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Bank-Specific and Macroeconomic Determinants of Bank Profitability: Evidence from Member States of the OIC

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Abstract: The aim of this paper is to examine the effect of internal (managerial-bank specific) and external (macroeconomic) determinants of bank profitability over the period 2007-2012, adopting balanced panel data regression model for selected member states of the Organization of Islamic Cooperation (OIC). The results reveal that greater size of assets and management efficiency regarding expense management contributes to increase in Return on Assets. The paper also demonstrates that efficiency of management about operating expenses has a positive effect on profitability. Keywords: Banking, Bank profitability, OIC

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1. Introduction

In any economy, banks play crucial role as financial intermediaries between surplus and deficit units. A robust and lucrative banking system makes significant contribution to the stability of whole financial system by resisting likely negative shocks; hence, determinants of bank performance continue to attract attention of all parties within the system (Athanasoglou, Brissimis and Delis 2008). For that reason, understanding determinants of bank profitability is essential to not only bank management but also to supervisors. This study attempts to find out the answer of this question about what determinants effect bank profitability internally (bank-specific) and/or externally (macroeconomic) by considering the changes macroeconomic and legal environments of the sector.

The paper targets to identify the aspects that influence both Islamic and commercial banks profitability with key focus of bank-specific determinants. Thus, the study is critical because of the importance of the topic for academics and practitioners. It also makes important contribution to existing literature that analyzes the factors effect bank profitability from Islamic as well as traditional stand points of banking.

The paper is organized as follows: Section 2 discusses the previous studies on profitability determinants of Islamic and conventional banks. Section 3 explains the data, method and the variables. Section 4 presents study results and finally Section 5 concludes the paper.

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2. Previous studies

The early studies on banks profitability provided by Short (1979) and Bourke (1989) and later several studies particularly to identify the determinants of bank performance conducted by different authors. The previous studies defined the bank's profitability determinants as a combination of internal and external factors, in which the internal determinants are related to bank-specific profitability determinants (Gungor, 2007). The external associated with financial and legal environment that affects activities and the performance. The bank-specific (internal determinants) are combination of different financial ratios such as asset size, capital adequacy, cost efficiency, liquidity, asset management and financial risk whereas economic growth (GDP), inflation (IFL) are used as external determinants.

Underlying literature focused on specific and panel of countries studies about bank profitability are (Berger, 1995; Angbazo, 1997), (Guru, Staunton and Balashanmugam, 2002), (Naceur, 2003), (Dietrich and Wanzenried, 2009), (Javaid, Anwar, Zaman and Gafoor, 2011). A study conducted by Berger (1995) in United States examined the relationship between return on equity (ROE) and ratio of capital to asset over the time period of 1983-1992 and found a positive relationship between two variables. Angbazo (1997) also worked on US banks over the time period of 1989-2003 and found out that efficiency of management, default risk, non-interest bearing reserves opportunity cost and leverage are associated positively with interest margin of bank. In the case of Malaysia, Guru et al. (2002) studied on commercial banks in which sample were selected of seventeen banks over the time period of 1986-1995. They found that efficient management of expenses was the most significant in explaining high profitability of banks, greater ratio of interest link to lower banks profitability and a positive effect found of inflation on performance. Acording to Naceur (2003) the higher net interest margin linked to the banks that have higher capital and large overheads. He also indicated that negative impact of economic growth and inflation on banks profitability while positive impact of the stock market development and net interest margin in Tunisian Banking Industry. Dietrich and Wanzenried (2009) conducted a research in Switzerland and argued that commercial banks had significant differences in profitability and stated that banks with higher capital seemed to be more profitable. Javaid et al. (2011) discussed that due to diseconomies of scale, higher assets may not lead to higher profitability and higher loans ratio contributes in profitability but impact is insignificant in Pakistan. They also added that deposits and equity significantly impact the profitability.
Underlying literature concentrated on Islamic banks profitability which includes panel countries are as follows: Masood and Ashraf 2012; Asma et al., 2011; Ahmad and Ahmad 2004; Al-Shammari and Turen, 2014; Izhar and Asutaya 2007; Bashir, 2003 and Al-Jarrah and Molyneux 2003.

Masood and Ashraf (2012) conducted a study on determinants of Islamic banks on panel countries data. The results of study signified that larger assets size banks lead to higher profitability and management efficiency can work for better return on assets (ROA). The efficiency of management for effective running of operating expenses effect bank profitability significantly and positively. Asma et al., (2011) reviewed the profitability determinants of Islamic banks in Malaysia. The bank-specific determinants such as bank size, liquidity, capital adequacy, expense management and credit risk effect were went through and found that the only bank size statistically affects the Islamic banks profitability in Malaysia. Izhar and Asutaya (2007) conducted a study in Indonesia in order to determine profitability determinants of Islamic banks. The results revealed that no effect found of service activities on Indonesia Islamic banks profitability. Ahmad and Ahmad (2004) investigated the effect of Islamic banks credit risk in Malaysia. The study highlighted that size of assets, ratio of risky assets and efficiency of management effect Islamic banks credit risk significantly and statistically. In another study conducted by Bashir (2003) in the Middle East, capital adequacy and profitability had a significant relationship on

performance and local banks are less profitable than of foreign owned banks. Al-Jarrah and Molyneux, (2003) found that Islamic banks in Bahrain, Egypt, Sudan, and Saudi Arabia are more efficient because their cost of funds is lower in comparison to the cost of other financial institutions. The researchers stressed that cost of the Islamic banks funds is lower comparatively to other financial institutions ones and are more efficient. Hassan and Bashir (2003) examined the factors impact profitability of Islamic banks and found that loans ratio and capital adequacy significantly and positively affects Islamic banks profitability.

The results pointedly differ due mainly to the variation in the data and the factors considered. Current study differs because of variables used, timing and the population as well as unique in nature based upon the selected sample and countries.

3. Data and Methodology

3.1. Variables

The various variables were used in the study to determine the bank's profitability determinants. The return on assets and return on equity are considered as dependent variables while rests of the variables are used as independent. The two types of variables considered in study like bank-specific and macro-economic variables. The bank specific are internal variables of bank and external are economic growth and inflation.

Dependent Variables: The return measures with respect to assets (ROA) and equity (ROE) were used to measures the bank's profitability. ROA explained as net profit after tax and zakat to total assets and ROE as net profit/shareholder equity. The values of both measures are calculated in percent. The both measures were used to analyze banks profitability as return on asset (ROA) is an evaluator of bank ability to produce profit from its sources while return on equity (ROE) represents return from shareholder's equity.

Independent Variables: In two sub-groups independent variables are categorized:

a) Bank-Specific variables,
b) Macro-Economic variables.

Bank-Specific (Internal) Variables: The bank-specific variables are variables that related to the decision of management and banks policy objectives. To measure profitability of banks, the used bank-specific variables explained below: Asset size, Capital adequacy, Liquidity, Assets management, Operating efficiency, Gearing ratio, Financial risk.

- *Asset size (log A).*An important variable used in finance literature is asset size and the total assets logarithm represent bank size and denoted by (log A). The banks total assets used as proxy for size of bank. The bank's profitability affected by asset size of bank and considered normally positive, Smirlock (1985), and statement is proven by study results of (Masood and Ashraf, 2012).

Table-I Determinants of banks profitability

Determinants	*Variable*	*Measures*	*Notations*
Profitability	Return on Asset	Net profit/Total assets	ROA
	Return on Equity	Net profit/Equity	ROE
Interrnal (Bank-Specific)	Asset Size	Natural log of total assets	log A
	Capital Adequacy	Total equity/Total assets	CAD
	Liquidity	Liquid assets/Total assets	LQY
	Assets Management	Operating income/Total assets	AM
	Operating Efficiency	Total operating expenses/Total assets	OE
	Gearing Ratio	Total debt/Total equity	GR
	Financial Risk	Total liabilities/Total assets	FR
(External (Macroeconomic	Economic Activity	Annual real GDP growth rate	GDP
	Inflation	Annual inflation rate	INF

• *Capital adequacy (CAD).*To measure the capital strength of bank, capital adequacy ratio used. The capital adequacy determined through equity divided by total assets. Higher capital adequacy lead to higher profitability of banks. The banks strength indicates external shocks absorptions and risk exposure management with shareholders.
• *Liquidity (LQY):* The liquidity of banks measured through the ratio of liquid assets to total assets. The higher ratio indicates more liquidity of banks. The more liquid assets in hand become the opportunity cost for higher return. The bank's profitability relationship found to be positive with liquidity, (Bourke, 1989).
• *Asset Management (AM):* Asset management variable used to measure the bank's profitability and used ratio operating income to total assets. The higher ratio of assets management seems to be beneficial for banks. The positive relationship reveals between asset management and Islamic banks profitability, (Chirwa, 2003).
• *Operating efficiency (OE):* The total operating expenses divided by total assets present the efficiency of Islamic banks. The operating expenses management positively and significantly affects the banks' profitability, (Masood and Ashraf, 2012).
• *Financial Risk (FR):* To measure financial risk, the ratio total liabilities to total assets used as a proxy. The ratio indicates the worth of capital and for profitability, positive relationship expected.

Macroeconomic (External) Variables: The macroeconomic variables expectedly affect the bank's profitability. As external independent variables used in the existing studies, these variables are:
a) Annual real gross domestic product growth rate and,
b) Annual inflation rate.
• *Gross Domestic Product (GDP) growth rate:* The gross domestic product (GDP) growth rate considered in this study as independent variable to measure economic activity as demand and supply related various factors affected. The previous studies found different relationships with profitability. Bikker and Hu, (2002) found positive relationship with banks profitability and negative relationship found by Masood and Ashraf, (2012).

• *Inflation rate (INF):* For all goods and services, inflation rate is used to measure the increase percentage in Consumer Price Index (CPI). The inflation affects the real values and revenues. The positive or negative relationship can be expected for profitability. The positive relationship found by few listed studies with profitability; Kosmidou, (2006), Masood and Ashraf, (2012).

3.2. The Data

The six year data from 2007 through 2012 belong to 25 Islamic and 25 conventional banks are collected from OIC member states. The countries examined are Bahrain, Bangladesh, Indonesia, Kuwait, Malaysia, Oman, Pakistan, Qatar, Saudi Arabia, South Africa, Sudan, Turkey, United Arab Emirates, and Yemen where Islamic and conventional bank products are growing fast. For each selected bank, the annual frequency data are collected from the financial statements whereas the macroeconomic data are obtained from The CIA's World Factbook.

3.3. The Methodology

The determinants of banks profitability are analyzed through panel data. Used model for panel data consists s for units of cross sectional denoted by $s = 1....S$, observed for T time period, $n=1...N$. Total observation in the data set are $s \times N$. The panel data framework defined through the regression equation as

$$Y_{sn} = \alpha + \beta x_{sn} + \varepsilon_{sn} \quad (1)$$

In the model;

Represent the dependent variable (Profitability), is used as intercept term on the explanatory variables, is the vector of estimated parameters, and observation vector is.
The above equation can be rewriten in functional form as follows;

Profitability = f(Internal(BankSpecific)and External (Macroeconomic) Variables) (2)

Where profitability is measured by Return on Assets (ROA) and Return on Equity (ROE) and bank-specific variables includes Asset size, capital adequacy, liquidity, Assets management, Operating efficiency, Gearing ratio and financial risk and Macroeconomic Variables includes Economic Activity and Inflation.

Expanding the proxies used in model 2 will give in the following model.

$$ROA = \alpha + \beta_1 \log A_{sn} + \beta_2 CAD_{sn} + \beta_3 LQY A_{sn} + \beta_4 AM_{sn} + \beta_5 OE_{sn} + \beta_6 FR_{sn} + \beta_7 GDP_{sn} + \beta_8 INF_{sn} + \varepsilon_{sn}$$

$$ROE = \alpha + \beta_1 \log A_{sn} + \beta_2 CAD_{sn} + \beta_3 LQY A_{sn} + \beta_4 AM_{sn} + \beta_5 OE_{sn} + \beta_6 FR_{sn} + \beta_7 GDP_{sn} + \beta_8 INF_{sn} + \varepsilon_{sn}$$

4. Results

Table-II shows the descriptive statistics of the sample conventional and Islamic banks over the time period of 2007 and 2012. The results indicate that commercial banks are more profitable than Islamic banks because commercial banks means of ROA and ROE are greater than Islamic banks even though the mean of asset size are equal.

The capital adequacy (CAD) values for commercial banks are higher which indicate that banks has higher equity ratio in comparison to Islamic banks. The commercial banks liquidity ratio shows value 79.39 percent which is also higher than Islamic banks. The Islamic banks made investment in long term projects, the reason behind investment mode of profit and loss sharing. Asset management

and Operating efficiency also support the commercial banks due to higher ratio. Financial risk of bank indicate that bank has higher debt rather of equity which also indicated by the liquidity ratio. The economic activity and inflation mean values are higher of Islamic banks.

Table-II Descriptive Statistics

	Conventional Banks		Islamic Banks	
Variable	Mean	.Std. Dev	Mean	.Std. Dev
ROA	1.971	1.145	0.518	0.928
ROE	16.419	8.280	4.703	8.589
Log A	7.665	1.544	7.665	1.369
CAD	14.450	14.156	3.459	5.456
LQY	79.395	7.828	28.578	43.802
AM	4.886	2.954	1.541	3.221
OE	2.929	6.055	0.988	2.206
FR	88.122	29.639	25.661	39.607
GDP	0.056	0.048	3.808	3.934
INF	0.061	0.045	5.561	5.588

Regression results for Return on Asset. The regression result of the study demonstrates that asset size of Islamic and commercial banks reveals positive and insignificant relationship with bank profitability. The return on asset (ROA) significant and positive relationship found with asset size (log A), Masood and Ashraf (2012).Return on equity (ROE) and capital adequacy (CAD) demonstrate significant and positive relationship for both Islamic banks. The same results of capital adequacy with return on asset (ROA) found by Ramlall (2009).

Table-III Dependent Variable: ROA

	Commercial Banks		Islamic Banks	
Variable	Coefficient	t-Statistic	Coefficient	t-Statistic
C	3.231	0.983	-0.009	-0.171
Log A	0.009	0.234	0.001	0.132
ROE	0.109	*13.457	0.112	*48.942
CAD	0.029	*6.085	0.131	*10.655
LQY	-0.035	-1.060	-0.012	-1.340
AM	0.027	1.050	0.007	0.592
OE	-0.021	-0.491	-0.044	*-2.605
FR	-0.003	-1.612	-0.002	-0.226
GDP	0.165	0.128	-0.013	-0.023
INF	0.424	0.278	0.001	0.367
R-squared	0.698		0.987	
F-statistic	22.922		835.058	
(Prob.(F-statistic	0.000		0.000	

Liquidity (LQY) and financial risk (FR) explain the negative and insignificant relationship with banks profitability while asset management (AM) show positive relationship with banks profitability and insignificant. Previous study by Masood and Ashraf (2012) found asset management positive relationship with return on assets and significant and Chirwa (2003) founds that assets management has positive and insignificant relationship with banks profitability. This Operating efficiency (OE) exhibit negative relationship with profitability of commercial and Islamic banks but significant for Islamic banks. Economic activity (GDP) insignificantly affects the profitability of commercial and Islamic banks while negatively of Islamic banks. Inflation positive and insignificantly effect the bank's profitability.

Regression results for Return on Equity. Table IV presents the determinants of return on equity (ROE).

Table-IV Dependent Variable: ROE

	Commercial Banks		Islamic Banks	
Variable	Coefficient	t-Statistic	Coefficient	t-Statistic
C	-42.870	-1.941	-0.101	-0.217
Log A	0.183	0.740	0.031	0.550
ROA	5.021	*13.457	8.573	*48.942
CAD	-0.233	*-7.654	-1.211	*-11.566
LQY	0.471	**2.151	0.137	***1.696
AM	0.429	*2.482	0.033	0.325
OE	0.396	1.350	0.348	**2.311
FR	0.011	0.822	0.002	0.020
GDP	11.104	1.276	0.001	0.050
INF	10.267	0.996	-0.008	-0.456
R-squared	0.734		0.989	
F-statistic	27.465		914.226	
(Prob. (F-statistic	0.000		0.000	

The model results are closely related to the previous studies. The value is 0.734 which mean that all explanatory variables explain return on equity 73.4%.The results of table IV demonstrate that asset size positively and insignificantly impact the profitability of banks. Return on asset and liquidity positively and significantly impact the profitability of banks while capital adequacy negatively and significantly impact on profitability. Capital adequacy positive and significant relationship found with banks profitability model, Ali et al. (2011).Asset management impact profitability of commercial banks positively and significantly and operating efficiency Islamic banks. The previous studies found that operating efficiency negatively affect the return on equity (profitability) (Alexiou and Sofoklis, 2009). Financial risk and economic activity impact profitability of both banks positively and insignificantly. Inflation effect the commercial banks profitability positively while Islamic banks negatively.

5. Concluding Remarks

To measure performance of banks, profitability is only source to measure performance in the competitive environment. The internal management and external variables were considered to examine

profitability. For this purpose, 25 Islamic and 25 commercial banks were assumed from 14 countries for the time period of 2006-2012. To measure profitability of banks panel data (fixed effect) method applied through measures return on assets (ROA) and return on equity (ROE).

The study results indicate that asset size has positive and significant relationship with banks profitability which means that greater assets of banks lead to higher banks profitability. Assets management of banks presents a positive relationship with banks profitability which plays crucial role for better profitability. Liquidity positively and significantly effect the banks profitability for return on equity, which mean that banks with higher liquid assets contribute to banks profitability with respect to equity. Financial risk negatively effect the return on assets while positively effect the return on equity.

The operating efficiency negatively impacts the return on assets while significantly effect the Islamic banks return on assets. For return on equity, operating efficiency positively effect for Islamic and commercial banks and significantly effect the Islamic banks which means that better efficiency of management for expense management can contribute to banks profitability. The external variables impact the profitability of banks but in this study role of external variables are significant.

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