



PERFORMANCE AND PROFITABILITY OF ISLAMIC BANKS IN SAUDI ARABIA: AN EMPIRICAL ANALYSIS



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ABSTRACT

Article History

Received: 2 October 2017
Revised: 17 November 2017
Accepted: 26 November 2017
Published: 5 December 2017

Keywords

Islamic banks
Saudi Arabia
Panel data
Bank-Specific variables
Industry-Specific variables
Macro-economic variables.

JEL Classification:

G21, C23

The Present study examines all the internal and external determinants contributing the profitability of 9 Islamic Banks in the region of Saudi Arabia over a period of 2000-2013, that is a period of 14 years. During this period the region of Saudi Arabia has witnessed structural changes as it enters into WTO membership. Also, the period is sufficient enough to see to effects such major changes happened in the region over the financial intermediaries. Using the unbalanced panel data and robust fixed effect model of regressions, the paper examines the impact of bank specific, industry specific and macro-economic variables on profitability. Results indicate that bank characteristics, industry characteristics, and macroeconomic variables are significant in determining Islamic banks' profitability. Our empirical findings indicate that the coefficient of the capital adequacy is positive and highly significant, with both the measures of profitability, reflecting the sound financial condition of Saudi banks. On the other hand, the positive and significant leverage ratio implies that the Saudi Islamic banks are relying heavily debt financing, suggesting that Saudi Islamic banks are more risky in nature, though profitable to a certain extent, but these might be badly hit in times of recession in the economy. Thus, diversified portfolio is necessary to maintain stability in the future and to reduce the risk and uncertainty. The findings relating the industry specific variables, we find that banking sector in Saudi Arabia is highly competitive. The study further emphasizes optimal policies to bank management that helps the policy makers, bank managers and executives in improving the overall efficiency and maintaining the sound profitability in the Islamic banks in Saudi Arabia.

Contribution/ Originality: This study contributes in the existing literature of single country analysis of Islamic banks, especially in context of Saudi Arabia, where the literature is very limited. Also, Saudi Arabia enters into WTO membership during the sample period and thus it tries to capture the effects of such major structural changes.

1. INTRODUCTION

The strong correlation of banking system stability with the economic growth and development of any country has only recently been appreciated. A glance at the recent economic history reveals that weaknesses in the financial systems were the root cause of the economic woes of most of the economies. The supervisory authorities around the

world are striving to ensure safety and soundness of their respective financial systems so that they can play an active role in the economic development of their countries (Afzal and Mirza, 2012).

The banks are the institutions that channel the oil funds to companies and families and therefore are strong determinants in the allocation of capital, financial stability and the competitiveness and development of manufacturing and services (Beck *et al.*, 2003; George Assaf *et al.*, 2011).

The Saudi banking sector has undergone substantial changes over the last decade. Banks have expanded their operations and have taken advantage of scale and scope economies as well as product diversification. The driving force behind these changes has been the recent gradual liberalization of financial sector, globalization of financial markets, changes in technology, product innovation and the growth of business activities by Islamic countries in the West (El-Gamal, 2006; George Assaf *et al.*, 2011).

Saudi Arabian commercial banks that are operating in the competitive environment are likely to be more efficient in near future in the region. The Saudi banking industry has enjoyed a steady growth and stability during the last decade. Stress tests conducted recently also demonstrate that Saudi banks are sound and well-equipped to withstand any shocks (Almazari, 2014). Yet there is need to find out the determinants affecting such performance from micro- level to macro level, that is, covering the bank specific, industry specific and macro-economic specific variables over a longer period of horizon.

Saudi Arabia being the largest oil producing economy in the whole world has witnessed a strong and efficient banking sector not at all affected by the recent financial crisis. This aspect made the whole world to explore the Islamic banking system, prescribed by the Law of Sharia. And its importance is well accepted and much of the research has been made in this context so far. But as there is a limited research made especially in context of Saudi Arabia, so the present research attempts to fill in the gap of literature.

The Saudi banking system is quite unique compared to the traditional banking system. It is under strict regulation imposed by SAMA (Saudi Monetary Agency) and has several distinguished characteristics. Saudi banks, for instance, provide a combination of conventional banking and Islamic banking. They are also funded by low cost demand deposits, and have difficulties to diversify credit risk due the overwhelming dependence on oil. Empirical research on bank efficiency in the Arabic peninsula is still limited as opposed to other regions such Europe and the USA. Some of the few studies include Essayyad and Madani (2003); George Assaf *et al.* (2011).

The study attempts to explore the performance and efficiency of the banking sector in Saudi Arabia and the role of Islamic banking in the efficiency and profitability, during the period 2000-2013, by employing different measures to study various bank specific variables, industry specific as well as macro-economic variables.

2. REVIEW OF LITERATURE

Most of the studies have been made reflecting the contrast between Conventional banks and Islamic banks (Ashraf and Zia-Ur-Rehman, 2011; Jaffar and Manarvi, 2011; Hanif *et al.*, 2012; Siraj and Pillai, 2012; Usman and Khan, 2012). Another study conducted by Zeitun (2012) investigates some influential factors (foreign ownership, banks-specific variables, and macroeconomic factors) on Islamic and conventional banks in Gulf Cooperation Council (GCC) countries, during the period 2002-2009, using a cross-sectional time-series (panel data). The results show that bank's equity is important in explaining and increasing conventional banks profitability only. The cost-to-income had a negative and significant impact on Islamic and conventional banks performance. Additionally, the estimated effect of size provides evidence of economies of scale in Islamic banking using the ROE, while it is not significant for conventional banks. Foreign ownership, however, does not improve Islamic and conventional banks performance. Furthermore, bank's age and banking development have no effect on bank performance. Finally, GDP is positively correlated to bank's profitability, while inflation is negatively correlated to bank's profitability.

A comprehensive study conducted by Almazari and Almumani (2012) organized to study the linkage between profitability efficiency measured by return on assets (ROA) and operating income-bank size as dependent variable

and bank assets-size, asset management (Utility), operational efficiency as independent variable to assess the financial data of the five Saudi national banks for the financial periods (2006-2010). In addition, the selected banks will be analyzed quantitatively to find the differences among these banks and they will be ranked based on their financial efficiency. Similar to our present study, they examined predictors to find out its impact on the profitability efficiency of the Saudi national banks. However, there is a difference in the methodology adopted and also the period. Their regression analysis results indicate that there exist a significant impact of operational efficiency, asset management, and total assets bank size on profitability efficiency represented by ROA. Also, they conduct the correlation analysis between variables of the study which indicated that there is affect correlation relationships among the variables. Furthermore, Multiple Regression was used to test the effect of independent variables on operating income (OI) and it was found that independent variables do not affect profitability efficiency represented by operating income (OI). However, the present study can be differentiated as we took different profitability and efficiency measures such as ROA and ROE as our dependent variable and the independent variables are also different as we took bank-specific variables as well as macro-economic variables.

However, Masood *et al.* (2009) attempted to analyze the determinants of banks' profitability in the Kingdom of Saudi Arabia over the period 1999-2007. They used Augmented Dickey Fuller test, Johansen's co-integration test and Granger causality test to investigate the co-integration and causal relationship between return of assets (ROA) and return of equity (ROE) and argued that variables are co-integrated.

Haron (2004) examined internal and external factors influencing Islamic banks' profitability and had found a high correlation between internal factors (liquidity, total expenditures, funds invested in Islamic securities, the percentage of the profit-sharing ratio between the bank and the borrower of funds) and the total income's level received by the Islamic banks. He found almost the same impacts regarding external factors like size of the bank, interest rates and market share.

Bamakhramah (1992) studied the major features of banking structure in Saudi Arabia and attempts at measuring particularly resource (deposits) concentration, and other features such as new bank entry barriers, bank branching and product differentiation and then utilizes the statistical tools of correlation and multiple regression to estimate the relationship between the main features of banking structure and the major indicators of bank performance, significant among which is profitability.

A comprehensive study made by George Assaf *et al.* (2011) analyzed the technical efficiency of Saudi banks with a two-stage DEA bootstrap model. They found that Saudi banks consistently improved their efficiency since 2004. They also found that Saudi banks with foreign capital have to improve their technical efficiency. This result is in contradiction with the general notion that foreign capital brings managerial skills. Similarly, Akhtar (2010) estimate the data envelopment analysis (DEA) efficiency scores and Malmquist productivity indices (MPI) of banks in Saudi Arabia over a period of 2000 to 2006. The results on MPI reflect an improvement in average productivity of banks. However, the major increase in productivity gains emerged through technological change relative to the efficiency change. The author found that banks across the Kingdom appear to have succeeded in catching up with the best practices, even though the average scores on technical efficiency (TE) stood beyond optimal levels.

Similarly, Al-Faraj *et al.* (2006) investigated the performance of the Saudi commercial banking industry using DEA to evaluate the technical efficiency of Saudi banks for the year 2002 and compared with world mean efficiency scores. Their study revealed that the mean efficiency score of Saudi commercial banks compares very well with the world mean efficiency scores. They recommends that Saudi banks should continue their efforts of adapting new technologies and providing more services in order to sustain competitive advantages as Saudi Arabia continues to deregulate the banking industry (Almazari and Almumani, 2012).

Murthy (2007) examined the impact of bank-specific factors on the profitability of 78 banks listed on GCC stock exchanges during the period 2002 to 2006. He used return on average equity as a proxy of bank profitability while the explanatory variables are liquidity to deposit ratio a proxy for liquidity management, net interest margin

as a proxy for interest rate risk management, equity to total assets as a proxy for capital management, loan loss provisions to proxy credit risk management, and cost to income ratio to proxy cost management. Murthy provided evidence that the bank size represented by assets is statistically significant indicator of profitability in the GCC banks. He argues that this might be a reason why banks in the GCC region are overcapitalized (AL-Omar and AL-Mutairi, 2008).

Other studies on Arabic banks include Turk-Ariss (2009;2010); Al-Muharrami *et al.* (2006) and Essayyad and Madani (2003) who investigated the concentration, efficiency, and the profitability of commercial banks operating in Saudi Arabia. They found that the banking system was highly concentrated and lacked sound competitive environment. However their results only covered the period 1989–2001, i.e., before the major structural changes have been adopted as a consequence of the membership of Saudi Arabia in the WTO (George Assaf *et al.*, 2011).

3. SAMPLE CRITERION

The study took the unbalanced panel data of 10 Islamic banks in Saudi Arabian region, viz., Riyad Bank; AlAhli Bank; Bank Al Jazira; The Saudi Investment Bank; Saudi Hollandi Bank; Banque Saudi Fransi; SABB; Arab National Bank; Samba Financial Group; and Al Rajhi Bank. The sample period covers from the year 2000 to 2013 (both years inclusive, that is, a period of 14 years). To the best of our knowledge, no study took such a long period into consideration. During this period, the region of Saudi Arabia has witnessed structural changes as it enters into WTO membership. Also, the period is sufficient enough to see to effects such major changes happened in the region over the financial intermediaries.

However, there are eleven Islamic banks in this region, but we have to drop two banks (Bank Albilad and Alinma bank) as they started during the year 2004 and 2006 respectively, and as these are newly established during the period taken into consideration and these might fail to capture the real effects over their respective profitability. Besides, their data is available from 2006 and 2008 respectively.

The bank specific factors (internal factors) as well as industry specific factors have been taken from their respective annual financial statements from the database Gulfbase.com. And macro-economic data have been taken from World Bank data.

4. RESEARCH METHODOLOGY, VARIABLES AND MODEL SPECIFICATION

4.1. Dependent Variables: Profitability and Efficiency Performance

Return on Assets (ROA)

ROA shows the ability of management to acquire deposits at a reasonable cost and invest them in profitable investments. This ratio indicates how much net income is generated per dollar of assets. The higher the ROA, the more the profitable the banks are (Kumbirai and Webb, 2010). This ratio is widely used as a proxy for profitability. Peterson and Schoeman (2008) interpreted ROA as an important tools indicating operational efficiency of the bank (Siraj and Pillai, 2012).

Return on Equity (ROE)

ROE is the most important indicator of a bank's profitability and growth potential. It is the rate of return to shareholders or the percentage return on each dollar of equity invested in the bank (Kumbirai and Webb, 2010). A higher ratio indicates better use of capital. It calculated by dividing net profit after tax by total equity. Total equity is sum total of capital and reserves (Siraj and Pillai, 2012).

4.2. Independent Variables

4.2.1. Bank Specific Variables

Size

We took proxy to determine the size as natural logarithm of total assets (*LNTA*) similar to many studies in corporate finance like Zeitun (2012); Almazari (2014); Afzal and Mirza (2012); Naceur and Goaid (2005) etc. Halkos and Salamouris (2004) concluded, from their study on Greek banks, that the larger the total assets, the higher the efficiency. Furthermore, a positive relationship between size and efficiency is observed for the European banking industry (Bikker, 1999; Papadopoulos, 2004; Almazari and Almumani, 2012).

Capital Adequacy

Capital ratios indicate the robustness of financial institutions to withstand shocks. These ratios identify any existing problems. Adverse trends in these ratios may increase risk exposure and capital adequacy problems. We have used *CAR* as Equity/Total Assets ratio to measure capital adequacy (Hassan and Bashir, 2003). In other words, this measure of equity, relative to total assets, reflects the bank's capital strength or solvency (Golin and Delhaise, 2013). Higher the ratio, more stable and efficient the bank is. While the relationship of this variable to profitability may vary across the stages of the business cycle (Berger, 1995) we expect it will have an overall positive relationship to profitability (Growe *et al.*, 2014).

Asset Quality

Monitoring asset quality indicators is important since risks to the solvency of financial institutions often derive from impairment of assets. Asset quality depends on the quality of credit evaluation, monitoring and collection within each bank, and could be improved by collateralizing the loans, having adequate provisions against potential losses, or avoiding asset concentration on one geographical or economic sector. Meanwhile, any analysis of asset quality needs to take into account indicators of the likelihood of borrowers to repay their loans (Hassan and Bashir, 2003). Therefore we took the ratio of provision to loan losses to total loans (*PLLTLR*) as a measure to determine the asset quality. Lower the ratio, higher will be the quality of assets.

Liquidity

Liquidity ratios indicate the ability of the bank to meet short-term financial obligations on time and hence avoid financial distress (Ross *et al.*, 2005; Al-Hares *et al.*, 2013). We measure liquidity ratios by taking cash and bank balances to total assets (*CTAR*) and the total loans to deposits ratio (LDR) (Al-Hares *et al.*, 2013). However, it is well documented in the literature that more cash implies lower profitability (Molyneux and Thornton, 1992).

Management Quality

It is critical to determine the management quality as it affects the profitability and efficiency. We took the ratio of operating expenses to deposits (*OEDR*) for determining the quality of management. Lower the ratio, more efficient and profitable the banks are.

Operating Efficiency

Operating efficiency ratio (*OER*) or cost to revenue ratio is measured by taking the ratio of total operating expense to total operating income. This ratio indicates how efficiently firm uses its assets, revenues and minimizing the expenses. In other words, it shows how well firm could reduce the expenses and improves productivity (Widagdo and Ika, 2008).

Leverage

Leverage ratio (*LR*) or Debt equity ratio is calculated by taking the ratio of debt to equity capital. This ratio shows how firm finances its operation with debt relative to the use of equity (Widagdo and Ika, 2008).

4.2.2. Industry Specific Variables

Bank Concentration and Power

We measure the bank concentration and its power and competition by Herfindahl Index for loans (*HHIL*) and deposits (*HHID*) (Afzal and Mirza, 2012). If HHI is below 100, then this indicates highly competitive market. If HHI is below 1000, then this indicates unconcentrated market. If HHI is in between 1000-1800, then this indicates moderately concentrated market. If HHI is above 1800, then this indicates high market concentration.

4.2.3. Macro-economic Variables

We employ three macro-economic variables are used: inflation (*INF*), GDP per capita growth (*GROWTH*) and similar to Afzal and Mirza (2012) for determining monetization in the financial system of an economy (*M2/GDP*). Previous studies have reported a positive association between inflation and bank profitability. High inflation rates are generally associated with high loan interest rates, and therefore, high incomes. However, if inflation is not anticipated and banks are sluggish in adjusting their interest rates then there is a possibility that bank costs may increase faster than bank revenues and hence adversely affect bank profitability. The GDP per capita growth is expected to have a positive impact on banks' performance according to the well-documented literature on the association between economic growth and financial sector performance (Naceur and Goaied, 2005). The fantastic study by Feldstein and Stock (1994) has studied the possibility of using M2 to target the quarterly rate of growth of nominal GDP. The evidence they present indicates that the Federal Reserve could probably guide M2 in a way that reduces not only the long-term average rate of inflation but also the variance of the annual GDP growth rate. Besides, there is another reason for taking the money supply into our consideration as discussed by Ariff and Rosly (2011) that is, in practice, Islamic banks are credit-intensive in nature and operate under a fractional banking system which allows them to create deposits and hence money supply. Therefore, a tightening or relaxation of the money supply by the central bank would affect Islamic banks like conventional banks.

Inflation rate and GDP growth rate affects the bank profitability according to the economic conditions prevailing in that country (Alexiou and Sofoklis, 2009). They may induce a positive effect in countries where financial markets are well-developed and economies are in boom but negative effect in developing countries Bashir (2003) indicates that when inflation is anticipated, banks generate profits using high rates on loans in times of the high inflation rate and if it is unanticipated, banks would not adjust rates timely and overhead costs would rise quicker than inflation resulting in poor profits. Demirgüç-Kunt and Huizinga (1999) also observe a similar scenario for developing countries. Overall, the existing literature provides a rather comprehensive account of the effect of internal and industry-specific determinants on bank profitability, but the effect of the macroeconomic environment is not adequately dealt with in case of Saudi Arabian region. The time dimension of the panels used in empirical studies is usually too small to capture the effect of control variables related to the macroeconomic environment (Athanasogloua *et al.*, 2008).

4.3. Model Specification

The proposed models for the present study are as follows:

$$Z_{it} = \alpha + \beta_a (\text{Bank Specific variables}) + \beta_i (\text{Industry Specific Variables}) + \beta_e (\text{Macro-Economic Variables}) + \epsilon$$

Where Z_{it} is the dependent variables (ROA and ROE)

Model 1

$$ROA_{it} = \alpha + \beta_1 (LNTA_{it}) + \beta_2 (CAR_{it}) + \beta_3 (PLLTLR_{it}) + \beta_4 (CTAR_{it}) + \beta_5 (LDR_{it}) + \beta_6 (OEDR_{it}) + \beta_7 (OER_{it}) + \beta_8 (LR_{it}) + \beta_9 (HHIL_{it}) + \beta_{10} (HHID_{it}) + \beta_{11} (INF_{it}) + \beta_{12} (GROWTH_{it}) + \beta_{13} (M2/GDP_{it}) + \epsilon$$

Model 2

$$ROE_{it} = \alpha + \beta_1 (LNTA_{it}) + \beta_2 (CAR_{it}) + \beta_3 (PLLTLR_{it}) + \beta_4 (CTAR_{it}) + \beta_5 (LDR_{it}) + \beta_6 (OEDR_{it}) + \beta_7 (OER_{it}) + \beta_8 (LR_{it}) + \beta_9 (HHIL_{it}) + \beta_{10} (HHID_{it}) + \beta_{11} (INF_{it}) + \beta_{12} (GROWTH_{it}) + \beta_{13} (M2/GDP_{it}) + \epsilon$$

where i refers to an individual bank; t refers to year; ROA and ROE refers the two dependent variables; LNTA refers to size; CAR refers to Capital Adequacy Ratio; PLLTAR measures Asset Quality; CTAR and LDR are liquidity measures; OEDR measures the management quality; OER measures the Operating Efficiency; LR refers to Leverage; HHIL and HHID are two concentration and power measures; INF, GROWTH and M2/GDP are three macro-economic indicators and ϵ refers to the Error term.

Model 1 and 2 are estimated through fixed effects regression model taking each bank's ROA and ROE as the dependent variable respectively. The opportunity to use a fixed effects rather than a random effects model has been tested with the Hausman test.

Table 1 shows the descriptive statistics of all variables (both dependent and independent). The dependent variables, ROA and ROE have mean value equal to 2.3745 and 1.89597 respectively, and have standard deviation equals to 0.14368 and 0.082690 respectively.

Table-1. Descriptive Statistics

	Mean	Median	Maximum	Minimum	Std. Dev.
<i>Dependent Variable</i>					
ROA	2.37452	2.0800	1.2560	0.0090	0.14368
ROE	1.89597	1.83700	4.7070	0.0610	0.08269
<i>Independent Variable</i>					
LNTA	18.01208	18.02759	19.44984	15.44674	0.820926
CAR	12.56616	12.29385	26.6905	7.847796	2.991391
PLLTAR	0.698016	0.057691	23.62322	-0.03047	2.90053
CTAR	15.56626	15.13345	47.0684	5.13673	6.715054
LDR	0.692326	0.72510	1.113512	0.003236	0.19923
OEDR	2.062492	1.586908	6.37733	0.009661	1.606308
OER	37.32275	25.8695	139.3316	0.113485	30.19067
LR	7.368727	7.132069	11.74243	2.733225	1.857009
HHIL	14.64159	14.51949	16.36249	13.41983	0.103942
HHID	14.24392	13.96218	16.36249	12.72341	0.130747
INF	2.748485	2.546655	9.868752	-1.12500	3.013643
GROWTH	5.98190	5.943704	9.427416	3.271348	2.166647
M2/GDP	42.52279	42.26163	52.50921	36.27389	4.319772

Pertaining to bank specific variables (Refer to table 1), Size has the mean average equals to 18.012 and standard deviation equals to 0.8209. Whereas, Capital adequacy has the mean value 12.566 and standard deviation equals to 2.9913. Also, Asset quality has a mean value of 0.6980 and standard deviation is 2.901. While the Liquidity measures (CTAR and LDR) have mean equal to 15.5662 and 0.6923, with standard deviation equals to 6.7150 and 0.1992 respectively. On the other hand, Management quality has an average mean value of 2.0625 and standard deviation of 1.6063. Operating efficiency has an average mean of 37.322 and standard deviation of 30.191. Also, Leverage has mean value equals to 7.369 and standard deviation equals to 1.857.

Turning to industry independent variables (Refer to table 1), Banking Concentration and power (HHIL and HHID) have the average mean equals to 14.64159 and 14.24392 and standard deviation equals to 0.1039 and 0.1307 respectively. As both the measures of concentration and power (HHIL and HHID) falls with the group less than 100, so this indicates highly competitive banking industry.

Macro-economic variables (see table 1), all the three indicators, viz. Inflation, Growth and Money supply, have the average mean value of 2.7485, 163.0966 and 42.5228 respectively; whereas their respective standard deviation are 3.013643, 41.3668, 4.3197.

Table-2. Panel Regression Results: ROA on selected variables

Dependent Variable: ROA					
Independent Variables	Coefficient	Std. Error	t-Statistic	Prob.	
C	-1.126795	1.204971	-0.935122	0.3521	
LNTA	0.038428	0.056474	0.680458	0.4979	**
CAR	0.059337	0.008521	6.963531	0.0000	***
PLLTAR	0.008923	0.004554	1.959356	0.0530	**
CTAR	-0.000505	0.001629	-0.309822	0.0504	*
LDR	0.071426	0.083174	0.858763	0.3926	**
OEDR	0.085465	0.02532	3.37535	0.0011	***
OER	-0.504819	0.121824	-4.143858	0.0001	***
LR	0.062269	0.015502	4.016705	0.0001	***
HHIL	1.392833	0.792804	1.756844	0.0822	***
HHID	-1.387735	0.683809	-2.02942	0.0452	***
INF	-0.003516	0.006017	-0.584327	0.5604	***
GROWTH	-0.031855	0.014095	-2.260065	0.0261	**
M2/GDP	-0.010114	0.003665	-2.759303	0.0070	**
Effects Specification					
Cross-section fixed (dummy variables)					
R-squared	0.795622	Mean dependent var		0.236641	
Adjusted R-squared	0.750444	S.D. dependent var		0.147463	
S.E. of regression	0.073666	Akaike info criterion		-2.21078	
Sum squared resid	0.515534	Schwarz criterion		-1.691397	
Log likelihood	151.3306	Hannan-Quinn criter.		-1.999917	
F-statistic	17.6107	Durbin-Watson stat		1.304244	
Prob(F-statistic)	0.00000				

***represents significance at 1%, ** at 5% and *10% respectively

Table-3. Panel Regression Results: ROE on selected variables

Dependent Variable: ROE					
Independent Variable	Coefficient	Std. Error	t-Statistic	Prob.	
C	-0.447014	0.714905	-0.625277	0.5333	
LNTA	0.037278	0.033506	1.112593	0.2687	**
CAR	0.015541	0.005056	3.074136	0.0028	*
PLLTAR	0.007331	0.002702	2.713273	0.0079	***
CTAR	-0.000773	0.000966	-0.800112	0.4256	***
LDR	0.090176	0.049347	1.827412	0.0708	***
OEDR	0.051574	0.015023	3.433122	0.0009	***
OER	-0.315033	0.072277	-4.358666	0.0000	***
LR	0.026249	0.009198	2.853888	0.0053	***
HHIL	0.901383	0.470368	1.916336	0.0583	**
HHID	-0.899814	0.405701	-2.217923	0.0289	***
INF	-0.002630	0.00357	-0.736754	0.4631	**
GROWTH	-0.025095	0.008362	-3.000986	0.0034	**
M2/GDP	-0.008205	0.002175	-3.772982	0.0003	**
Effects Specification					
Cross-section fixed (dummy variables)					
R-squared	0.775599	Mean dependent var		0.186304	
Adjusted R-squared	0.725994	S.D. dependent var		0.083495	
S.E. of regression	0.043706	Akaike info criterion		-3.2549	
Sum squared resid	0.181468	Schwarz criterion		-2.73552	
Log likelihood	212.4118	Hannan-Quinn criter.		-3.04404	
F-statistic	15.63566	Durbin-Watson stat		1.225002	
Prob(F-statistic)	0.000000				

***represents significance at 1%, ** at 5% and *10% respectively

In table 2 and 3, R^2 is equal to 79.56% and 77.55% respectively, therefore, the model is best fitted (as $R^2 > 60\%$). The above model has been checked to detect the problem of multicollinearity and for this Pearson's correlation analysis of the independent variables has been done. And we have dropped one variable from our analysis TRTAR (Total Revenue to Total Assets ratio) to fix the problem of multicollinearity in the above models. F-stat is significant at 1% level for both models, which implies that all the independent variables (Bank-specific, Industry specific and Macro-economic) are jointly influence our dependent variables.

5. EMPIRICAL ANALYSIS AND DISCUSSION

Size, the natural logarithm of the total assets (referring to table 2 and 3), though positive, but proved to be insignificant in all of the relevant regressions (Athanasogloua *et al.*, 2008). Increased size presumed to confer benefits that can enhance profitability. Included are greater market power, improved technological efficiency, and the ability to secure funding at a lower cost. However, increasing size beyond a certain point may lead to scale inefficiencies as the organization's bureaucracy impedes communication. Larger size may allow banks to diversify, affecting both risk, and profitability and decision-making. Thus, the relationship between size and profitability may be nonlinear or ambiguous. Studies have found a positive relationship between size and profitability (Zimmerman, 1996; Athanasoglou *et al.*, 2006; Athanasogloua *et al.*, 2008; Alexiou and Sofoklis, 2009; Alp *et al.*, 2010; Agustini, 2011; Alper and Anbar, 2011; Gul *et al.*, 2011; Khrawish, 2011; Mirzaei and Mirzaei, 2011; Ayadi and Boujelbene, 2012; Lee, 2012; Naseem *et al.*, 2012; Sufian and Noor, 2012; Karimzadeh *et al.*, 2013; Al-Jafari and Alchami, 2014; Jabbar, 2014).

Turning to the other explanatory variables, the coefficient of the capital adequacy variable (CAR) is positive and highly significant, with both ROA and ROE (see table 2 and 3) reflecting the sound financial condition of Saudi banks. A bank with a sound capital position is able to pursue business opportunities more effectively and has more time and flexibility to deal with problems arising from unexpected losses, thus achieving increased profitability (Athanasogloua *et al.*, 2008). However, the lower risk increases banks creditworthiness and consequently reduces the cost of funding. At the same time, banks with higher equity to assets ratio will normally have lower needs of external funding and therefore higher profitability (Pasiouras and Kosmidou, 2007).

Asset quality which is expressed as provision of non-performing loans to total loans is positively related to both of the bank performance indicators. This indicates that good asset quality leading to better bank performance. In other words, Saudi Islamic banks maintain good provision to control the non-performing loans.

Islamic banks keeps cash and balances less relative to assets, as we have found that CTAR is negative and insignificant, and also, these banks extends more loans or equivalents relative to deposits (LDR is positive but insignificant) indicating that liquidity risk is high with Saudi banks.

Management quality (OEDR) is significantly positive related to both performance ratios (ROA and ROE). This indicates that better management quality leads to higher profitability of Islamic banks in the region.

Operating efficiency (OER) appears to be highly significant but negative at 1% level with both profitability measures. However, its negative effect means that there is a lack of competence in expenses management since banks pass part of increased cost to customers and the remaining part to profits, possibly due to the fact that competition does not allow them to "overcharge". Clearly, efficient cost management is a prerequisite for improved profitability of Saudi banks, which have not reached the maturity level required to link quality effects from increased spending to higher bank profits (See Athanasogloua *et al.* (2008)). In other words, operating expenses have negative impact on profitability, implying that an aggressive deposit mobilization with effective and efficient expenses management are needed to enhance the Islamic bank profits.

Table 3 indicates leverage ratio (LR) is highly significant and positive at 1% level with ROE implies that the Saudi Islamic banks are relying heavily on debt financing. By itself, this ratio suggests that Saudi Islamic banks are

more risky in nature, though profitable to a certain extent but these might be badly hit in times of recession in the economy.

HHIL is significant and positive indicating that Islamic financial products dominate the Saudi market. As consistent with the literature, it is true that Islamic banks control some 62% of total assets (George Assaf *et al.*, 2011). We found that market concentration and power is significant at 5% level with ROE (see table 3).

We have found that inflation is negatively related to profitability similar to a number of studies (Sufian and Chong, 2008; Ali *et al.*, 2011; Khrawish, 2011; Francis, 2013; Ongore and Kusa, 2013; Rachdi, 2013; Ayaydin and Karakaya, 2014) and that Saudi Arabia being developing country is having negative association with profitability, is also well witnessed by earlier literature (Demirgüç-Kunt and Huizinga, 1999; Alexiou and Sofoklis, 2009). However, inflation is insignificant to both measures of profitability.

We have found significant negative association between Growth and profitability (Staikouras and Wood, 2004; Liu and Wilson, 2010; Khrawish, 2011; Al-Jafari and Alchami, 2014; Ayaydin and Karakaya, 2014). The negative association was interpreted as reflecting increased ease of entry and consequent competition and reduced profitability with GDP growth. Also, we have found money supply (M2/GDP) is also significantly negative at 5% level with both profitability measures.

6. CONCLUSION AND POLICY IMPLICATIONS

Our empirical findings indicate that the coefficient of the capital adequacy ratio is positive and highly significant, with both the measures of profitability, reflecting the sound financial condition of Saudi banks. On the other hand, the positive and significant leverage ratio (LR) implies that the Saudi Islamic banks are relying heavily debt financing, suggesting that Saudi Islamic banks are more risky in nature, though profitable to a certain extent, but these might be badly hit in times of recession in the economy. Thus, diversified portfolio is necessary to maintain stability in the future and to reduce the risk and uncertainty (as banks in the region heavily invested their major funds in hydro carbon and oil only). In other words, banks in the Kingdom need to broaden their investment horizons and enrich their service portfolios to minimize their risks and maximize returns (Akhtar, 2010).

Our findings confirm the existing literature. The result further emphasizes optimal policies to bank management that helps the policy makers and bank managers and executives in improving the overall efficiency and maintaining the sound profitability in the Islamic banks in Saudi Arabia, when considering highly risky ventures. Therefore, banks would improve monitoring of credit risk and such policies involve forecasting of future level of risks.

Operating expenses have negative impact on profitability, implying that an aggressive deposit mobilization with effective and efficient expenses management are needed to enhance the Islamic bank profits. However, it is also witnessed that efficient cost management and control is a criterion for improved profitability of Saudi banks, which have not reached the maturity level required to link quality effects from increased spending to higher bank profits. Flexible, but differential, regulation may increase the confidence of depositors and investors in Islamic banks, provide proper asset/liability management incentives, and maintain financial stability in the Saudi banking industry in the future (Olson and Zoubi, 2008).

Earlier studies that cover the period before major structural change (i.e. before 2006), which means prior to joining WTO, revealed that banking sector is highly concentrated in the region of Saudi Arabia (Essayad and Madani, 2003; Akhtar, 2010). But we have found contrary results as the period covers is substantial to capture the after effects of such structural change with the result of joining WTO, along with new and strategic policies. And we find that Islamic banking sector in Saudi Arabia is highly competitive, leading to better efficiency in the sector in the future.

Also, macro-economic factors have negative impact on profitability, confirming the earlier researches in case of developing economy (like Demirgüç-Kunt and Huizinga (1999)). The banks need to adopt a global perspective that

would lead them towards superior investment strategies, advanced managerial techniques, and provision of better quality and extended services to their clients. This would enable them to reach efficiency frontiers while keeping productivity growth intact. Also, countries like Saudi Arabia need to diversify their sources of GDP both nationally and internationally. This would enable them to avoid the effects of swings stemming from the changes in oil prices and quotas (Akhtar, 2010). Thus, there is a need to have more well developed financial market (just like U.K, U.S. and other developed economies) in order to induce the positive effects of the macro-economic variables over the profitability and efficiency of the banking sector in Saudi Arabia.

Banks further economic growth by providing instruments for diversifying risk and enhancing liquidity (Levine, 2005). However, it is well witnessed by research that the countries in which financial institutions are more developed, capital is allocated to industries based upon their growth potential (Wurgler, 2000). When they experience financial distress, economic growth is impeded (Kroszner *et al.*, 2007; Growe *et al.*, 2014).

Funding: This study received no specific financial support.

Competing Interests: The authors declare that they have no competing interests.

Contributors/Acknowledgement: Both authors contributed equally to the conception and design of the study.

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Appendix-A.

Independent Variables	Definition of Ratios	Expected Sign
LNTA	Ln(Total Assets)	±
CAR	Equity/Total Assets	+
PLLTAR	Provisions to Loan losses/Total Assets	+
CTAR	Cash and balances/Total Assets	-
LDR	Loan/Deposit	+
OEDR	Operating Expenses/Deposit	+
OER	Operating Expenses/Assets	-
LR	Debt/Equity	+
HHIL	HHI on Loans	?
HHID	HHI on Deposits	?
INF	The Annual Inflation Rate	±
GROWTH	GDP per capita	±
M2/ GDP	M2/ GDP	±

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