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Determinants Of Islamic Banks' Margins In Asian Countries

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Abstract

This paper examines the determinants of margins in Islamic banks for the period 2005-2013. Specifically, we apply pooled, static and dynamic panel regressions on 76 Islamic banks in Asian countries. The results suggest the main factors that influence the margins of Islamic banks are numerous including bank size, default risk, overhead cost, capitalization, market concentration, GDP growth and inflation. It is evident that enhancing macroeconomic policies, risk management capabilities and operational efficiency could help in lowering the margins.

Keywords*: Islamic banks, Asian countries, margins, macroeconomic variables, panel regression.*

1. Introduction

Islamic banking sector continues to dominate the Islamic finance industry with 80 percent of global Islamic finance assets market share. The total Islamic banking assets increased from USD 1.4 trillion to USD 1.5 trillion in 2016 and concentrated mainly in Middle East and Asian countries (IFSB, 2017). Given the remarkable development in Islamic banks, understanding the behaviour of bank margins is vital for the sustainability of the Islamic banking industry.

Bank margins can be viewed from two perspectives. On the one hand, the higher margins may indicate higher banking profitability and on the other hand, the higher margins may reflect the higher intermediation cost charged to borrower (Soedarmono and Tarazi, 2013). Lower margins reflect an efficient and competitive banking system operating with lower intermediation costs (Barajas *et al.*, 1999; Saunders and Schumacher, 2000). Furthermore, higher margins are considered as an impediment for financial deepening (Poghosyan, 2013). Therefore, it is important for Islamic banks to provide intermediation services at lower costs.

The main objective of this research is to examine the impact of bank-specific, market-specific and macroeconomic determinants on margins of Islamic banks in Asian countries. This research extends the existing literature by considering a comprehensive framework of determinants on margins for Islamic banking sector in Asian countries. Majority of studies on bank margins focused on conventional banks in Asian countries, there is little research about the Islamic banks' margins in Asian countries. The analysis in this research contributes to a better understanding particularly on Asian Islamic banks' margins. Lower intermediations cost is indispensable for greater availability and more efficient resource allocation in promoting economic development in Asian countries. The results will highlight important policy implications to bankers and policymakers to increase financial intermediation efficiency in the Islamic banking system in order to provide not only an alternative but an efficient form of intermediation.

This paper is divided into five sections. The following section discusses the literature on the determinants of bank margins. Section 3 describes the methodology and data. Section 4 reports the empirical results. Section 5 provides the conclusion and policy implications.

2. Literature Review

The empirical research capturing the margins in conventional banking is mainly based on the dealership model proposed by Ho and Saunders (1981). Under the dealership model, banks are assumed as risk averse dealers in the financial market, acting as intermediary between demanders and suppliers of funds.

Specifically, the bank margin depends on the degree of risk aversion, market structure, size of bank and variance of interest rates. The model has been extended by a number of researchers in country-level and cross-country with varying results.

Angbazo (1997) widened the model further by incorporating the importance of default risk and its interaction with interest rate risks for different size classes of the US commercial banks for the period of 1989-1993. The evidence suggests that the bank interest margin reflects both default risk and interest rate risk. Furthermore, they found that the capital, management quality and the non-interest bearing assets have positive effects on net interest margins and negatively related to liquidity.

Saunders and Schumacher (2000) incorporated the bank's opportunity cost of holding reserves and bank capital in the model. The authors empirically estimated the model using dealership model in multi country setting including the European countries and the US over the period of 1988-1995. The results indicate that that reserve requirements, implicit interest payments, capital-to-asset ratio, market power and the volatility of interest rates positively affected the margins.

Claeys and Vander Vennet (2008) investigated the determinants of bank interest margins in the Central and Eastern European countries (CEEC) and Western European Countries for the period of 1994-2001. They documented that operational efficiency, capital, pricing of lending risk (loan-to asset ratio) and foreign banks play an important role in explaining the interest margins.

Naceur and Omran (2011) analysed how financial development, bank regulations, market structure and institutional factors impact bank performance in the MENA countries. The authors used cost of intermediation (net interest margins), operating performance (cost efficiency) and bank profitability (return on assets) as three alternative measures of bank performance. The results confirm the importance of bank capitalisation, credit risk, and inflation, regulatory and institutional variables in explaining the net interest margins.

In Russia, Fungáčová and Poghosyan (2011) analysed the determinants of margins across bank ownership structures particularly state-controlled, foreign-owned and domestic private banks over the 1999-2007 period using fixed-effects. Their evidence shows that the effect of liquidity risk, credit risk, size and market structure on margins differ across ownership types. They also found that operational costs and risk aversion have a significant impact on margins across all banks.

Chortareas *et al.* (2012) analysed the determinants of interest margins in nine Latin American countries for the period of 1999-2006. The study focused on the role of competition and non-parametric technical and scale efficiency in the analysis. To measure bank efficiency and competition, they used Data Envelopment Analysis (DEA) and the Panzar and Rosse's H-statistic. The findings reveal the insignificant effect of concentration and market share on interest margins.

Using low income countries and emerging economies banking systems data, Poghosyan (2013) found that interest margins in low-income markets are higher compared to emerging markets. The results indicate the main factors influencing the costs of financial intermediation in low income countries are concentrated market structure, institutional quality, fraction of bank entries denied, credit risk, risk aversion and bank size.

Trinugroho *et al.* (2014) investigated the determinants of bank margins in Indonesia over the period of 2001-2009. The findings indicate a positive and significant relationship between margins and variables such as small-scale loans, operating costs, market power, risk aversion and liquidity risk. The margins are higher for state-owned banks and the presence of foreign banks promotes lower margins.

In South Asian countries, Islam and Nishiyama (2016) investigated the determinants of bank interest margins using data from 230 commercial banks over the period of 1997-2012. They found that liquidity, equity, required reserve and operating expenses are positively related to the margins while the effect of size, market power and economic growth are negatively related to the margins. The author also showed the differences in the determinants of interest margins for each country in the South Asian countries including Bangladesh, India, Nepal and Pakistan.

In the case of Islamic banks, there is little empirical work on bank margins. In Middle Eastern countries, Bashir (2003) investigated the determinants of bank's net margins and profitability during the 1993-1998 period. The results confirm the importance of capital, loan ratios, risk indicator, inflation and GDP per capita to the Islamic banks' margins.

Hutapea and Kasri (2010) focused on Indonesian banking industry over the 1996 to 2006 period using the autoregressive distributed lag (ARDL) model. They evaluated the bank margin of Islamic and conventional banks in Indonesia. They provided strong evidence on the long run relationship between

Islamic bank margins and its determinants such as default risk, liquidity risk, interest rate volatility, capital base, implicit cost, opportunity costs of bank reserves and management quality.

The findings by Sun *et al.* (2014) on the Organization of Islamic Cooperation (OIC) countries over the 1997-2010 period show that operating costs and capital adequacy are the key determinants of the margins for both conventional banks and Islamic banks. Nevertheless, the comparative study only captures the internal determinants in their analysis.

Focusing on the Malaysian banking sectors, Lee and Isa (2017) examined the determinants of margins in a dual banking system The study employs dynamic GMM estimator over the period 2008-2014. The authors included diversification variables such as net non-interest income and asset diversity in the analysis. Their evidence reveals that operating costs, efficiency, credit risk, market share and implicit interest payments are positively related to Islamic banks' margins. Operating costs, efficiency, credit risk, degree of risk aversion, market share, size of operation, implicit interest payments and funding costs are the key determinants of conventional banks' margins. The findings seem to suggest a minimal impact of the diversification indicators on bank margins.

3. Methodology and Data

3.1 Empirical specification

The empirical specification to estimate the determinants of margins are formulated as follows:

$$NFM_{it} = \beta_0 + \beta_1 SIZE_{it} + \beta_2 DEFAULT\ RISK_{it} + \beta_3 CAPITALIZATION_{it} + \beta_4 OVERHEAD\ COSTS_{it} + \beta_5 HHI_{it} + \beta_6 INFLATION_{it} + \beta_7 GROWTH_{it} + YEARS + \varepsilon_{it} \quad (1)$$

where the NFM is net financing margin, *i* and *t* represents bank and time period respectively. The determinants include size, default risk, capitalization, overhead costs, Herfindahl index, inflation and GDP Growth. Years capture a vector of time dummies.

In terms of the econometric methodology, the empirical model in Eq. (1) is estimated using the Ordinary Least Square (OLS) and the fixed-effects panel regressions. In order to account for the time persistence in margins, we also estimate using a dynamic panel data estimator based on two-step Generalized Method of Moments (GMM). Carbó Valverde and Rodríguez Fernández (2007) used a dynamic model considering that the previous values of bank margins may affect the current values of that margin. The empirical model is specified as follows:

$$NFM_{it} = \beta_0 + \beta_1 NFM_{it-1} + \beta_2 SIZE_{it} + \beta_3 DEFAULT\ RISK_{it} + \beta_4 CAPITALIZATION_{it} + \beta_5 OVERHEAD\ COSTS_{it} + \beta_6 HHI_{it} + \beta_7 INFLATION_{it} + \beta_8 GROWTH_{it} + YEARS + \varepsilon_{it} \quad (2)$$

The GMM estimator proposed by Arellano and Bover (1995) and Blundell and Bond (1998) captures short, wide panels and corrects the endogeneity problem by using internal instruments to reduce bias in estimation. Beck *et al.* (2000) highlights the advantages of using this econometric method. First, it acknowledges the time series variation in the data to obtain estimates that are more precise. Second, it takes into account the unobserved country-specific effects to produce consistent and efficient estimates. Third, it controls the endogeneity of all the explanatory variables by using internal instruments that reduces bias in the model. To determine the consistency of GMM estimator, we perform the Sargan test of over identifying restrictions and the test of lack of serial correlation.

3.2 Variables

3.2.1 Dependent Variable

Net Financing Margin: Net Financing Margin (NFM) is calculated as the difference between financing income and income paid to depositors over average earning assets. The margin measures the gap between what the bank pays the providers of funds and what the bank receives from the users of funds (Naceur and Omran, 2011). The margin reflects the charge required by the bank in providing intermediation services. Bank customers may become discouraged when the bank offer a larger charge for using their services (Poghosyan, 2013).

3.2.2 Independent Variables

Size: We use the logarithm of total bank assets in order to capture the size of the bank. The relationship between size and margin is ambiguous. On the one hand, larger banks can charge lower margins due to scale efficiency. On the other hand, larger size operations exposed bank to a higher potential loss contributing to higher margins (Fungáčová and Poghosyan, 2011). Therefore, we expect that the sign between size and margins can be either ways.

Default Risk: Default risk is proxy by the ratio of loan loss reserves over gross loans. Higher loan loss reserves may imply poorer loans' quality leading bank to charge higher margins (Chortareas et al., 2012). Hence, the higher the default risk, the larger the margin required by the bank. Thus, a positive sign is expected.

Capitalization: We measure the capitalization as the ratio of equity to total assets. Bank hold more capital to protect themselves against credit risk exposure (Saunders and Schumacher, 2000). Well-capitalized banks have the ability to meet the long term financial obligations. Thus, banks will demand higher margins to cover costs of capital. Therefore, we expect a positive relationship between the capitalization and the margins.

Overhead Cost: Overhead cost is measured by the ratio of operating costs to total assets. Banks may compensate the higher operating costs by charging higher margins to customers (Islam and Nishiyama, 2016, Trinugroho et al., 2014; Sun et al., 2014). We expect a positive sign between overhead cost and margins.

Market concentration: We use a Herfindahl index (HHI) to capture the market concentration. HHI is measured as the sum of squares of individual bank market shares for each country. Banks with high market concentration is likely to charge higher margins. (Fungáčová and Poghosyan, 2011). As such, a positive sign is expected.

Inflation: Inflation rate is measured as the percentage of change in the consumer price index for each country. In inflationary environment, banks may charge a higher lending price that would increase the margins to compensate the risk of default (Chortareas *et al.*, 2012; Soedarmono and Tarazi, 2013). We therefore expect a positive sign.

GDP growth: We include the real GDP growth to capture the business cycle. Higher growth contributes to economic expansion in the country leading to lower the margins (Poghosyan, 2013). The GDP growth is expected to be negatively related to the margins.

Table 1 provides the definition of the variables used in this study and the expected sign.

Table 1: Description of variables

Variables	**Definition**	**Expected sign**
Net financing margin	Net financing income over average earning assets	
Bank size	Logarithm of total assets	-/+
Default risk	Ratio of loan loss reserves over gross loans	+
Capital	Ratio of total equity to total assets	+
Overhead costs	Ratio of operating costs to total assets	+
Herfindahl–Hirschman Index (HHI)	Sum of squared market shares in terms of total assets	+
Inflation	Consumer prices index	+
GDP Growth	GDP growth rate	-

3.3 Data and sample

We use a sample of 76 Islamic banks in Asian countries over the period of 2005-2013. We limit the analysis to Islamic banks operating in dual banking system. Table 2 presents the number of Islamic banks by country. The final datasets comprised an unbalanced panel with 521 observations. The data were obtained from Bankscope and World Development Indicators.

Table 2: Number of Banks by Country

Country	**Total**
Bahrain	7
Bangladesh	6
Brunei	1
Indonesia	8
Jordan	3
Kuwait	5
Lebanon	1
Malaysia	17
Pakistan	5
Qatar	4
Saudi Arabia	4
Syria	1
Turkey	4
UAE	7
Yemen	3
Total	**76**

4. Empirical Results

Table 3 provides the summary statistics of the variables. The mean value of margin in is 3.89, while its standard deviation is 1.84. The mean value of capital ratio is 14.72 suggesting that on average, banks accumulate equity capital on their balance sheet. The minimum value indicates that some banks have negative capital ratio. The mean value of overhead costs is 2.35 while mean value of size is 14.73.

Table 3: Summary Statistics

Variable	**Obs.**	**Mean**	**Std. Dev.**	**Min**	**Max**
Net Financing Margin	521	3.89	1.84	-2.75	10.40
Size	521	14.73	1.43	10.46	18.13
Default risk	521	3.89	4.32	0.02	42.38
Capital	521	14.72	15.50	-92.01	99.78
Overhead costs	521	2.35	1.84	0.16	29.64
Herfindahl index (HHI)	521	7.12	0.49	6.28	8.75
Inflation	521	5.12	4.15	-4.86	20.29
GDP Growth	521	4.99	3.73	-7.08	26.17

Table 4 presents the empirical results of the pooled, static panel regressions and dynamic panel estimation. Column 1 and 2 reports results from the OLS. Column 3 and 4 report the results for the fixed effects regression. Column 5 and 6 report the results of the System GMM. Specifically, the GMM results passed the Sargan test and the second order correlation test indicating that the instruments are valid and the specification does not suffer from autocorrelation problems. The lagged dependent variable is positive (around 0.4) and significant at 1percent level implying the persistence of margins across time and justifying that dynamic GMM is an appropriate estimator. The time dummies are included in the regressions to capture the time effects. Estimation results indicate that the significance of the coefficient estimates of the determinants are considerably different across all regressions.

Table 4: Estimation results

Dependent variable: net financing margin (NFM)						
	OLS		Fixed effect		GMM	
	1	2	3	4	5	6
Lagged NFM					0.4936***	0.4225***
					(0.0609)	(0.0600)
Size	0.1282**	0.2376***	-0.0324	-0.1220	0.0053	0.2903*
	(0.0620)	(0.0627)	(0.2338)	(0.2327)	(0.1378)	(0.1559)
Default Risk	-0.0017	0.0174	0.0665***	0.0668***	0.0251*	0.0371*
	(0.0189)	(0.0188)	(0.0216)	(0.0214)	(0.0149)	(0.0204)
Capital	-0.0056	0.0046	0.0193*	0.0185*	0.0286***	0.0389***
	(0.0055)	(0.0059)	(0.0103)	(0.0104)	(0.0073)	(0.0077)
Overhead Costs	0.2856***	0.2215***	-0.0158	-0.0154	0.4216***	0.5805***
	(0.0470)	(0.0472)	(0.0500)	(0.0495)	(0.0742)	(0.0770)
HHI		-0.1772		-3.0724***		-3.1813***
		(0.1693)		(0.7980)		(0.5183)
Inflation		0.1334***		0.0251		0.0300**
		(0.0224)		(0.0237)		(0.0144)
Growth		0.0319		-0.0204		-0.0188**
		(0.0230)		(0.0203)		(0.0086)
Constant	1.9959**	0.6702	4.1601	27.7005***	0.8023	18.5814***
	(1.0042)	(1.5629)	(3.3194)	(7.0593)	(2.0429)	(4.0412)
Year Dummies	Included	Included	Included	Included	Included	Included
Observations	521	521	521	521	445	445
R-squared	0.1102	0.1724	0.1264	0.1595		
Sargan test p-value					0.2922	0.2639
AR (1) p-value					0.0061***	0.0215***
AR (2) p-value					0.3793	0.3276
Number of instruments					47	50
Number of Islamic banks	76	76	76	76	76	76

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

Bank size has a positive and significant impact on Islamic banks' margins across pooled and GMM estimations. Bigger Islamic banks may benefit from monopoly power that enables them to raise the cost of providing intermediation services. The results are in line with the findings of Fungáčová and Poghosyan (2011) indicating that larger banks could charge higher margins because of higher risk exposure to loss.

Next is the default risk. The results indicate that the default risk in positively and significantly related to margins of Islamic banks in both static and dynamic panel estimations implying that Islamic banks may require higher margins to cover the default risk. This result confirms the findings of Chortareas et.al (2012) suggesting that higher loan loss reserve may signal poorer loan quality and lead to higher margin. Generally, default risk exists in Islamic banking products in varying degrees of intensity. The default risk in Islamic banks is more complicated due to several factors such as unique risk in *Shari'ah* compliant products, limited default penalties and moral hazard problems in profit and loss sharing contracts (Tiby, 2011). Obviously, profit and loss sharing contracts such as *Mudarabah* and *Musyarakah* are known to be more risky than sales based contract. Therefore, Islamic banks prefer low risk modes of finance and rely mostly on mark-up financing modes such as *Murabahah.* Interestingly, Krasicka and Nowak (2012) found that the margins of the Islamic banks in Malaysia are considerably higher than the conventional banks due the heavy reliance on consumer financing in Islamic banks' financing portfolio.

The results also suggest that capitalization has a positive and significant effect on margins in the fixed effects and the GMM model which confirm the findings of Saunders and Schumacher (2000). Capitalization does seem to be one of the key factors influencing the Islamic banks' margins. The operations of Islamic banks are riskier and exert additional pressure on the capital requirement. Islamic banks require a sufficient capital cushion as a safety against risks. Therefore, Islamic banks require a higher equity as a capital buffer against risk which is translated into higher margins.

In the OLS and GMM estimation, we find that overheads appear to be positive and significant determinants of Islamic bank's margins. The results is similar to previous studies such as Islam and Nishiyama (2016), Trinugroho et al. (2014) and Sun et al. (2014). Overhead costs are important drivers of margins in Islamic banks. Higher complexities of Islamic banking contracts may lead to higher costs that induce Islamic banks to pass the costs to the customers in the form of higher margins. Lewis *et al.* (2014) conjectured that the Islamic banking is exposed to higher intermediation costs compared to the conventional banks because of substantial monitoring costs for profit and loss sharing modes of financing that require intensive evaluation for project viability.

Market concentration has a negative and significant impact on Islamic banks' margins in the fixed effect and dynamic panel data. This result fails to prove our initial hypothesis that market concentration and margins are positively related. This suggests that Islamic banks are able to exploit their unique position in the market to charge lower margins. They are able to affect the financing and pricing behavior leading to lower financing rate thereby lower margins in the concentrated market. A concentrated banking sector might reflect high bank efficiency which contributes into lower margins (Naceur and Omran, 2011).

With regard to inflation, it is positively and significantly related to the margins in the OLS and GMM estimation. Islamic banks will charge a higher financing price leading to higher margins to cover the risk of default in a highly volatile economic environment. Economic uncertainty contributes to wider margins in Islamic banks. This result supports the findings of Chortareas *et al.* (2012) and Soedarmono and Tarazi (2013) who found that higher inflation exacerbate the cost of intermediation.

As shown in the GMM estimation, we find that the GDP growth has a negative and significant impact on the margins which is in line with the expectation. The result is consistent with the findings of margins by Poghosyan (2013) and Islam and Nishiyama (2016) suggesting that banks expand their business in the expansionary economy and lead to the reduction of margins. Furthermore, economic boom induces more investment opportunities for Islamic banks to offer higher deposit rates to the providers of funds.

5. Conclusion

This paper empirically investigates the determinants of margins for Islamic banks in Asian countries using a panel data set of 76 Islamic banks from 2005-2013. In estimating the margins, we employ OLS, fixed effects and GMM techniques. Generally, the findings reveal that the margins of the Asian Islamic banks are shaped by bank-specific factors, market specific and macroeconomic factors. Bank size, default risk, overhead cost, capitalization, market concentration, GDP growth and inflation are significant determinants of Islamic banks' margins.

The analysis of this research provides important policy implications for Islamic banks in the Asian countries. In lowering the intermediation costs, it is important to initiate policies to foster growth and development of Islamic banking industry. The governments should ensure favourable macroeconomic environment that can help lowering intermediation costs. Islamic banks need to strengthen their operational and managerial efficiency in reducing Islamic banks margins. This necessitates streamlining the processes and procedures of *Shari'ah* compliant products. Furthermore, technological advancement leads to higher productivity and greater efficiency in the Islamic banking system thereby contributing to affordable financial services with lower intermediation costs. In this regard, more sophisticated risk management practices are important in improving banking efficiency and reducing the margins.

The Islamic banking industry has to demonstrate a real and effective alternative to the conventional banking system that will reflect meaningful progress. It is crucial for Islamic banking to extend its agenda towards the development of the business model that contributes to greater allocative efficiency and social responsibility instead of profit seeking institutions.

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