

The Performance of Islamic Banks during the 2008 Global Financial Crisis: Evidence from the Gulf Cooperation Council Countries

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Citation Reference:

Hussien, M.E., Alam, M.M., Murad, M.W. & Wahid, A.N.M. (2019). The Performance of Islamic Banks during the 2008 Global Financial Crisis: Evidence from the Gulf Cooperation Council Countries. *Journal of Islamic Accounting and Business Research*, 10(3), 407-420. (online) <https://doi.org/10.1108/JIABR-01-2017-0011>

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ABSTRACT

Purpose – The purpose of this study is to analyze the profitability performance of Islamic banks of the Gulf Cooperation Council (GCC) region during 2008 global financial crisis.

Design/methodology/approach – Bank specific data are taken from the Bank Scope database and macroeconomic data are collected from International Financial Statistics. Using a panel data series of 30 banks for the period of 2005 to 2011, the study shows the evidence of structural break for the crisis year as well as the factors that impact the profitability of Islamic banks.

Findings – The performance of GCC Islamic banks was significantly influenced during the crisis period by capital adequacy, credit risk, financial risk, operational efficiency, liquidity, bank size, gross domestic product, growth rate of money supply, bank sector development and inflation rate. The study also finds that there is a structural change before and after the global financial crisis.

Originality/value – This is an original study that shows that the shariah compliant banks have performed better during the crisis and are not affected based on their internal performance records; rather, they have been affected indirectly from the macro shock due to the overall economic crisis.

Keywords: Islamic Banking, Shariah compliance, GCC region, Global Financial Crisis, ROA

INTRODUCTION

Financial institutions in general and banking sectors in particular of the GCC region have been facing chronic financial instability. The 2008 global financial crisis triggered the collapse of substantial institutions and captured the attention of politicians, practitioners, and researchers. It was considered as one of the worst crises since the great depression of the 1930s (Thillainathan, 2011). The 2008 crisis started in the United States, following the subprime mortgage market crisis, and then spread to other countries (Shiller, 2008). During the housing bubble in the United States, financial institutions lent money excessively, even without sound collateral. Furthermore, the easy availability of credit increased households' consumption levels beyond their affordability and increased the public and private sector debt (Chapra, 2007). In addition, there was a failure of the lender-borrower linkage: since, in the conventional banking system, risk was borne only by the entrepreneur or borrower, there was no inherent incentive for the lender to follow up and supervise the project. Moreover, transactions were subject to adverse selection and moral hazard due to an absence of transparency in asset market prices. Adverse selection "occurs before the transaction occurs, when potential bad credit risks are the ones who most actively seek out a loan". Moral hazard "occurs after the transaction takes place, because the lender is subject to the hazard that the borrower has incentives to engage in activities that are undesirable (immoral) from the lender's point of view" (Mishkin, 1997). All of these factors aggravated the crisis.

In response, researchers tried to diagnose reasons and solutions. Nobel laureate French economist Maurice Allias had predicted the inevitability of the crisis and warned against its consequences. He argued that the way out would be achieved through reform of

the structure to employ adequate monetary system that would safeguard such crises from happening in the future. He suggested a zero percent interest rate with reforming tax rate (Kayed and Hassan, 2009). Other researchers noted that “cosmetic changes in the existing financial system” would be ineffective in curbing persistent crises (Chapra, 2009). Rather, there was a need for a paradigm shift and structural change to ensure stability of the sector. Consequently, there was a call for a new architecture of the financial system.

Various factors were mentioned by researchers to have contributed to the financial crisis, such as excessive, and imprudent bank lending due to a lack of adequate market discipline (Chapra, 2007). Consequently, the best way to rescue the sector from these chronic crises was through establishing a new and comprehensive financial system that responded to both moral and material value. This could help avoid the occurrence and spread of crises, or at least minimized their frequency. One example of this kind of system was the Islamic financial system.

Compared to the conventional financial system, the distinct feature of Islamic banking and finance is that it is governed by the divine rule of *shariah*. The Islamic economic system prioritizes the realization of justice, such that Islamic banking and financial sectors have to operate according to the known and fixed principles and guidelines of Islamic law (*shariah*). Since the fundamental motive of the sector is to serve mankind through justice and fairness, its principles must incorporate moral issues as well. Islamic banks (IB) finance only realized economic and feasible activities that have a direct link with economic growth. In principle, IB is not allowed to finance uncertain activities, nor take excessive risks. Moreover, *shariah* law bans Islamic banks from financing socially immoral activities and those forbidden in *shariah*, such as alcohol, gambling, speculation, etc. Islamic banking transactions also assume a minimum of imperfect information (asymmetric information and moral hazard).

Based on these reasons, many studies argue that the Islamic banking system performs well in the period of financial crisis. For example, studies by Čihák and Hesse (2010), Rajhi (2013), Bourkhis and Nabi (2013), and Mobarek and Kalonov (2014) show that Islamic banks in the Middle East, Africa, and Asia are more financially stable than commercial banks. According to Miniaoui and Gohou (2013), and Parashar and Venkatesh (2010), Islamic banks are not likely to be influenced by global financial crisis which is also supported by Beck et al. (2010) considering that Islamic banks used to carry higher capitalization and liquidity reserves during financial crisis. Hasan and Dridi (2010) mention that Islamic banking system demonstrated stronger resilience during initial period of global crisis, because during financial crisis, credit and asset growth of Islamic banks were at least twice higher than conventional banks. Bourkhis and Nabi (2013) found that Islamic banks performed better than commercial banks in terms of return on average assets (ROAA) during and after the financial crisis. However, based on pure technical efficiency (PTE) and scale efficiency (SE) of Islamic banks in the Middle Eastern and Asian countries during the financial crisis, Kuran (2004) stated that Islamic banks do not have any advantage in efficiency as compared to conventional banks.

As previous empirical studies showed mixed result on this issue, this study seeks to empirically test the performance and profitability of Islamic banks, both at the time of the 2008 global financial crisis and through the effects of the crisis since.

LITERATURE REVIEW

There are certain indicators that determine the performance and profitability of banking industry. These determinants also differ between conventional banks and Islamic banks. Based on literatures, major indicators are highlighted below.

Among various factors, researchers find a relationship between bank size and profitability. This is because large banks enjoy the benefit of economies of scale, which can reduce cost of inputs, and enjoy the benefit of economies of scope, which results in product diversification and accessibility to advanced markets. In addition, compared with small banks, larger banks “benefit from a more sophisticated risk management that mitigates adverse effects from loan growth” (Foos et al., 2010). Westman (2011) reveals that large banks are more efficient than small banks, for “size appears to reduce funding costs”. Supporting this argument, Srairi (2009) and Haron (1996) find a significant and positive relationship between bank size and profitability.

However, this direct correlation faces certain limits, beyond which all banks are relatively inefficient and face diseconomies of scale. Thereafter, the impact of size on return could be negative. This is due to bureaucracy and other factors, such as high risks of loan diversification. Sufian and Chong (2008) report a negative relationship between bank size and profitability. In addition, Srairi (2009) finds a negative relationship between size and profitability when examining conventional and Islamic banks separately.

A significant and positive relationship between the capital adequacy variable and earnings is expected, because capital adequacy encourages shareholders to manage and closely monitor bank portfolios. This positive impact can also prevail due to “the fact that capital refers to the amount of own funds available to support a bank’s business and, therefore, bank capital acts as a safety net in the case of adverse developments” (Athanasoglou et al., 2008). In addition, a higher capital level leads to higher profitability, through lending any excess beyond the regulatory capital standard. In general, “well capitalized banks face lower costs of going bankrupt and reduce the cost of funding, resulting in higher profitability” (Ben Naceur and Kandil, 2008). This positive relationship between capital adequacy and profitability reflects the soundness of financial performance. A bank with adequate capital can more effectively and efficiently undertake diversified business opportunities toward higher profits. Indeed, previous findings, such as those of Athanasoglou et al., (2008), Olson and Zoubi (2011) and Ramlall (2009), confirm the significance and positive relationship between capital soundness and bank profitability. On the other hand, high capitalization could make banks vulnerable to bankruptcy (Lin et al. 2005). Thus, capital adequacy and bank profitability are expected to maintain both positive and negative relationships.

The liquidity variable gauges the risk of insufficient reserves of liquid assets (cash) in response to withdrawal demands of deposit consumers. That is, it measures the correlation between bank performance and liquidity handling. Although there is generally a negative relationship between liquid assets and banks’ profitability, this impact can vary drastically. Chen and Liao (2011) empirically find a significant and positive correlation between liquidity and return, which implies that an increase in bank liquidity tends to increase a bank’s profitability. In contrast, Pasiouras and Kosmidou (2007) reveal a significant negative relationship between liquidity and profitability, except for the case of foreign owned banks. Ben Naceur and Kandil (2008) find that bank liquidity does not explain significant variation on returns, despite their functional relationship. Thus, the expectation of a directional and

statistically significant relationship between liquidity and profitability can be negative or positive, due to the ownership structure or other factors.

Credit risk as an indicator of asset quality is normally attributed to be a major determinant for the variation in profitability. This variable takes into account “the extra costs associated with loans for underwriting and monitoring expenditures that influence loan quality” (Manlagñit, 2011). The additional costs for handling this type of loan raises the operating cost of the banks, and thereby reduces the return. Thus, credit risk is expected to have a negative relationship with bank profitability. This is because inefficient banks with less quality loans may enhance the accumulation of unpaid loans, which in turn has adverse effect on bank profitability. The findings of Manlagñit (2011), Athanasoglou et al., (2008) and Sufian and Chong (2008) show the significant and negative relationship between credit risk and profitability. On the other hand, Dietrich and Wanzenried (2011), studying the case of Swiss banks, find a statistically insignificant relationship between credit risk and profitability prior to the global financial crisis. This is due to the fact that Switzerland, then had negligible loan loss provisions. However, this study also reveals a significant negative impact of credit risk on banks’ profitability during the crisis period.

Operational efficiency appears to be the main determinant of bank profitability. This is because only overhead operational cost is associated with the bank management as a controlled variable, yielding a negative relationship between overhead and bank profitability. Previous empirical work supports this expectation, including studies by Pasiouras and Kosmidou (2007), Chen and Liao (2011), and Athanasoglou et al., (2008). Yet, bank profitability can be affected by exogenous factors too. Among external determinants, macroeconomic indicators are attributed to the greatest explanatory impact on financial sector performance. Under sound economic conditions, banks are generally motivated to lend more and will be able to charge higher margins. Theoretically, Gross Domestic Product (GDP) captures the fluctuations in the business cycle and so can factor into bank performance. Accordingly, GDP is anticipated to influence the factors related to the supply and demand of deposits and landings. When GDP growth slows, particularly during recessions, the credit quality deteriorates and the default rate increases, reducing bank returns (Sufian and Chong, 2008). Thus, the relationship between GDP and profitability is expected to be positive and statistically significant (Athanasoglou et al., 2008; Dietrich and Wanzenried, 2011; Sufian and Chong, 2008; Olson and Zoubi, 2011).

In the case of Islamic banking, per *shariah* principles, there is no predetermined guaranteed return on deposits. In order to realize a comparative return, however, Islamic banks may operate risky businesses. As one performance determinant, the relationship between financial risk and profitability is expected to be significant. Moreover, positive correlation between this determinant and return is expected to pertain to the directional relation. However, high risk-taking in the absence of deposit insurance makes banks vulnerable to bankruptcy. In this case, the determinant variable (financial risk) may have a negative impact on bank return. Srairi (2009) finds a positive relationship between financial risk and profitability for all banks, conventional and Islamic both, and a significant direct correlation especially for Islamic banks, which tend to carry out more risks than the former. Empirically, Srairi (2009) and Khrawish (2011) confirm the significance and positive relationship between financial risk and profitability. Profitability is a general incentive for banks and depositors, and particularly for the case of Islamic banks, where investment depositors are considered shareholders. Some of the other dominant controlled variables that affect the bank profitability also need to be rigorously analysed, including capital adequacy,

bank size, credit risk, financial risk, liquidity, overhead (operational efficiency), and macroeconomic factors (especially GDP).

DATA, MODEL AND METHODOLOGY

This study used data of 30 Islamic banks (Table 1) of the Gulf Cooperation Council (GCC) region (Bahrain, Kuwait, Qatar, Saudi Arabia, and UAE) during 2005-2011 period. Oman is excluded from GCC due to absence of full-fledged Islamic banks there. The study duration is explicitly chosen to include the impact of the 2008 global financial crisis on the performance of Islamic banks, given the region's substantial market share of *shariah*-compliant banks and its competency excellence in leading the industry. The data were collected from the London-based International Bank Credit Analysis LTD's Bank Scope database.

The income and balance sheet statement of the bank level data are made available by the Bank Scope database. The remaining exogenous variables are collected from annual bank reports and from statistical databases of international financial organizations, such as statistics of the International Monetary Fund. In short, the Bank Scope database has converted the variables to global standard units to facilitate comparison and maintain consistency.

Table 1: List of Islamic Banks Used in the Study

Name of Bank	Country	Name of Bank	Country
ABC Islamic Bank	Bahrain	Masraf Al Rayan	Qatar
Al-Baraka Banking Group	Bahrain	Qatar International IB	Qatar
Al-Salam Bank	Bahrain	Qatar Islamic Bank	Qatar
Arcapita Bank	Bahrain	Al Rajhi Bank	Saudi Arabia
Bahrain Islamic Bank	Bahrain	Arab National Bank	Saudi Arabia
Citi Islamic Investment Bank	Bahrain	Bank AlBilad	Saudi Arabia
Khaleej Commercial Bank	Bahrain	Bank Aljazira	Saudi Arabia
Kuwait Finance House	Bahrain	Islamic Development Bank	Saudi Arabia
Venture Capital Bank	Bahrain	Riyad Bank	Saudi Arabia
Boubyan Bank	Kuwait	Abu Dhabi IB	United Arab Emirates
Gulf Investment Corp	Kuwait	Dubai IB	United Arab Emirates
Investment Dar Corp	Kuwait	Emirates IB	United Arab Emirates
Kuwait Finance House	Kuwait	Mashreq Bank	United Arab Emirates
Kuwait International Bank	Kuwait	Noor IB	United Arab Emirates
Rasameel Structured Finance	Kuwait	Sharjah IB	United Arab Emirates

To carry out banking performance analysis, ROA is used as proxy for profitability. The panel study checks the relationships between the profitability of banks and different performance ratios. The list of the variables considered is given in Table 2.

Table 2: Measurement of Variables for Bank Profitability Assessment

Variables	Description	Computation	Expected Effect
ROA	Return on Assets (net income to assets)	$\frac{\text{Net income}}{\text{Total asset}}$	
CA	Capital Adequacy	$\frac{\text{Equity}}{\text{Total asset}}$	+ve/-ve
LR	Liquidity	$\frac{\text{Net loans}}{\text{Deposit \& Short term funding}}$	+ve/-ve

AQ	Asset Quality (credit risk)	$\frac{\text{Loan loss provision}}{\text{Total asset}}$	-ve
FR	Financial Risk	$\frac{\text{Total liability}}{\text{Total asset}}$	+ve
OPE	Operational Efficiency	$\frac{\text{The cost of overhead}}{\text{Total asset}}$	-ve
GDP	Growth of GDP PPP per capita	Real Annual rate	+ve
BNK	Bank sector development	$\frac{\text{Value of credit to private sector}}{\text{GDP}}$	+ve
MS	Growth rate of money supply	Annual rate	+ve

Based on the nature of the panel data, this study tests the consistent model for “Pooled” vs. “Not to Pool” by using Chi-square test for the hypothesis:

H_0 : Follow Pool Model

H_1 : Follow Not Pool Model.

Then, based on the decision of not following the model, the study further applies the Hausman test to follow the fixed effect (FE) or random effect (RE) model. It helps to test the more efficient and consistent model between FE and RE using the following hypothesis:

H_0 : RE is Efficient and consistent

H_1 : FE is Efficient and consistent

The model of the study is

$$ROA = f(CA, LR, AQ, FR, OPE, TA, GDP, BNK, INF, MS)$$

(1)

$$ROA = \beta_0 + \beta_1 \ln CA_{it} + \beta_2 \ln LR_{it} + \beta_3 \ln AQ_{it} + \beta_4 \ln FR_{it} + \beta_5 \ln OPE_{it} + \beta_6 \ln TA_{it} + \beta_7 \ln GDP_{it} + \beta_8 \ln BNK_{it} + \beta_9 \ln INF_{it} + \beta_{10} \ln MS_{it} + \mu_{it} \quad (2)$$

where ROA is return on assets; CA is the capital adequacy ratio; LR is Liquidity Ratio; AQ is asset quality (credit risk); FR is financial risk; OPE is operational efficiency; GDP is real Gross Domestic Product growth; TA is bank size; BNK is the banking sector development indicator; INF is the inflation rate; MS is the growth rate of money supply; the subscript ‘i’ refers to the banks; and the subscript ‘t’ stands for the time period of the study.

In order to build confidence in the model, the determining of statistical significance and some diagnostic tests have already been carried out. The functional relationship of individual variables are tested using t-test whilst the F-test is utilized to show the collective significance of the explanatory variables of the model. Furthermore, to test for the existence of more than one exact functional relationship between explanatory variables, the multicollinearity diagnostic test is employed. Variance Inflation Factor (VIF) of auxiliary regression is computed to evaluate whether the multicollinearity problem exists.

Moreover, the heteroscedasticity test has been used to detect whether the variance of stochastic terms of the regression function has the same variance or not. The value of the Lagrange Multiplier (LM) of auxiliary regression compared with Chi square (χ^2) critical value tested this problem. Finally, the study recognizes that the relationship between

dependent and explanatory variables can be changed and/or the magnitudes of the variables may differ throughout the research period, due to internal or external forces. This is controlled for through the ‘Chow F-test’, which evaluates whether there is structural change during the 2008 global financial crisis.

RESULTS AND FINDINGS

The Chi-square test shows significant results at 1% level, since P-value is 0.0000 (Table 3). As a result, the null hypothesis (H_0) is rejected and Fixed Model needs to be followed.

Table 3: Output of Pooled or Not to Pool

Redundant Fixed Effects Tests			
Equation: Untitled			
Test cross-section fixed effects			
Effects Test	Statistic	d.f.	Prob.
Cross-section F	3.260749	(24,86)	0.0000
Cross-section Chi-square	78.297996	24	0.0000

When not to pool the output is chosen, a further Hausman test is conducted to choose between fixed effect (FE) or random effect (RE) models. The result warrants to reject the null hypothesis (H_0) at 1% significance level, since P-Value is 0.0000 (Table 4). Consequently, FE is considered more efficient and consistent than RE.

Table 4: Output of Hausman Test

Correlated Random Effects - Hausman Test			
Equation: Untitled			
Test cross-section random effects			
Test Summary	Chi-Sq. Statistic	Chi-Sq. d.f.	Prob.
Cross-section random	43.162676	10	0.0000

Before analyzing the final output and the robustness of the model need to be checked to confirm whether the findings are consistent with prior expectations. To diagnose the data, multicollinearity and heteroscedasticity have been tested. Theoretically, there is no formal test for detecting the multicollinearity problem, yet some rules of thumb prevail. One multicollinearity symptom is the paradox of collective significance vs. individual significance of the coefficients. The problem arises when coefficients are collectively significant but some individual coefficients remain insignificant. It has been seen that the collective significance of the coefficients of the model as Prob (F-statistic) value is 0.000, while three variables (operational efficiency, bank sector development and inflation) are insignificant even at 10% level (Table 5).

Table 5: Output of Preliminary Regression

Variable	Coefficient	Std. Error	Prob.
CA	0.051861*	0.014207	0.0004
LR	-0.007567~	0.004284	0.0801
AQ	-0.864254~	0.473431	0.0706
FR	0.046959*	0.005902	0.0000
OPE	0.418230	0.308891	0.1785
TA	0.611738~	0.350522	0.0837
GDP	0.238506^	0.091928	0.0108
BNK	-0.094652	0.091019	0.3007
INF	-0.013620	0.011588	0.2424

MS	0.065882~	0.037391	0.0809
R-squared = 0.57			
Prob (F-statistic) = 0.0000			
The notations *, ^ and ~ indicates the variable is statistically significant at the 1%, 5% and 10% significance level, respectively			

Further, a heteroscedasticity test is carried out on preliminary regression using the common White's test approach, to see whether the problem prevails. The test shows no evidence of heteroscedasticity problem, as the null hypothesis (H_0) is not rejected since LM (51.76) is less than the critical Chi-square value (59.3).

Furthermore, as structural stability test is carried out by employing the Chow test to gauge structural change as an impact of crisis in the parameters of Islamic banks during the 2008 global financial crisis. The results reject the null hypothesis, at a 5% significance level, because F-statistic value (13.65) is greater than F-critical value (1.95) (Table 6). It implies the existence of structural change between the two periods, that is, before and after the global financial crisis.

Table 6: Analysis of Variance Table for Chow Test

Sum of Squares	Before crisis	After crisis	Total study period
Sum of square regression (SSR)	1.471702	2.634567	2.718070
Sum of square residual (SSE)	71.47497	381.7519	871.7730
R2	0.844182	0.811283	0.691275
F-stat	6.165022	7.388801	8.256769
Prob(F-statistic)	0.000001	0.000000	0.000000
F-critical			1.95
F-calculated			13.65

Finally, the model is re-specified to resolve the problem of multicollinearity. The auxiliary regression is made to show the pair-wise correlation between independent variables and thereby multicollinearity. The result implies that no severe multicollinearity problem exists for the re-specified model, since the Variance Inflation Factor (VIF) is less than 10 with exception of capital adequacy. The revised model is as follows:

$$ROA = \beta_0 + \beta_1 \ln CA_{it} + \beta_2 \ln AQ_{it} + \beta_3 \ln LR_{it} + \beta_4 \ln FR_{it} + \beta_5 \ln OPE_{it} + \beta_6 \ln GDP_{it} + \beta_7 \ln BNK_{it} + \beta_8 \ln MS_{it} + \mu_{it} \quad (3)$$

This re-specified model shows that for the total study period, almost all of the variables are significant and the coefficient signs of the variables are as expected (Table 7). However, there are changes before and after the global financial crisis. The LR is significantly related to ROA only after the crisis period, but it is not enough to show the significant relationship for the overall study period. The AQ ratio is not statistically significantly related to ROA for the two separate periods, but for the overall duration, it shows a statistically significant relationship. The CA and FR are statistically significantly related to ROA only for the crisis period, which is strong enough to show the significant relationship for the overall period too. However, with the exception of OPE, all other macroeconomic variables (BNK, GDP, MS) show significant relationships with ROA only before the crisis period, strongly enough to show the significant relationship for the overall period too. It indicates that before the crisis, bank profitability performance is mostly related to overall economic growth, and after the crisis it is only related to internal performance.

Table 7: Fixed Model Panel Result for the Re-specified (Modified) Model

Variable	Before crisis		After crisis		Total study period	
	Coefficient	P-value	Coefficient	P-value	Coefficient	P-value
CA	0.0070	0.7533	0.3127*	0.0000	0.1448*	0.0076
LR	0.0003	0.9580	0.0041*	0.0011	0.0090	0.3175
AQ	0.3579	0.4981	2.2673	0.1038	1.3552*	0.0079
FR	0.0083	0.7992	0.0451*	0.0000	0.0275*	0.0000
OPE	0.7538~	0.0599	0.0438	0.9279	1.2966*	0.0004
BNK	0.1269*	0.0000	0.3807	0.1094	0.2890*	0.0008
GDP	0.1025*	0.0074	0.0325	0.5495	0.1422*	0.0000
MS	0.0313*	0.0093	0.0810	0.2312	0.0775*	0.0000
R-squared	0.84418		0.81128		0.69127	
F-statistic	6.16502		7.38880		8.25676	
Prob (F-statistic)	0.00000		0.00000		0.00000	
Durbin-Watson stat	3.81240		2.75212		2.25369	

The notations *, ^, ~ indicates the variable is statistically significant at the 1%, 5%, and 10% significance level

The impact of capital adequacy is expected to have an either positive or negative effect on bank profitability. As discussed in the literature review, some authors argue that high capital adequacy safeguards the bank from insolvency; others counter argue that it can make banks vulnerable. According to the former view, higher capital adequacy motivates shareholders to have close contact with and supervise bank projects. The higher level of capital increases lending capacity, which in turn leads to higher bank profitability. Consequently, the research reveals capital adequacy having a statistically significant positive relationship with bank profitability. This result is consistent with previous findings, such as those of Athanasoglou et al. (2008), Olson and Zoubi (2011), and Ramlall (2009).

The liquidity variable gauges the risk of insufficient reserves of liquid assets (cash) in response to withdrawal demands, and has an either positive or negative impact on profitability. Since predictions vary across the literature, the research hypothesis has open expectations. The results show that bank liquidity does not have a significant relationship with bank profitability, which is consistent with the findings of Ben Naceur and Kandil (2008). This can be due to the fact that a cash reserve is not a concern in GCC country banks, since there is no shortage of liquidity assets during the period.

Credit risk is a parameter for the indication of asset quality. This variable takes into account the marginal cost related to loans for monitoring expenditures. This additional cost for handling such loans raises the operating cost of banks, and thereby reduces the return. Moreover, this parameter is considered a major determinant of profitability, yielding a strong predicted statistical significance and negative relationship between credit risk and bank profitability. Likewise, the regression result reports a statistically significant and negative relationship between credit risk and bank profitability. This confirms the past findings of Manlagñit (2011), Athanasoglou et al. (2008), and Sufian and Chong (2008).

Investors do take high risks in order to earn a high return. Basically, high risk taking leads to high return, which realizes high bank profits. According to *shariah* principles, Islamic banks can invest capital to realize a reward for shareholders that is competitive with reference to their conventional counterparts. Thus, a direct relationship between financial risk and profitability of Islamic banks is anticipated in the hypothesis. The result also reveals a negative relationship between the parameter and bank profitability. It further shows a strong

statistical significance in explaining the variation in the function. Similarly, Srairi (2009) and Khrawish (2011) empirically confirm the significance and positive relationship between “financial risk” and profitability.

Operational efficiency is a proxy to gauge how bank management controls the overhead expenses. More efficient bank management utilizes less rate of expense to total assets. The higher the ratio of overhead cost, the lower the operational efficiency and, consequently, the less the return. Hence, a negative relationship is expected between operational efficiency and bank profitability. The regression output reveals a strong statistical significance of the variable (significant even at 5% level). Thus, there is a functional relationship between the operational efficiency and profitability, but with positive sign. Indeed, Ben Naceur and Kandil (2008) find that cost efficiency (overhead/total assets) does not significantly impact bank profitability.

Gross Domestic Product (GDP) is an indicator of economic level, and its trend shows the fluctuation of associated business cycle. In the case of real economic growth, the performance of financial institutions is expected to be favourable, and vice versa. As one of their distinctive features, Islamic banks are more closely linked to the real economy than their commercial counterparts. In this sense, GDP explains the variation in profitability of Islamic banks and this article anticipates a significant and direct relationship between GDP and profitability. Accordingly, the findings show the statistical significance of the variable in determining bank profitability, with a strong positive relationship between them. The result of the current study is similar to several previous works, such as Athanasoglou et al. (2008), Dietrich and Wanzenried (2011), and Sufian and Chong (2008).

The development of any real economic sector (whether through merger, agglomeration effect, adoption of high tech, or privatization) has either direct or indirect impact on the performance of Islamic banks. Here the ‘value of credits by banks to private sectors’ is used as proxy to gauge the sector’s development. The development of the bank sector is expected to have a particularly strong (positive and significant) impact on bank profitability (as found by Srairi, 2009). Nevertheless, the research finding surprisingly reveal a negative relationship between bank sector development and profitability, having a strong functional relationship. This negative impact could be due to difficulty faced by the banks and private sectors during the crisis period.

Money supply and interest rate are tools of monetary policy under the conventional economic system. Money supply is a legitimate policy tool with a strong impact on bank profitability. For both the Islamic economic system and the zero interest system, money supply is a particularly important determinant variable for banking performance. Furthermore, a direct functional relationship is expected between the growth rate of money supply and bank profitability. The finding accordingly shows that the growth rate of money supply is statistically significant, enough to explain the variation in the profitability model. In addition, the directional relationship between the variable and profitability is positive. This result is consistent with the findings of Srairi (2009).

The average value of bank profitability performance also indicates that there are differences in the pre- and post-crisis period (Table 8). The macro economic variables decline in the post-crisis period, which also have impacts on bank performance. There has been a dramatic decline in the return on assets after the crisis. The value of credit risk is tremendously increased in that post-crisis period; the banks are more focused on liquidity;

and thus overall bank operational efficiency may increase. This indicates that Islamic banks are not directly affected by the global financial crisis of the 2008 due to internal reasons, but that their profitability has been affected due to external shocks that affect economy.

Table 8: Average Value of Bank Profitability (ROA) Performance Indicators

Acronym	Explanatory Variable	Before Crisis	After Crisis	Total Study Period
ROA	Return on assets	3.55	0.71	1.93
CA	Capital Adequacy	24.66	29.93	27.67
LR	Liquidity	45.96	55.69	51.52
AQ	Asset Quality (credit risk)	0.173	0.64	0.44
FR	Financial Risk	56.39	71.16	64.83
OPE	Operational Efficiency	1.85	2.32	2.12
TA	Bank size	6.32	7.60	7.05
BNK	Bank sector development	41.17	34.49	37.35
GDP	Growth of GDP PPP per capita	6.07	4.9	4.19
INF	Inflation rate	6.03	4.98	5.43
MS	Growth rate of money supply	20.54	11.44	16.68

CONCLUSIONS AND POLICY RECOMMENDATIONS

This study seeks to observe the resilience of Islamic banks during global financial crises and to develop an inference from the GCC region. The region has a substantial market share of *shariah*-compliant banks and has competency excellence in leading the industry. For instance, at the end of 2007, the total assets of GCC (excluding Oman) were worth over US\$262.6 billion, while the total assets of worldwide worth were US\$ 640 billion (Wilson, 2009). This implies that the share of *shariah*-compliant asset value of GCC globally accounted for about 41%.

Consequently, the result reveals that three controlled variables (capital adequacy, financial risk and operational efficiency) are found to have a positive relationship with bank profitability, and that credit risk has a negative relationship with profitability. Likewise, two determinant variables of macroeconomic indicators (real GDP growth rate and money supply growth rate) are found to have a direct functional relationship with bank profitability, while bank sector development is found to have negative relationship with profitability.

Generally, GCC Islamic banks are relatively well capitalized in international comparison, for they have a higher capital adequacy ratio above the required standard (i.e. 8%, as per Basel Capital Accord) which safeguards their performance. On the other hand, the performance of GCC Islamic banks has been adversely affected by credit risk during the crisis, due to the cumulative effect of pre-crisis high credit growth rate. The other credit risk of GCC Islamic banks is due to high exposure to households, which adversely affects the banking performance as a result of expatriates' layoff.

Analogous to controlled variables, macroeconomic indicators are fundamental determinants of bank profitability. GDP and inflation are particularly important in explaining banking performance. These variables can explain the indirect impact of financial crisis due to international interdependence. GDP as a proxy of output and inflation as a proxy of product prices can explain the performance of banks, particularly Islamic banks, which rely on the real economic sectors and realization of new wealth creation.

Furthermore, the structural stability tests of the banks' profitability show that there has been structural change before and after the global financial crisis, since the bank profitability function have changed after the break point. Thus, this article concludes that the performance of GCC Islamic banks has been indirectly affected during the 2008 global financial crisis, despite their strong resilience in resisting the direct impact of the crisis. Before the crisis the profitability performance of the bank has been mostly related to overall economic growth, but after the crisis (when the overall economy had fallen) it is mostly related to internal performance. After the crisis, many conventional banks collapse due to the weak nature of internal wealth. However, because Islamic banks are guided by *shariah* principles and morality, they still can perform well and show strength and resilience under adverse conditions.

This research suggests that investment banks of the region to diversify their portfolios in order to minimize exposure to external shocks. Similarly, the retail banks of the region widen their customer base in order to overcome the adverse effects of credit risk. Finally, this research focuses solely on full-fledged Islamic banks of the GCC countries. Although some Islamic windows have substantial market share, they are excluded from the research since their partial effect cannot be assessed by the scope of the paper. Thus, future research should compare and analyze the total effect of full-fledged Islamic banks vis-a-vis the partial effects of Islamic windows of the region.

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