Original Research Article

Banking Performance in OIC Member Countries: A panel study of selected Islamic banks.

Abstract

The Islamic finance industry has witnessed an interrupted progression globally during the last few decades owing to its sustainable and asset-based nature which promotes growth and development. The aim of the study is to investigate the performance of selected Islamic banks in Organization of Islamic Cooperation (OIC) Member countries by employing the System GMM dynamic panel estimator on a sample of 130 Islamic banks. The results suggest that profitability of Islamic banks is not only influenced by factors related to management decisions but also to changes in macroeconomic environment. Among the bank specific variables, the results suggest that capitalization, asset quality, efficiency and bank size are the key drivers of bank profitability.Furthermore, the findings show that the level of inflation has a positive significant effect implying that Islamic banks perform better during inflationary periods, while real GDP growth rate per capita has no significant impact on profitability. As a policy implication,the further improvement of capital adequacy guidelines and risk management practices for Islamic banks in OIC member countries is eminent. This would furtherenhance Islamic banks in the global financial industry characterized by increased fragilities in the overall banking sector.

Keywords: Bank Profitability, Dynamic Panel Model, Islamic Banks, OIC countries.

1.0 Introduction

The Islamic finance industry has witnessed an interrupted progression in terms of its asset growth and institutional diversification globally during the last few decades owing to its sustainable and asset-based nature which promotes inclusive growth and development. The

industry has experienced positive growth rate and as of 2018, the global Islamic financial industry as measured by the total volume of shariah compliant assets, is estimated to grew to US$ 2.5 trillion, covering Islamic financial institutions, capital markets and Islamic insurance (ICD, 2019). As the core and crucial part of the Islamic finance industry, the Islamic banking system has appeared to be relatively stable and insulated during the global financial crisis compare to the conventional banking system (Alexakis et al., 2015). Both systems differ in principle as the former is guided by sharia rules whereby riba based transactions are prohibited, it is based on the principle of realism (earning by owning asset that generate permissible returns), and prevalence of justice.

The existing literature on banking performance has considers both internal (bank-specific) and external (macroeconomic) factorsas drivers of banking profitability. The existing literature has adopted the internal factors affecting banking performance to be: capitalization, asset quality, management efficiency, liquidity, and bank size. Demnirgii-Kunt et al., (1998) Identify the external factors affecting bank performance to be macroeconomic indicators such as economic growth (GDP), inflation, trade, and the money supply growth rate.

The present study has been undertaken to investigate the profitability of selected Islamic banks in OIC member countries by employing the System GMM dynamic panel estimator.

The organization of the rest of the study is as follows: Section 2 provides a brief literature review on the subject matter; section 3 details out the data and methodological approach and section 4 and 5 contains the empirical results and conclusion, respectively. References are provided at the end.

2.0 Literature Review

This section discusses the empirical literature on the determinants of banking profitability.

One of the most important financial measures of banks is profitability. Bank profitability is usually measured by the return on equity, return on asset or net interest margin. The return on asset is a financial ratio measured as a a ratio of the net profit to total assets. There are numerous studies that used return on equity as a measure of banking profitability (Kosmidou et.al., 2005).

The existing literature on banking performance has attempted to identify the drivers of bank profitability which are generally considered to be internal (bank-specific) and external factors (country specific) as drivers of banking profitability (Athanasoglou et al., 2008). Internal determinants of bank profitability are those bank specific factors that are influenced by the decisions taken by the bank's management and its policy objectives. In line with the literature, the internal determinants of profitability which are within the control of the bank, basically include bank size, capitalization, risk and efficiency (Dietrich & Wanzenried, 2011).

External determinants of bank profitability are factors which are not control by the bank's management and policies, but by outside factors that are beyond the influence of the bank (Staikouras & Wood, 2011). Empirical studies such as Demnirguci-Kunt et al., (1998) Identify the external factors affecting bank performance to be macroeconomic indicators such as economic growth (GDP), inflation, trade, competition, ownership and the money supply growth rate. These and other determinants indirectly affect bank management from the economic and legal point of view. Hence, banks do not have control and management of these external factors. A number of studies have shown a positive relationship between economic growth, inflation, trade and bank profitability (Athanasoglou et al., 2008; Demnirgii7-Kunt et al., 1998). For instance, in regards to economic growth, Robin et al., (2018) mentioned that credit flow of banks

boosts whichincreases bank profitability due to the surge in economic growth. Among others, Athanasoglou et al., (2008) in their study on banking performance, revealed that the impact of inflation on banking profitability yielded positive relationship. Reiterating a similar study by focusing in Japan, Kumar et al., (2021) reported a positive relationship between inflation and banking performance.

Empirical evidence on banking profitability performance is eminent in the literature. Caporale et al., (2017) used a random effect panel model to investigate the banking performance of both domestic and foreign banks in 17 MENA countries during the global financial crisis from the period 2000-2012. After controlling for bank size, net loans, NPL, GDP and ownership, their study show that domestic banks outperformed foreign banks in that region. While employing dynamic panel GMM technique, Athanasoglou et al., (2008) examined the bank -specific, industry-specific and macroeconomic determinants of bank profitability in Greek banks. Their study used data from 1985 to 2001, the authors find that all bank specific determinants have a significant impact on bank profitability with the exception of bank size. In another study, Petria et al., (2015) empirically explore the determinants of bank's profitability within the European Union (EU) 27 banking system. By using data spanning from 2004 to 2011, the authors find evidence that risk, management efficiency and economic growth have a negative impact on both return on average asset and return on equity. Most recently, Killins & Mollick (2020) investigates the performance of Canadian banks by using asset quality measure, the authors used quarterly data from the period 1996Q1 to 2018Q2. By employing System GMM approach to dynamic panel analysis, the findings from their study indicates that oil prices have a positive significant effect on bank profitability in Canada during the period under study. In their study of bank's performance and financial soundness indicators in emerging countries, Albulescu

(2015)find evidence of a negative impact of asset quality on bank's profitability by using a fixed effect model. In addition, the study concludes that equity to total asset and the interest rate margins have a positive impact on the banks' profitability. Applying panel regression technique for a panel of Bangladeshi banks for the period 1983-2012, Robin et al. (2018) find that capital strength and high asset quality as the main drivers of profitability. Similarly, Staikouras & Wood (2011)reported in their study that bank specific characteristics in particular capitalization and funds gap ratio have a positive and significant impacts on profitability of selected EU banks, while loans to asset ratio and credit risk exhibits negative relationship with bank profitability. The authors also find that size has a negative impact on large banks and a positive effect on small banks in terms of performance.

The literature on banking performance of Islamic banks is relatively scant, Yanikkaya et al. (2018) examine the difference in profitability of 74 Islamic banks and 354 conventional banks from the OIC member countries between the period 2007 and 2013 by using return on assets and net interest margin as performance measures. The analysis concludes that all the independent variables indicate differing results for both conventional and Islamic banks implying that profitability of Islamic banks are not persistent and has no significant with country specific. variables. Similarly, Alqahtani et al. (2016) compare the bank performance of 101 conventional and Islamic banks in GCC economies during the time of economic shocks over the period 1998-2012. Their study suggest that Islamic banks outperformed their conventional counterpart in terms of capitalization, profitability, and liquidity during the early period of the financial crisis, although they performed worse in the later period of the crisis.

The foregoingempirical analysis discussed abovehas indicate that literatures on banking profitability are numerous, but quite a good number of empirical discussions on the topic are

mostly focused on conventional banks. Notwithstanding, there has been limited researchon profitability of Islamic banks in a panel study of OIC member countries. The present study has been undertaken considering the importance of Islamic banks' role in OIC member countries by employing the System GMM dynamic panel estimator. Henceforth, this research contributes to the existing literature on banking studies in OIC member countries.

3.0 Data and Methodology

After discussing the literature review on banking profitability, this section discusses the sample financial data of banks and empirical implementation on model selection and empirical process.

3.1 Data

The data type used in this study is panel data which is the most suitable tool when the sample consist of cross-sectional and time-series data. In this case, panel data has the advantage of controlling for individual heterogeneity of each bank included in the sample. The source of information is twofold. On the one hand, the banking level data for the variables of the study are extracted from fitch connect database; and on the other hand, the macro level data are sourced from the World Bank Development Indicators. These variables include capitalization, bank size, management efficiency, credit risk, liquidity risk, economic growth, and inflation. The data used in this study is an unbalanced panel datasets of 130 Islamic banks in 33 OIC member countries, comprising of 942 observations spanning from 2011 to 2020. Themotivation in choosing the sample period and data is to make use of the latest year-end financial data obtainable in the OIC member countries.

3.2 Variables Description

In this section, we describe the variables that are used in analyzing banking profitability in the OIC member countries. They include both bank specific and macroeconomic factors that affects banking performance as discussed in the literature. In this study, five bank specific variables namely bank size, capitalization management efficiency, asset quality and liquidity are used as internal determinants of bank profitability while three variables i.e., proxies of economic growth,

inflation and trade openness are used to examine the impact of macroeconomic conditions on banking profitability.

3.2.1 Profitability Measure (dependent Variables):

In line with the study of Athanasoglou et al., (2008) and Petria et al. (2015), the present study used Return on Equity (ROE) as dependent variable. Return on equity is computed as a ratio of total profit over total equity

3.2.2 Determinant of Banks' Profitability: Independent Variables

Capitalization: The ratio of shareholder's equity to total asset is used as a proxy for capitalization. With better net income, Dietrich & Wanzenried (2011) asserted that banks that are expected to have a higher equity to asset ratios tends to be relatively safer and are exposed to less risk as compared to other banks with lower equity ratio. Thus, this leads to higher capitalization and ultimately enhances banks' profitability (Akbas et al., 2012). Equity to total assets is proxied for capitalization.

Credit risk: This risk is inherent to the failure of debtors to fulfil their contractual obligation to the bank. As mentioned by Athanasoglou et al., (2008) credit risk is considered to be a key measure for overall bank profitability. To proxy this variable, non-performing loan to total loans is used. Moreover, credit riskis expected to have a negative impact on bank profitabilitysince banks' exposure to higher risk is usually associated with lower profitability owing to write-offs off existing loans (Daher et al., 2015).

Management Efficiency: This is a measure of a bank's capability to convert available resources into return. Cost to income is proxied for inefficiency as it measures the effect of operating efficiency on the performance of banks. Most studies suggest it to have a negative impact on

bank profitability (Petria et al., 2015). Higher the bank's operating costs relative to bank's earnings, lower is the profitability of the bank ceteris paribus (Akbas et al., 2012).

Liquidity Risk: This measure shows the risk arising from inadequate liquidity for normal operating requirements.The ratio of deposits to short-term funding is used as a proxy of liquidity risk. A positive relationship is expected as the lower the ratio, the lower the liquidity risk which consequently increases banking profitability.

Bank size: The controversy about the real impact of bank size on profitability is apparent in the empirical literature. In some studies, bank size have a positive effect on bank profitability as mentioned by (Robin et al., 2018). Due to their economies of scale, larger banks relatively have higher diversification advantage in terms of product innovation and increased operational efficiency as compared to smaller banks. Other studies reports a negative impact of bank size on banking profitability (Kumar et al., 2021). In this study, log of total assets is used as a proxy for bank size.

As country-specific variable, economic growth has a significant impact on bank profitability. As a proxy of economic growth, real GDP per capita growth increases as loans for demand increases and customer deposits. Thus, as economic activities increases banks tends to lend more and charge higher interest hence this is expected to have a positive impact on bank profitability (Al-Gasaymeh, 2016). We proxied economic growth as real GDP per capita.

Inflation and Trade Openness: The impact inflation has on banking profitability is ambiguous. On the one hand, if inflation is anticipated, then high inflation implies high interest rate. This increases loan interest and thus the bank's profitability increases. On the other hand, unanticipated inflation may slow interest rates adjustment and lead to high cost thus reducing

bank's profitability (Akbas et al., 2012). Nevertheless, quite a good number of previous empirical studies reported a positive linkage between inflation and bank profitability (Demnirgii-Kunt et al., 1998; Athanasoglou et al., 2008; Kumar et al., 2021). Consumer price index is used as a proxy for economic uncertainty in the countries of study (inflation).Trade openness is also expected to have a positive linkage with banking performance.

Table 1: Variables Description

Variable	Description	Expected Relation (+/-)	Source
Dependent Variable			
ROE	Return on Equity=Profits/Total Equity		
Independent Variables			
Bank Specific Factors (Internal)			
Capitalization	Capital/Total Assets	+/-	Poghosyan et al., (2009)
Asset quality	Asset Quality = NPL/ gross loans	-	Mansur et al., (1993)
Management efficiency	Management inefficiency =cost/income	-	(Petria et al., 2015)
Liquidity	Liquidity = deposits and borrowing / loans	+	Alexiou and Sofoklis, (2009)
Size	Bank Size = log of total assets	+	(Robin et al., 2018)
Macroeconomic Factors(external)			
ECG	Economic Growth = growth of rate of Real GDP per capita	+	Athanasoglou et al., (2008)
INF	Inflation (based on CPI)	-	Beck et al., (2013)

TRA	Trade Openness (imports+exports)/GDP	=	+

Source:author'sown

3.3 Model

The system Generalized Method of Moment (GMM) is utilized to investigate the drivers of bank profitability over time. The system GMM is the most suitable tool when dealing with micro panel data and is able to address endogeneity issues that arises in cross-sectional and times series econometrics. In addition, the system is able to overcome any unobservable and heterogeneous characteristics of each particular cross sectional unit (Saona, 2011). To empirically analyze the purpose of the study, model 1is used:

$$ROE_{it} = \beta_{it} + \delta \mathrm{ROE}_{it-1} + \beta_i x_{It} + \in_{it} \quad (1)$$

Where:

The subscripts i and t denote the cross sectional and time dimension of the panel sample respectively.

ROE_{it}= denotes the dependent variable which is the profitability measure of banks I at time t, with i=1,…,N, t=1,…,T

x_{it} = denotes the vector of bank specific and country specific explanatory variables

$\beta_0 and\ \beta_i$= denotes constant term and coefficients betas respectively

$\in_{it}$= the composite error term with v_i the unobserved bank-specific effect and u_{it} the idiosyncratic error.

Model 1 may cause endogeneity problem if least square estimation method is used due to the dynamic nature of the bank. Thus, there will be presence of autocorrelation due to the presence of lagged dependent variable among the independent variables and individual effects characterizing the heterogeneity across the individual units. To address this issue, the system Generalized Method of Moment (GMM) is employed which was initially used by Arellano &

Bover (1995). This method is based on the first difference transformation which eliminate the expected correlation between the lagged dependent variable and the error time and the subsequent elimination of the bank specific fixed effects. Furthermore, twostep robust version and overidentification test is used to diagnosed the validity of the instruments in the system GMM estimator (Roodman, 2009). The system GMM is also appropriate for micro panel and unbalanced data hence given that the time period in this study is relatively small compared to the cross-sectional units, we rely on this method.

4.0 Resultsand Discussion

In What follows, the performance measures of banking profitability for the selected Islamic banks are examined and discussed. Return on equity is the dependent variable while the rest of the variables are independent variables. The mean, standard deviation, minimum and maximum values of the variables in the model are presented in table 2.

Table 2: Summary Statistics

Variable	Obs	Mean	Std. Dev.	Min	Max
ROE	889	7.419	11.972	-41.47	47.15
C	942	22.14	27.001	-143.03	99.95
NPL	616	4.552	3.956	.735	20.925
M	928	74.932	125.12	-1927.64	1500
L	902	155.855	1330.23	.39	29378.77
Z	942	7.256	2.083	1.075	11.483
GDP	934	1.606	3.802	-29.827	13.564
INF	850	5.188	8.152	-3.749	63.293
TR	908	93.516	53.496	17.927	379.099

Source: author's own

Table 2 shows the results of the summary descriptive statistics on the variables under study. The earnings of banks measured by the return on equity have an average of 7.419 % and a standard deviation of 11.97%. Non-performing loans, management inefficiency, liquidity and bank size have mean values of 4.55%, 74.93%, 155.855% and 7.256% with standard deviation of 3.96%,

125.12%, 1330.23% and 2.083% respectively. Also, the macroeconomic indicators; GDPper capita growth, inflation, and TR have mean values of 1.61%,5.19% and 93.52% with standard deviation of 3.802%, 8.15% and 53.50% respectively.

Table 3: Correlation Results

	ROE	C	NPL	M	L	Z	GDP	INF	TR
ROE	1								
C	-0.235***	1							
NPL	0.00424	0.132**	1						
M	-0.454***	0.183***	-0.0120	1					
L	-0.0964*	0.461***	-0.0225	0.0460	1				
Z	0.503***	-0.562***	-0.435***	-0.317***	-0.190***	1			
GDP	0.117*	-0.0886	0.0687	-0.0960*	-0.0000170	0.0273	1		
INF	0.0560	0.0367	0.418***	-0.00970	-0.0142	-0.180***	0.177***	1	
TR	0.109*	-0.0091	-0.388***	-0.121**	0.113*	0.342***	0.0461	-0.434***	1

*$p< 0.05$, **$p< 0.01$, ***$p< 0.001$

Presented in table 3 are the results of the correlation matrix for different bank indicators and macroeconomic indicators. ROE isthe measurement performance which corresponds to the dependent variable in the estimations. From the results in table 3, we note that return on equity has a significant negative correlation with capitalization.As noted earlier, the exact relationship

between profitability and capitalization is ambiguous as evidence from the banking literature and confirm by the above analysis. Meanwhile, management inefficiency and liquidity risk indicate a negative significant relation with profitability; whereas non-performing loans and bank size shows positive relationship with profitability with bank size having significant relationship while non-performing loansindicates no relationship. The macroeconomic indicators; GDP per capita and trade suggest a positive linkage with return on equity at ten percent level of significance.

4.2 GMM Results

Table 4 reports the system GMM estimations for Return on Equity (ROE) on bank specific and macroeconomic variables. The GMM is conducted to analyze the obtained findings that describe the determinants of bank profitability of selected Islamic banks in OIC countries. The estimated models are the Pooled OLS (POLS), Fixed Effect (FE) and System GMM (SGMM). Both pooled OLS and fixed effect models are estimated for robustness purpose. However, we focus on reporting the results on SGMM consistent with the objective of the study.

As it can be observed on table 4, AR (2) tests is insignificant at the 5% significance level for ROE, implying that error terms do not have the second-order autocorrelation. The Hansen test of over-identifying restrictions is not significant at the 5% significance level which implies the validity of the models for both profitability measures.

Turning to ROE, the lagged profitability independent of ROE variable (at about 47%) is significant implying the persistence character of ROE for the selected Islamic banks under study. As regards the bank specific variables, capitalization suggest a positive relationship with return on equity reflecting the sound financial condition of Islamic banks. This indicates that a higher capital ratio increases bank's profitability. Non-performing loans have the anticipated sign, suggesting a negative impact on earnings of Islamic banks. This is consistent with other

empirical studies such as Athanasoglou et al. (2008) and Kumar et al. (2021). Meanwhile, according to the results, bank size hasa significant positive impact on Islamic banks' earnings which is in line with the findings of Robin et al., 2018) who finds positive significant relation between bank size and profitability. Thus, due to their economies of scale, larger banks relatively have higher diversification advantage in terms of product innovation and increased operational efficiency as compared to smaller banks. Similarly, liquidity have no significant impact on profitability.

In terms of the effect of country specific variables on ROE, only inflation indicates a positive relationship confirming a similar findings by Athanasoglou et al. (2008).

Table 4: GMM results

	ROE		ROA		ROE	ROA
	POLS	FE	POLS	FE	SGMM	SGMM
Capitalization	0.084**	0.248**	0.039**	0.065**	0.143*	0.040
	(0.030)	(0.057)	(0.005)	(0.015)	(0.082)	(0.024)
Non-Performing Loans	0.567**	-0.135	0.221**	-0.037	-0.608**	0.617**
	(0.124)	(0.191)	(0.033)	(0.054)	(0.207)	(0.217)
Efficiency	-0.036**	-0.009**	-0.004**	-0.001	-0.037**	-0.002
	(0.005)	(0.004)	(0.001)	(0.001)	(0.008)	(0.002)
Liquidity	-0.001	-0.000	-0.000	0.000	0.001	0.000
	(0.001)	(0.001)	(0.000)	(0.000)	(0.001)	(0.000)
Bank Size	2.887**	12.138**	0.478**	1.287**	2.002**	2.048**
	(0.260)	(0.944)	(0.059)	(0.260)	(0.946)	(0.266)
Economic Growth	0.250*	-0.003	-0.025	-0.047	0.061	-0.031
	(0.143)	(0.155)	(0.038)	(0.044)	(0.098)	(0.047)
Trade openness	0.162	0.440**	0.050	0.118**	0.255	0.048
	(0.153)	(0.162)	(0.041)	(0.046)	(0.182)	(0.033)
Inlfation	-0.005	0.133**	-0.001	0.014	-0.018*	-0.017*
	(0.009)	(0.043)	(0.002)	(0.012)	(0.007)	(0.009)
L.Profitability					0.600**	0.472**
					(0.086)	(0.097)
No. of groups		73.000		74.000	72.000	73.000
No. Instruments					52.000	61.000
AR(1)					0.017	0.044
AR(2)					0.938	0.147
Hansen test					0.163	0.149
twostep					twostep	twostep
robust					robust	robust

Standard errors in parentheses
*p< 0.10, **p< 0.05

5.0 Conclusion

The present study has been undertaken to investigate the profitability of selected Islamic banks in OIC member countries by employing the System GMM dynamic panel estimator on a sample of 130 Islamic banks in 33 OIC member countries covering the period from 2011 to 2020.

The results suggest that profitability of Islamic banks is influenced by factors related to management decisions and also to changes in macroeconomic environment. Among the bank specific variables, the results suggest that capitalization, non-performing loans, inefficiency and bank size are the key drivers of bank profitability for return on equity. Equity to assets ratio (capitalization) is consistent with the empirical literature implying that banks with higher levels of equity are relatively more profitable. Similarly, the findings show that increased exposure to NPL (proxy for asset quality) lowers profitability of banks. High cost to income ratio (management inefficiency) is relatively less profitable and has a negative impact on banks' profitability. Furthermore, the findings show that the level of inflation has a positive significant effect on profitabilityimplying that Islamic banks perform better during inflationary periods. Real GDP growth rate per capita and trade openness has no significant impact on profitability of Islamic banks according to the results. As a policy implication, Islamic banks should consider increasing their size to realize the benefit of scale, as our data shows that it is linked to better performance. Furthermore, the further improvement of capital adequacy guidelines and risk management practices for Islamic banks in OIC member countries is eminent. This would furtherenhance Islamic banks in the global financial industry characterized by increased fragilities in the overall banking sector.

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