Ahmad, N.H. (2000),"Conventional Banking Profitability Theories in Islamic Banking: Some Evidences", *Journal of Islamic Banking and Finance,* 18(3&4), p: 122- 131.

Haron, Saudin and Azmi, W.N (2004), "Profitability Determinants of Islamic Banks: A Co- Integration Approach", Paper was presented in *Islamic Banking Conference*, Union Arab Bank, Beirut, Lebnon, December 5-7, 2004.

Haron, Sudin (1996), "The Effects of Management Policy on the Performance of Islamic Banks", Asia Pacific Journal of Management, Vol. 13, No.2.

Hassan, M. Kabir (1999) "*Islamic banking in theory and practice: the experience of Bangladesh*", *Managerial Finance*, 25(5), p: 60 – 113.

Heggested, Arnold A. (1977), "Market Structure, Risk, and Profitability in Commercial Banking", *The Journal of Finance,* 32(4),p:1207-16.

Hester, Donald D. and Zoellner, John F. (1966), "The Relation between Bank Portfolios and Earnings: An Econometric Analysis", *TheReview of Economics and Statistics*, 48(4), p: 372-386.

Hoover, K.D and Perez, S.J (1999), "Data Mining Reconsidered: Encompassing and General to specific approach to specification research", *Econometrics Journals*, 2, p: 1-25.

Husni, A.K, walid, Z.S and Ali, H.K (2011), "Determinants of Islamic Bank Profitability: Evidence from Jordan", *Middle Eastern Finance and Economics*, 13.

Imad, Ramadan Z, Qais Kilani A, Thair Kaddumi A (2011). "Determinants of Bank Profitability: Evidence from Jordan", *Int. J. Acad. Res*,3(4), p:180-191.

State Bank of Pakistan; Islamic Banking Bulletin, 1st quarter (2012). Retrievedfrom:http://www.sbp.org.pk/ibd/bulletin/2012/IBB-March-2012.pdf

State Bank of Pakistan, *Islamic Banking Bulletin*, 1st quarter (2013). Retrieved from:http://www.sbp.org.pk/ibd/bulletin/2013/IBB-March-2013.pdf.

Janjua, M. Ashraf (2002, 2004); *History of the State Bank of Pakistan*, SBP, Karachi; Vol. 3 (1977-1988), 2003 and Vol. 4 (1988-2003), 2004 (Chapters on Islamisation of Economy).

Kasri, Rahmatina A. (2010),"*The Determinants of Islamic Banking Growth in Indonesia*", working paper series SSRN, http://dx.doi.org/10.2139/ssrn.1740500

Khan, Mohsin (1986) "*Islamic Interest Free Banking: A Theoretical Analysis*", IMF *Staff Papers*, 33(1), p: 1-27.

Kosmidou, K., Tanna, S., & Pasiouras, F. (2005), "Determinants of profitability of domestic UK commercial banks: panel evidence from the period 1995-2002", *Economics, Finance and Accounting*- Applied Research Working Paper Series, 1-27.

Kosmidou, M. & Pasiouras, F. (2007),"Factors influencing the profitability of domestic and foreign commercial banks in the European Union", *Research in International Business and Finance, 21*(2), 222-237.

Kunt, Demirguc and Huizinga, H. (1999), "Determinants of Commercial Bank Interest Margins and Profitability: Some International Evidence", *the World Bank Economic Review*, 13(2), p: 379-408.

Kutsienyo, L. (2012)," *The Determinant of Profitability of Banks in Ghana*", Master thesis, Nkrumah University of Science and Technology. Available at link visited on 15/09/2015:ir.knust.edu.gh/bitstream/123456789/4220/1/Lawrence%20thesis.pdf

Molyneux, P. and Thornton, J. (1992), "*Determinants of European Bank Profitability: A Note*", *Journal of Banking and Finance*, 16(6), p: 1173-1178.

Mughees Shaukat & Mohd. Zamree Mohd Ishak, *The Mega Islamic Bank: A 'Silver Bullet'* Solution, *Journal of Islamic Banking and Finance, Karachi, 28(4), p: 50-90*

Nienhaus, Volker (1983),"*Profitability of Islamic banks Competing with Interest Banks*", *Journal of Research in Islamic Economics*, 1(1), p: 37- 47.

Owizy, Simon Onowa (2007),"*Determinants of Commercial Banks Profitability in Nigeria: A Study of Some Selected Banks in Nigeria*", *www.academia.edu*

Perry, P. (1992), *Do banks gain or lose from inflation*?, Journal of Retail Banking, 14(2), 1992, pp. 25-30

Ramzan, Dr. M., Zahid, Ayesha., Hussain, Nadir & Islam, Kashif (2012),"*Growth of Islamic Banking in Pakistan by Using AID Model*", International Journal of Business and Social Science, 3(23), p: 152.

Revell, J.،*Inflation and financial institutions*(London: Financial Times, 1979), p: 178

Shamshad Akhtar (2007), Lecture on "*Pakistan – banking sector reforms: performance and Challenges*", State Bank of Pakistan, February; P.3.

Teng, Kok Yoke, et al (2012), "*The Determinants of Islamic Banks Profitability in Malaysia*" Journal of Business and Finance Malaysia, 2(3), P: 25-58

Vong, A. P. I., & Chan, H. S. (2009), "*Determinants of bank profitability in Macao*", *Macau* Monetary Research Bulletin, 12(6), p: 93-113.

Van Horne, J. and Wachowicz, J. (2005), *Fundamentals of Financial* Management (12 ed.), UK: Pearson Education Limited.

Annexures

Figure-1

A Comparison between full-fledged Islamic banks and Conventional banks operating standalone Islamic branches

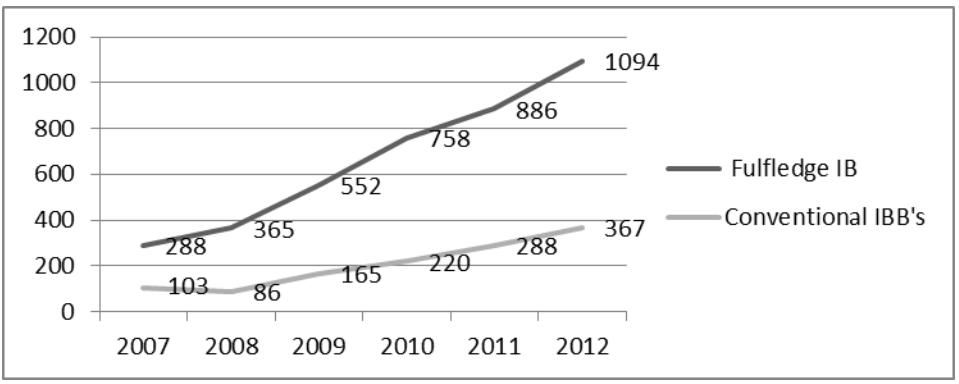

Figure-2

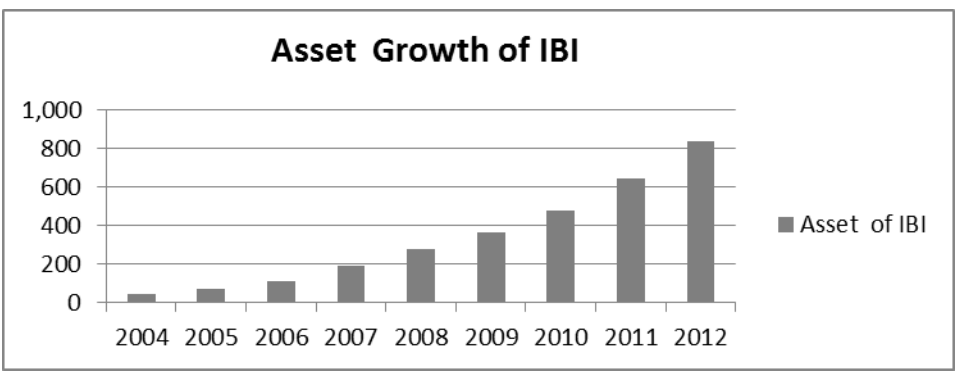

Figure-3

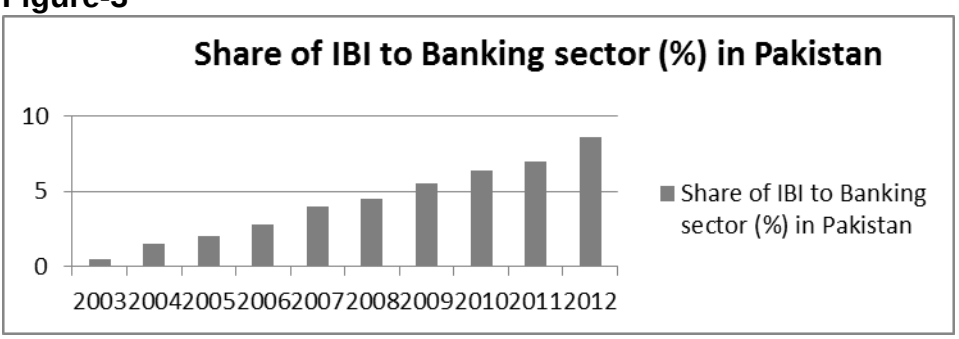

Table-1 Standard errors of Models M1-M4 for IBI

Model	AIB	MBL	DIB	BI	BIB	Ask	ALF	UBL	MCB	BAH	Avg.
M1	0.001	0.001	0.001	0.001	0.003	0.003	0.000	0.01	0.003	0.002	**0.00289**
M2	0.002	0.001	0.001	0.001	0.003	0.004	0.000	0.01	0.002	0.004	0.00311
M3	0.001	0.001	0.000	0.001	0.001	1.046	2.655	1.115	4.569	0.101	1.04351
M4	0.001	0.000	0.001	0.001	0.003	0.003	0.000	0.01	0.003	0.001	0.00293

Table-2 Results of Hypothesis M1 encompasses Mi

Models	Test statistics	AIB	MBL	DIB	BI	BIB	Ask	ALF	UBL	MCB
M1 encompasses M2	COX	-0.49	-0.56	0.19	0.43	0.96	-0.09	-0.07	-0.09	0.92
	P-value	0.62	0.57	0.85	0.67	0.34	0.93	0.95	0.93	0.36
M1 encompasses M3	COX	-5.05	-15.5	-4.92	-2.1	-10.6	-229.1	-21.1	-15.2	-12.9
	P-value	0.00	0.00	0.00	0.03	0.00	0.00	0.00	0.00	0.00
M1 encompasses M4	COX	0.13	-0.69	-0.67	0.13	-0.25	-1.73	-1.86	-3.71	-0.63
	P-value	0.90	0.49	0.00	0.90	0.80	0.08	0.00	0.00	0.03

Table -3 Estimation results of the most general model

Dependent Variable: ROA

Variable	Coefficient	Prob.
C	0.2098	0.9522
LSIZE	-0.3212	0.0000
INT	0.0595	0.0195
DETA	2.0813	0.0092
TETA	1.6968	0.0555
INF	-0.0166	0.0394
NBR	0.0032	0.0000
ADDEP	-0.0586	0.1114
EXTA	-0.2985	0.0038
COMPET	0.0320	0.4751
LM2	-0.2128	0.0722
MKTSHB	-1.0279	0.1945
LGDP	0.3690	0.0780
PRTA	0.0000	0.8398

Table-4 Restriction results

Wald Test:

Equation: Untitled

Test Statistic	Value	df	Probability
F-statistic	1.835080	(5, 221)	0.1071
Chi-square	9.175398	5	0.1023

Table-5 Estimation results of the simplified most General model

Dependent Variable: ROA

Variable	Coefficient	Prob.
C	2.905	0.017
LSIZE	-0.301	0.000
EXTA	-0.350	0.000
TETA	1.846	0.013
DETA	2.057	0.002
NBR	0.003	0.000
INT	0.051	0.020
INF	-0.015	0.044

Table-6 Results of Im, Pesaran and Shin Unit Root Test

Variable	Test Statistics	P-Value
LSIZE	-1.94	0.03
EXTA	-3.65	0.00
TETA	-4.81	0.00
DETA	-6.37	0.00
NBR	2.74	0.00
INT	2.58	0.01
INF	-5.32	0.00

Table-7 Error Correction Model (ECM)

Dependent Variable: ROA

Variable	Coefficient	Prob.
C	2.221	0.062
LSIZE	-0.272	0.000
EXTA	-0.340	0.000
TETA	2.082	0.013
DETA	2.214	0.006
NBR	0.003	0.000
INT	0.050	0.029
INF	-0.010	0.179
ECM(-1)	0.392	0.000

Table-8 Error Correction Model (ECM) after dropping INF

Dependent Variable: ROA

Variable	Coefficient	Prob.
C	2.484	0.052
LSIZE	-0.272	0.000
EXTA	-0.338	0.000
TETA	1.889	0.046
DETA	2.029	0.029
NBR	0.003	0.000
INT	0.032	0.019
ECM(-1)	0.397	0.000

****