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# Determinants of Islamic and Conventional Banks Performance in GCC Countries Using Panel Data Analysis

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*This study 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). Two samples are used in this study. The first sample contains 38 conventional banks. The second sample contains 13 Islamic banks. 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.*

**JEL Codes:** G21, G32, G33 and P43

## 1. Introduction

The Gulf Cooperation Council (GCC) consists of six oil-producing countries located in the Middle East: Saudi Arabia, Bahrain, Oman, Qatar, Kuwait, and the United Arab Emirates (UAE). The GCC countries are independent governments with independent currencies. Their total population is approximately 42 million. Furthermore, they have the largest oil reserves in the world. The banking sector in the GCC countries is largely owned by locals due to entry barriers and licensing restrictions for foreign ownership. For example, in Qatar foreigners are not allowed to own more than 49%, while in Oman just 35% (Alkassim 2005).

The financial systems in the GCC countries are generally dominated by the banking sector, while, the non-bank financial institutions have limited presence in the GCC countries. Banking sector plays a main role in financing economic activities. Furthermore, GCC countries have two banking systems; the conventional banking system and the Islamic banking system, which operates according to Islamic law. Islamic banking is a new phenomenon that has taken place in many Islamic and non-Islamic countries. It commenced in the Islamic world more than three decades ago. Since then Islamic banking has played an important role in financing and contributing to the development of different economic and social sectors in the Muslim countries.

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The whole banking system has been Islamized in Iran, Sudan and Pakistan. In addition, there is an increasing number of Islamic banks in operation in other parts of the globe, including the numerous non-Islamic financial institutions that provide Islamic financial services to customers.

According to some estimates, Islamic banking has grown at an annual rate of 15 per cent during the past five years. Currently, it is estimated that there are approximately more than 300 Islamic Financial Institutions operating in 75 countries. The assets of Islamic banks around the world were $650 billion in 2008, $822 billion in 2009 and rose to $1.3 trillion in 2010 (New Horizon-Islamic Banking 2010). Islamic banking is growing with a rate of 10-15% annually, and with indications of good future growth as the demand for Shariah-compliant (Islamic jurisprudence) financial products increased. For example, it is expected that their total assets will rise up to $3 trillion by 2016 (Eurasia Review 2011). The GCC countries have the largest percentage of these institutions because the region is the primary source of funding for Islamic banking activities. In addition, there is an increasing demand for Islamic banking in non-Muslim countries.

Islamic banking provides services that are based on the Islamic Sharia law (principle). Islamic financing is based on a Profit-and-Loss-Sharing (PLS) principle rather than interest-based. There are several principles distinguishing Islamic banks from traditional banks (See for example, Zeitun 2011, Olson and Zoubi 2008: and Chong and Liu 2008, among others). The main principle of Islamic banking is the prohibition of Riba (Interest). The second principle is that the undertaken investment should be on the basis of halal activities. The third principle is that all transactions should be free from gharar (unreasonable uncertainty) and Maiser (speculation or gambling). The fourth principle is that Zakat must be paid by the Islamic bank (IB) to benefit society. The fifth principle is that all activities carried by the bank should be in line with Islamic principles. On the other hand, conventional banking (CB) is based on the interest rate (between depositors and bank and between bank and borrowers). Investors in CB are assured of a predetermined interest rate, while in IB it promotes risk sharing between the provider of funds and the user of funds.

One of the main differences between Islamic and conventional banks is the product structure. The product structure in Islamic banks is considered as asset backed instrument financing, while it is not in CB, which may affect IB performance. For example, Islamic banks are not exposed to some types of assets that are considered risky and experienced losses by CB, such as financial derivatives (Hassan and Dridi 2010). PLS principle in Islamic financing could be one of the reasons to why Islamic banks are protected and participates in the stability of a bank's profit. Islamic banks invest their funds jointly with customer through different methods of finance, such as; Musharaka, Mudarabah[i], and Murabahah[ii]. The other financing methods for Shariah-compliant investment include other products, such as: Ijarah[iii], Ijarah Wa Iqtina[iv], Sukuk[v], Istisn'a[vi], Muzarah, Mosanah, and Mark-up. Therefore, an Islamic bank profit can be generated from equity financing profit (e.g. Musharaka and Mudarabah), debt financing (e.g. BBA and Murabahah), none financing income (e.g. commission and fees), and others (e.g. Wakalah). Thus, equity financing is the main difference between Islamic and conventional banks which may affect its performance (Hanif 2011: and Hanif and Iqbal, 2010).

The banking sectors in the GCC countries were strengthened by high profits and capital. Having a strong and profitable banking system contributes to the stability of the financial system. The GCC countries have the largest percentage of the Islamic financial institutions as the GCC is the primary source of funding for Islamic banking activity. According to the General Council for Islamic Banks and Financial Institutions (CIBAFI) (2010), the total number of Islamic financial institutions, institutions with Islamic windows and institutions with Islamic activity in the GCC has reached 248 institutions in the year 2009. Therefore, the determinants of Islamic banks performance have attracted the interest of academic researchers, bank management, and investors.

Despite the vast growth of Islamic financing, only several recent researches have examined the Islamic banks performance compared to conventional (Akhtar et al. 2011, Srairi 2009: and Olson and Zoubi 2008). Therefore, the present study aims to improve the understanding of the determinants of the bank performance for both conventional and Islamic banks in the GCC. Islamic banks have survived the financial crisis compared to conventional banks this is because of the uniqueness of Islamic banks products. For example, there is no Islamic bank that has announced bankruptcy, while more than 100 conventional banks (dealing with interest) in USA and other countries went bankrupt because of the financial crises.

This paper makes several contributions. It is the first study for the GCC countries that analyses the determinants of banks performance for both Islamic and conventional, using two measures of performance (ROA and ROE). Also, this paper represents the first attempt to investigate the effect of foreign ownership on Islamic and conventional banks' performance in GCC. The current study attempts to analyze the effect of some internal and external factors on Islamic banks' performance as they are different from conventional banks. Furthermore, this paper attempts to shed light on the effect of equity on IB and CB due to differences in product structure and deposits.

This paper is intended to help Islamic and conventional banks to improve their performance to remain competitive. The explanatory variables used in this study are bank-specific factors, macroeconomic determinants and foreign ownership. The remainder of the paper is organized as follows: the next section presents the literature review. The third section explains the sample, the sources of data, and the empirical model used in the study. The fourth section reports the empirical findings of the study. Section five concludes the study and provides the limitations and suggestions for future studies.

## 2. Literature Review

A large number of empirical studies have been conducted about determinants of bank performance. Most of these studies were conducted in the developed countries, while very few studies provide evidence from developing countries. One of the early studies attempted to find out the major determinants of bank performance and profitability was carried by Short (1979) and Brouke (1989). Since then many studies have been conducted by other researchers, such as Molyneux and Thornton (1992), Demirguc-Kunt and Huizinga (1999), Abreu and Mendes (2002), Staikouras and Wood (2004), Athanasoglou et al. (2006), Micco et al. (2007) and Pasiouras and Kosmidou (2007) to investigate the variables related to bank profitability.

Bourke (1989) suggested that there is a positive relationship between liquidity and profitability. Nevertheless, some studies illustrate that smaller amount of funds put in liquid investments can result in higher profitability (see for example, Eichengreen and Gibson 2001: and Molyneux and Thornton 1992). Molyneux and Thornton (1992) studied banks performance in 18 European countries during the period 1986-1989. They found a significant positive relationship between the return on equity (ROE) and government ownership, bank concentration and the level of interest rates in each country. On the other hand, Bashir (2000) studied Islamic banks performance over the period 1993-1998 in eight Middle Eastern countries'. He reported a positive significant relationship between leverage and loans to asset ratios and bank performance. He also concluded that foreign-owned banks are more profitable than the non-foreign-owned ones.

Halkos and Salamouris (2004) provided evidence from Greek. They showed that banks with larger assets are more profitable. A positive relationship between size and bank efficiency was also suggested by Bikker (1999) for the European banking industry. Kosmidou (2008) studied the determinants of performance for 23 Greek banks during the period 1990-2002. In his study, the return on average assets (ROAA) is used as bank performance measure. Cost-to-income ratio, equity to total assets, bank's loans to customer and short-term funding, loan loss reserves to gross loans, and the bank's total assets were used as internal determinants. On the other hand, he used the annual change in GDP, inflation rate, growth of money supply, stock market capitalization to total assets, total assets to GDP, and concentration as external determinants of performance. The results suggest that ROAA is associated with well-capitalized banks and with lower cost-to-income ratios. Also, both size and the growth of GDP were positively related to banks performance, while inflation had a negative impact on banks performance. A study by Delis and Papanikolaou (2009) found that bank size, industry concentration, and investment environment had a positive impact on bank's efficiency.

Ben Naceur and Goaied (2001) utilized data from Tunisia to examine the determinants of the Tunisian banks' performance during the period 1980-1995. Their result identified that labor and capital productivity; high level of deposit accounts relative to assets, and finally, reinforced equity have positive impact on the banks performance. Guru et al. (2002) provided evidence from Malaysia. They investigated the factors that affect banks performance and profitability for seventeen Malaysian commercial banks, over the period 1986-1995. They used capital adequacy, liquidity and management expenses as internal factors. Firm size, ownership and external economic conditions were used as external determinants. The results indicated that management expenses had a significant positive impact on bank's profitability. The results also suggested that high interest results in low bank profitability. Contrary to that, inflation had a positive impact on bank performance.

Ahmed and Khababa(1999) examined the determinants of the banking sector in Saudi Arabia. They used the ROA, ROE, and the percentage of change in earnings per share as profitability measures. They found that business risk and bank size are the main determinants of the Saudi banks' performance. A study by Eichengreen and Gibson (2001) proposed that bank's size had a positive impact on profitability to a certain limit. However, the size effect could be negative due to bureaucracy. Akhtar et al. (2011) used a sample of Islamic banks in Pakistan over the period 2006-2009 to

investigate the effect of bank-specific factors on bank's profitability using a multivariate regression models. They found that gearing and capital adequacy ratios had a significant positive impact on bank performance. On the other hand, bank size affected performance negatively but insignificantly. Srairi (2009) examined the impact of bank characteristics, macroeconomic factors, and financial structure on banks profitability for conventional and Islamic commercial banks operating in GCC countries for the period 1999–2006. Their results have shown that the profitability of Islamic and conventional banks is affected by operational efficiency, capital adequacy and credit risk. The empirical results revealed that macroeconomic variables, with the exception of inflation rate, positively affected profit.

Olson and Zoubi (2008) used 26 financial ratios to compare Islamic and conventional banks in the GCC countries over the period 2000–2005. They found that Islamic banks are less efficient and operating with greater risk compared to conventional banks. The product structure in IB is different from CB as it is considered as asset backed instrument financing. Deposit funds in CB are based on a predetermined interest rate, while deposit funds in Islamic bank are similar to equity as they share different types of risk (see for example, Hanif 2011, among others). Furthermore, Islamic banks are not exposed to same types of assets that considered risky and experienced losses by CB (Hassan and Dridi 2010). Chong and Liu (2008) investigated whether Islamic banking is different from conventional banking using Malaysian data. The empirical results suggested that Islamic deposits are not very different from conventional deposits. They also revealed that only a negligible portion of Islamic bank financing is strictly PLS-based and that Islamic deposits are not interest-free, but are closely pegged to conventional deposits. Masood et al. (2009) identify the determinants of commercial banks' profitability in Saudi Arabia for the period 1999–2007. Their results indicate that operational efficiency, earning assets to deposits; capital adequacy ratio, GDP growth, and financial development significantly affect banks profitability. On the other hand, credit risk and inflation insignificantly affect profitability. Haron (2004) examined the impact of profitability determinants on Islamic banks performance. He found that internal factors (such as liquidity, total expenditures, and the percentage of the profit-sharing ratio between the bank and the borrower) and external factors (such as interest rates, market share, money supply, and bank size) are highly correlated with Islamic banks income and profitability.

Pasiouras and Kosmidou (2007) used data from 15 European countries for the period 1995–2001 to examine how a bank's specific variables (total asset, loans to customers, equity to total assets, short term funding and cost to income), banking environment (GDP growth, market capitalization (MC) to bank assets, stock market capitalization (SMC) to GDP, concentration (largest five shareholders), bank total assets to GDP and inflation rate) affect the profitability of commercial domestic and foreign banks. They found a significant relationship between these variables and banks performance.

According to the agency theory (Jensen and Meckling 1976), ownership structure could be related to bank's profitability. The connection between ownership structure and performance has been an ongoing debate in the corporate finance literature (e.g. Zeitun 2009, Demsetz and Villalonga 2001, among others). However, the results are mixed. Barth et al. (2004), for example, found that privately-owned banks are more

profitable. On the other hand, Molyneux, and Thornton (1992) found a significant positive relationship between ownership structure and bank profitability. However, a weak adverse relationship was found between ownership and performance in a study conducted by Bourke (1989). Micco et al. (2004) provided evidence from developing countries about the existence of strong relationship between ownership structure and bank performance. They found that foreign-owned banks were characterized by higher profitability followed by private counterparts. Banks owned by government were found to be the lowest profitable. On the other hand, Gupta (2005) result showed that non-controlling shares of state-owned firms to be held privately had positive effect on banks profitability in India.

The external determinants are the macroeconomic variables (such as interest rate, inflation, GDP, money supply and exchange rate) that affect the whole economy and considered as important determinants of performance. Several studies have reported a positive relationship between GDP and bank profitability (see for example, Demirguc-Kunt and Huizinga 1999, Bikker and Hu 2002: and Athanasoglou et al. 2008, among others). Revell (1979) discussed the relationship between bank profitability and inflation. He found that the effect of inflation on bank profitability varies depending on how fast the level of increase in banks operating expenses is, as well as the rate of inflation. Perry (1992) stated that inflation impacts on banks profitability depends on whether it is fully anticipated or not (e.g. Rasiah 2010, among others). A positive relationship between inflation and profitability has been reported by Bourke (1989), Molyneux, and Thornton (1992)[vii] and Athanasoglou et al. (2008), among others. On the other hand, Hasan (2009) reported a negative relationship between inflation and performance.

## 3. Methodology

### 3.1 Data

A cross-sectional and time-series (panel data analysis) data relating to the banks in (GCC) countries were employed in this study that derived from the Bankscope database for the period 2002-2009. The major items of interest are: balance sheets, income statements, ownership structure and macroeconomic variables.

### 3.2 Samples

Two samples are used in this study. The first sample contains 38 conventional banks comprising four banks from Bahrain, four banks from Oman, eight banks from Saudi Arabia, five banks from Qatar, five banks from Kuwait, and twelve banks from the UAE. The second sample contains 13 conventional banks comprising three banks from Bahrain, two banks from Saudi Arabia, two banks from Qatar, one bank from Kuwait, and five banks from the UAE.

### 3.3. Variables Used in the Study

In this study two measures of bank performance (profitability) are used: Return on assets (ROA), which is net income to total assets, and Return on equity (ROE), which is net income to total equity. These two ratios are considered by Sinkey (2002) as the

best measures of a bank's performance. These two ratios were used by others, such as Williams (2003), Kosmidou (2008), Siddiqui (2008), and Sufian and Habibullah (2009). The following are the independent variables used in this study. The first independent variable is bank age measured by the number of years. Stanger (2000) argued that there is a positive relationship between the bank's age and its profitability. However, a negative relationship between age and growth rate was reported by Almus and Nerlinger (1999). We expect that older banks to be more profitable than younger banks due to their experience. The second variable is bank's equity. The effect of equity on ROA and ROE can be postulated to be different due to the different nature of deposits between the two banking systems (IB and CB). Deposits in Islamic banks are more like equity as they are based on PLS principle, while in conventional banks it is considered as debt because it is based on interest rate. Therefore, it is expected that equity in an IB, compared with CB, will have a lesser effect on performance. Bourke (1989), Demirguc-Kunt and Huizinga (1999), Goddard et al. (2004), and Pasiouras and Kosmidou (2007) suggested that equity has a positive effect on profitability. A recent study by Dietricha and Wanzenrie (2011) for a sample of 453 commercial banks in Switzerland supported this argument.

The third variable is the bank's size measured by log of total assets. It is argued that bank size is positively related to bank profitability since increasing in bank's size may reduce cost (e.g. Smirlock 1985: and Pasiouras and Kosmidou 2007). The fourth variable is the reserve to loan ratio measured by bank reserve against bank's total loans. It is expected that there will be a negative relationship between the reserve to loan and bank profitability. A study by Toby (2007) found that there is a negative correlation between the reserve to loan ratio and bank performance in Nigerian banks. The fifth variable is financial development measured by total assets to GDP (e.g. Hsiu-Ling et al. 2007). The sixth variable is foreign ownership. Foreign ownership is expected to have a positive effect on bank's performance as suggested by Claessens et al. (2000). Claessens et al. (2000) reported that in many developing countries (for example Indonesia and Egypt) foreign banks have a higher net interest margin than domestic banks. Also, they found that foreign banks achieved higher net profitability than local banks in Latin America and Asia.

There is strong empirical evidence about the ownership effect on bank's profitability. A study conducted by Micco et al. (2007) and Iannotta et al. (2007) showed that government-owned banks exhibit lower profitability than privately owned banks. On the other hand, Bourke (1989) and Molyneux and Thornton (1992) found that there is no significant relationship between the ownership status and bank performance. The seventh variable is the cost-to-income ratio measured by the operating costs over total revenues. This ratio measures the impact of efficiency on bank profitability. We, therefore, expect higher cost-income ratio to have a negative effect on bank profitability. A study by Athanasoglou et al. (2008) showed that efficient cost management is significant for improving banks profitability. The eighth variable is the economic conditions measured by the GDP growth. It is expected that there is a positive relationship between GDP and bank profitability according to the literature (see for example, Demirguc-Kunt and Huizinga 1999, Bikker and Hu 2002: and Athanasoglou et al. 2008). The last variable used in this study is inflation. However, the relationship between expected inflation and profitability is ambiguous. A study by Delis and Papanikolaou (2009) and Athanasoglou et al. (2005) showed that inflation

has positively and significantly affected profitability. On the other hand, Bashir and Hassan (2004) found a neagtive relationship between inflation and bank's profitability. However, Srairi (2009) could not find any significant relationship between inflation and performance.

### 3.4 Empirical Model

To assess the determinants of bank profitability we use an unbalanced panel data model. The estimated model for the two samples of companies in a panel data approach is :

$$y_{it} = \beta_0 + \beta_1 age_{it} + \beta_2 equity_{it} + \beta_3 Size_{it} - \beta_4 res - loan_{it} + \beta_5 fira_{it} + \beta_6 \cos t - inc_{it} + \beta_7 forn - GCC_{it} + \beta_8 GDP_{it} - \beta_9 \inf_{it} + \mu_i + u_{it} \quad (1)$$

where $y_{it}$ is alternatively *ROA or ROE*, for bank *i* as a measure of performance at time *t*. $\beta_0$ is a constant term. The independent variables are *Age, Equity, Size, res-loan (reserve to loan), For-GCC, Cost- Inc (cost to income), fira (financial development), GDP* and *Inf (inflation)*. The random effect model (RE) is applied in this study. Under a RE model the estimation method is generalized least squares (GLS). The pooled OLS regression is also estimated to compare the OLS results with the random effect model (RE). Dummy variables are also used to control for country effect.

## 4. Empirical Findings

Table 1 reports the descriptive statistics for the variables used in our analyses for Islamic and conventional banks. Based on the first measure of performance ROA, the reported mean is about 3.11 percent for Islamic banks, while it is 2.46 percent for conventional banks. On the other hand, the mean for the ROE for Islamic banks (16.16) is smaller than conventional banks (17.82). The descriptive statistics for explanatory variables for Islamic and conventional banks show that they are different. For example, the reported mean for reserve-loan, cost-income, and foreign ownership is larger for Islamic banks than conventional banks. Table 2 provides the correlations among these variables for conventional and Islamic banks in the GCC countries. As suggested by Anderson et al. (1990) any correlation coefficient exceeding (0.7) indicates a potential problem in choosing both variables. However, the results show that there is no multicollinearity problem among the independent variables used in the analysis in both samples. Therefore, all the variables were used in the analysis.

**Table 1: Statistical Summary for Conventional and Islamic Banks in GCC Countries**

| Conventional Banks | | | | | Islamic Banks | | | |
|---|---|---|---|---|---|---|---|---|
| Variable | Mean | Std. Dev. | Min | Max | Mean | Std. Dev. | Min | Max |
| ROA | 2.4633 | 1.7822 | -19.4 | 8.1 | 3.1065 | 4.3785 | -11.9 | 35.1 |
| ROE | 17.815 | 13.2768 | -110.8 | 42.1 | 16.157 | 19.989 | -119.5 | 73.2 |
| Age | 31.781 | 10.131 | 9 | 59 | 24.5773 | 7.72555 | 1 | 34 |
| Equity | 1557.2 | 1488.4 | 38.88 | 8023.68 | 1354.31 | 1651.39 | 22.344 | 7472.63 |
| Size | 41351 | 97948 | 344 | 151973 | 25124.4 | 39170 | 125.9 | 170730 |
| Reserve-Loan | 246.76 | 272.78 | 3.105 | 2233.6 | 275.214 | 329.843 | 0 | 1440.56 |
| Cost-income | 35.392 | 10.7558 | 15.62 | 96.4 | 38.1214 | 14.7385 | 14.3 | 92.86 |
| Foreign Ownership | 5.24559 | 11.145 | 0 | 40 | 11.2159 | 20.4161 | 0 | 62.82 |
| Financial Development | 11117.2 | 23956 | -2726 | 195720 | 5132.76 | 9332 | -1520 | 52036 |
| GDP | 5.84563 | 2.88589 | -2 | 13.4 | 6.3727 | 2.5178 | -2 | 13.4 |
| Inflation | 0.05613 | 0.05888 | -0.005 | 0.5 | 0.06135 | 0.05513 | -0.002 | 0.2 |

**Table 2: The Correlation Coefficients between Independent Variables for Conventional and Islamic Banks**

**Conventional Banks**

| | Age | Equity | Size | Reserve-Loan | Cost-Income | Foreign Owner | Financial Development | GDP | Inflation |
|---|---|---|---|---|---|---|---|---|---|
| Age | 1 | | | | | | | | |
| Equity | 0.35 | 1 | | | | | | | |
| Size | 0.20 | 0.44 | 1 | | | | | | |
| Reserve-loan | 0.27 | 0.55 | 0.13 | 1 | | | | | |
| Cost-income | -0.29 | -0.27 | -0.17 | -0.13 | 1 | | | | |
| Foreign Ownership | -0.05 | -0.21 | -0.17 | -0.21 | 0.27 | 1.00 | | | |
| Financial Development | 0.12 | 0.42 | 0.48 | 0.21 | -0.06 | -0.21 | 1.00 | | |
| GDP | 0.21 | 0.10 | 0.07 | -0.04 | -0.21 | 0.07 | -0.28 | 1.00 | |
| Inflation | 0.15 | 0.19 | 0.18 | 0.04 | -0.03 | -0.04 | -0.04 | 0.57 | 1.00 |

**Islamic Banks**

| | Age | Equity | Size | Reserve-Loan | Cost-Income | Foreign Owner | Financial Development | GDP | Inflation |
|---|---|---|---|---|---|---|---|---|---|
| Age | 1.00 | | | | | | | | |
| Equity | 0.15 | 1.00 | | | | | | | |
| Size | 0.31 | 0.53 | 1.00 | | | | | | |
| Reserve-loan | 0.03 | 0.54 | 0.74 | 1.00 | | | | | |
| Cost-income | 0.20 | -0.30 | -0.33 | -0.08 | 1.00 | | | | |
| Foreign Ownership | -0.06 | -0.27 | -0.21 | -0.06 | 0.30 | 1.00 | | | |
| Financial Development | -0.02 | 0.43 | 0.56 | 0.55 | -0.21 | -0.27 | 1.00 | | |
| GDP | 0.05 | 0.08 | 0.09 | -0.11 | -0.35 | -0.01 | -0.27 | 1.00 | |
| Inflation | 0.40 | 0.25 | 0.31 | 0.08 | -0.15 | -0.17 | 0.10 | 0.51 | 1.00 |

The estimation results of Equation (1) using conventional banks sample are presented in Table 3 using the Random-Effects model and OLS for ROA and ROE as dependent variable. It can be seen from Table 3 that the explanatory power of the adjusted R-square explained 55 percent of the variation of conventional banks' performance when ROA is used as dependent variable and 43 percent when ROE is used. Table 4 provides the results for Islamic banks sample using ROE and ROA as dependent variables for the random effect model and OLS. It can be seen from Table 4 that the explanatory power of the adjusted R-square explained 70% of the variation of Islamic banks' performance when ROA is used as dependent variable and 68.56% using ROE.

The estimated coefficient of the CB age is negative, and statistically, significantly affects ROE using random effect model at least at 1% level, while it is negative but insignificant using the ROA. Also, IB age was found to have a negative and significant impact on ROE; at least at 5 % level, while it is not significant using the ROA. This finding is similar to the results for CB sample. So, bank's age has no impact on bank performance ROA whether it is IB or CB. The negative coefficient of banks' age indicates that bank performance is better for younger banks than older one. The significant negative effect of age on IB and CB performance may be due to more virtual nature of banking in recent decades compared their nature before. Another explanation could be that older banks are more likely to have substantially higher brick and moderate expenditures as compared with younger banks and thereby having higher overhead costs, which might outweigh gains from experience, if any. This result is inconsistent with our expectation. However, this result is consistent with Almus and Nerlinger (1999) who found an inverse relationship between age and growth rate using CB sample, although Stanger (2000) did not support such conclusion. We further investigate whether the relationship between bank's age and IB and CB performance is nonlinear (see Table 5 and Table 6). The results in table 5 and table 6 provide no evidence of the nonlinear relationship between age and bank performance.

Bank's equity is positively and significantly related to CB profitability using both ROA and ROE. This finding is consistent with Bourke (1989), Molyneux and Thornton (1992), that a bank with more equity is able to pursue business opportunities more effectively, and thus, achieving more profit. However, as expected equity in an IB, relative to CB, will have a lesser effect on performance, bank equity is positively but insignificantly related to IB profitability using both ROA and ROE, which is different form CB. This could be due to the different nature of deposits between IB and CB where deposits in IB are more like equity as they are based on PLS principle, while it is considered as debt in CB because is based on interest rate. Overall, this finding may suggest that there is a structural difference between IB and CB[viii].

**Table 3: Estimation Results for Panel Data Model and Pooled OLS Using ROA and ROE as Dependent Variable for Conventional Banks with Country Dummy Variables**

| Independent Variables | ROA Random-effect Model | ROE Random-effect Model | ROA OLS | ROE OLS |
|---|---|---|---|---|
| Constant | 9.20613<br>(7.83)* | 46.35036<br>(3.81)* | 9.448157<br>(10.02)* | 35.25895<br>(3.53)* |
| Bank Age | -0.01521<br>(-1.13) | -0.3019508<br>(-2.33)** | -0.011552<br>(-1.45) | -0.27105<br>(-3.24)* |
| Equity | 0.00033<br>(4.19)* | 0.00243<br>(2.86)* | 0.000422<br>(5.52)* | 0.00235<br>(2.92)* |
| Size(Total Asset) | -0.96237<br>(-3.1)* | 0.334104<br>(0.1) | -1.232101<br>(-4.95)* | 1.70435<br>(0.65) |
| Reserve – Loan Ratio | -0.00229<br>(-6.32)* | -0.02835<br>(-7.18)* | -0.002078<br>(-5.5)* | -0.0245<br>(-6.17)* |
| Cost-income | -0.07454<br>(-9.99)* | -0.55706<br>(-6.89)* | -0.062616<br>(-8.61)* | -0.43973<br>(-5.72)* |
| Foreign ownership | 0.00345<br>(0.3) | 0.01358<br>(0.12) | -0.00035<br>(-0.05) | 0.0145<br>(0.2) |
| Financial development | 2.22E-06<br>(0.65) | -2.19E-06<br>(-0.06) | 3.88E-06<br>(1.03) | 7.09E-06<br>(0.18) |
| GDP | 0.105414<br>(4.02)* | 0.6776886<br>(2.35)** | 0.120423<br>(4.02)* | 0.752738<br>(2.38)** |
| Inflation | -7.77917<br>(-5.15)* | -46.3445<br>(-2.85)* | -8.526946<br>(-5.48)* | -59.0174<br>(-3.58)* |
| Dummy variable for Saudi Arabia | 0.107322<br>(0.26) | 5.672922<br>(1.39) | 0.1221181<br>(0.48) | 4.800339<br>(1.79)*** |
| Dummy variable for Bahrain | -0.944282<br>(-1.38) | -5.44491<br>(-0.82) | -0.823856<br>(-2.04)** | -6.4053<br>(-1.5) |
| Dummy variable for Kuwait | -0.219197<br>(-0.4) | 2.997032<br>(0.56) | -0.176367<br>(-0.49) | 2.147452<br>(0.58) |
| Dummy variable for UAE | 0.203722<br>(0.54) | 0.4568199<br>(0.12) | 0.2654675<br>(1.13) | 1.495659<br>(0.6) |
| Dummy variable for Qatar | -0.420393<br>(-0.97) | -2.372611<br>(-0.56) | -0.304959<br>(-1.1) | -1.12805<br>(-0.38) |
| No. of Observation | 219 | 220 | 219 | 220 |
| R-Square | 0.55 | 0.43 | 0.53 | 0.4364 |
| Wald Test | 310.87* | 188.87* | | |
| Huasman Test | 13.47** | 20.38* | 18.54* | 11.34* |
| Breusch and Pagan | 36.31* | 17.99* | | |

Note: *, **, ** * indicate significant at a 1%, 5%, and 10% level, respectively. t statistics are in parentheses. Statistical significance *t*-statistics are determined with White (1980) standard errors to correct for heteroskedasticity.

**Table 4: Estimation Results for Panel Data Model and Pooled OLS Using ROA and ROE as Dependent Variable for Islamic Banks with Country Dummy Variables**

| | ROA Random-effect Model | ROE Random-effect Model | ROA OLS | ROE OLS |
|---|---|---|---|---|
| Constant | 7.386999<br>(-2.31)** | 28.18975<br>(1.68)*** | 7.386999<br>(2.31)** | 28.18975<br>(1.68)*** |
| Bank Age | 0.024173<br>(0.34) | -0.96284<br>(-2.62)* | 0.024173<br>(0.34) | -0.96284<br>(-2.62)** |
| Equity | 0.000458<br>(1.16) | 0.000269<br>(0.13) | 0.000458<br>(1.16) | 0.000269<br>(0.13) |
| Size(Total Asset) | -0.36529<br>(-0.51) | 9.959442<br>(2.64)* | -0.36529<br>(-0.51) | 9.959442<br>(2.64)** |
| Reserve – Loan Ratio | -0.00172<br>(-1.1) | -0.01091<br>(-1.34) | -0.00172<br>(-1.1) | -0.01091<br>(-1.34) |
| Cost-income | -0.11982<br>(-5.73)* | -0.47237<br>(-4.3)* | -0.11982<br>(-5.73)* | -0.47237<br>(-4.3)* |
| Foreign ownership | 0.009434<br>(0.56) | -0.04571<br>(-0.51) | 0.009434<br>(0.56) | -0.04571<br>(-0.51) |
| Financial development | -6.40E-05<br>(-1.24) | -0.00033<br>(-1.23) | -6.40E-05<br>(-1.24) | -0.00033<br>(-1.23) |
| GDP | 0.069858<br>(0.57) | 0.486836<br>(0.76) | 0.069858<br>(0.57) | 0.486836<br>(0.76) |
| Inflation | -10.6029<br>(-1.76)*** | -87.8738<br>(-2.79)* | -10.6029<br>(-1.76)*** | -87.8738<br>(-2.79)* |
| Dummy variable for Saudi Arabia | 3.060531<br>(2.67)* | 11.29244<br>(1.88)*** | 3.060531<br>(2.67)* | 11.29244<br>(1.88)*** |
| Dummy variable for Bahrain | 0.678815<br>(0.51) | -2.033<br>(-0.29) | 0.678815<br>(0.51) | -2.033<br>(-0.29) |
| Dummy variable for UAE | 0.622411<br>(0.56) | 5.749991<br>(0.98) | 0.622411<br>(0.56) | 5.749991<br>(0.98) |
| Dummy variable for Qatar | 1.293819<br>(0.9) | 0.237462<br>(0.03) | 1.293819<br>(0.9) | 0.237462<br>(0.03) |
| No. of Observation | 66 | 66 | 66 | 66 |
| R-Square | 0.70 | 0.725 | 0.6237 | 0.6564 |
| Wald Test | 120.73* | 137.16* | 9.29* | 10.55* |
| Huasman Test | 6.2<br>0.4 | 5.61<br>0.469 | | |
| Breusch and Pagan | 0.1<br>0.8 | 0.14<br>0.712 | | |

Note: *, **, *** indicate significant at a 1%, 5%, and 10% level, respectively. t statistics are in parentheses. Statistical significance *t*-statistics are determined with White (1980) standard errors to correct for heteroskedasticity.

Intresttingly, the estimated coefficient of the CB size is negative and statistically significant at least at 1 % level using the ROA, while it has a negative and insignificant coefficient for ROE. On the other hand, IB size is positive and significantly affects ROE. This finding indicates that IB size affects its performance,

which is different from CB. However, IB size has a negative and insignificant coefficient using ROA, whereas the size has a negative and significant effect on CB performance ROA. This finding indicates that bank's size affects differently Islamic and conventional banks performance, using different measures of performance (ROA or ROE). It also provides evidence of economies of scale in banking using the ROE for Islamic banks only. We further investigate whether the relationship between bank's size and IB and CB performance is nonlinear (see Table 5 and Table 6). The results in table 5 and table 6 provide no evidence of the nonlinear relationship between size and bank performance.

The reserve-loan coefficient for CB is negative and significant at least at 1% level in ROA and ROE. This result is consistent with the finding of Toby (2007), that reserve to loan has a negative impact on bank's performance. The reserve-loan was found to have a negative but insignificant impact on ROA and ROE for IB, which is different from CB[ix]. So more reserve-loan results in less opportunity to invest and less profit for CB but not for IB. As expected the cost-income ratio decreases bank performance for both IB and CB since any increase in costs decreases profit margin. Our results show that the coefficient of the cost-income ratio is negative and significant at least at 1% level in ROA and ROE for both IB and CB. This result is consistent with the finding of Athanasoglou et al. (2008), among others.

Foreign ownership was found to have a positive but insignificant impact on CB performance ROA and ROE using the random effect model, while it had positive and insignificant impact on IB performance ROA. Foreign ownership was found to have a negative but insignificant impact on IB performance ROE. This result is inconsistent with Micco et al. (2004) finding that foreign ownership improved performance. An explanation could be that GCC economies are not fully opened to foreign investors (Alkassim 2005: and Al-Muharrami et al., 2006). So in GCC countries where banks operate under conditions of perfect competition or monopolistic competition, family ownership, or government ownership could affect banks performance more than foreign ownership. It may also indicate that the presence of foreign ownership forces management to allocate resources for their own benefit as they are not sure about the foreigners' strategies. On the other hand, financial development seems not to have any significant impact not only on conventional banks performance, but also on Islamic banks performance ROA and ROE.

The estimated coefficient of the macroeconomic variable GDP is positive and statistically significant at least at 1% level using the ROA and at 5% using the ROE for CB's. This result is consistent with the findings of Bourke (1989), Molyneux and Thornton (1992) and Athanasoglou et al. (2008), among others. Interestingly, the macroeconomic variable GDP was found not to have any significant impact on Islamic banks performance. This result is inconsistent with our finding for conventional banks, and with the findings of Bourke (1989), Molyneux and Thornton (1992) and Athanasoglou et al. (2008). The estimated coefficient of inflation is negative and statistically significant using ROA and ROE for both CB and IB. This result is consistent with the findings of Bashir and Hassan (2004) that inflation affects profitability negatively. However, it is not consistent with Delis et al. (2009) and Athanasoglou et al. (2005), Molyneux, and Thornton (1992) and Bourke (1989).

The results show that CB bank profitability varies slightly by countries. Interestingly, none of the coefficients of country dummy variables has a significant effect on bank performance using the random effect model. However, using the OLS, only Bahrain dummy variable was found to have a negative and significant impact on ROA, while Saudi dummy variable was found to have a postive and significant impact on ROE. For IB the coefficient of Saudi Arabia dummy variable is positive and significantly affects IB's performance. This result is consistent with our finding for conventional banks and provides stronger evidence on country impact on banks performance.

**Table 5: Estimation Results Using ROA and ROE as Dependent Variable for Conventional Banks: Non-linear Specification for Age and Size**

| Independent Variables | ROA Random-effect Model | ROE Random-effect Model | ROA OLS | ROE OLS |
|---|---|---|---|---|
| Constant | 7.3662<br>(10.65)* | 43.0458<br>(6)* | 7.18945<br>(12.91)* | 35.0247<br>(5.86)* |
| Bank Age2 | -0.0003137<br>(-1.59) | -0.00448<br>(-2.36)** | -0.00024<br>(-2.07)* | -0.00404<br>(-3.24)* |
| Equity | 0.000368<br>(4.49)* | 0.00244<br>(2.74)* | 0.00047<br>(5.93* | 0.0023<br>(2.74)* |
| Size2 | -0.141278<br>(-3.37)* | 0.00887<br>(0.02) | -0.1809<br>(-5.3)* | 0.192<br>(0.52) |
| Reserve – Loan Ratio | -0.0022388<br>(-6.21)* | -0.02796<br>(-7.07) | -0.00205<br>(-5.49)* | -0.02413<br>(-6.08)* |
| Cost-income | -0.074801<br>(-10.09)* | -0.55387<br>(-6.85)* | -0.06282<br>(-8.75)* | -0.43764<br>(-5.69)* |
| Foreign ownership | 0.0038823<br>(0.34) | 0.011979<br>(0.11) | -0.00016<br>(-0.02) | 0.012298<br>(0.17) |
| Financial development | 3.78E-06<br>(1.07) | 4.07E-07<br>(0.01) | 6.09E-06<br>(1.59) | 8.86E-06<br>(0.22) |
| GDP | 0.109178<br>(4.17)* | 0.686735<br>(2.37)** | 0.12553<br>(4.23)* | 0.762697<br>(2.4)** |
| Inflation | -7.829536<br>(-5.28)* | -47.2822<br>(-2.94)* | -8.60521<br>(-5.61)* | -59.3619<br>(-3.61)* |
| No. of Observation | 219 | 220 | 219 | 220 |
| R-Square | 0.56 | 0.43 | 0.57 | 0.4364 |
| Wald Test | 318.87* | 188.22* | | |
| Huasman Test | 13.47** | 20.38* | 19.49* | 11.34* |
| Breusch and Pagan | 36.31* | 17.99* | | |

Note: *, **, *** indicate significant at a 1%, 5%, and 10% level, respectively. t statistics are in parentheses. Statistical significance *t*-statistics are determined with White (1980) standard errors to correct for heteroskedasticity.

**Table 6: Estimation Results Using ROA and ROE as Dependent Variable for Islamic Banks: Non-linear Specification for Age and Size**

| | ROA Random-effect Model | ROE Random-effect Model | ROA OLS | ROE OLS |
|---|---|---|---|---|
| Constant | 7.212515<br>(3.43)* | 28.8127<br>(2.71)* | 7.212515<br>(3.43)* | 31.4296<br>(2.82)* |
| Bank Age2 | 0.000335<br>(0.22) | -0.018<br>(-2.27)* | 0.000335<br>(0.22) | -0.018<br>(-2.27)** |
| Equity | 0.000481<br>(1.21) | -0.00023<br>(-0.11) | 0.000481<br>(1.21) | -0.00023<br>(-0.11) |
| Size2 | -0.055125<br>(-0.52) | 1.476553<br>(2.63)* | -0.05512<br>(-0.52) | 1.476553<br>(2.63)** |
| Reserve – Loan Ratio | -0.001769<br>(-1.14) | -0.00998<br>(-1.21) | -0.00177<br>(-1.14) | -0.00998<br>(-1.21) |
| Cost-income | -0.119865<br>(-5.71)* | -0.4644<br>(-4.17)* | -0.11987<br>(-5.71)* | -0.4644<br>(-4.17) |
| Foreign ownership | 0.008972<br>(0.54) | -0.0291<br>(-0.33) | 0.008972<br>(0.54) | -0.0291<br>(-0.33) |
| Financial development | -0.000065<br>(-1.26) | -0.00032<br>(-1.18) | -6.5E-05<br>(-1.26) | -0.00032<br>(-1.18) |
| GDP | 0.068429<br>(0.56) | 0.522191<br>(0.81) | 0.068429<br>(0.56) | 0.522191<br>(0.81) |
| Inflation | -10.3223<br>(-1.68)*** | -88.276<br>(-2.68)* | -10.3223<br>(-1.68)*** | -88.276<br>(-2.68)* |
| No. of Observation | 66 | 66 | 66 | 66 |
| R-Square | 0.7 | 0.725 | 0.623 | 0.65 |
| Wald Test | 120.63* | 133.16* | 9.28* | 10.24* |
| Huasman Test | 6.22<br>0.4 | 5.36<br>0.469 | | |
| Breusch and Pagan | 0.1<br>0.8 | 0.14<br>0.712 | | |

Note: *, **, *** indicate significant at a 1%, 5%, and 10% level, respectively. t statistics are in parentheses. Statistical significance *t*-statistics are determined with White (1980) standard errors to correct for heteroskedasticity.

## 5. Conclusion

This study empirically investigated the determinants of bank's performance for Islamic and conventional banks in Gulf Cooperation Council (GCC) countries during the period 2002-2009, using a cross-sectional time-series (panel data). Bank-specific factors (internal variables), macroeconomic factors (external variables), and ownership structure variable have been used in this study. Increasing demand for Islamic banks services around the world, especially in GCC countries provides motivation for the study. The first sample contains 38 conventional banks and the second sample contains 13 conventional banks. Our results show that bank's equity is important in explaining and increasing CB profitability, while it is not for Islamic

banks. The cost-income was found to have a negative and significant impact on banks performance for Islamic and conventional banks. It is important for Islamic and conventional banks to minimize cost-income. It reflects bank's efficiency in using resources that affect banks' performance positively. Additionally, the positive and significant effect of size provides evidence of economies of scale in banking using ROE for Islamic banks only. However, the coefficient of size was found to have a negative and significant impact on ROA for IB only, which is inconsistent with the previous studies (see Eichengreen and Gibson 2001: and Delis and Papanikolaou 2009).

Foreign ownership, however, does not improve Islamic and conventional banks performance. This supports Al-Muharrami et al. (2006) finding, that banks in Qatar, Bahrain and Oman are operating under conditions of monopolistic competition. Foreign ownership in GCC banks is quite small and insignificantly affects banks decisions. Therefore, GCC countries are expected to open their market and encourage foreign investors by liberalizing the banking sector. Bank's age has no significant impact on bank profitability ROA for conventional and Islamic banks samples. Our evidence suggests that bank age does not participate in improving performance for Islamic and conventional banks. The reserve-loan variable was found to have a negative and significant impact on conventional banks performance measures ROA and ROE, while it only has a negative and insignificant effect on Islamic banks performance.

Finally, with respect to the macroeconomic variables, both GDP and inflation clearly affect performance for both Islamic and conventional banks. The GDP is positively correlated to profitability, while inflation is negatively correlated to bank profitability. This finding provides evidence of a strong relationship between economic conditions (variables) and banking sector performance. Overall, the empirical results provide evidence that GCC banks' performance for Islamic and conventional banks was affected by internal factors (bank specific factors) and external factors (macroeconomic variables), but not by foreign ownership.

**Limitations and Future Research**

Data collection is the main limitation for this study. Data on banking in the Middle-East is not easily accessible or available in general. The data for this study was obtained from BankScope and the required information was not available for all banks. Therefore, many banks were not included in this study as they had missing data for many years over the period of the study. Accounting standards was one of the limitations for not including data prior to 2002. For example, the available data for some banks was not following the accounting standards. Another limitation for this study is that some other variables were not included to test bank profitability, such as interest rates, total expenditure as a percentage of total assets, among other variables.

Future studies could include more variables, such as interest rates lending and borrowing, total deposits to different accounts (such as current, saving, investment) as a percentage of total assets, total expenditure as a percentage of total assets, staff expense as a percentage of total assets, among other variables. Another possible study is the examination of the differences in the determinants of

performance between small banks and large banks and between pure Islamic, pure conventional and mixed (providing Islamic and conventional services).

## Endnotes

[i] Is a contract through which the investor provides capital to the entrepreneur to undertake a business/investment activity. While profits are shared on a pre-agreed ratio, loss of investment is borne by the investor only.

[ii] Is a contract of sale between the bank and its customer for the sale of goods at a specific price plus an agreed profit precent for the bank.

[iii] Ijarah is a financing method called leasing. It allows the bank to earn profits by charging rentals on the asset leased to the customer such as machine, cars or medical equipment. According to Ijarah the bank remains the owners of leased assets.

[iv] it is very similar to Ijarah except that the lessee can acquire ownership of the asset by making instalments payments to the Islamic bank.

[v] Is a sukuk is a financing method that is similar to a conventional bond in way that it represent debt instrument, but asset backed. Also a sukuk represents proportionate beneficial ownership in the underlying asset. The asset will be leased to the customer to yield the return on the investment.

[vi] Is a contract made with a manufacturer, under which the manufacturer undertakes to make an item (product) on certain conditions and at a determined price and for a fixed date of delivery. Also the Istisna'a mode can be used to finance intangible goods such as gas and electricity for which Leasing or Instalment Sale modes are not suitable.

[vii] Bourke (1989) and Molyneux and Thornton (1992) Used the consumer price index (CPI) as a proxy for inflation.

[viii] It is worth noting that adummy variable test was conducted to test for the structural differences between Islamic and conventional banks; where CB is given 1 as group 1, and IB is given 0 as group 2. The test shows that there is a structural difference between Islamic and conventional banks at least at 1% level.

[ix] It is worth noting that reserve-loan in IB was found to have a negative and significant impact on ROE at least at 5%, which is similar to CB before conroling for country effect.

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