

## **Profitability of Islamic Banks in the GCC Region**

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*This study examines how bank-specific characteristics and the overall macroeconomic environment affect the profitability of Islamic Banks in the GCC. Utilizing a large panel data of 44 Islamic Banks over the period 1995-2009, the results indicate that higher capital, better asset quality, and larger size lead to higher profitability, while higher cost-to-income ratio leads to lower profitability. Consistent with previous findings on conventional banks, we find that favorable macroeconomic conditions have a positive impact on the profitability of Islamic Banks.*

**JEL Codes:** G21, C23

### **1. Introduction**

The Islamic Banking industry has recently grown tremendously and has expanded widely reaching several international financial centers, reflecting an increasing interest in Shariah-compliant products and services. Given this growing interest, several international market institutions have launched Shariah-compliant indices (e.g. "Dow Jones" in the US and "FTSE" in the UK). According to the Saudi Arabian Monetary Agency (SAMA), the assets held by Islamic Financial Institutions amount to more than \$822 Billion by end of 2009. By the end of 2010, they are expected to exceed \$1 Trillion. There are more than 430 Islamic Financial Institutions operating in more than 75 countries. Moreover, about 191 conventional banks have opened Islamic windows. In addition, the total assets of Islamic investment funds amount to \$ 27 billion by the end of 2009.

Islamic Banking is based on profit and loss sharing between the bank and the borrower (Khan and Mirakhor, 1987). Furthermore, Islamic Banks combine commercial banking activities and investment banking operations in order to generate acceptable rates of return for depositors but in compliance with Islamic rules and principles (Al-Kassim, 2005). Unlike conventional banks, where money is considered as a commodity that can be bought and sold, Islamic Banks treat money as a mean to facilitate transactions for trading purpose (Al-Kassim, 2005).

This research aims at investigating the profitability of Islamic Banks in the GCC (Gulf Cooperation Council) countries over the period 1995-2009. Specifically, we propose to

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analyze which among the internal (bank characteristics) and the external determinants (macroeconomic environment) of Islamic Banks' profitability appear to be important.

Analyzing Islamic Banks' performance is essential for managers, depositors, and bank regulators. While managers are interested in examining the outcomes of past decisions, depositors are keen to determine the performance of their banks since they are not promised fixed returns and their deposits are not capital-protected (Hassan and Bashir, 2003). For bank regulators, tracking the performance of Islamic Banks is important to: (1) assess the soundness and the safety of the banking system; (2) maintain the public confidence in the banking system; and (3) identify the banks in financial distress.

The remainder of this paper is organized as follows. Section 2 gives a brief overview on Islamic Banking in the GCC. Section 3 discusses the literature review. In Section 4, we develop our hypotheses. Section 5 identifies the data sources, describes the variables used, and presents our methodology. The empirical results are presented in Section 6, while the conclusion is stated in Section 7.

### 2. Islamic Banking: Background

Islamic Banking is based on profit and loss sharing (PLS) between the borrower and the bank (Khan and Mirakhor, 1987). Islamic Banks maintain profit by mixing investment and commercial banking operations to engage in acceptable rates of return for depositors but in accordance to Islamic rules and principles. Islamic Banking rules are according to the Islamic Shariah derived from the Quran and prophet Mohamed's (peace be upon him) sayings. The three main practices clearly prohibited in the Quran and the prophet's sayings are: *Riba* (Interest), *Gharar* (Uncertainty), and *Maysir* (Betting).

For Islamic Banks to make profit and to satisfy the borrowers' needs of cash, they have to conduct transactions that do not violate Islamic rules by looking for allowed contracts that can achieve the required goal. Mostly, they are based on sale and purchase transactions, accompanied by a degree of risk. There are five main contracts: *Mudarabah*, *Musharakah*, *Murabahah*, *Ijarah* and *Salam*.

- a) *Mudarabah*: is a contract between two parties; one provides the capital and the other provides the labor to form a partnership to share the profits by a certain agreed proportions.
- b) *Musharakah*: is a financial contract between two or many parties to establish a commercial enterprise based on capital and labor. The profit and loss is shared at an agreed proportion according to amount of contribution (Hassan and Zaher, 2001).
- c) *Murabahah*: refers to a sale of a good or property with an agreed profit against a deferred or a lump sum payment. There are two contracts in *Murabahah*: the first contract is between the client and the bank, whereas the second contract is between the bank and supplier. The client (purchaser) orders a certain commodity

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through the bank, the bank then buys the commodity from the supplier and sells it to the client with specified profit whereby the client can make a lump sum or a deferred payment to the bank (Iqbal and Molyneux, 2005).

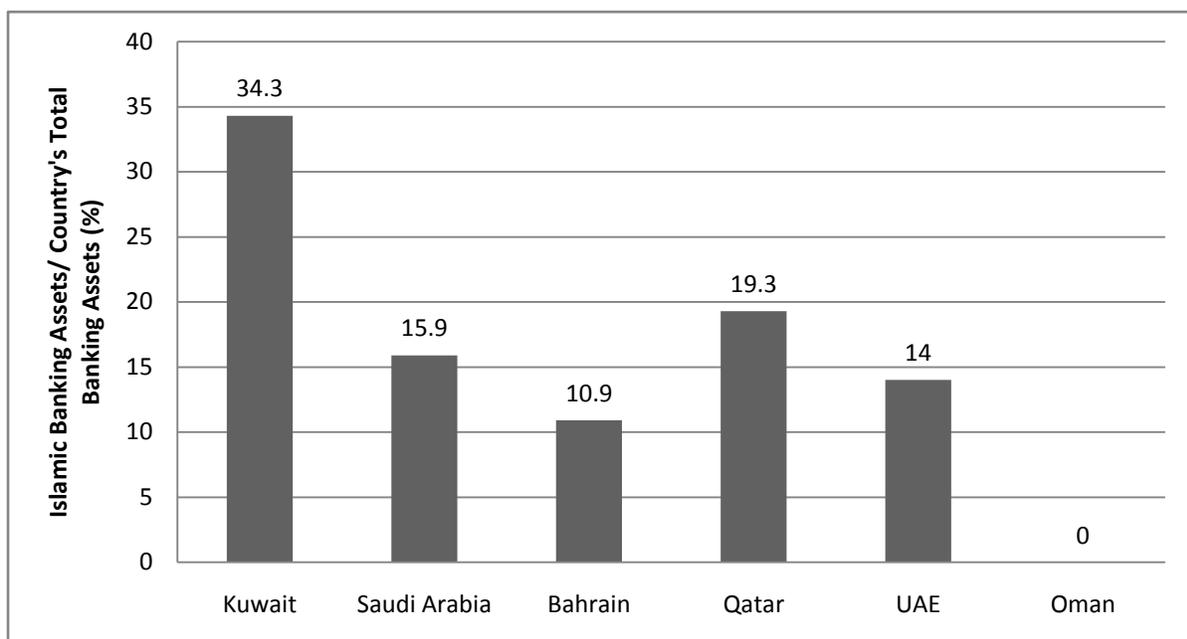
- d) *Ijarah* (leasing): in which two parties involved therein: the lessee and leaser. The leaser (bank) is the real owner of the asset or property and it is rented out to the lessee until full payment is received. The lessee has the option to keep the asset at contract maturity or give it back to the bank. If all payments are received, the lessee can keep the asset but at a higher price than the usual asset price (Iqbal and Molyneux, 2005).
- e) *Salam*: is another contract where full payment for a good is paid in advance but the delivery of the good is made at an agreed future date (Iqbal and Molyneux, 2005).

According to Kuwait Finance House (2010), Islamic Banking, which accounts for 17% of the GCC banking assets, is expected to grow annually at 15%-20%.

Recently, the Islamic Banking sector in the GCC region has witnessed tremendous growth and seen an increased demand for Shariah-compliant products and services. By the end of March of 2010, the share of the Islamic Banking industry in the total assets of the region's banking system has increased to 16.6%.

Figure 1 below shows that Kuwait's Islamic Banking sector accounted for 34.3% of the country's total banking assets, followed by Qatar (19.3%), Saudi Arabia (15.9%), the UAE (14.0%), and Bahrain (10.9%).

**Figure 1: Percentage of Islamic Banking Assets to the Country's Total Banking Assets**



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The existence of financial centers in Bahrain, Qatar and the UAE, as well as a number of Islamic finance organizations such as the Accounting and Auditing Organization for Islamic Financial Institutions (AAOIFI), Liquidity Management Centre (LMC) and the International Islamic Financial Market (IIFM) will continue to attract new players to the region and further propel the Islamic Banking industry to greater heights (Kuwait Finance House, 2010).

### **3. Literature Review**

Many studies have been conducted to analyze the determinants of the profitability of conventional banks (Peters et al., 2004; Kosmidou et al., 2006; Goddard et al., 2004; Athanasoglou et al., 2006; Heffernan and Fu, 2008; etc.). Only a handful studies have examined the profitability of Islamic Banks.

Haron (1996) was the first to examine the effects of competition and external factors on the profitability of Islamic Banks. He shows that, in competitive market, Islamic Banks earned more than those which operate in a monopolistic market. Furthermore, interest rates, inflation and size have significant positive impact on the profits of both conventional and Islamic Banks.

Bashir (2000) examined the performance of Islamic Banks in the Middle-Eastern region between 1993 and 1998. To measure profitability, he used Non-Interest Margin (NIM), Before Tax Profit (BTP), Return on Assets (ROA), and Return on Equity (ROE). The results confirm previous findings and show that Islamic Banks' profitability is positively related to equity and loans. The results also indicate that favorable macroeconomic conditions positively impact profitability.

Hassan and Bashir (2003) later confirm the findings of Bashir (2000). They examine the determinants of Islamic Banking profitability between 1994 and 2001 for 21 countries. Their results show that Islamic Banks have a better capital asset ratio compared to conventional banks. Surprisingly, they document a negative relationship between total assets and profitability, which amazingly means that smaller banks are more profitable. In addition, during an economic boom, bank profitability seems to improve because there are fewer nonperforming loans. Inflation, on the other hand, does not have any effect on Islamic Bank profitability.

In the same vein, Haron (2004) analyzed the effects of internal and external variables on the profitability of Islamic Banks. He found that liquidity, funds deposited into current accounts, total capital and reserves, and the percentage of profit-sharing between bank and depositors positively influence the profitability of Islamic Banks. The results also show that interest rates, inflation and size have significant positive impact on the profits of Islamic Banks.

Samad (2004) compared the performance of Islamic Banks and conventional banks in Bahrain after the Gulf War of 1990. The results indicate that there is no significant

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difference, in terms of profitability and liquidity, between Islamic Banks and conventional banks. Moreover, Islamic Banks are exposed to less credit risk than conventional banks.

Haron and Wan (2004) investigated the impact of internal and external variables on the profitability of Islamic Banks in selected countries from 1984 to 2002. The results show that liquidity, deposit items, assets structure, inflation and money supply have a significant long-run relationship with the profitability of Islamic Banks.

Using several ratios measuring bank performance, Kader et al. (2007) assessed the performance of UAE Islamic banks over the period 2000- 2004. Their results show that Islamic banks are relatively more profitable, less liquid, less risky and more efficient than conventional banks in the UAE.

### 4. Hypotheses

In order to test our hypotheses, we use six independent variables, namely capital adequacy, liquidity, efficiency, GDP growth and inflation. The dependant variable is bank profitability, proxied by return on equity (ROE), return on assets (ROA) and net non-interest margin (NIM).

Equity to Assets (EA) ratio is a measure of capital adequacy. The ratio shows the ability of the bank to withstand losses. It is expected that the higher the EA ratio, the lower the need of external funding and therefore the higher the profitability of the bank. Athanasoglou et al. (2008) and Mamatzakis and Remoundos (2003) find that the coefficient of the EA ratio is highly significant and positively related to profitability.

*H1: Equity to Assets ratio (EA) is positively related to profitability*

The ratio of loan loss reserves to gross loans (LLR) measures the banks' asset quality. With a sound quality of loans, in accordance to the risk-return hypothesis, a high ratio could imply a positive relationship between risk and profits. Heffernan and Fu (2008) find a positive and significant coefficient on the LLR ratio, indicating that loan loss provisioning improves performance.

*H2: Loan loss reserves ratio (LLR) is positively related to profitability*

The cost to Income ratio (COSR) is used as an indicator of efficiency in expenses management. According to Kosmidou et al. (2006), since higher expenses normally imply lower profits, COSR is expected to have a negative effect on Islamic Bank's margins and profits.

*H3: Cost to Income Ratio (COSR) is negatively related to profitability*

Net Loans to Assets ratio (NLA) is a measure of liquidity. It indicates how much of the assets of the bank are tied up in loans. Higher NLA ratios could reduce liquidity and increase the number of marginal borrowers that default. However, higher NLA ratios may

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be indicative of better bank performance because of increases in interest income. Heffernan and Fu (2008) find mixed results for NLA. Nevertheless, Demirguc-Kunt and Huizinga (1999) find that NLA has a negative and significant impact on bank profitability.

*H4: Net Loan to Assets ratio (NLA) is negatively related to profitability*

Kosmidou et al. (2006) and Hassan and Bashir (2003) provide evidence that higher GDP growth leads to higher bank profitability. GDP growth is expected to stimulate the demand for bank loans, thereby increasing bank profitability.

*H5: GDP growth is positively related to profitability*

High inflation rates are generally associated with high interest rates on loans. Thus, inflation is expected to have a positive impact on bank profitability. Many studies have put forward a positive and significant relation between inflation and bank profitability (Athanasoglou et al., 2008; Kosmidou et al., 2006; Pasiouras et al., 2007; and Demirguc-Kunt and Huizinga, 1999).

*H6: Inflation has a positive relationship with bank profitability.*

## 5. Data, Variables, and Methodology

### 5.1 Data

We improve on previous studies by our use of an extensive panel data set of 44 Islamic Banks in GCC region over the period 1995-2009. The data on profitability and banks' characteristics are obtained from BankScope database which is compiled by International Bank Credit Analysis Limited (IBCA). BankScope gathers information on more than 11,000 banks worldwide, accounting for about 90% of total assets in each country. Furthermore, the data is presented in standardized formats, after adjusting for differences in accounting and reporting standards, thereby making cross-country comparisons more meaningful. The data on the macroeconomic environment is gathered from the World Bank's World Development Indicators 2009.

A total of 44 Islamic Banks belonging to the GCC region were chosen in this study. The selected banks are those classified as Islamic Bank in the BankScope database. To be included in our sample, the Islamic Banks must have available data for at least two years between 1995 and 2009. This yielded an unbalanced panel data of 2,350 bank-year observations.

## 5.2 Definition of Variables

### a. Dependant Variables

In the banking literature, there are many profitability ratios that have been used by researchers in measuring bank performance. The two most often used are the rate of return on assets (ROA) and the rate of return on equity (ROE) (Iqbal et al., 2005).

In this study, the ratios that have been selected and used as proxies for profitability are: ROA: Return on Assets; ROE: Return on Equity; and NIM: Net Non-Interest Margin. Table 1 shows the definitions, notation and the expected sign of the explanatory variables on bank profitability.

**Table 1: Definitions, Proxies and Expected Sign**

| Variables          | Description                                 | Notation | Expected Sign |
|--------------------|---|----------|---------------|
| <b>Dependent</b>   |   |          |               |
| Profitability      | Return on Average Assets                    | ROA      |               |
|                    | Return on Average Equity                    | ROE      |               |
|                    | Net non-Interest Margin                     | NIM      |               |
| <b>Independent</b> |   |          |               |
| Asset Quality      | Loan loss reserves/gross loans              | LLR      | +             |
| Capital            | Equity/total assets                         | EA       | +             |
| Efficiency         | Cost to income ratio                        | COSR     | -             |
| Liquidity          | Net loans/total assets                      | NLA      | -             |
| Liquidity          | Liquid assets/deposits & short-term funding | LIQ      | -             |
| GDP Growth         | Annual GDP growth rate                      | GDP      | +             |
| Inflation          | Consumer price index                        | CPI      | +             |
| Size               | Log (Total Assets)                          | log (TA) | +             |
| Overheads          | Overhead costs                              | OH       | -             |

#### **Return on Assets (ROA)**

ROA is the ratio of a bank's net after-tax income divided by its total assets. It measures how efficiently the management of the bank has been able to convert the bank's or institution's assets into profits (Samad, 1999). In this study, we use average assets in order to capture any differences in assets that could have occurred during the fiscal year.

#### **Return on Equity (ROE)**

ROE is the ratio of a bank's net after-tax income divided by its total equity capital. It measures how effectively the management of the bank has been able to turn

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shareholders' equity into net profit. It is the rate of return that flows to the bank's stockholders (Samad, 1999).

### **Net Non-Interest Margin (NIM)**

The NIM is defined as the net income accruing to the bank from non-interest activities (including fees, service charges, foreign exchange, and direct investment) divided by total assets (Hassan and Bashir, 2003). Non-interest revenue has recently gained in importance for conventional banks in the 1990s. These new income items include, among others, ATM fees, credit-card fees, and fees from the sale of mutual funds. Non-interest revenue constitutes the lion's share of Islamic Bank's operating income. The higher the NIM, the higher the profit margin the bank is commanding.

### **b. Determinants of Profitability**

Previous studies classified the determinants of profitability into two categories: internal and external. Four internal variables are used in this study, namely cost to income ratio, loan loss reserves to gross loans, equity to asset ratio, net loans to total assets, and liquid assets to deposit and short-term funding. We also use two external variables measuring the overall macroeconomic environment, namely GDP growth and inflation.

#### **Efficiency: Cost to Income ratio (COSR)**

COSR measures the overheads or costs of running the bank, including staff salaries and benefits, occupancy expenses and other expenses such as office supplies, as percentage of income. It is typically used as an indicator of management's ability to control costs. Since higher expenses normally mean lower profits and vice versa, COSR is expected to have a negative effect on bank profits and margins (Kosmidou et al., 2006).

#### **Asset Quality: Loan loss reserves to Gross loans (LLR)**

LLR is the percentage of the total loan portfolio that has been set aside for bad loans. Higher LLR ratios could indicate poor quality of loans, hence higher risk on the loan's portfolio. According to Kosmidou et al. (2006), a poor loan quality could reduce interest revenue and increase bank's provisioning costs.

#### **Capital: Equity to Asset ratio (EA)**

Equity to asset ratio (EA) measures the capital adequacy of the bank. It signals the overall shock absorbing capacity of a bank for potential loan asset losses. The higher the EA ratio, the stronger is the ability of the bank to withstand asset losses (Samad, 2004). Additionally, the greater the EA ratio, the lower is the need for external funding, hence the higher the profitability of the bank.

#### **Liquidity: Net Loans/Total Assets (NLA)**

NLA is a liquidity ratio measuring the portion of the bank's assets tied up in loans. Higher NLA ratios could reduce the liquidity of the bank and increase the number of defaulting borrowers (Hassan and Bashir, 2003). However, higher NLA ratios may be indicative of

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better bank performance because of increases in interest income. Thus, its effect on bank performance is ambiguous.

### GDP growth

We use the real GDP growth to measure the overall economic activity in a country. Higher real GDP growth rates could stimulate the demand for bank loans. Therefore, a positive association is expected between real GDP growth and bank profitability. (Pasiouras et al., 2007; Heffernan and Fu, 2008; Kosmidou et al., 2006).

### Inflation

We use Consumer Price Index (CPI) as a proxy for inflation. Although inflation may influence the value of revenues and costs, its impact on bank profitability could be positive or negative depending on whether it is anticipated or unanticipated. In the case of anticipated inflation, we expect a positive impact on profitability since banks can timely adjust interest rates, resulting in revenues increasing faster than costs. In the case of unanticipated inflation, we hypothesize a negative impact on profitability since banks may be forced to adjust slowly their interest rates, leading to a faster increase of bank costs than banks revenues (Pasiouras and Kosmidou, 2007).

## 5.3 Methodology

To test our hypotheses on the determinants of Islamic Bank's profitability, we estimate the following time-series cross-sectional equation:

$$Profitability_{i,t} = \beta_0 + \beta_1 * LLR_{i,t-1} + \beta_2 * EA_{i,t-1} + \beta_3 * COSR_{i,t-1} + \beta_4 * NLA_{i,t-1} + \beta_5 * GDP_{i,t-1} + \beta_6 * CPI_{i,t-1} + \mu_{i,t} + \varepsilon_{i,t} \quad (1)$$

where:

i = the Islamic Bank (i=1, ..., N);

t = the time indicator that is equal to the number of years (t=1, ..., T)

Profitability = ROA, ROE or NIM.

LLR = Loan loss reserves to gross loan ratio

EA = Total equity to total assets ratio

COSR = Cost to income ratio

NLA = Net loans to total assets ratio

GDP = GDP growth rate

CPI = Consumer price index

$\mu$  = individual effect

$\varepsilon$  = residual term

Note that the majority of previous studies included in their models the contemporaneous effects of the explanatory variables on the profitability of banks (Athanasoglou et al., 2008; Kosmidou et al., 2006; Pasiouras et al., 2007; and Demirguc-Kunt and Huizinga, 1999). No control for potential endogeneity of the independent variables was conducted. In our model, all explanatory variables are lagged one period, which greatly reduces the possibility that they endogenous to the profitability measures.

Our profitability model is estimated using the Prais-Winston estimation technique which produces panel corrected standard error (PCSE) estimates for linear panel data models. When computing the standard errors and the variance-covariance estimates, the disturbances are assumed to be heteroskedastic and contemporaneously correlated across panels.

### 6. Results

This section presents the results of the regressions of our profitability measures (ROA, ROE, and NIM) on the internal and external independent variables for our sample of 44 GCC Islamic Banks over the period 2000-2009. It is worth mentioning that our results are partially different from the results of previous studies on the profitability of Islamic Banks in the GCC.

Four specifications are used: (1) represents the basic model; (2) controls for the size of the bank; (3) uses an alternative measure for efficiency (Overheads); and (4) employs the ratio of liquid assets to deposits and short term funding as an alternative measure of liquidity.

#### Return on Assets (ROA)

The results in Table 2 show that the EA ratio, measuring capital strength, makes a significant positive contribution to the profitability of Islamic Banks, whatever the specification. Therefore, our results support hypothesis H1 that argues that the higher the equity to assets ratio, the lower the need to external funding and therefore the higher the profitability of the bank. This finding is consistent with previous studies (Demirguc-Kunt and Huizinga, 1999; Kosmidou et al., 2006; Pasiouras et al., 2006; Athanasoglou et al., 2008; Heffernan and Fu, 2008).

We notice from Table 2 that the coefficients of the net loans to assets (NLA) are not significant at the 5% level across all the specifications. Therefore, bank liquidity does not appear to be a major determinant of bank profitability.

The results in Table 2 also show that the coefficient of LLR has the unexpected negative sign (except for specification (3) where the coefficient is positive) and is only significant in specification (1). Therefore, the results don't support our hypothesis H2 that states that loan loss reserves ratio (LLR) is positively related to profitability.

As expected, the coefficient of COSR loads negative and significant at the 1% level in all cases, suggesting that efficiency in expenses management is a robust determinant of Islamic Bank profits. This finding supports hypothesis H3 that cost to income ratio is negatively related to the profitability of Islamic Banks. Kosmidou et al. (2006) and Pasiouras et al. (2006) also confirm this inverse relationship for the UK and European banks respectively.

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As for the external determinants of profitability, Table 2 shows that GDP growth is not significantly related to profitability at conventional levels. However, the coefficient of inflation is expectedly positive and significant at the 5% significance level, whatever the specification. This latter finding is consistent with previous studies (Athanasoglou et al., 2008; Kosmidou et al., 2006; Pasiouras et al., 2007; and Demirguc-Kunt and Huizinga, 1999) and supports hypothesis H6 that sustains that high inflation rates are generally associated with high interest rates on loans, which lead to higher bank profitability.

In specification (2), we control for the size of the bank using the log of the total assets. From Table 2, we notice that the size affects positively and significantly the profitability of the bank. Consistent with previous studies, this result could be explained by the fact that larger size enables banks to offer a wide range of financial services at a lower cost (Hassan and Bashir, 2003).

In specification (3), we use the overhead costs (OH) as an alternative measure of efficiency. The results in Table 2 show that OH is negatively and significantly related to profitability at the 1%. This finding further supports hypothesis H3.

Finally, in specification (4), we use the ratio of liquid assets to deposits & short-term funding (LIQ) to measure liquidity. The results show that the coefficient of LIQ has the negative expected sign, but not significant at the 5% level.

### **Return on Equity (ROE)**

The results in Table 3 show that the coefficient of Equity to Asset (EA) ratio is expectedly positive, but not significant at conventional levels. According to Athanasoglou et al. (2008), it is not appropriate to include EA in a profitability equation when ROE is the dependent variable.

As expected, the coefficient of NLA is negative, but insignificant at the 5% level across the specifications. Once again, we reject hypothesis H4 that states that NLA has a negative impact on bank profitability.

We notice from Table 3 that LLR, measuring asset quality, is negatively and significantly related to profitability, except for model (3). This finding, inconsistent with hypothesis H3, could be explained by the fact that higher LLR ratios could indicate poor quality of loans, which could reduce interest revenue and increase bank's provisioning costs (Kosmidou et al., 2006).

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**Table 2: Determinants of the Return on Assets (ROA)**

This table shows the results of the regressions estimated with the Prais-Winstone procedure for our sample of 44 Islamic Banks in the GCC region for the period 2000-2009. The dependent variable is the Return on Assets (ROA). The definitions of our variables appear in Table 1. The Prais-Winstone technique produces panel corrected standard error (PCSE) estimates for linear panel data models. When computing the standard errors and the variance-covariance estimates, the disturbances are assumed to be heteroskedastic and contemporaneously correlated across panels. The p-values appear in parentheses below the estimated coefficients. \*\*\*, \*\*, \* refer to the 1, 5 and 10% levels of significance respectively.

| Variable                 | Expected Sign | (1)                  | (2)<br>Size          | (3)<br>Overheads     | (4)<br>LA/STBF       |
|--------------------------|---------------|----------------------|----------------------|----------------------|----------------------|
| $EA_{(t-1)}$             | +             | 0.081***<br>(0.004)  | 0.058**<br>(0.033)   | 0.060**<br>(0.049)   | 0.079**<br>(0.025)   |
| $NLA_{(t-1)}$            | -             | -0.008<br>(0.571)    | 0.004<br>(0.729)     | -0.013<br>(0.329)    |                      |
| $LLR_{(t-1)}$            | +             | -0.178**<br>(0.034)  | -0.116*<br>(0.074)   | 0.026<br>(0.737)     | -0.133<br>(0.109)    |
| $COSR_{(t-1)}$           | -             | -0.011***<br>(0.001) | -0.009***<br>(0.002) |                      | -0.008***<br>(0.004) |
| $GDP_{(t-1)}$            | +             | 0.024<br>(0.745)     | 0.018<br>(0.774)     | -0.008<br>(0.773)    | 0.044<br>(0.698)     |
| $CPI_{(t-1)}$            | +             | 0.061**<br>(0.031)   | 0.108***<br>(0.000)  | 0.072***<br>(0.000)  | 0.105***<br>(0.004)  |
| $\text{Log}(TA_{(t-1)})$ | +             |                      | 0.492***<br>(0.000)  | 0.457***<br>(0.000)  | 0.476***<br>(0.000)  |
| $OH_{(t-1)}$             | -             |                      |                      | -0.718***<br>(0.000) |                      |
| $LIQ_{(t-1)}$            | -             |                      |                      |                      | -0.001<br>(0.716)    |
| Constant                 |               | 1.911<br>(0.129)     | -5.022***<br>(0.000) | -2.702***<br>(0.005) | -5.025***<br>(0.003) |
| N                        |               | 73                   | 72                   | 90                   | 55                   |
| R <sup>2</sup>           |               | 0.400                | 0.552                | 0.648                | 0.493                |

Consistent with our earlier findings, the coefficient of Cost to Income ratio (COSR) is negative and statistically significant at the 1% level across the specification. Thus, efficiency appears to be a major determinant of Islamic Bank's performance.

While inflation affect positively and significantly profitability (specification (2) and (4)), we document an insignificant relation between GDP growth and profitability.

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**Table 3: Determinants of the Return on Assets (ROE)**

This table shows the results of the regressions estimated with the Prais-Winston procedure for our sample of 44 Islamic Banks in the GCC region for the period 2000-2009. The dependent variable is the Return on Equity (ROE). The definitions of our variables appear in Table 1. The Prais-Winston technique produces panel corrected standard error (PCSE) estimates for linear panel data models. When computing the standard errors and the variance-covariance estimates, the disturbances are assumed to be heteroskedastic and contemporaneously correlated across panels. The p-values appear in parentheses below the estimated coefficients. \*\*\*, \*\*, \* refer to the 1, 5 and 10% levels of significance respectively.

| Variable                 | Expected Sign | (1)                  | (2)<br>Size          | (3)<br>Overheads      | (4)<br>LA/STBF       |
|--------------------------|---------------|----------------------|----------------------|-----------------------|----------------------|
| $EA_{(t-1)}$             | +             | 0.721<br>(0.108)     | 0.3994<br>(0.296)    | 0.210<br>(0.360)      | 0.742<br>(0.125)     |
| $NLA_{(t-1)}$            | -             | -0.093<br>(0.417)    | -0.043<br>(0.763)    | -0.185*<br>(0.093)    |                      |
| $LLR_{(t-1)}$            | +             | -3.281***<br>(0.001) | -2.666***<br>(0.004) | -0.545<br>(0.385)     | -2.903***<br>(0.006) |
| $COSR_{(t-1)}$           | -             | -0.193***<br>(0.000) | -0.172***<br>(0.000) |                       | -0.166***<br>(0.000) |
| $GDP_{(t-1)}$            | +             | -0.1332<br>(0.842)   | -0.052<br>(0.935)    | -0.458*<br>(0.061)    | 0.436<br>(0.787)     |
| $CPI_{(t-1)}$            | +             | 0.796<br>(0.112)     | 1.143**<br>(0.021)   | 0.461*<br>(0.055)     | 1.414**<br>(0.016)   |
| $\text{Log}(TA_{(t-1)})$ | +             |                      | 5.175***<br>(0.001)  | 4.739***<br>(0.000)   | 5.630***<br>(0.000)  |
| $OH_{(t-1)}$             | -             |                      |                      | -13.950***<br>(0.000) |                      |
| $LIQ_{(t-1)}$            | -             |                      |                      |                       | -0.012<br>(0.801)    |
| Constant                 |               | 25.634**<br>(0.031)  | -41.324**<br>(0.042) | -6.288<br>(0.631)     | -58.345**<br>(0.014) |
| N                        |               | 73                   | 72                   | 90                    | 55                   |
| R <sup>2</sup>           |               | 0.452                | 0.520                | 0.824                 | 0.550                |

The size, measured by the log of Total Assets, positively affects bank performance, the coefficient being positive and significant at the 1% level for all the specifications.

Using Overheads costs (OH) as an alternative measure of efficiency, we find that the coefficient of OH is negative and statistically significant at the 1% level. This result provides further support for hypothesis H3.

### **Non-interest Margin (NIM)**

We notice from Table 4 that EA ratio positively and significantly affects bank profitability (except in model (2)). This finding is consistent with hypothesis H1 and indicates that the higher the EA ratio, the lower the need of external funding and therefore the higher the profitability of the bank (Athanasoglou et al., 2008; Mamatzakis and Remoundos, 2003).

Unlike earlier results, the ratio of Net Loans to Assets (NLA) negatively and significantly affects performance. This result provides support for hypothesis H4 and indicates that higher NLA ratios could reduce liquidity and increase the number of marginal borrowers that default, thereby reducing bank performance (Demirguc-Kunt and Huizinga, 1999).

From Table 4, we can see that the coefficient of LLR is positive as expected, but significant only in specification (4). Consequently, hypothesis H3 is only partially supported. Surprisingly, COSR is not significantly related to bank performance as measured by NIM, whatever the specification. When efficiency is measured by Overhead Costs (OH), the results show no significant relationship with performance. We conclude that efficiency is not a major determinant of NIM.

Turning to our external determinants of profitability, we find no significant impact of inflation on bank performance, whereas GDP growth loads positive and significant only in specification (4).

Finally, we notice from Table 4 that size affects positively bank performance, the coefficient of log of Total Assets being positive and statistically significant at the 1% level across the specifications.

## **7. Conclusion**

The recent rapid growth in Islamic Banking has generated, among researchers, an increased interest in understanding the determinants of the profitability of Islamic Banks. In this paper, we examined this issue using an unbalanced panel data set consisting of 44 Islamic Banks operating in the GCC region between 2000 and 2009. Specifically, we consider the impact efficiency, capital strength, asset quality, and liquidity on the profitability of Islamic Banks.

After controlling for the bank size and the macroeconomic environment, we find support for our main hypotheses. More specifically, we find that capital strength, measured by the equity to assets ratio, is positively and significantly related to ROA and NIM. This finding provides support to our hypothesis H1 that well capitalized banks face lower costs of external financing, which reduces their costs and enhances profits (Demirguc-Kunt and Huizinga, 1999; Kosmidou et al., 2006; Pasiouras et al., 2006; Athanasoglou et al., 2008; Heffernan and Fu, 2008).

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**Table 4: Determinants of the Non-Interest Margin (NIM)**

This table shows the results of the regressions estimated with the Prais-Winstone procedure for our sample of 44 Islamic Banks in the GCC region for the period 2000-2009. The dependent variable is the Non-Interest Margin (NIM). The definitions of our variables appear in Table 1. The Prais-Winstone technique produces panel corrected standard error (PCSE) estimates for linear panel data models. When computing the standard errors and the variance-covariance estimates, the disturbances are assumed to be heteroskedastic and contemporaneously correlated across panels. The p-values appear in parentheses below the estimated coefficients. \*\*\*, \*\*, \* refer to the 1, 5 and 10% levels of significance respectively.

| Variable           | Expected Sign | (1)                  | (2)<br>Size          | (3)<br>Overheads     | (4)<br>LA/STBF       |
|--------------------|---------------|----------------------|----------------------|----------------------|----------------------|
| $EA_{(t-1)}$       | +             | 0.107**<br>(0.036)   | 0.077<br>(0.116)     | 0.078**<br>(0.035)   | 0.164***<br>(0.006)  |
| $NLA_{(t-1)}$      | -             | -0.044***<br>(0.004) | -0.043***<br>(0.003) | -0.042***<br>(0.004) |                      |
| $LLR_{(t-1)}$      | +             | 0.114<br>(0.301)     | 0.160<br>(0.245)     | 0.138<br>(0.217)     | 0.406***<br>(0.006)  |
| $COSR_{(t-1)}$     | -             | -0.000<br>(0.745)    | 0.000<br>(0.886)     |                      | 0.000<br>(0.796)     |
| $GDP_{(t-1)}$      | +             | 0.007<br>(0.863)     | 0.013<br>(0.753)     | 0.023<br>(0.441)     | 0.274***<br>(0.003)  |
| $CPI_{(t-1)}$      | +             | -0.031<br>(0.110)    | -0.018<br>(0.300)    | 0.012<br>(0.472)     | 0.023<br>(0.365)     |
| $\log(TA_{(t-1)})$ | +             |                      | 0.384***<br>(0.000)  | 0.314***<br>(0.000)  | 0.397***<br>(0.000)  |
| $OH_{(t-1)}$       | -             |                      |                      | 0.136*<br>(0.089)    |                      |
| $LIQ_{(t-1)}$      | -             |                      |                      |                      | 0.001<br>(0.816)     |
| Constant           |               | 2.716**<br>(0.031)   | -2.099*<br>(0.099)   | -1.699<br>(0.115)    | -8.422***<br>(0.000) |
| $R^2$              |               | 0.4260               | 0.4904               | 0.4951               | 0.5636               |

The results show that efficiency, proxied with cost to income ratio, affects negatively and significantly Islamic Bank's profitability, and appears to be the most significant determinant of profitability for Islamic Banks. Consistent with our hypothesis H3, this finding is in line with previous studies such as Pasiouras (2007), Kosmidou et al. (2005), and Kosmidou et al. (2006).

Furthermore, the impact of liquidity on bank performance varies with the measure of profitability used. Specifically, liquidity is insignificantly related to ROA and ROE, but

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negatively and significantly related to NIM. These findings provide partial support for hypothesis H4 and indicate that higher NLA ratios could reduce liquidity and increase the number of marginal borrowers that default, thereby reducing bank performance (Demirguc-Kunt and Huizinga, 1999).

The impact of asset quality, measured with loan loss reserves to gross loans, is positive and significant and positive on all profitability measures, except ROE. This finding, inconsistent with hypothesis H3, could be explained by the fact that higher LLR ratios could indicate poor quality of loans, which could reduce interest revenue and increase bank's provisioning costs (Kosmidou et al., 2006).

Additionally, we document a strong positive association between size and profitability of Islamic Banks, whatever the profitability measure. This result is in line with previous studies (Hassan and Bashir, 2003) and indicates that larger size enables banks to offer a wide range of financial services at a lower cost.

Finally, favorable macroeconomic environment, proxied with GDP Growth and Inflation, seems to stimulate higher profits. This is similar to conventional banks, where GDP growth and Inflation were found are significantly and positively related to bank performance as well.

All in all, the similarity of results of the determinants of profitability between conventional and Islamic Banks strongly indicates that the techniques and the tools developed in the literature on conventional banking are potentially applicable for an Islamic Banking system.

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