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Intermediary Role Performance Analysis of Malaysian Islamic and Conventional Banks

(Analisa Prestasi Peranan Perantara bagi Perbankan Islam dan Konvensional di Malaysia)

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ABSTRACT

The objective of this paper is to investigate the effect of bank specific characteristics and macroeconomics variables on bank margin (NIM) which reflects the intermediary role of Islamic and conventional banks in Malaysia for the period of 2006 to 2014. By using static panel analysis, the results show that management efficiency is positively related to the bank margin for both Islamic and conventional banks. For Islamic banks, bank size and liquidity ratio have significant negative relationship on bank margin. The default risk is positively related to bank margin for Islamic banks. As for conventional bank, the non interest to total asset ratio has significant positive relationship on bank margin. Therefore, the results show that there are similarities and differences in terms of determinant factors that affect the bank margin between Islamic banks and conventional banks. These empirical results suggest an important policy on issues pertaining to how Islamic and conventional banks have to adjust the changes in the banking environment. The conventional banks have more comparative advantages specifically on management efficiency as its intermediary role performance is also not affected by size.

Keywords: Islamic banks; conventional banks; macroeconomics variables; econometrics modelling; determinants of bank margin.

ABSTRAK

Objektif kertas penyelidikan ini adalah untuk mengetahui kesan ciri-ciri khusus bank dan faktor mikroekonomi terhadap margin bank yang mempengaruhi peranan bank Islam dan konvensional dalam sistem perantara perbankan di Malaysia bagi tempoh 2006 hingga 2014. Dengan menggunakan analisis panel statik, hasil menunjukkan bahawa kecekapan pengurusan adalah positif terhadap margin bank untuk kedua-dua bank Islam dan konvensional. Bagi bank Islam, saiz bank dan nisbah kecairan mempunyai hubungan negatif yang signifikan terhadap margin bank. Risiko kegagalan pembayaran adalah positif terhadap margin bank bagi bank Islam. Bagi bank konvensional, nisbah faedah kepada nisbah aset keseluruhan mempunyai hubungan positif yang signifikan terhadap margin bank. Oleh itu, keputusan menunjukkan bahawa terdapat persamaan dan perbezaan dari segi faktor penentu yang mempengaruhi margin bank antara perbankan Islam dan perbankan konvensional. Keputusan empirikal ini mencadangkan satu dasar penting mengenai isu-isu yang berkaitan bagaimana bank-bank Islam dan konvensional mesti menyesuaikan perubahan dalam persekitaran perbankan. Bank-bank konvensional mempunyai lebih banyak kelebihan perbandingan khususnya terhadap kecekapan pengurusan dengan prestasinya sebagai perantara perbankan juga tidak dipengaruhi oleh faktor saiz.

Kata kunci: Perbankan Islam; perbankan konvensional; pembolehubah makroekonomi; model ekonometrik; faktor-faktor margin bank

INTRODUCTION

The co-existence of Islamic banking and the conventional bank in the banking industry has forced Islamic banks to be proactive in the banking business in order to stay ahead and to remain sustain. Malaysia is one of the most progressive and attractive Islamic financial sector in the world. The first Islamic bank in Malaysia was established in 1983 namely, Bank Islam Malaysia Berhad (BIMB). In 1993, commercial banks, merchant banks, and finance companies have started to offer Islamic banking products and services under the Islamic banking scheme.

However, these Islamic banking institutions have to separate the fund between the conventional bank and Islamic bank. The setting of the Malaysian Islamic banks alongside with the conventional banking gives the challenges to Islamic banking to compete in a progressive manner. The approaches taken by Islamic bank will

determine whether Islamic banking will survive in the highly competitive global banking industry. The dynamic and proactive in designing and setting the proper planning of banking strategy in order to stay ahead of the competitors should be conducted by Islamic banking industry. The Islamic principles should not be a hurdle in formulating and creating the latest and innovative customer oriented product that will spur the Islamic banking industry to a greater level.

The bank profitability is the ultimate target for Islamic bank to survive in banking business. However, profit that will be achieved should be acquired according to Islamic principles which govern Islamic banking practices, such as mutual risk and profit sharing between parties, assurance of fairness for all and that transactions are based on an underlying business activity or asset (Kamal, Lokesh & Bala 2009).

The performance analysis of bank as a financial intermediary implies the analysis on activities of buying and selling financial assets and contracts. These activities facilitate the transfer of fund from surplus unit to deficit unit by creating new assets. The performance measurement for bank intermediary role is reflected by bank margin (NIM) rather than the bank net profitability which also covers the non-interest activities. Larger bank margin can add to the bank net profitability that can mitigate the bank from capital risk and macroeconomics shock. While smaller bank margin usually indicates low cost of intermediation which also signals efficient banking system at the expense of bank capital.

The main focus of this study is to determine bank specific factors and macroeconomics factors that affect the bank margin, reflecting the intermediary role performance. Thus, this paper will investigate the practical factors practiced in determining the bank margin by Islamic banks and conventional banks in Malaysia.

The rest of this paper will be organised in five sections. Section 2 surveys the literature of bank margin determinants. Section 3 discusses the methodology employed in the paper. Section 4 discusses findings. Finally, Section 5 and Section 6 provide discussion and conclusion of the paper, respectively.

LITERATURE REVIEW

The intermediary role performance of bank is characterised by its bank margin. Bank margin is defined as a spread between profit charge (revenue) on bank assets and profit charge (expense) on bank liabilities, which is presented as a proportion of average bank assets or earning assets (Ho & Saunders 1981; Erwin & Rahmatina 2010). However, pure interest spreads can be reduced when cross-elasticities of demand between bank products such as control over relative rate spreads, across product types, and the resulting ability to manipulate the arrival of transactions demands enables the financial intermediary to maintain a more active role in managing its inventory risk exposure (Allen 1988).

Bank performance can be measured by using qualitative and quantitative methodologies. Numerous studies have been done on the different determinants of bank performance measured such as profitability (Petria, Capraru & Ihnatov 2015; Badola & Verma 2006; Bourke 1989), growth (Goddard, Molyneux & Wilson 2004) efficiency (Andrieş & Cocris 2010; Burki & Niazi 2006; Chen & Yeh 1998), liquidity (Chowdhury, Siddiqua & Chowdhury 2016), and credit risk and default risk (Angbazo 1997). The study in the banking profitability is one of the areas that attract many researchers because it is very important to the depositors and investors where banks act as financial intermediaries. For example, Dermirguc-Kunt and Huizinga (1999) examined bank interest margin and profitability by using bank-level data from 80 countries in the years 1988 to 1995. Akbas (2012) investigated the determinants of bank profitability in 26 commercial banks in Turkey over the period from 2005 to 2010. Meanwhile, Petria et al. (2015) assessed the main determinants of banks' profitability in EU27 over the period 2004-2011.

Then, after the development of Islamic banks around the world, many researchers try to investigate Islamic banks profitability. Bashir (2003) for instance, investigated the factors that affect the profitability of Islamic banks in the Middle East. This was followed by other researchers such as Asutay and Izhar (2007). They analysed the performance of the Bank Muamalat in Indonesia in terms of bank profitability (ROA). Meanwhile, Sami and Mohamed (2008) investigated the determinants effect on internal and external factor on the bank profitability in Tunisia. In Malaysia, Wasiuzzaman and Hanimas (2010) examined the effect of the bank specific factors and macroeconomic factors on Islamic bank profitability.

There are also a few studies that make a comparison between conventional banks and Islamic banks such as Erwin and Rahmatina (2010) and Ahmad Khatib and Jehad Yasin (2015). Erwin and Rahmatina (2010) examined bank margin determination between Islamic and conventional banks in Indonesia for the period of January 1996 to February 2006 based on five sample banks (two Islamic banks and three conventional banks). While Ahmad Khatib and Jehad Yasin (2015) conducted their studies in Kuwait for the period from 1999 to 2013.

Most of the findings show that a bank's profit margin depends on internal factors and external factors. Internal factors which is bank specific factors that affect bank's profit margin are credit risk (Joaquin & Juan Fernandez 2004; Panayiotis et al. 2008; Daniel et al. 2012; Nicolae et al. 2015; Oliver et al. 2015), liquidity risk (Erwin & Rahmatina 2010; Santiago & Francisco 2007; Abduh & Yameen 2013), interest rate risk (Wong 1997; Santiago & Francisco, 2007; Lin et al. 2012), capital adequacy ratio (Sami & Mohamed 2008; Abduh & Yameen 2013; Nicolae et al. 2015), non-interest income (Demiguc & Huizinga

1998; Sami & Mohamed 2008; Oliver et al. 2015) and bank size (Hameed 2003; Panayiotis et al. 2008; Abduh & Yameen 2013; Maureen & Joseph 2014).

Meanwhile for external factors that affect bank's profit margin are bank characteristic which is bank concentration (Anthony & Liliana 2000; Panayiotis et al. 2008; Daniel et al. 2012; Nicolae et al. 2015) and macroeconomics factors namely inflation rate (Panayiotis et al 2008; Wasiuzzaman & Hanimas 2010; Abduh & Yameen 2013; Maureen & Joseph 2014), economic growth (Sami & Mohamed 2008; Fernanda & Angelo, Daniel et al. 2012; Nicolae et al. 2015; Oliver et al. 2015), and financial market indicators (Hameed. 2003; Sami & Mohamed 2008; Abduh & Yameen, 2013).

Dermirguc-Kunt and Huizinga (1999) found that bank characteristics, macroeconomic conditions, explicit and implicit bank taxation, deposit insurance regulation, overall financial structure, and underlying legal and institutional indicators reflect commercial bank interest margins and its profitability. The study used bank-level data for 80 countries in the years 1988-95. Other study by Kabir Hassan and Abdel Hameed (2003) showed how bank characteristics and the overall financial environment affect the performance of Islamic banks. They found that high capital and loan-to-asset ratios lead to higher profitability. The results show that implicit and explicit taxes affect the bank performance measures negatively while favorable macroeconomic conditions impact performance measures positively. The result also indicates a strong positive correlation between profitability and overhead.

Sami and Mohamed (2008) investigated the impact of banks' characteristics, financial structure and macroeconomic indicators on banks' net interest margins and profitability in the Tunisian banking industry for the 1980-2000. They found that individual bank characteristics (net interest margin and bank size) explain a substantial part of the within-country variation in bank interest margins and net profitability. On the other hand, they found that macroeconomic variables have no impact on Tunisian bank's profitability. Turning to financial structure and its impact on banks' interest margin and profitability, they find that stock market development has a positive effect on bank profitability. This reflects the complementarities between bank and stock market growth. They also found that interest rate liberalization has contrasting effect on net interest margins. In fact, partial liberalization has a negative impact on the interest margin whereas complete liberalization strengthens the ability of Tunisian banks to generate profit margins.

Another study by Erwin and Rahmatina (2010) in their study on bank margin determination between Islamic and conventional banks in Indonesia found that as interest rate volatility increases, Islamic bank margin responds negatively while that of conventional banks responds positively. The study also showed that the margin behaviour changes as the basis of bank operations change from conventional to Islamic principles. Md Shahidul Islam and Nishiyama (2016) in their study in four South Asian countries (Bangladesh, India, Nepal and Pakistan) in the period 1997-2012 using panel data of 230 banks revealed that liquidity and equity positions, required reserve and operating expenses to total asset ratios affect net interest margins positively while relative size of the banks, market power and economic growth affect inversely.

METHODOLOGY

DATA AND VARIABLES

The sample of this study consists of both Islamic and conventional banks in Malaysia from 2006 to 2014. The sources of financial data are BankScope and DataStream. The study excludes banks with missing data, outliers and those banks with less than nine bank-year observations, which result to only a balanced panel of six Islamic banks and eighteen conventional banks. Out of six Islamic banks, two of them are full-fledged Islamic banks. These are Bank Islam Malaysia Berhad (BIMB) and Bank Muamalat Malaysia Berhad (BMMB). The data are micro panel data where the number of individual banks (i) is more than the number of years of observation (t). The primary focus of this paper is to investigate the determinants of the bank margin of the Malaysian bank, both Islamic and conventional banks.

DEPENDENT VARIABLES

The dependent variable is bank margin, which is defined as the spread between profit charge (revenue) on bank assets and profit charge (expense) on bank liabilities, which is presented as a proportion of average bank assets or earning assets (Ho & Saunders 1981; Erwin & Rahmatina 2010). Bank margin has been postulated to determine the bank's performance, as profit reflects how a bank performed.

INDEPENDENT VARIABLES

Based on literature, the bank specific characteristic is treated as determinants of bank margin and in this paper those factors will be tested using empirical data. The capital adequacy ratio (CAPAD), default risk (DEFRISKFIN), liquidity risk (LQASSETTOLIAB and LOANTODEP), management efficiency (COSTTOINC), non-interest income (NONIITOTA), bank size (LNSIZE) and macroeconomic variables (inflation rate, IFR; gross domestic product growth, GDP; unemployment, UER; and money supply growth, MONSUP) are the variables which considered as an independent that will have an impact on bank margin. Following are the discussion of the independent variables:

CAPITAL ADEQUACY RATIO (CAPAD)

The capital adequacy ratio is measured by total equity over total assets. It shows how equity of a bank influences

the margin made and expected to be positively related with bank margin. Capital ratio is a valuable tool for assessing safety and soundness of banks (Nicolae et al. 2015). The result proved that capital will positively affect profitability with their statistically research. This result is consistent with Panayiotis et al. (2008) which also found a positive relationship between capital and profitability. In the study, Abreu and Mendes (2002) proposed that a well-capitalized bank faces lower expected bankruptcy costs and show profit later. A study by Abduh and Yameen (2013) also found the same result with a measure of capital by using the equity to total asset ratio for Islamic banks. However, Wasiuzzaman and Hanimas (2010) found that the relationship between capital and Islamic bank profitability is negative in Malaysia.

DEFAULT RISK (DEFRISKFIN)

Default risk is measured by allowance or reserve for financing losses over total financing. Default risk is the risk of non-repayment on financing due to the inability of the funds' user to fulfil the obligations to the banks. Both Islamic and conventional banks have to face this risk on their bank operation. Since, the financing is the major source of income, the deterioration of financing quality will affect the banks' profitability and subsequently the bank viability. As the default risk increase, Islamic bank will have to increase the default risk premium charged to customer.

LIQUIDITY RISK (LQASSETTOLIAB & LOANTODEP)

Liquidity risk is measured using two types of ratios, i.e. (1) liquid assets to total liabilities and (2) loans to customer deposits. The degree to which banks are exposed liquidity risk varies across banks. A bank with higher liquidity faces lower liquidity risk, hence likely to be associated with lower spreads due to a lower liquidity premium charged on loans. Bank with high risk or with lower liquidity are associated with higher spread as they have to incur extra costs of sourcing funds when faced with increased demand for credit (Maureen & Joseph 2014).

MANAGEMENT EFFICIENCY (COSTOINC)

Management efficiency is measured by cost over income. Management efficiency is a reflection of the ability of management to minimize the costs at a given level of income or to maximize income at a reasonable level of costs. Higher management efficiency is reflected by lower cost over income and vis versa. Research by Erwin and Rahmatina (2010) indicate that the efficient the management, it would be able to reduce the costs and thus, bank will able to charge lower margins to attract customer. Result by Joaquin and Juan Hernand 2004) also support that management efficiency has positive impact on bank margin.

NON-INTEREST INCOME (NONIITOTA)

Non-interest income has gained attention as an importance source of revenue to banks when there was a shift from total traditional financial intermediary role to other banking activities to mitigate declining profitability. However, for Islamic banks, all income is regarded as non-interest income. With regard to this, this study defines non-interest income for Islamic banks as income from non-financing activities. Examples of non-interest income (income from non-lending activities) are investment banking and brokerage services. Thus, this study includes non-interest income to total asset as one of the independent variables. Previous studies found that the higher the non-interest income to total assets, the lower the fees charged for financing activities resulting in lower net bank profit margin (Lepetit et al. 2008). The justification is that, banks strive to earn more income from non-financing activities to compensate for their declining interest/profit margin. Other studies include by Demiguc and Huizinga (1998); Sami and Mohamed (2008) and Oliver et al. (2015).

BANK SIZE (LNSIZE)

The size of the bank is measured by log of total assets. The relationship between size of the bank and bank margin are mixed. Generally, the bigger the size of the bank the higher the bank margin. Bank size is one of the variables to determine banks' profitability. According to the research by Abduh and Yameen (2013) and Maureen and Joseph (2014), they found that the bank size is a very strong variable that will positively influence the level of profitability. Abduh and Yameen (2013) believed that the larger the bank would have an advantage in negotiating the price of input, and it can reduce bank's average cost. Therefore, the bank is able to enjoy the economics of scale and improve its profitability. However, Wasiuzzaman and Hanimas (2010) and Panayiotis et al. (2008) found size of Islamic banks is insignificant in affecting banks' profitability. Wasiuzzaman and Hanimas (2010) discovered that the bank size is highly correlated to the capital ratio and concluded that the profitability of Islamic banks in Malaysia is not influenced by the bank size.

MACROECONOMIC VARIABLES

The macroeconomic variables include inflation rate (IFR), GDP growth (GDP), unemployment rate (UER) and money supply growth (MONSUP). Inflation rate is the annual percentage change of the GDP deflator at market prices. Inflation results in higher costs of general products and services, but at the same time increases overall income. For conventional banks, in general, higher inflation rates lead to higher interest rate for loans and consequently results in higher revenue and bank margin. However, for Islamic banks, higher interest rates may negatively affect the bank profitability thus bank margin if the increase in costs is higher than the increase in revenues. Previous

studies that found inflation negatively affects bank margin include Barth et al. (1997), Claessens, Demirguç-Kunt and Huizinga (1998), Hanson and Rocha (1986), Demirguç-Kunt and Huizinga (1999), Demirguç-Kunt and Huizinga (2000) and Denizer (2000), while studies that found in contrary are Wallich (1977) and Petersen (1986).

Unemployment rate is defined as the percentage of civilian active participation. Previous studies found that unemployment rate positively affect banks' profitability (Abreu & Mendes 2002; Heffernan & Fu 2008). Money supply growth is defined as the growth rate of money supply that is the total amount of monetary assets available in an economy (financial market) at a specific time. This amount depends on the monetary policy of a country. Previous studies found that money supply positively influence the level of banks' profitability (Mamatzakis & Remoundos 2003). Table 1 summarises the notation, description and expected sign of selected variables used in this study.

ECONOMETRIC MODELLING

The objective of this paper is to investigate the role of banks specific characteristics and macroeconomic conditions in determining the Malaysian banks' profit margin, both Islamic and conventional banks. The paper adopts the following basic model to test the determinants of Malaysian bank margin:

$$B.MARGIN_{i,t} = \beta_a + \beta_1 CAPAD_{i,t} + \beta_2 DEFRISKFIN_{i,t} + \beta_3 LIQASSETTOLIAB_{i,t} + \beta_4 LOANTODEP_{i,t} + \beta_5 COSTOINC_{i,t} + \beta_6 NONIITOTA_{i,t} + \beta_7 LNSIZE_{i,t} + \beta_8 IFR_{i,t} + \beta_9 UER_{i,t} + \beta_{10} GDP_{i,t} + \beta_{11} MONSUP_{i,t} + \varepsilon_{i,t} \quad (1)$$

where $B.MARGIN_{i,t}$ is bank margin for bank i in period t calculated as financing income divided by total assets, $CAPAD_{i,t}$ is the ratio of equity capital to total assets for bank i in period t, $COSTOINC_{i,t}$ is the cost to income ratio for bank i in period t, $DEFRISKFIN_{i,t}$ is the loss reserve to total financing for bank i in period t, $LIQASSETTOLIAB_{i,t}$ is the liquid asset to deposit and short term funding for bank i in period t, $LOANTODEP_{i,t}$ is loans to customer deposit for bank i in period t, $NONIITOTA_{i,t}$ and $LNSIZE_{i,t}$ is the size of bank i in period t defined as log total assets. In addition to bank level variables, macroeconomic variables are also included in the model. These macroeconomic variables are $IFR_{i,t}$, $UER_{i,t}$, $GDP_{i,t}$ and $MONSUP_{i,t}$ which are defined as inflation rate, unemployment rate, gross domestic product growth and money supply, respectively.

We adopt panel data because of the significant increase in the degrees of freedom and possibility of controlling for bank specific heterogeneity in the estimation process. Panel data allows controlling for individual heterogeneity characteristics which are unobserved as well as for aggregate time effects, which do not vary among individual bank in the sample. However, researchers should take careful consideration to ensure the robustness of estimates. The first one refers to the potential correlation between regressors and individual-specific heterogeneity, appearing in the format of either fixed or random effects. The second concern is to the stationarity of the panel, which is a requirement for the application of the asymptotic theory. However, since this study uses micro panel data with short time series data ($t<10$), the issue of stationarity is insignificant (Greene 2000). To ensure robustness, we use Hadri (2000) LM test and found variables are stationary.

TABLE 1. Notation, description and expected sign of selected variables

Variables	Notation	Description	Expected Sign
Dependent Variable			
Bank's margin	BMARGIN	Profit Charge (Revenue)on Financing minus Profit Charge (Expenses) on Deposit and on other Debt Issued/Total Assets	
Independent Variable			
Bank Specific Factors			
Capital adequacy ratio	CAPAD	Total Equity/Total Asset	+/-
Default risk	DEFRISKFIN	Allowance or Reserve for financing Losses/Total Financing	+
Liquidity risk	LQASSETTOLIAB	Liquid Asset/Liabilities	+
Liquidity risk	LOANTODEP	Loans/Customer Deposits	+
Management efficiency	COSTOINC	Operating Cost/Operating Income	+
Non-interest income	NONIITOTA	Non-Interest Income/Total Asset	-/+
Bank Size	LNSIZE	Total Asset	+/-
Macroeconomics Factors			
Inflation rate	IFR	Inflation, GDP deflator (annual %)	-/+
GDP growth	GDP	GDP per capita growth (annual %)	+
Unemployment rate	UER	The Malaysian statistic definition (% of civilian active population)	-
Money supply growth	MONSUP	The total amount of monetary assets available in an economy at a specific time	+

The Hausman test allows to identify if the static panel has fixed or random effects, evaluating the correlation between the individual-specific heterogeneity and the explanatory variables. Rewriting the equation (1) in a compact form, the test considers the following representation:

$$Y_{i,t} = a + \beta X_{i,t} + \theta Z_t + y_i + \varepsilon_{i,t} \quad (2)$$

where the dependent variable, $Y_{i,t}$, is a function of time varying individual-specific characteristics, $X_{i,t}$, time -varying characteristics, which are constant among individuals,Z_t, and a composed error-term, $y_i + \varepsilon_{i,t}$.

The individual heterogeneity, y_i, captures all unobserved factors that are time invariant and affect $Y_{i,t}$. Generally, this term is called fixed effect. In turn, the term $\varepsilon_{i,t}$ represents an unobserved factors which vary among individuals and across time and affect $Y_{i,t}$. It is assumed that the composed error term is not correlated with $X_{i,t}$. For this to occur, it is not enough that $\varepsilon_{i,t}$ and $X_{i,t}$ be independent, but we must also have that y_i and $X_{i,t}$ are uncorrelated. If not, the estimator will be inconsistent. The Hausman test considers the following hypothesis:

H_a: *Corr* $(X_{i,t} + Y_i) = 0 \rightarrow$ *Random effects*

H_a: *Corr* $(X_{i,t} + Y_i) \neq 0 \rightarrow$ *Fixed effects*

The test statistics follows a χ^2 distribution. If the null hypothesis is rejected, the model should be transformed to eliminate the fixed effect, clearing the correlation between regressors and individual specific heterogeneity. This transformation can be done in three different ways, represented by first difference, average centered data and regression on individual dummy variables. If the null hypothesis is not rejected and the conclusion is for random effects, the efficient estimator is given by feasible generalised least squares.

Finally, diagnostic checks were performed as the followings: Variance inflation factor (VIF) to test for multicollinearity, the Modified Wald Statistic to test for the group wise heteroscedasticity, and Wooldridge test to test for serial correlation.

FINDINGS

DESCRIPTIVE ANALYSIS

Table 2 provides descriptive statistics for variables influencing bank margin of Islamic banks in comparison with conventional banks from 2006 to 2014. At first impression, it would appear that there are many differences between the two groups of commercial banks. However, only five of the seven variables have statistically different standard variances and just four of the seven variables are statistically different at the means throughout the sample period. These are capital to assets (CAPAD), default risk (DEFRISKFIN), both measures of liquidity risk (LIQASSETTOLIAB and LOANTODEP) and non-interest income (NONIITOTA) for the variances and CAPAD, DEFRISKFIN, management efficiency (COSTOINC) and asset size (LNSIZE) for the means. Overall, the mean bank margin for Islamic banks and conventional banks are of similar values that is 3.02 percent. The mean ratio of CAPAD, LIQASSETTOLIAB, LOANTODEP, NONIITOTA and LNSIZE for Islamic banks are relatively lower than that of conventional banks. However, DEFRISKFIN and COSTOINC are relatively higher for Islamic bank than that of conventional bank. This may be due to the unique nature of Islamic banks which focus on free interest banking and profit sharing and they are relatively new.

Table 3 shows the Pearson correlation coefficients between variables. Overall, the correlations between variables are relatively low and unlikely to lead multicollinearity problems in the OLS regression. This is confirmed by the results of variance inflation factor (VIF) in panel B of Table 3. The results indicate that none of the independent variables of both Islamic and conventional banks has multicollinearity issues.

EMPIRICAL RESULTS AND DISCUSSION

The results of regression analysis on Islamic banks and conventional banks are shown in Table 4. Bank margin is regressed on eleven independent variables taken from the period of 2006 to 2014. The choice between a fixed effect and a random effect models are indicated by the Hausman test, the difference in coefficient between fixed and random is systematic for Islamic banks but not for conventional banks, providing evidence in favour of a fixed effect model in Islamic banks but random effect model for conventional banks.

Both Islamic and conventional regression model suffers from heteroskedasticity and serial correlation as evidenced by Modified Wald Statistic and Wooldridge test. In order to rectify both heteroskedasticity and serial correlation problem, these regression estimates are revised using heteroskedasticity and serial correlation robust standard error.

The results show that adjusted R-squared for Islamic banks and conventional banks are 0.664 and 0.2564 respectively. The results also show that for Islamic banks, the bank size and liquid assets to total liability ratio have significant negative relationship with bank margin. While management efficiency (vis to vis cost to income) and default risk have significant positive influenced on bank margin. For conventional banks, management efficiency and non-interest income to total assets ratio have a positive significant effect on the bank margin. This regression result of Islamic banks indicates that as the bank size is bigger, the bank margin will be lower. The component of the total assets which is mainly from financing activities (loan and advances) which is growing from 48 percent of total assets from year 2007 to 73 percent in the year of 2015 with an emphasis of retail

financing will somehow affect its bank margin. The result is parallel with previous study done by Haron (1996) that found that size has a negative relationship to profitability. The non interest income of conventional banks which comes from non-loan activities (42 percent of total asset) is high enough to possibly relate to management efficiency which then impacted bank margin. Likewise, the management efficiency has an important role in influencing the bank margin and it has more impact on the conventional banks than Islamic banks. This result also indicates that both Islamic banks and conventional bank are not sensitive to the movement of the liquidity risk (loan over deposit).

For macroeconomic variables, none of the variables are significant for Islamic banks, while for conventional banks, only GDP growth, money supply and inflation rate are found to be significant. Both GDP and money supply growth are negatively impacting the bank margin for conventional bank. Generally, positive GDP growth will affect positively on the demand and supply of banking services, however this favourable economic conditions may affect positively or negatively as in this study, on bank margin. Negative affect of money supply growth to bank margin is contradict with the expected result but is consistent with the study of Kosmidou (2008). Money supply depends on the central bank's monetary policy and also affected by the behaviour of households and banks. Inflation rate is positively affecting conventional bank margin which implies that the increase in bank revenue is sufficient to cover the general increase in costs of bank products and services which finally increase the bank margin. However, none of these variables are significant for Islamic banks may due to the unique nature, characteristics and philosophy of Islamic banks, their products and services which are based on the Shariah principles.

The test for structural break using interaction of dummy variable to indicate global financial crises in 2008 and 2009 with the bank specific variables and found no significant results to the banks specific variables that interact with time dummy for 2008 and 2009. This implies there is no role played by the crises on the effect of bank specific variables on bank margin. This is consistent with the results of stationarity of the bank specific variables using Hadri (2000) LM test.

Many researchers have found that bank size has a significant effect on bank margin such as Abduh and Yameen (2013) and Maureen and Joseph (2014). The bigger size of the bank with enlarge economics of scale will increase their profitability. Bank with larger network and sources can also tap a bigger market to maximize their business profit. Empirical result of this paper shows that size has negative significant effect on bank margin for Islamic banks. However, the size of the conventional banks does not influence the bank margin. It implies that size does matter to Islamic banks but not to conventional banks. It also implies that the intermediary role of Islamic banks has not been fully tapped as its loan to deposit is lower than conventional banks. Bank financing activity for conventional have strong customer base in hand due to the economics of scale, hence, the size effect is not significant to its bank margin.

Management efficiency is a reflection of the ability of management to minimize the costs at a given level of income or to maximize income at a reasonable level of costs. Research by Wasiuzzaman and Hanimas (2010) indicate that the efficient management would be able to reduce the costs and thus, bank will be able to charge lower margins to attract more customers. Result by Joaquin and Juan Fernandez (2004) also support that management efficiency has a positive impact on bank margin, as the costs reduce due to management efficiency. Result from this paper has confirmed the literature arguments that management efficiency has a positive relationship with bank margin. This result shows both bank margin of conventional and Islamic banks is sensitive to the efficiency of the bank management. This result implies that as the management efficiency increases, the bank margin also increases.

For Islamic banks, regressions results indicate that default risk have a significant impact on bank margin. This is consistent with the literature studied by Erwin and Rahmatina (2010), shows that higher default risk will lead to higher financing cost premium charge by banks. Research by Santiago and Francisco (2007) and Wong (1997) shows that the bank will charge higher risk premium to cover higher risk of default. Result from this paper also confirms that there is a positive and significant relationship between default risk and bank margin and it indicates that based on the credit scoring assessment, the bank will charge certain risk premium to cover the unexpected risk in the future. Liquidity ratio is one of the internal factors that measure the bank margin of Islamic banks. The liquid assets are expected to have lower income that will affect the bank margin. The result from this paper shows that there is a negative and significant relationship between liquidity ratio and bank margin. It shows that when a bank has imbalance liquidity, it is not able to obtain the sufficient funds. To compensate the demands and needs, they are obliged to use the capital and cash asset or external investment. As a result, the level of loans and investments portfolio decreases. The result reveals that Islamic banks are more cautious to liquidity risk.

The non-interest income to total asset ratio has significant positive relationship on bank margin of conventional bank. This is due to the fact that the non-interest income or the non-bank income ratio to total assets for Islamic banks are relatively very low to have relationship and give an impact on bank margin. The non-interest income has resulted in lower interest expense that increases the bank margin in the conventional banks.

In terms of macroeconomics factor, the result shows that there is a positive and significant relationship between inflation rate and bank margin for conventional banks. When inflation rate increases, it pressures bank to

TABLE 2. Descriptive statistics

Variables	All (n=216)				Islamic (n=54)				Conventional (n=162)				Equality of varians		Equality of means	
	Mean	Std. Dev.	Min	Max	Mean	Std. Dev.	Min	Max	Mean	Std. Dev.	Min	Max	t-stat	p-value	t-stat	p-value
NIM	3.02	1.66	0.23	13.87	3.02	1.00	0.82	5.72	3.02	1.83	0.23	13.87	0.6190	0.4323	0.0172	0.9863
CAPAD	9.73	5.17	3.19	31.40	8.50	3.98	3.19	19.65	10.14	5.46	4.18	31.4	4.8650	0.0285	2.3688	0.0194
DEFRISKFIN	3.33	2.68	0.59	19.14	4.42	3.96	0.83	19.14	2.97	1.97	0.59	13.84	27.0690	0.0000	-2.4434	0.0174
LIQASSETTOLIAB	34.76	23.65	6.66	128.85	32.44	14.71	6.66	72.66	35.53	25.95	6.84	128.85	5.7590	0.0173	1.0681	0.2871
LOANTODEP	69.17	36.69	0.27	223.71	67.13	43.36	1.50	179.61	69.85	34.31	0.27	223.71	4.7900	0.0297	0.4220	0.6742
COSTOINC	45.85	14.22	18.54	110.33	50.92	13.69	29.59	93.84	44.16	14.03	18.54	110.33	1.0560	0.3053	-3.1337	0.0023
NONIITOTA	2.21	18.05	-0.022	291.68	0.38	0.30	-0.02	1.27	3.28	22.64	0.00	291.68	0.0493	0.0493	1.8938	0.0600
LNSIZE	10.28	1.42	7.04	13.37	9.69	0.65	8.01	10.84	10.47	1.55	7.04	13.37	34.817	0.0000	7.4741	0.0000
IFR	2.61	1.34	0.58	5.44												
GDPGROWTH	4.45	1.18	2.76	6.31												
UER	3.21	0.22	2.90	3.70												
MONSUP	11.47	0.24	11.14	11.96												

TABLE 3. Pearson Correlation and Variance Inflation Factor

Panel A: Pearson Correlation

variables	CAPAD	DEFRISKFIN	LIQASSETTOLIAB	LOANTOTA	COSTTOINC	NONIITOTA	LNSIZE	IFR	GDPGROWTH	UER	MONSUP
CAPAD	1										
DEFRISKFIN	0.0634	1									
LIQASSETTOLIAB	0.5677	0.1486	1								
LOANTODEP	0.0601	-0.0363	-0.3344	1							
COSTOINC	0.066	0.4169	0.2107	-0.2121	1						
NONIITOTA	0.1516	0.0108	-0.0929	0.0377	0.0303	1					
LNSIZE	-0.6974	-0.2244	-0.5758	0.1037	-0.1649	-0.1688	1				
IFR	-0.0214	0.0248	0.0014	-0.006	-0.0638	-0.0337	-0.0404	1			
GDPGROWTH	-0.0185	-0.0384	-0.0428	0.0116	-0.0584	-0.0146	-0.0092	0.4411	1		
UER	-0.0221	0.2418	0.1059	-0.0839	-0.1366	-0.1067	-0.1074	-0.2658	-0.1084	1	
MONSUP	0.027	-0.1637	-0.0784	0.0538	0.0975	0.0585	0.1023	0.2666	-0.4667	-0.4511	1
Panel B: Result of Variance Inflation Factor (VIF)											
VIF	1.841	1.444	2.110	1.310	1.456	1.099	1.186	2.335	2.844	1.597	2.562

TABLE 4. Regression results for Islamic and conventional banks

Variable	Fixed Effects				Random Effects			
	Islamic bank		Conventional bank		Islamic bank		Conventional bank	
	Coefficient	P-value	Coefficient	P-value	Coefficient	P-value	Coefficient	P-value
Constant	13.215	0.377	17.875	0.013	22.115	0.365	16.378	0.008
CAPAD	0.013	0.833	0.017	0.545	0.093	0.371	0.056	0.014**
DEFRISKFIN	0.095	0.015**	0.009	0.898	0.100	0.018**	0.009	0.892
LIQASSETTOLIAB	-0.023	0.080*	0.013	0.227	-0.006	0.551	0.020	0.167
LOANTODEP	0.003	0.458	-0.001	0.757	-0.004	0.470	-0.003	0.294
COSTOINC	-0.047	0.004***	-0.041	0.024**	0.003	0.814	-0.036	0.012**
NONINTTOTA	-0.704	0.147	0.002	0.030**	-0.122	0.808	0.002	0.037**
LNSIZE	-1.057	0.054*	-0.267	0.340	0.854	0.117	-0.005	0.979
GDP GROWTH	0.001	0.998	-0.125	0.209	-0.366	0.261	-0.144	0.051*
MONSUP	0.061	0.964	0.968	0.143	-2.851	0.153	-1.168	0.044**
IFR	0.067	0.593	0.163	0.099*	0.468	0.047**	0.206	0.006***
UER	0.605	0.258	0.110	0.790	1.513	0.080*	0.228	0.606
Adjusted R-squared	0.664		0.2564		0.3367		0.4374	
F-stat/ Wald Chi2	6.72 (0.000)		636.46 (0.000)		41.18 (0.000)		5153.20 (0.000)	
n	54		162		54		162	
Hausman test	116.89 (0.000)		16.94 (0.109)					
Modified Wald test	17.00 (0.009)						4541.79 (0.000)	
Wooldridge test	199.753 (0.000)						13.461 (0.001)	

*** Significant @ 1% level, ** significant @ 5% level, * significant @ 10% level. The results reported are after corrected for heteroskedasticity and serial correlation.

increase interest rate that lead to more spread to the bank. Since the Malaysian inflation rate is low and sustain economic growth, we can expect a positive relationship between inflation and bank profitability (Rasiah 2010).

CONCLUSION

This paper examines the behaviour of bank determinants of bank margin using data over the period of 2006 to 2014. Static panel regression method was used to test the relation between bank specific characteristics (capital adequacy ratio, bank financing activity ratio, management efficiency, default risk, liquidity risk, and bank size) on the bank margin of Islamic and conventional banks in Malaysia.

The quintessence of empirical analysis allows us to have some clear distinction on the relationship between bank specific characteristics and bank margin of Islamic and bank margin of conventional banks in Malaysia. This paper indicates that for Islamic banks, management efficiency (cost to income), default risk (losses reserve to total financing), liquidity risk (loans to deposit) and bank size (assets) are determinants of Islamic bank margin, while for conventional bank, non interest to total assets and management efficiency (cost to income) are the determinants of conventional bank margin in Malaysia. In theoretical setting, the Islamic banking in Malaysia is not remote from factors affecting the conventional under the dual banking system in Malaysia. It can also be concluded that conventional banks have more comparative advantages specifically on management efficiency as its intermediary role performance is also not affected by size.

Based on panel data, results show that Islamic banks are more sensitive with several factors appear to affect the bank margin as compared to conventional banks. As a matter of policy implication, there are several proposals can be drawn. At the bank level, this paper shows that size of the bank has a significant negative impact on the performance of Islamic banks. This empirical result suggests an important policy on issues pertaining to how Islamic banks and conventional banks have to adjust the changes in the banking environment in terms of growth and its comparative advantages specifically on management efficiency. Nevertheless, Islamic banks should also consider other factors such as default risk and liquidity risk as these react sensitively to the bank margin as well.

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