

**CORPORATE GOVERNANCE AND BANK  
PERFORMANCE: ISLAMIC VERSUS NON-  
ISLAMIC BANKS IN GCC COUNTRIES**

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**ABSTRACT**

The literature on corporate governance at corporations and conventional banks is extensive; however, it does not assign proper weight to Islamic finance institutions despite their growing importance in the global financial system. Important questions that are still unexplored to date include: What are the attributes of the corporate governance mechanisms at Islamic finance institutions? and How do their corporate governance attributes affect their performance and risk taking behavior? To answer these questions, we use an exhaustive sample of Islamic and non-Islamic banks in the Gulf Cooperation Council (GCC) region, in the years 2007 to 2009, i.e., around the global financial crisis of 2008 which represents a natural stress test. We assess the impact of the corporate governance characteristics ownership structure / concentration, board of directors' size, composition, and independence and the effectiveness of the legal system and investor protection of the country on a wide array of bank performance indicators, including profitability, efficiency, asset quality, and risk. We perform univariate and multivariate tests which control for many potentially confounding effects. Our results show that, during the 2008 global financial crisis, the return on assets and operating income-to-total assets were significantly higher at Islamic banks compared to non-Islamic banks in the GCC region by more than 1 and 2.5 percent, respectively. Islamic banks also exhibited a more prudent risk-management behavior and higher solvency than non-Islamic banks. Moreover, consistent with the notion of the importance of corporate governance, asset-productivity at Islamic banks is significantly increasing in family- and foreign-ownership and the effectiveness of the legal system and investor protection, and it is decreasing in board size and insiders. Furthermore, risk-taking behavior at Islamic banks is decreasing in government- and family-ownership and the investor-protection level in the home country. This study has important practical implications. Investors may consider including Islamic banks in their portfolios given their resilience to the financial crisis. Non-Islamic financial institutions may consider adopting some of the features of Islamic banking into their operating models. Policy makers can use our results for better policy formulation and regulation of their financial system.

**JEL Classifications:** G21; G34; G38

**Keywords:** Corporate governance; Islamic Banks; Government policy and regulation

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**INTRODUCTION**

The global financial crisis of 2008 sparked important debates not only on financial regulation but also on corporate governance at banks and the role it may have played in the development of the financial crisis. This study contributes to the literature by

examining whether there are differences in the corporate governance mechanisms at Islamic and non-Islamic banks, and more importantly, whether the structure of their corporate governance explains the success or failure of these banks before, during and after the 2008 financial crisis. The latter can be viewed as a natural stress test or experiment to determine which banks are better managed to withstand a severe financial downturn and whether their resilience to financial crises is related to their corporate governance characteristics.

Institutions offering Islamic financial services constitute a significant and growing share of the financial system in a number of countries. Close to three decades after the first Islamic bank appeared, the number of Islamic financial institutions worldwide has risen from one institution in one country in 1975 to over 300 institutions operating in more than 75 countries (El Qorchi, 2005). Most Islamic banks are concentrated in the Middle East and the Southeast-Asia regions, but they are growing in importance in Europe, particularly the U.K, and in the United States.

Most existing studies on Islamic finance compare the instruments used in Islamic and traditional commercial banking, and discuss the regulatory and supervisory challenges related to Islamic banking (e.g., Sundararajan and Errico, 2002; Ainley et al., 2007; Sole, 2007; Jobst, 2007). Some studies investigate risks in Islamic financial institutions, on theoretical grounds, and few other studies examine the relative efficiency of Islamic and traditional banks (e.g., Yudistira, 2004; Moktar, Abdullah, and Al-Habshi, 2006; Olson and Zoubi, 2008). However, some important issues that remain unexplored to date include: What are the attributes of the corporate governance mechanisms at Islamic finance institutions? How effective are these corporate governance mechanisms? Most importantly, how did corporate governance affect performance and risk taking during the global financial crisis of 2008?

To answer these research questions, we use an exhaustive sample of banks from the countries forming the Gulf Cooperation Council (GCC) to offer the first empirical assessment and outcomes of corporate governance of Islamic banks during times of financial distress. Our focus is on the effectiveness of such mechanisms as board of directors' independence, ownership structure / concentration, and their impact on performance (namely, profitability, efficiency, asset quality, and risk measures) over a period that covers the global financial crisis (i.e., 2007-2009).

The goal of efficient corporate governance is the protection of shareholders' rights (Grais and Pellegrini, 2006). The latter entails the design of appropriate incentives for managers, effective monitoring by board directors, and an effective and reliable the legal system. As Shleifer and Vishny (1997) point out, "the fundamental question of corporate governance is how to assure financiers that they get a return on their financial investment."

The existing literature points to several positive effects of efficient corporate governance on firm performance. It allows easier and less costly access to external finance, as investors are more likely to extend financing to a business if its corporate governance arrangements are credible. Also, good corporate governance is shown to be related to good operational performance. Moreover, it reduces the risks of contagion from financial distress. Not only it reduces the internal risk through raising investors' risk perception and willingness to invest, it also increases the robustness and resilience of firms to external shocks (Claessens, 2003).

The impact of corporate governance on Islamic banks' performance and risk taking is an issue that yet remains to be explored. Conducting activities in accordance with the *Shariah* rules at Islamic banks commands the following restrictions from the institution: i) not to engage in interest-based debt transactions, ii) not to conduct pure financial transactions disconnected from real economic activity, iii) not to participate in transactions where there is exploitation of any party, and iv) not to participate in activities regarded as harmful to society (Graiss and Pellegrini, 2006). Despite these differences, and just as in a conventional bank, the objective of the Islamic-finance institution is to enhance and maximize stakeholders' value. "Their stability, financial performances and ability to intermediate resources will depend on stakeholders' confidence in individual institutions and the industry. A particular confidence feature in respect of Islamic financial services is the requirement of conveying to stakeholders that their financial business is conducted in conformity with their religious beliefs." (Graiss and Pellegrini, 2006). This is indeed the role of corporate governance mechanisms: whether internal or external to the firm, as these arrangements monitor managers' actions and ensure that the business is run with the objective of maximizing value, but in compliance with the *Shariah*.

Similar to previous papers in the literature, we assess the impact of the corporate governance characteristics ownership structure / concentration, board of directors' composition, and independence on the operating performance of the firm using a wide array of performance indicators, including profitability, efficiency, asset quality and risk (the indicators as they appear in Olson and Zoubi, 2008). To the best of our knowledge, this paper is the first study of corporate governance at Islamic banks in the GCC countries, and of their performance and risk taking around the 2008 financial crisis. The unique nature of the region and of the Islamic financial institutions makes this study very significant to investors, corporate managers and policy makers alike.

We perform univariate and multivariate analyses which control for many potentially confounding effects. We find that during the crisis, the return on assets and operating income-to-total assets were significantly higher at Islamic banks compared to non-Islamic banks in the GCC region by more than 1 and 2.5 percent, respectively. Simultaneous to this higher asset productivity, Islamic banks exhibited significantly more prudent risk-management behavior and higher solvency. In further analyses, we find that asset-productivity at Islamic banks is significantly increasing in family- and foreign-ownership and the effectiveness of the legal system and investor protection, and it is decreasing in board size and insiders. Also, their risk-taking is significantly decreasing in government ownership, family ownership, and the effectiveness of the legal system and investor protection. These latter results support the important effects of efficient ownership structure and board characteristics at Islamic banks.

The remainder of the paper is organized as follows. We review the related literature in Section 2. We describe our sample, data, and research methods in Section 3. We discuss our univariate and multivariate results in Section 4. Finally, we conclude this paper in Section 5.

## LITERATURE REVIEW

*Shariah* principles prohibit usury (*Riba*) and call for risk-sharing. As opposed to conventional lending, where the bank lends money to the investor and expects fixed

return, Islamic financial institutions are expected to share the risk of the investment as well as the return. *Shariah* principles prohibit also excessive uncertainty (*Gharar*). Although risk is recognized as a de-facto component of investments, the same has to be capped within “tolerable” limits.

The novelty of the Islamic financial system initiated research about its capabilities to uphold the requirements of the conventional one. A strong body of research tried to compare the characteristics of both systems in order to assess the effect of interest-free, risk-sharing principles on performance. The results are mixed depending on the sample period and the geographical location of the financial institutions.

Metwally (1997), Yudistira (2004) and Hassan and Bashir (2005) use pooled samples of Islamic banks from different regions of the world. Metwally (1997) uses probit, logit, and discriminant analysis on a sample of 15 interest-free and 15 conventional banks from different countries over the period 1992-1994. His results show that the two groups of banks have different liquidity, leverage and credit risk characteristics, but show no difference in terms of profitability and efficiency. Yudistira (2004) studies the efficiency of 18 worldwide Islamic banks between the years 1997 and 2000. This research, which uses a non-parametric approach, shows that Islamic banks were negatively affected by the global crisis in the period 1998-1999 but performed better than their conventional counterparts. The study further shows Islamic banks efficiency is affected by the geographical location of the institution. Hassan and Bashir (2005) use a sample of Islamic banks from 21 countries during the period 1994-2001. They find that high capital and loan-to-asset ratios in Islamic banks are positively related to profitability.

Other studies compare the efficiency of both fully-fledged banks, mainly Bank Islam Malaysia Berhad (BIMB), and conventional banks offering Islamic banking services (Islamic Banking Scheme (IBS)) with their conventional counterparts in Malaysia. Samad (1999) shows that BIMB scored below Malaysian conventional banks in terms of managerial efficiency and profitability indexes. Rosly et al. (2003) examine the performance of 46 IBS banks operating in Malaysia and find that IBS banks have a higher return on assets than their conventional counterparts. However, Rosly et al. (2003) contend that this higher ratio does not mean higher efficiency; it is merely a consequence of their utilization of existing overheads from the parent conventional banks.

Similar studies were undertaken about Islamic banks in the middle-east, in an attempt to examine the particularities if any of the region. Turen (1995) explores the characteristics and performance of Bahrain Islamic Bank (BIB) during the period 1980-1989. Whether operating or stock performance is analyzed, the author finds that BIB enjoys high profitability coupled with lower risk compared to conventional banks. The case of Jordan was also subject to similar research by Saleh and Zeitun (2007) who show that the two main Islamic banks in the country, Jordan Islamic Bank for Finance and Investment (JIBFI) and Islamic International Arab Bank (IIAB), have witnessed an increase in efficiency between the years 2000 and 2003. They also show that JIBFI enjoys high profitability compared to its conventional counterparts.

Although the above-discussed studies contribute to the literature, they focus on the performance issue only. They do not provide insights into how Islamic banks are governed compared to non-Islamic (conventional) banks. This issue has become very important lately in the context of the financial crisis that has witnessed many bank

failures, none of them Islamic institutions. Therefore, the current study examines corporate governance of Islamic banks in particular to assess whether there are differences in corporate governance practices between Islamic and conventional banks and whether these differences can explain variations in their financial performance.<sup>1</sup>

## **SAMPLE, DATA AND RESEARCH METHODS**

### **Sample and Data Sources**

Our sample consists of 65 Islamic banks and 153 non-Islamic (conventional) banks from the countries forming the Gulf Cooperation Council (GCC): Bahrain, Kuwait, Oman, Qatar, Saudi Arabia, and United Arab Emirates. We obtain the financial data reported in the annual reports of our sample banks over the period 2007 to 2009 using the databases Bankscope and Zawya. We supplement this information with data on corporate governance using the websites of the sample banks, their annual reports, and Bankscope. We also collect data on the effectiveness of the legal system and investors' rights protection in the country where the sample bank is located as measured by using the rule of law index measure (LawOrder) from the International Country Risk Guide (ICRG). We further collect data from the International Financial Statistics (IFS) for two macro-economic indicators as control variables: the inflation rate (measured by the consumer price index, CPI) and the change in the country's gross domestic product (GDP). Due to some missing observations for some of the banks, the number of observations is less than 218 (= 65 + 153) for some summary statistics or in certain tests. The actual number of observations is always shown in the relevant table.

### **Measures of Bank Performance and Corporate Governance**

We use the following proxies to measure the performance of a bank:

#### *Bank profitability measures*

- ROA = return on assets = NI / ATA = net income / average total assets
- ROE = return on equity = NI / SE = net income / average stockholders' equity

#### *Bank efficiency measures*

- OIA = operating income to assets = OI / ATA = operating income / average total assets
- NIM = net interest margin = (IN - IE) / ATA = (net interest income - net interest expenses) / average total assets

#### *Asset quality measures*

- LR = loan ratio = ATLA / ATA = average total loans and advances / average total assets
- LTD = loans to deposits = ATLA / ATD = average total loans and advances / average total customer deposits

#### *Risk measures*

- EM = equity multiplier = ATA / SE = average total assets / average stockholders' equity

- TLE = total liabilities to equity = TL / SE = average total liabilities / average stockholders' equity

We represent the attributes of the corporate governance mechanisms at a bank in our sample by using the following measures:

*Ownership structure attributes*

- GPER is the percentage of ownership controlled by government
- FAPER is the percentage of ownership controlled by owners' family
- DmyFor is a binary variable that takes the value of one if foreign firms have an ownership in the firm or zero otherwise

*Characteristics of the board of directors*

- NDIR is the number of directors on the board of the bank
- Insiders is the number of insider directors at the bank

Finally, we recognize the need to include in our multivariate analyses some control variables that may interplay with corporate governance mechanisms in their expected (hypothesized) effect on bank performance. We include size of the bank measured as square root of total assets SqTA since there may be some non-linear effects.<sup>2</sup> We also include a measure of the effectiveness of the legal system and investors' rights protection in the country of the bank, LawOrder. This index ranges from 0 to 6, where higher values refer to higher quality of legal institutions. We further include two macro-economic variables: the inflation rate measured by the consumer price index (CPI) and the change in the country's gross domestic product (GDPC).

## Research Model

We use multivariate regression analysis to examine the relation between the performance and risk-taking of the sample banks and their corporate governance attributes using our panel data over the period 2007-2009. Specifically, we use the following multivariate regression model:

$$BP_{it} = \alpha + \beta_1 GPER_{it} + \beta_2 FAPER_{it} + \beta_3 DmyFor_{it} + \beta_4 SqTA_{it} + \beta_5 SqTAFor_{it} + \beta_6 NDIR_{it} + \beta_7 Insiders_{it} + \beta_8 LawOrder_t + \beta_9 Class_i + \beta_{10} SqTAClass_{it} + \beta_{11} CPI_{it} + \beta_{12} GDPC_{it} + \varepsilon_{it}$$

where  $BP_{it}$  is one of the bank performance or risk-taking measures (described above) for bank  $i$  in year  $t$ ;  $Class_i$  is a binary variable that takes the value of one if the bank is an Islamic bank or zero otherwise. The other variables are defined above.

## EMPIRICAL RESULTS

### Descriptive Statistics

We provide in Table 1 descriptive statistics on our sample of Islamic and non-Islamic banks from the GCC region. Table 1 indicates that Islamic banks have average total assets of \$ 6.9 billion versus \$ 14.5 billion average total assets of non-Islamic banks.

However, in terms of market capitalization, Islamic and conventional banks average at \$ 2.2 billion and \$ 2.3 billion, respectively.

**TABLE 1. SIZE CHARACTERISTICS OF THE SAMPLE OF ISLAMIC AND NON-ISLAMIC BANKS IN THE GCC REGION**

Variable	Total Assets (\$ millions)			Market Capitalization (\$ millions)		
	All banks	Islamic banks	Non-Islamic banks	All banks	Islamic banks	Non-Islamic banks
N	218	65	153	108	40	68
Mean	12,263.6	6,938.9	14,525.70	2,239.65	2,192.4	2,267.42
Median	5,220.02	2,851.3	7,541.10	666.73	525.21	976.95
Min.	8.81	189.12	8.81	0.05	0.05	0.93
Max.	76,654.9	39,337	76,654.97	18,518.1	18,071	18,518.19

We include in Table 2 summary statistics on the corporate governance characteristics of Islamic and non-Islamic banks in the GCC countries. Relating to ownership structure, we observe that the mean government percentage ownership is 7.34% at Islamic banks compared to 20.37% at non-Islamic banks. Family participation averages 1.43 percent at Islamic banks and 2.75 percent at non-Islamic banks. 26 percent and 32 percent of Islamic and non-Islamic banks, respectively, have foreign participation. Relating to board characteristics, we observe in Table 2 that the board size has a maximum of 12 directors with an average of 8.58 at Islamic banks and a maximum of 13 directors with an average of 9 at non-Islamic banks. The maximum number of insider directors on the board is 4 with an average of 0.46 at Islamic banks and 2 with an average of 0.56 at non-Islamic banks.

**TABLE 2. CORPORATE GOVERNANCE CHARACTERISTICS OF THE SAMPLE OF ISLAMIC AND NON-ISLAMIC BANKS IN THE GCC REGION**

Variable	All banks				Islamic banks				Non-Islamic banks						
	N	Mean	Median	Min.	Max.	N	Mean	Median	Min.	Max.	N	Mean	Median	Min.	Max.
GPER	210	15.97	7.6	0.0	100.00	71	7.34	0.0	0.00	100.00	139	20.37	16.08	0.0	100.00
FAPER	210	2.30	0.0	0.0	100.00	71	1.43	0.0	0.00	24.90	139	2.75	0.0	0.0	100.00

	0		0												
Dmy	2	0.3	0.0	0.	1.0	7	0.2	0.0	0.	1.0	16	0.3	0.0	0.	1.0
For	4	0	0	0	0	2	6	0	00	0	8	2	0	0	0
	0														
NDI	2	8.8	9.0	4.	13.	7	8.5	9.0	5.	12.	14	9.0	9.0	4.	13.
R	1	6	0	0	00	2	8	0	00	00	1	1	0	0	00
	3														
Insid	2	0.5	0.0	0.	4.0	6	0.4	0.0	0.	4.0	14	0.5	0.0	0.	2.0
ers	0	5	0	0	0	9	6	0	00	0	0	9	0	0	0
	9														
Law	2	4.8	5.0	4.	5.0	6	4.7	5.0	4.	5.0	15	4.8	5.0	4.	5.0
Orde	1	3	0	0	0	5	2	0	00	0	3	8	0	0	0
r	8														
	1			-											
CPI	5	6.4	4.1	4.	15.	4	6.3	3.5	-	15.	10	6.4	4.3	-	15.
	0	5	7	8	05	6	6	3	8	05	4	9	9	4.	05
				6										8	
	1			-											
GDP	9	0.1	0.2	0.	0.4	6	0.1	0.1	-	0.4	13	0.1	0.2	0.	0.4
	3	9	1	2	4	0	8	83	0.	4	3	93	1	2	4
				3					23				1	2	3

### Univariate Analysis of Performance of Islamic Banks Compared to Non-Islamic Banks

We compare Islamic and non-Islamic banks along all dimensions of performance and risk taking (as described in Section 3) by performing univariate *t*-tests in Table 3. The profitability comparisons show that Islamic banks exhibit significantly higher profitability than non-Islamic banks when measured with ROA (the difference is significant at the 5% level). However, ROE shows no significant difference between the sub-samples.

**TABLE 3. UNIVARIATE ANALYSIS OF PERFORMANCE OF ISLAMIC BANKS COMPARED TO NON-ISLAMIC BANKS IN THE GCC REGION**

Performance dimension	Measure	Sub-sample of banks	Mean	Difference in means	<i>p</i> -value
Profitability	ROA	Islamic	0.0323	0.0117**	0.02
		Non-Islamic	0.0206		
	ROE	Islamic	0.1487	-0.006	0.79

		Non-Islamic	0.1547		
		Islamic	0.0474		
Efficiency	OIA	Non-Islamic	0.0277	0.0197***	0.00
		Islamic	0.0275		
	NIM	Non-Islamic	0.0271	0.0004	0.88
		Islamic	0.6338		
Asset quality	LR	Non-Islamic	0.5435	0.0903***	0.00
		Islamic	4.7147		
	LTD	Non-Islamic	1.9391	2.7756***	0.01
		Islamic	5.727		
Risk	EM	Non-Islamic	7.8361	-2.109***	0.00
		Islamic	4.3814		
	TLE	Non-Islamic	6.916	-2.535***	0.00
		Islamic			

When we compare the efficiency indicators, we find that operating income to assets ratio (OIA) shows a higher efficiency for Islamic banks. The difference is significant at the 1% level. However, NIM is not significantly different across sub-samples. The asset-quality measures show that asset management is significantly higher for Islamic banks. The mean LR is 0.6338 for Islamic banks compared to 0.5435 for non-Islamic banks. The mean LTD is 4.7147 for Islamic banks compared to 1.9391 for conventional banks. The difference between the sub-samples is significant at the 1% level.

The risk-taking indicators are also significantly different across sub samples at the 1% level. EM for Islamic banks is 5.727 compared to 7.83611 for conventional banks. TLE is also significantly lower for Islamic banks with an average of 4.3814 compared to 6.916 for non-Islamic banks. In brief, these univariate-test results suggest that during the recent financial crisis not only did Islamic banks manage their assets better but they also exhibited more prudent risk-management than conventional banks. The multivariate regression analyses follow.

### Multivariate Regression Results

In this section, we run our main multivariate regression model to examine the empirical relations between the performance and risk-taking measures of our sample banks, on one hand, and their corporate governance characteristics, on the other hand. As previously discussed, the model is run with panel data covering the years 2007 through 2009. Table 4 reports the results of our regression using ROA and ROE as dependent variables. We

run our regressions for the whole sample, then for each sub-sample separately. We find that the model for ROA fits the data of the entire sample well, with an adjusted R<sup>2</sup> of 20 percent. However, the model for ROE does not fit the data well.

**TABLE 4. MULTIVARIATE REGRESSION ANALYSIS OF THE SAMPLE BANKS' PROFITABILITY**

Variables	ROA			ROE		
	All banks	Islamic banks	Non-Islamic banks	All banks	Islamic banks	Non-Islamic banks
Intercept	-0.026 (0.54)	-0.066 (0.22)	0.017 (0.80)	0.221 (0.49)	0.000 (0.99)	0.261 (0.40)
GPER	0.000* ** (0.00)	0.000 (0.95)	0.000 ** (0.01)	-0.000 (0.57)	-0.001 (0.58)	-0.000 (0.50)
FAPER	0.001* * (0.01)	0.002* * (0.01)	0.000 (0.53)	0.002 (0.52)	0.007* (0.05)	0.003 (0.48)
DmyFor	0.025* ** (0.00)	0.055* ** (0.00)	0.006 (0.55)	0.052 (0.42)	0.091 (0.24)	0.051 (0.42)
SqTA	0.000 (0.21)	0.000* * (0.01)	0.000 (0.72)	0.000* (0.09)	0.000* ** (0.00)	0.000 ** (0.03)
SqTAFor	- 0.000* * (0.04)	- -0.000 (0.22)	-0.000 (0.48)	-0.000 (0.55)	0.000 (0.91)	-0.000 (0.49)
NDIR	-0.001 (0.23)	- 0.006* * (0.02)	-0.001 (0.49)	-0.006 (0.52)	-0.019* (0.10)	-0.006 (0.52)
Insiders	0.000 (0.93)	- 0.014* * (0.01)	0.003 (0.38)	0.024 (0.31)	-0.029 (0.22)	0.025 (0.28)
LawOrder	0.008 (0.32)	0.023* (0.06)	0.000 (0.97)	-0.019 (0.74)	0.022 (0.66)	-0.028 (0.62)
Class	0.017* * (0.04)			-0.030 (0.62)		
SqTAClass	-0.00 (0.87)			0.000 (0.37)		

		-				-
CPI	-0.00 (0.17)	0.002* * (0.02)	-0.000 (0.48)	-0.009* (0.05)	-0.007* (0.09)	0.009 *
GDPC	0.06** * (0.00)	0.147* ** (0.00)	0.035 (0.14)	0.391* ** (0.00)	0.623* ** (0.00)	0.376 ** (0.01)
N	131	44	87	131	44	87
F	3.82*** (0.00)	6.72*** (0.00)	1.09 (0.38)	1.22 (0.27)	5.21*** (0.00)	1.39 (0.19)
Adjusted R <sup>2</sup>	0.20	0.57	0.01	0.02	0.49	0.03

This table provides the coefficient estimates for the following model:

$$BP_{it} = \alpha + \beta_1 GPER_{it} + \beta_2 FAPER_{it} + \beta_3 DmyFor_{it} + \beta_4 SqTA_{it} + \beta_5 SqTAF_{it} + \beta_6 NDIR_{it} + \beta_7 Insiders_{it} + \beta_8 LawOrder_{it} + \beta_9 Class_i + \beta_{10} SqTAClass_{it} + \beta_{11} CPI_{it} + \beta_{12} GDPC_{it} + \varepsilon_{it}$$

In the model for ROA, the coefficient of the binary variable CLASS shows that Islamic banks have significantly higher asset productivity than non-Islamic banks by about 1.7 percent. Also, the results for the whole sample show that asset productivity is significantly increasing in government participation, family ownership stake, and foreign ownership. It is also as expected increasing in the performance of the economy as measured by GDPC.

The results for the regression models applied to Islamic banks separately indicate that the models fit the data well. The adjusted- $R^2$  is 57 percent in the case of ROA and 49 percent in the case of ROE. The model is not a good fit in the sub-sample of non-Islamic banks. Also, we find that ROA of Islamic banks is increasing in family ownership (FAPER), foreign ownership (DmyFor), bank size (SqTA), and the effectiveness of the legal system (LawOrder). It is also decreasing in board size (NDRI) and insiders on the board (Insiders). The coefficients of these variables have the same sign in the ROE model but their significance is often weaker. The coefficient of bank size (SqTA) remains highly significant and positive.

Table 5 reports the results for the efficiency models. The adjusted- $R^2$  indicate that the models fit the data well. The coefficient of Class is significantly positive in the model for OIA but significantly negative in the model for NIM. These results can indicate higher operating efficiency despite more competitive pricing in loans at Islamic banks. Also, consistent with the results in Table 4, OIA of Islamic banks is increasing in family ownership (FAPER), foreign ownership (DmyFor), bank size (SqTA), and marginally the effectiveness of the legal system (LawOrder). It is also decreasing in board size (NDRI) and insiders on the board (Insiders).

**TABLE 5. MULTIVARIATE REGRESSION ANALYSIS OF THE SAMPLE BANKS' EFFICIENCY**

Variables	OIA			NIM		
	All banks	Islamic banks	Non-Islamic banks	All banks	Islamic banks	Non-Islamic banks
Intercept	-0.036 (0.48)	-0.048 (0.37)	- 0.003 (0.96)	- 0.080** (0.01)	- 0.210** * (0.00)	0.064* (0.07)
GPER	0.000* (0.05)	0.000 (0.32)	0.000 (0.33)	0.000** * (0.00)	0.000 (0.23)	0.000** * (0.00)
FAPER	0.001* * (0.03)	0.002** (0.02)	- 0.000 (0.90)	0.000 (0.21)	0.001 (0.25)	-0.000 (0.52)
DmyFor	0.014 (0.17)	0.055** * (0.00)	- 0.015 (0.29)	0.007 (0.23)	0.003 (0.85)	0.001 (0.85)
SqTA	0.000 (0.14)	0.000** (0.03)	0.000 (0.68)	0.000** * (0.00)	0.000 (0.82)	0.000** * (0.00)
SqTAFor	0.000 (0.94)	-0.000 (0.23)	0.000 * (0.10)	-0.000 (0.28)	-0.000 (0.61)	0.000 (0.99)
NDIR	0.000 (0.59)	-0.004* (0.07)	0.001 (0.39)	0.001** (0.05)	0.005* (0.06)	-0.000 (0.51)
Insiders	-0.004 (0.27)	- 0.012** (0.03)	- 0.006 (0.20)	-0.001 (0.51)	0.001 (0.80)	-0.003* (0.08)
LawOrder	0.006 (0.53)	0.018 (0.13)	- 0.000 (0.95)	0.018** * (0.00)	0.034** (0.01)	-0.006 (0.33)
Class	0.025* * (0.01)			- 0.012** (0.04)		
SqTAClass	-0.000 (0.88)			0.000** * (0.00)		
CPI	0.000 (0.62)	-0.001 (0.27)	0.001 (0.26)	0.000 (0.24)	0.001 (0.23)	0.000 (0.71)
GDPC	0.414* (0.88)	0.135** (0.27)	0.001 (0.26)	0.008 (0.24)	0.014 (0.23)	0.015 (0.71)

	*					
	(0.08)	(0.00)	(0.97)	(0.54)	(0.66)	(0.20)
N	131	44	87	126	42	84
F	2.94*** (0.00)	6.82*** (0.00)	1.04 (0.41)	3.75*** (0.00)	2.62** (0.01)	5.17*** (0.00)
Adjusted R <sup>2</sup>	0.15	0.57	0.00	0.20	0.28	0.33

This table provides the coefficient estimates for the following model:

$$BP_{it} = \alpha + \beta_1 GPER_{it} + \beta_2 FAPER_{it} + \beta_3 DmyFor_{it} + \beta_4 SqTA_{it} + \beta_5 SqTAF_{it} + \beta_6 NDIR_{it} + \beta_7 Insiders_{it} + \beta_8 LawOrder_{it} + \beta_9 Class_i + \beta_{10} SqTAClass_{it} + \beta_{11} CPI_{it} + \beta_{12} GDPC_{it} + \varepsilon_{it}$$

Table 6 reports the regression results for the asset-quality measures. The results are generally not conclusive in this table. The coefficient of CLASS is not statistically significant. Also, the other corporate governance variables that are found significant determinants of bank performance in Tables 4 and 5 are not found robust determinants of LR and LTD. Board size (NDIR) has a significant coefficient in the model of LR but not in the model of LTD. Also, the coefficient of Insiders is negative in the model of LR but positive in the model of LTD.

**TABLE 6. MULTIVARIATE REGRESSION ANALYSIS OF THE SAMPLE BANKS' ASSET-QUALITY**

Variables	LR			LTD		
	All banks	Islamic banks	Non-Islamic banks	All banks	Islamic banks	Non-Islamic banks
Intercept	0.745** (0.01)	1.905*** (0.00)	0.351 (0.32)	2.677 (0.86)	4.816 (0.80)	-12.239 (0.65)
GPER	-0.000 (0.15)	-0.012** (0.01)	-0.001** (0.01)	-0.014 (0.76)	0.066 (0.73)	0.012 (0.82)
FAPER	-0.001 (0.65)	-0.011 (0.13)	0.000 (0.91)	-0.260 (0.21)	0.146 (0.63)	-0.207 (0.50)
DmyFor	-0.065 (0.26)	0.037 (0.82)	-0.200*** (0.00)	3.102 (0.33)	-0.961 (0.88)	7.861 (0.11)
SqTA	-0.000 (0.69)	0.000* (0.06)	-0.000 (0.28)	-0.000 (0.17)	-2.000 (0.14)	-0.000 (0.19)
SqTAF	0.000 (0.48)	0.000 (0.77)	0.000*** (0.01)	-0.000 (0.40)	0.000 (0.94)	-0.000 (0.19)
NDIR	0.023** (0.01)	0.074*** (0.00)	0.018** (0.03)	0.013 (0.97)	1.403 (0.15)	-0.115 (0.86)
Insiders	-0.036* (0.01)	0.053 (0.00)	-0.080*** (0.00)	3.105*** (0.00)	-0.386 (0.01)	4.406*** (0.00)

	(0.10)	(0.27)	(0.00)	(0.01)	(0.84)	(0.00)
LawOrder	-0.066	-0.439***	0.035	0.371	-1.269	3.046
	(0.24)	(0.00)	(0.58)	(0.90)	(0.76)	(0.53)
Class	-0.048			2.220		
	(0.40)			(0.46)		
SqTAClass	0.000			-0.000		
	(0.15)			(0.37)		
CPI	0.001	-0.009	0.005	0.113	-0.564	0.470
	(0.82)	(0.31)	(0.22)	(0.64)	(0.15)	(0.17)
GDPC	-0.020	0.507*	-0.255**	-6.322	8.958	-14.091
	(0.87)	(0.06)	(0.04)	(0.38)	(0.40)	(0.15)
N	126	42	84	121	42	79
F	1.87**	3.28***	3.84***	1.55	1.29	1.67*
	(0.04)	(0.00)	(0.00)	(0.11)	(0.27)	(0.10)
Adjusted R <sup>2</sup>	0.07	0.35	0.25	0.05	0.06	0.07

This table provides the coefficient estimates for the following model:

$$BP_{it} = \alpha + \beta_1 GPER_{it} + \beta_2 FAPER_{it} + \beta_3 DmyFor_{it} + \beta_4 SqTA_{it} + \beta_5 SqTAF_{it} + \beta_6 NDIR_{it} + \beta_7 Insiders_{it} + \beta_8 LawOrder_{it} + \beta_9 Class_{it} + \beta_{10} SqTAClass_{it} + \beta_{11} CPI_{it} + \beta_{12} GDPC_{it} + \varepsilon_{it}$$

Table 7 reports the results pertaining to the risk-taking measures. We observe that all six models fit the data well, with adjusted- $R^2$  coefficients exceeding 30 percent. In the entire sample, the equity multiplier (EM) is significantly increasing in bank size (SqTA) and board size (NDIR) and significantly decreasing in government ownership (GPER), family ownership (FAPER), foreign ownership (DmyFor), investor protection level (LawOrder), and Class. We also observe that the total liabilities-to-equity ratio (TLE) is significantly increasing in bank size (SqTA) and and significantly decreasing in government ownership (GPER), investor protection level (LawOrder), and Class. The significance of the Class variable at the 1 percent level in both models indicates that, after controlling for several confounding factors, Islamic banks maintained higher solvency / capital adequacy ratios than non-Islamic banks. This finding indicates that Islamic banks exhibit more prudent risk-management behavior as well as the higher asset-productivity compared to non-Islamic banks as reported above.

**TABLE 7. MULTIVARIATE REGRESSION ANALYSIS OF THE SAMPLE BANKS' RISK-TAKING**

Variables	EM			TLE		
	All banks	Islamic banks	Non-Islamic banks	All banks	Islamic banks	Non-Islamic banks
Intercept	15.835***	- 19.881***	3.131	17.682***	10.765	13.810

	(0.00)	(0.00)	(0.74)	(0.00)	(0.29)	(0.15)
GPER	-0.056***	-0.123***	-0.051***	-0.058***	0.229**	-0.050***
	(0.00)	(0.00)	(0.00)	(0.00)	(0.03)	(0.00)
FAPER	-0.122*	-0.120*	-0.088	-0.001	0.277	-0.146
	(0.07)	(0.10)	(0.42)	(0.98)	(0.11)	(0.18)
DmyFor	-2.050**	-1.489	-1.088	-1.942	-3.246	-0.105
	(0.04)	(0.31)	(0.50)	(0.13)	(0.35)	(0.94)
SqTA	0.000***	0.000**	0.000**	0.000**	0.000**	0.000**
	(0.00)	(0.04)	(0.01)	(0.03)	(0.03)	(0.03)
SqTAFor	0.000	0.000	0.000	0.000	0.000	0.000
	(0.18)	(0.97)	(0.63)	(0.30)	(0.74)	(0.94)
NDIR	0.301**	0.256	0.503**	0.255	0.241	0.447**
	(0.05)	(0.24)	(0.03)	(0.19)	(0.63)	(0.05)
Insiders	0.424	0.510	0.283	0.211	-0.703	0.271
	(0.26)	(0.27)	(0.59)	(0.66)	(0.51)	(0.61)
LawOrder	-2.214**	-3.612***	0.027	-2.645**	-2.499	-2.153
	(0.01)	(0.00)	(0.98)	(0.02)	(0.28)	(0.21)
Class	-2.461***			-4.809***		
	(0.01)			(0.00)		
SqTAClass	-0.000			0.000		
	(0.74)			(0.17)		
CPI	0.065	0.094	0.091	0.106	0.273	0.076
	(0.40)	(0.25)	(0.43)	(0.29)	(0.17)	(0.50)
GDPC	-2.767	-1.578	-4.871	-4.210	-2.715	-5.632*
	(0.22)	(0.53)	(0.15)	(0.15)	(0.65)	(0.09)
N	131	44	87	131	44	87
F	8.00***	5.38***	4.73***	6.62***	2.95***	5.00***
	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)
Adjusted R <sup>2</sup>	0.39	0.50	0.30	0.34	0.31	0.31

This table provides the coefficient estimates for the following model:

$$BP_{it} = \alpha + \beta_1 GPER_{it} + \beta_2 FAPER_{it} + \beta_3 DmyFor_{it} + \beta_4 SqTA_{it} + \beta_5 SqTAFor_{it} + \beta_6 NDIR_{it} + \beta_7 Insiders_{it} + \beta_8 LawOrder_{it} + \beta_9 Class_{it} + \beta_{10} SqTAClass_{it} + \beta_{11} CPI_{it} + \beta_{12} GDPC_{it} + \varepsilon_{it}$$

In the sub-sample of Islamic banks, the model for the equity multiplier (EM) is found a better fit (adjusted- $R^2$  coefficient of 50 percent) than the model for the total liabilities-to-equity ratio (TLE) (adjusted- $R^2$  coefficient of 31 percent). We find that EM is significantly decreasing in government ownership (GPER), family ownership (FAPER), and the effectiveness of the legal system and investor protection (LawOrder). However, it is significantly increasing in bank size (SqTA) and the board characteristics have no significant impact on the EM. Also, while exposure to foreign ownership (DmyFor) has a positive effect on ROA and OIA of Islamic banks (as shown above), there is no evidence it has an effect on their risk-taking behavior. GPER is the percentage of ownership controlled by government. FAPER is the percentage of ownership controlled by owners' family. DmyFor is a binary variable that takes the value of one if foreign firms have an ownership in the firm, or zero otherwise. NDIR is the number of directors. Insiders is the number of insider directors. LawOrder is the assessment of the effectiveness of the legal system and investors' rights protection. CPI is the year-over-year percentage change. GDP is the year-over-year percentage change.

ROA is the return on assets calculated as net income/ average total assets; ROE is the return on equity calculated as net income/ average stockholders' equity. OIA is the operating income to assets ratio calculated as operating income/ average total assets. NIM is the net interest margin ratio calculated as net interest income–net interest expenses) / average total assets. LR is the loan ratio calculated as average total loans and advances / average total assets; LTD is the loans to deposits ratio calculated as average total loans and advances / average total customer deposits. EM is the equity multiplier ratio calculated as average total assets / average stockholders' equity. TLE ratio calculated as total liabilities to equity ratio calculated as average total liabilities / average stockholders' equity. \*\*\*, \*\*, \* denote significance at the 1, 5 and 10 percent levels, respectively.

Where  $BP_{it}$  is the bank profitability measure: ROA or ROE. ROA is the return on assets ratio calculated as net income/ average total assets; ROE is the return on equity ratio calculated as net income/ average stockholders' equity. GPER is the percentage of ownership controlled by the government. FAPER is the percentage of ownership controlled by owners' family. DmyFor takes the value of 1 if foreign firms have an ownership in the bank, or 0 otherwise. SqTA is the square root of total assets. SqTAFOR is an interaction term between SqTA and DmyFor. NDIR is the number of directors. Insiders is the number of insider directors. LawOrder is the assessment of the effectiveness of the legal system and investors' rights protection. Class takes the value of 1 for Islamic banks, or zero otherwise. SqTAClass is an interaction term between SqTA and Class. CPI is the average yearly percentage change in the consumer price index. GDPC is the average yearly percentage change in the gross domestic product. Probability values are shown in parentheses. \*\*\*, \*\*, \* denote significance at the 1, 5 and 10 percent levels, respectively.

where  $BP_{it}$  is the bank efficiency measure: OIA or NIM. OIA is the operating income to assets ratio calculated as operating income/ average total assets. NIM is the net interest margin ratio calculated as net interest income–net interest expenses) / average total assets. Probability values are shown in parentheses. \*\*\*, \*\*, \* denote significance at the 1, 5 and 10 percent levels, respectively.

where  $BP_{it}$  is the bank's asset-quality: LR or LTD. LR is the loan ratio calculated as average total loans and advances / average total assets. LTD is the loans to

deposits ratio calculated as average total loans and advances / average total customer deposits. Probability values are shown in parentheses. \*\*\*, \*\*, \* denote significance at the 1, 5 and 10 percent levels, respectively.

where  $BP_{it}$  is the bank's risk-taking: EM or TLE. EM is the equity multiplier ratio calculated as average total assets / average stockholders' equity. TLE ratio calculated as average total liabilities to equity ratio calculated as average total liabilities / average stockholders' equity contributed capital. Probability values are shown in parentheses. \*\*\*, \*\*, \* denote significance at the 1, 5 and 10 percent levels, respectively.

## CONCLUSIONS

The objective of this paper is to assess the relative performance and risk-taking behavior of Islamic and non-Islamic (conventional) banks in the GCC region during the global financial crisis and the relation thereof with the corporate governance characteristics of the sample banks. Our results show that during the crisis, assets of Islamic banks outperformed significantly those of non-Islamic banks in the GCC region. Islamic banks also exhibited more conservative risk-taking behavior. In addition, consistent with the notion of the importance of corporate governance mechanisms for the efficient management of a firm, asset-productivity at Islamic banks is significantly increasing in family- and foreign-ownership and the investor-protection level in the home country and decreasing in board size and insiders, while their risk-taking behavior is decreasing in government- and family-ownership and the investor-protection level in the home country.

This study has some important policy implications for investors, financial institutions, and policy makers. Investors can use the results of this study when they are thinking of how to better diversify their portfolios especially in times of crises. The 2008-2010 financial crisis taught us that there were very few assets that would allow investors to hedge their risk exposure even at the global level. Our results, however, show that assets of Islamic banks outperformed significantly those of non-Islamic banks in the GCC region.

It is also, worth mentioning that conventional financial institutions can find in our research some important results that could allow them to start thinking of adopting some of the features of Islamic banking into their own operating models. These features, as evident in our results, are not only important for performance but could also provide some important research avenues in terms of how to align corporate governance with the foundations of Islamic banking.

Policy makers can use the results of our research to start formulating the means to standardize Islamic banking corporate governance mechanisms to be in line with those of the conventional system. These results, we believe, if analyzed rigorously, can offer policy makers the tools to reorganize the financial markets in order to offer more clarity and higher overall performance.

## ENDNOTES

<sup>1</sup> No empirical study on the association between of corporate governance with the performance of Islamic and conventional banks has yet focused on the GCC region. A previous study by Grais and Pellegrini (2006) did not go beyond providing a theoretical framework.

<sup>2</sup> We also use in other tests ready for review the logarithm of total assets. The results are essentially the same.

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