WHAT DRIVES BANK MARGINS DURING AND POST-CRISIS? A COMPARISON BETWEEN ISLAMIC AND CONVENTIONAL BANKS

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ABSTRACT

This paper examines the margins of Islamic and conventional banks particularly in countries where Islamic banking is systemically important using the Generalized Method of Moments (GMM) estimator technique. In evaluating the impact of the global financial crisis, we separately consider the entire period (2006–2013), during crisis period (2007–2009) and post-crisis period (2010–2013) to gain new insights on the determinants of margins in a dual banking system. The findings indicate that the determinants differ across Islamic and conventional banks during crisis and post-crisis periods. We uncovered evidence suggesting that size, regulatory quality, inflation and overhead costs are important determinants of margins of Islamic banks. The results suggest the significant effects of market concentration, credit risk and overhead costs on conventional banks' margins. Interestingly, the results reveal different impacts of the crisis on both types of banking system.

Keywords: Islamic banks, conventional banks, margins, crisis, Generalized Method of Moments (GMM)

INTRODUCTION

The global financial crisis has revealed the complexity of the financial system that has raised concerns over the banking system. The fragility of the banking system requires assessment of bank margins as a measure of financial intermediation costs. High margins reflect high financial intermediation costs and inefficiencies (Chortareas, Garza-garcía, & Girardone, 2012). The crisis and its consequences to bank margins highlight the importance of a stable and efficient banking system. In response to the crisis, several financial policies were introduced by the government to improve banking intermediation services. Therefore, understanding the determinants of bank margins is crucial for improving banking efficiency and achieving greater social welfare.

The significant growth of Islamic finance in recent years has led to the emergence of the systematically important Islamic banking sector (accounts for 15% or more of the market share of the total banking sector) that requires a strong policy and regulatory response (Islamic Financial Services Board, 2016). The resilience of Islamic banking during the crisis has boosted its credentials as an alternative to the conventional banking system. Most academics and policymakers find that Islamic banks are less susceptible to crisis compared to their conventional counterparts (Cihak & Hesse, 2010; Beck, Demirgüç-Kunt, & Merrouche, 2013). Although Islamic banks have demonstrated great resilience during the crisis, there is little evidence on the link between crisis and financial intermediation costs in a dual banking system. In this context, the ambiguous relationship between crisis and margins provides direct motivation to examine the impact of the crisis on the costs of intermediation that may hinder the role of banks in contributing to the stability and efficiency of the banking system.

Despite the ongoing debate on the effect of the crisis, there are limited empirical studies that compare the impact of the crisis on the margins of Islamic banks and conventional banks. Existing studies concentrated on conventional and Islamic banks' performance (Mobarek & Kalonov, 2014; Rashid & Jabeen, 2016; Sun, Mohamad, & Ariff, 2017) or focused their analysis on the convergence in bank performance after the crisis (Olson & Zoubi, 2017). There has been few research on the link between conventional banks' margins and crisis (Dietrich & Wanzenried, 2011; Das, 2013). However, little research provides comparison of the factors that influence Islamic and conventional banks' margins during and post-crisis.

This paper investigates the determinants of margins of Islamic and conventional banks during and post-crisis. In particular, we evaluate whether the determinants vary between conventional and Islamic banks in different time

periods. We separately consider the entire period (2006–2013), during crisis period (2007–2009), and post-crisis period (2010–2013). This paper makes several important contributions to the literature on bank margins in several ways. First, we provide new insights on the determinants of margins during and after the crisis. Second, we examine the factors determining the margins for both conventional and Islamic banks and can thus compare the results for both types of banks. Third, unlike other papers, we focus our analysis on countries where Islamic banking is systemically important.

LITERATURE REVIEW

Empirical research to capture the costs of financial intermediation in banking is mainly based on the dealership model of Ho and Saunders (1981) where the bank is viewed as a risk averse dealer in the credit market. Following the dealership model, several cross-country and country level studies have been conducted to identify the determinants of bank margins with varying and conflicting results. To date, research has tended to focus on individual countries (Williams, 2007; Naceur & Kandil, 2009; Beck & Hesse, 2009; Trinugroho, Agusman, & Tarazi, 2014; Entrop, Memmel, Ruprecht, & Wilkens, 2015) or cross-countries (Saunders & Schumacher, 2000; Demirgüç-Kunt, Laeven, & Levine, 2004; Kasman, Tunc, Vardar, & Okan, 2010; Naceur & Omran, 2011; Sufian & Hassan, 2012; Poghosyan, 2013; Dietrich & Wanzenried, 2014; Islam & Nishiyama, 2016).

The existing literature suggests several factors that are likely to influence the costs of financial intermediation in the conventional banking sector. These could inter alia be bank-specific, market structure, macroeconomic, regulatory and institutional factors. Bank-specific factors such as default risk, credit risk, liquidity risk, operating costs, bank size, managerial efficiency, maturity transformation and risk aversion can have important repercussions on bank margins (Maudos & Fernández de Guevara, 2004; Poghosyan, 2010; Trinugroho et al., 2014; Entrop et al., 2015; Islam & Nishiyama, 2016). Focusing on ownership, Micco, Panizza and Yañez (2007) found that foreign banks in industrial countries have slightly lower margins than domestic private banks. Market structure, such as competition and market concentration, also contributes to the margins (Hossain, 2012; Trinugroho et al., 2014). Macroeconomic variables such as inflation, growth rate, tax rate, and exchange rate play an important role in determining the margins (Maudos & Solís, 2009; Chortareas et al., 2012; Soedarmono & Tarazi, 2013). Furthermore, Poghosyan (2013) found that the rule of law, regulatory quality, control of corruption and reserve requirement are important in explaining the margins.

With regards to crisis, Dietrich and Wanzenried (2011) investigated the impact of crisis on bank profitability of commercial banks in Switzerland over the 1999–2009 period. They considered three different measures of profitability, namely return on equity, return on assets and net interest margins. The results show that larger banks have lower margins than smaller banks during the crisis. Das (2013) assessed the impact of financial crisis on bank margins in Indian banks for the 1992–2010 period taking into account the impact of ownership specifically for the public sector, new private sector and foreign banks. The author demonstrated that public sector banks' margins reduce significantly during crisis compared to other ownership types. Furthermore, banks with high capitalisation and liquidity display higher margins during crisis.

For comparative analysis, Hutapea and Kasri (2010) evaluated the margins of Islamic and conventional banks in Indonesia and found a negative relationship between margins and interest rate volatility. Abedifar, Molyneux and Tarazi (2013) failed to find evidence that Islamic banks charge rents to customers in terms of higher financing or lower deposit rates for offering Shariah compliant products. Sun, Hassan, Hassan and Ramadilli (2014) evaluated cross-country data of conventional banks and Islamic banks in the Organisation of Islamic Cooperation (OIC) countries and found that operating costs and capital adequacy are key determinants of intermediation margins for both conventional banks and Islamic banks. Sun et al. (2017) suggested that conventional and Islamic banks in a dual banking system are not significantly different. Recently, Lee and Isa (2017) found that there are significant similarities with minor differences in terms of determinants of bank margins between conventional and Islamic banks in Malaysia. However, the studies only dealt with the relationship between microeconomic factors and margins without capturing the influence of the external factors and the crisis.

To conclude, the empirical literature detailed above suggests a number of factors that are likely to influence the margins across countries. However, the role of the global financial crisis on the determinants of margins in a dual banking system has not been adequately dealt with. Furthermore, there is scant empirical evidence on the effect of the crisis in countries where Islamic banking is systemically important. Therefore, this paper sheds light on the behaviour of Islamic and conventional banks' margins during and post-crisis.

METHODOLOGY AND DATA

Empirical Model

In order to analyse the impact of the crisis on margins, the empirical model is specified as follows:

$$NFM_{it} = \alpha_i + \beta_1 NFM_{it-1} \beta_2 X_{it} + \beta_3 CrisisDummy + \varepsilon_{it} \tag{1}$$

where i and t refer to bank and time, respectively. The dependent variable, *NFM/NIM* represents net financing/interest margins. NFM_{it-1} is the lagged dependent variable, X_{it} are the explanatory variables and ε_{it} is the residual. We include the crisis dummy, taking the value of one for the crisis period (2007–2009) to capture the impact of crisis on the margins.

Empirical Variables

The dependent variable used in this research is the net financing margin (Islamic bank)/net interest margin (conventional bank). We select the explanatory variables as suggested in the literature and examine the extent to which the determinants explain the margins based on different periods. The description of the variables, data sources, and the expected signs are presented in Table 1.

In line with previous research, we adopt the net interest margin as a measure of the cost of financial intermediation, which represents the charge required by the bank for providing financial intermediation services (Poghosyan, 2013). It is computed as the difference between interest income and interest expense to average earning assets (Saunders & Schumacher, 2000). As for Islamic banks, net financing margin is defined as the difference between financing income and income paid to depositors over average earning assets. The ratio measures the gap between income from financing and income distributed to depositors (Hutapea & Kasri, 2010).

Table 1
Description of the variables

Variables	Definition	Source	Expected sign
Net financing margin (Islamic bank)	Net financing income (financing income minus income paid to depositors) over average earning assets.	Bankscope	
Net interest margin (conventional bank)	Net interest income (interest income minus interest expense) over average earning assets.	Bankscope	
Overhead costs	Ratio of overhead costs to total assets.	Bankscope	+
Capital	Ratio of total equity to total assets.	Bankscope	+/–
Bank size	Logarithm of total assets.	Bankscope	+/–
Credit risk	Ratio of net loans to total assets.	Bankscope	+
Inflation	Consumer prices index.	WDI	+
Concentration	Assets of three largest banks to total banking assets in the country.	Worldbank	+/–
Regulatory quality	Index reflects perceptions of the ability of the government to formulate and implement sound policies and regulations that permit and promote private sector development.	WGI	–

To proxy credit risk, we use the ratio of net loans to total assets. Banks with higher ratio are exposed to higher credit risk and are expected to charge higher margins to compensate for exposure to expected and unexpected credit risk (Kasman et al., 2010; Naceur & Omran, 2011).

Overhead costs are often considered important determinants of margins. As in most studies in banking, e.g. Maudos and Fernández de Guevara (2004), Beck and Hesse (2009) and Islam and Nishiyama (2016), we use the ratio of overhead costs to total assets. Banks demand higher margins to compensate the higher overhead costs. Hence, we expect a positive sign between overhead costs and margins.

We use equity to total assets ratio as a measure of capital strength. A higher ratio indicates that the bank is well capitalised with long-term bank solvency (Kasman et al., 2010). Capital is expected to be positively related to margins.

Bank size is measured by the logarithm of total bank assets. There are contrasting views on the relationship between size and margins. Larger banks are expected to impose greater margins to cover potential losses as the exposure to risk increases (Sufian & Hassan, 2012). Moreover, an increase in the size of the banks may reflect the monopoly power that enables banks to raise the cost of intermediation. In contrast, due to economies of scale, larger banks can offer lower margins than small banks (Maudos & Fernández de Guevara, 2004; Beck & Hesse, 2009).

To take into account the impact of macroeconomic uncertainty on margins, we use the inflation variable. Inflation rate is calculated as the rate of change in the consumer price index for each country. High inflation rates are generally associated with high interest rates and thus are reflected in higher margins (Demirgüç-Kunt et al., 2004; Beck & Hesse, 2009). Banks will charge a higher financing price leading to higher margins to cover the risk of default in a highly volatile economic environment. Inflation is expected to be positively related to margins.

We measure market concentration by the asset concentration ratio of the three largest banks in the country. The relationship between market concentration and margin is ambiguous. On the one hand, a highly concentrated banking market might enhance the market power of the bank and leads to higher intermediation margins (Demirgüç-Kunt et al., 2004; Maudos & Solís, 2009; Hossain, 2012). On the other hand, a concentrated banking sector might reflect high bank efficiency, which translates into lower margins (Naceur & Omran, 2011; Sufian & Hassan, 2012).

The regulatory quality index covers the ability of the government to formulate and implement sound policies and regulations that permit and promote private sector development (Kaufmann, Kraay, & Mastruzzi, 2010). Stronger government regulation may contribute to lower margins (Poghosyan, 2013). We expect a negative relationship between regulatory quality and margins.

We include a crisis dummy to highlight the impact of the global financial crisis on margins. Crisis is a dummy variable that takes a value of one for the years 2007–2009 and zero otherwise.

Estimation Approach

For the estimation approach, this study employs the Generalized Method of Moments (GMM) estimator developed by Arellano and Bond (1991), Arellano and Bover (1995) and Blundell and Bond (1998). GMM estimation has gained attention over the years and has provided significant theoretical and applied contributions to the econometrics literature. Following recent studies on bank margins for example by Carbó Valverde and Rodríguez Fernández (2007), Maudos and Solís (2009) and Soedarmono and Tarazi (2013), the use of a dynamic model is important to capture the persistence of margins over time. Therefore, this study considers that the current values of the bank margins may be determined by their previous values.

In estimating the margins, one of the challenges faced in the banking analysis is the endogeneity problem. Most of bank-specific variables are endogenous, which are possibly correlated with the error terms, leading to inconsistent estimates (Hossain, 2012). Another important challenge is the unobservable heterogeneity across banks, which is likely to be very large in the banking industry because of the differences in corporate governance that is difficult to measure (García-Herrero, Gavilá, & Santabárbara, 2009). Thus, the application of the GMM estimator allows us to control for the endogeneity, unobserved heterogeneity autocorrelation and the persistency of the margins to produce consistent and efficient estimates.

The system GMM estimator helps for the significant improvements in the efficiency of estimation that reduces potential biases (Arellano & Bover, 1995; Blundell & Bond, 1998). Furthermore, the system GMM is a more appropriate choice to capture the short panel that has a small numbers of years and a large number of cross sections (Beck, Levine, & Loayza, 2000). The system GMM allows the introduction of more instruments and provides more efficient estimates. In order to reduce the instrument proliferation problem, Roodman (2009) proposed collapsing the instrument matrix and selecting certain lags to be included in the instruments. We perform two diagnostic tests, namely the Hansen test for over-identifying restrictions and the autocorrelation test to determine the consistency and validity of the GMM estimator.

Data

Our sample is unbalanced panel dataset of 37 Islamic banks and 52 conventional banks operating in countries where Islamic banking is systemically important and accounts for more than 15% of total banking assets (IFSB, 2016). We select five countries that have the largest shares of global Islamic banking assets, namely the

United Arab Emirates (UAE) (8.14%), Kuwait (5.9%), Malaysia (9.3%), Qatar (5.1%), and Saudi Arabia (19.0%). We include only countries operating in a dual banking system and exclude Iran (37.3%), as the entire banking system is Islamic. As outlined in Table 2, there are 22 banks from the UAE, 10 banks from Kuwait, 37 banks from Malaysia, 9 banks from Qatar, and 11 banks from Saudi Arabia. We estimate the model for the entire time period, during crisis and post-crisis period.

Table 2
Banks in sample by country

	UAE	Kuwait	Malaysia	Qatar	Saudi Arabia
Number of Islamic banks	7	5	17	4	4
Number of conventional banks	15	5	20	5	7
Total number of banks	22	10	37	9	11

To construct the sample, the bank-level data are obtained from Bankscope database of Fitch Ratings and Bureau van Dijk that contains comprehensive information on banks across the globe. The macroeconomic and market structure data are obtained from the World Development Indicators (WDI) and Global Financial Development Database by the World Bank while the regulatory quality data are taken from Worldwide Governance Indicators (WGI).

Table 3
Summary statistics

Variables	Islamic banks			Conventional banks		
	Obs.	Mean	Std. dev.	Obs.	Mean	Std. dev.
Net financing margin/ Net interest margin	276	3.62	1.35	467	3.14	1.09
Size (ln total assets)	276	15.46	1.11	467	16.19	1.32
Capital	276	15.07	12.23	467	13.26	5.57
Credit risk	276	56.76	15.00	467	57.00	15.58
Overhead costs	276	1.83	1.93	467	1.33	0.62
Market concentration	276	73.22	13.60	467	69.55	14.23
Inflation	276	3.48	3.40	467	3.98	3.71
Regulatory quality	276	0.44	0.22	467	0.45	0.22

Notes: Obs. = number of observations; Std. dev. = standard deviation

Table 3 presents the summary statistics for the variables used in our analysis. On average, the Islamic banks have substantially higher margins (3.62%) than the conventional banks (3.14%) over the entire period. We also observe that the size of the Islamic banks (15.46%) on average is smaller than the conventional banks (16.19%). Islamic banks are better capitalised than conventional banks where equity over total assets on average is 15.07%. Further, the Islamic banks exhibit higher overhead costs (1.83%) than the conventional banks (1.33%).

EMPIRICAL RESULTS

In this section, we provide separate estimations for the three different periods. First, we estimate the model for the entire period from 2006 to 2013 in Table 4. Then, we split the sample into two time periods, namely during crisis including years 2007 to 2009 in Table 5 and post-crisis from 2010 to 2013 in Table 6. The first and second columns report for Islamic banks and conventional banks respectively. The number of observations, number of banks and number of instruments for each regression are presented at the bottom of the tables. The results show that the Hansen test value is insignificant implying no evidence of over-identifying restrictions. The value test for second-order autocorrelation AR (2) indicates that the model is valid. The magnitude and significance of the coefficient of the lagged dependent variable suggest persistency in margins and confirm the use of a dynamic model. Overall, we find some significant differences between Islamic and conventional banks for the three different periods.

Table 4 presents the results for Islamic and conventional banks for the entire period of study from 2006 to 2013. The results suggest that size has a significant and negative impact on the margins of Islamic banks. It does not significantly affect the conventional banks. Larger Islamic banks are likely to have lower margins as they are able to benefit from economies of scale and advanced technology. This result is in line with the findings of Lee and Isa (2017). The results underline the importance of regulatory quality on margins of Islamic banks compared to conventional banks. The regulatory quality has a negative and significant effect on margins of Islamic banks reflecting that government policies and regulations could help in lowering the margins of Islamic banks. This result confirms the findings of Poghosyan (2013) for conventional banks in low income countries.

Conventional banks incur higher overhead costs, subsequently leading to higher margins. Bureaucratic processes and higher management costs may reduce operational efficiency of business operations. Conventional banks tend to pass the costs to the customers in the form of higher margins. This result supports the

findings of Beck and Hesse (2009), suggesting that larger branch networks lead to higher costs of operation.

Table 4
Islamic vs conventional banks' margins for entire period (2006–2013)

	Islamic banks	Conventional banks
L. Margin	0.552***	0.737***
	(3.89)	(4.25)
Size	–0.541**	–0.110
	(–2.38)	(–0.93)
Capital	–0.0123	–0.00203
	(–0.62)	(–0.12)
Credit risk	0.0157	0.0132**
	(1.59)	(2.22)
Overhead costs	0.136	0.309*
	(0.58)	(1.65)
Concentration	0.00292	0.00581*
	(0.22)	(1.66)
Inflation	0.00426	–0.00182
	(0.29)	(–0.14)
Regulatory quality	–1.066*	0.0480
	(–1.73)	(0.29)
Crisis	0.350*	0.0516
	(1.90)	(0.80)
Constant	9.239***	1.011
	(2.73)	(0.47)
Number of observations	239	415
Number of banks	37	52
Number of instrument	28	28
Hansen test *p*-value	0.438	0.283
AR(1) *p*-value	0.102	0.0109
AR(2) *p*-value	0.359	0.725

Note: Standard errors in parentheses, *** $p < 0.01$, ** $p < 0.05$, * $p < 0.1$.

We find evidence that credit risk is positively and significantly related to the conventional banks' margins. One possible reason could be that conventional banks focusing on loans are less diversified and exposed to greater degree of credit risk. Thus, the banks charge higher margins to compensate the credit risk. Diversification may reduce the effects of risk on margins. The result is consistent

with the findings of Kasman et al. (2010), indicating that banks tend to impose higher margins to compensate for exposure to expected and unexpected credit risk.

Market concentration is positively and significantly related to the margins of conventional banks. Conventional banks with higher market power may enlarge monopoly profits by charging higher loan rates and offering lower deposit rates that lead to higher intermediation margins. This result is similar with the results of previous studies by Demirgüç-Kunt et al. (2004) and Maudos and Solís (2009). In contrast, the result reveals that market concentration seems to have no significant impact on the margins of Islamic banks. This reflects the inability of Islamic banks to exploit market concentration to increase their margins.

Further, we examine the impact of the crisis on both types of banks. Interestingly, the crisis dummy has a positive and significant impact on Islamic banks' margins. The coefficient of the crisis is 0.350, implying the Islamic banks' margins increased by 35% during the crisis. The findings suggest that the crisis may have exposed Islamic banks to higher margins. The effect of the crisis caused Islamic banks to be more conservative in their operations. Islamic banks were more conservative in their financing portfolio during the crisis because of weaknesses in risk management practices. Islamic banks still lack effective risk management practices for liquidity risk and rate of return risk that may threaten their sustainability during crisis (Rosman & Rahman, 2014). The higher margins serve as an additional cushion protecting Islamic banks against external shocks in volatile and uncertain market conditions. In contrast, conventional banks' margins were not significantly affected by the crisis. Conventional banks seem to be able to withstand financial shocks in developing countries due to limited contagion effect compared to developed countries.

The results in Table 5 uncover notable differences in the behaviour of Islamic and conventional banks during the crisis period. Based on the results, two key findings emerge from our analysis. First, overhead costs enter positively and significantly into Islamic banks' margins. The impact of overhead costs is more pronounced in Islamic banks than in conventional banks during the crisis. This result is in contrast with the entire period's findings where overhead costs appear to be significant determinant of margins in conventional banks. Furthermore, the higher overhead costs during the crisis could stem from managerial inefficiencies in Islamic banks' operations. Lack of management skills, risk management, labor productivity, technical expertise and technology would imply greater inefficiency, causing Islamic banks to be more vulnerable to financial shocks. They may demand higher margins to compensate for the riskier financing associated with

higher monitoring and control costs. Ahmad and Abdul Rahman (2012) showed that conventional banks are more efficient than Islamic banks, mainly due to managerial efficiency and technological advancement.

Table 5

Estimation results during crisis (2007–2009)

	Islamic banks	Conventional banks
L. Margin	0.748***	0.804***
	(2.79)	(3.59)
Size	0.0564	−0.210
	(0.14)	(−0.63)
Capital	0.0277	−0.0117
	(0.63)	(−0.54)
Credit risk	0.0162	0.0126**
	(1.50)	(2.35)
Overhead costs	0.622**	0.287
	(2.12)	(0.84)
Concentration	0.00358	0.00600
	(0.12)	(0.47)
Inflation	0.0164	−0.00684
	(1.08)	(−0.63)
Regulatory quality	1.083	0.0656
	(0.75)	(0.20)
Constant	−2.752	2.597
	(−0.42)	(0.51)
Number of observations	79	156
Number of banks	31	52
Number of instrument	16	16
Hansen test *p*-value	0.795	0.499
AR(1) *p*-value	0.374	0.0512
AR(2) *p*-value	0.437	0.235

Note: Standard errors in parentheses, *** $p < 0.01$, ** $p < 0.05$, * $p < 0.$

Second, the results reveal that credit risk tends to influence the conventional banks' margins during crisis. In an extremely risky environment, conventional banks generate more risk through lending activities due to higher default rates of bank loans. The business model and risk appetite of conventional banks may not warrant risky financing during crisis. Accordingly, conventional banks tend to tighten their credit policies during crisis by increasing financing rate and reducing deposit rate to serve as a premium charged to riskier borrowers. Conventional

banks might transfer the risk to the customers in the form of higher margins. The higher margins serve as an additional cushion protecting conventional banks against external shocks in volatile and uncertain market conditions.

Table 6

Estimation results post-crisis (2010–2013)

	Islamic banks	Conventional banks
L. Margin	0.546***	0.586***
	(4.90)	(3.21)
Size	–0.680**	–0.173
	(–2.56)	(–0.81)
Capital	–0.0195	0.0321
	(–1.23)	(1.55)
Credit risk	0.00777	0.0176*
	(0.66)	(1.70)
Overhead costs	–0.0510	0.206
	(–0.24)	(0.48)
Concentration	–0.00619	0.00769*
	(–0.87)	(1.84)
Inflation	–0.150**	–0.0115
	(–2.44)	(–0.37)
Regulatory quality	–1.111**	0.0167
	(–2.08)	(0.07)
Constant	13.35***	1.805
	(3.15)	(0.46)
Number of observations	143	208
Number of banks	37	52
Number of instrument	20	20
Hansen test *p*-value	0.708	0.124
AR(1) *p*-value	0.0185	0.0472
AR(2) *p*-value	0.962	0.830

Note: Standard errors in parentheses, *** $p < 0.01$, ** $p < 0.05$, * $p < 0.1$.

Table 6 reports the results analysis for the post-crisis period. Credit risk and market concentration consistently play an important role in determining the margins of conventional banks post-crisis. Another striking implication of the results is that inflation and margins of Islamic banks are negatively and significantly related. The findings seem unexpected and contradict with previous studies by Demirgüç-Kunt et al. (2004) and Beck and Hesse (2009), which suggest that banks tend to charge higher financing rates due to the risk of default in an

inflationary environment. One possible reason is that Islamic banks might try to attract customers to use Islamic banking facilities by offering favorable financing rates despite highly volatile economic environment thus leading to lower margins. Naceur and Kandil (2009) found negative impact of inflation on margins of Egyptian banks, indicating higher inflation is associated with higher uncertainty and reduces the demand for credit and bank margins. Size remains significant for Islamic banks confirming the benefits of economies of scale. Another important finding that emerges is that regulatory quality has significant impact in lowering the Islamic banks' margins after the financial crisis period.

The findings provide some interesting insights on the determinants of margins of Islamic and conventional banks during crisis and post-crisis periods. The behaviour of Islamic banks differs from conventional banks in terms of determinants between these two periods. During the post-crisis period, regulatory quality is essential in narrowing the margins of Islamic banks. Policy direction towards enhancing the resilience of the financial system during crisis probably have improved the intermediation efficiency of Islamic banks after the crisis, which translates to lower margins. Furthermore, the regulatory reforms introduced in Basel after the crisis to foster financial stability may help to strengthen the Islamic banking operations. The analysis on the impact of overhead costs for Islamic banks during the crisis shows the effect is positive and significant. In contrast, this variable seems to have no impact on margins of Islamic banks after the crisis period. These results highlight the important role of prudent cost management particularly on banking infrastructure spending after the crisis period that may help to improve the operational efficiency of Islamic banks.

CONCLUSION

This paper provides a comparative analysis on the impact of crisis on the behavior of Islamic and conventional banks' margins over the period of 2006 to 2013. Our sample consists of a panel dataset of systemically important Islamic banking sector in selected countries, namely the United Arab Emirates, Kuwait, Malaysia, Qatar and Saudi Arabia. In order to have a better understanding on the impact of the crisis on the margins, we estimated the sample into three time periods, namely entire period (2006–2013), during crisis (2007–2009) and post-crisis (2010–2013) using GMM estimator technique.

Our main findings are as per the following. The findings indicate consistently that size and regulatory quality are important determinants of Islamic banks' margins for the entire period and post-crisis. However, inflation only plays an important role in influencing the margins of Islamic banks after the crisis

period. Overhead costs have a positive impact on margins of Islamic banks during crisis but not in conventional banks. We find evidence that credit risk and market concentration are important determinants for conventional banks for the entire period and post-crisis. Interestingly, the results reveal a different impact of the crisis on both types of banks. The impact of the crisis on margins is significant and positive in Islamic banks. In contrast, conventional banks' margins were not significantly affected by the crisis.

The impact of crisis provides important lessons to the regulators, policy makers and bank managers in restoring financial sustainability. From policy perspective, the findings suggest that regulators need to focus on strengthening the regulatory framework that promotes greater financial intermediation efficiency and stability in the banking system. An effective crisis management and regulatory framework are important to promote a more resilient banking system. For policy makers, particular attention needs to be paid in providing sound risk management framework by improving risk management tools and practices in banking operations. The policies need to address the unique characteristics of Islamic banking in terms of the deposits, cost, capital adequacy and risk. Furthermore, greater competition by improving the competitive environment in the dual banking system is required for efficient intermediation services. Islamic banking licenses should be generously awarded and foreign Islamic banks' entry should be promoted that may dampen the margins. For bank managers, efforts to bring down operating costs are pertinent to strengthen the resilience of the Islamic banks during crisis specifically in improving their managerial ability, documentation and technological capabilities. It is also crucial to diversify their banks' financing portfolio and embark on new business lines and markets that can lower the cost of financing. The findings highlight the importance of scale effect to Islamic banks' margins. They need to expand their size of operations to benefit from economies of scale and diversification advantage that can reduce the cost of intermediation. Moreover, consolidation will create differentiation in the market through specialisation and cost efficiency that can result in lower margins.

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