The impact of monetary policy on Islamic bank financing: bank-level evidence from Malaysia

Muhamed Zulkhibri
*Islamic Research and Training Institute, Islamic Development Bank,
Jeddah, Saudi Arabia*

Abstract

Purpose – This paper aims to examine the distributional differences of Islamic bank financing responses to financing rate across bank-specific characteristics in dual banking system. The study also aims to provide understanding of how efficiently Islamic banks perform their roles as suppliers of capital for businesses and entrepreneurs.

Design/methodology/approach – The study uses panel regression methodology covering all Islamic banks in Malaysia. The study estimates the benchmark model for Islamic bank financing with respect to bank characteristics and monetary policy.

Findings – The evidence suggests that bank-specific characteristics are important in determining Islamic financing behaviour. The Islamic financing behaviour is consistent with conventional lending behaviour that the Islamic bank financing operates depending on the level of bank size, liquidity and capital. There is no significant difference between Islamic bank financing and conventional bank lending behaviour with respect to changes in monetary policy.

Originality/value – Many problems and challenges relating to Islamic financing instruments, financial markets and regulations must be addressed and resolved. In practice, it would be a good idea if Islamic banks move away from developing debt-based instruments and concentrate more efforts to develop profit and loss sharing instruments.

Keywords Malaysia, Islamic banks, Bank financing, Base financing rate

Paper type Research paper

1. Introduction

Islamic bank is a deposit-taking institution with all functions similar to currently known modern banking activities but with Islamic-bearing products only offered by the bank. Islamic bank mobilizes funds based on *Mudarabah* (profit-sharing) or *wakalah* (as an agent charging a fixed fee for managing funds) as part of its liabilities, while financing of a profit-

and loss-sharing (PLS) basis or through the purchase of goods (on cash) and sale (on credit) or other trading, leasing and manufacturing activities as part of the assets. Except a part of demand deposits, which are treated as interest-free loans from the clients to the bank and are guaranteed to be repaid in full, it plays the role of an investment manager for the owners of deposits akin to universal bank. Underpinning the Islamic banking system is the principle, which is derived from a set of rules stemming for the *Shari'ah* rules[1].

Unlike the conventional banking principles, the basic principles of Islamic banking can be characterised by the following features (Iqbal, 1997): risk-sharing, in which providers of financial capital and the entrepreneurs should share business and financial risks in return for shares in the profits; money as "potential", that is, it becomes the actual capital only when it joins hands with other resources to undertake a productive activity; prohibition of speculative behaviour that discourages hoarding and prohibits transactions featuring extreme uncertainties, gambling and risks; and *Shari'ah*-approved activities that only those business activities that do not violate the rules of *Shari'ah* qualify for investment.

On the other hand, many scholars argue that Islamic banking mimics conventional banking schemes, in particular the operational aspects of the bank. This includes the claim that most of Islamic financing has a debt-like character and is not based on the true principles of *Shari'ah* (Aggarwal and Yousef, 1999; El-Gamal, 2006; Hamoudi, 2007), i.e. there is no substantial difference between mark-up and interest. The main difference between the two is the legal form. El-Gamal (2005) has concluded that Islamic finance is primarily a form of rent-seeking legal arbitrage and seeks to replicate the operations of conventional financial instruments. Nevertheless, as an alternative finance, some researchers have argued that Islamic financial institutions have a huge potential to absorb macro-financial shocks and promote economic growth (Dridi and Hasan, 2010; Mills and Presley, 1999).

In terms of deposit, Islamic banks mainly use the risk-sharing PLS instruments, while in financing, most Islamic banks rely on debt-like instruments such as mark-up financing and a guaranteed profit margin, that are based on deferred obligation contracts. Moreover, conventional interest rate, i.e. the London Interbank Offered Rate (LIBOR) or a domestic equivalent, will always be a benchmark for Islamic banks' mark-up or profit margin. As a result, in the case of such debt-like instruments, the pricing of Islamic financing is not a function of real economic activity but is based on a pre-determined interest rate plus a credit risk premium.

The objective of the paper is to investigate the impact of monetary policy on Islamic financing behaviour while taking into consideration bank-specific characteristics. The study aims to provide understanding of how efficiently Islamic banks perform their roles as suppliers of capital for businesses and entrepreneurs. Since the rate of return on retail PLS accounts closely follow interest rates offered by conventional banks in the case of Malaysia (Chong and Liu, 2009; Cervik and Charap, 2011), little is known about Islamic financing behaviour, which is operated alongside with the conventional banks.

This paper is set out as follows: Section 2 overviews of Malaysian Islamic finance industry. Section 3 provides the theoretical view of Islamic financing and profit rate. Section 4 presents the data and methodology. Section 5 provides the empirical results and the paper is rounded off by Section 6 with concluding remarks.

2. Overview of Malaysian Islamic financial industry

Malaysia's Islamic finance industry has been in existence for over 30 years. The enactment of the Islamic Banking Act 1983 enabled the country's first Islamic bank (Bank Islam Malaysia Berhad) to be established. Malaysia's overall strategy in the development of Islamic banking can be summarized under four pillars:

(1) full-fledged Islamic banking system operating on a parallel basis with a full-fledged conventional system (dual banking system);

(2) step-by-step approach, in the context of an overall long term strategy;

(3) comprehensive set of Islamic banking legislation and a common *Shari'ah* Supervising Council for all Islamic banking institutions; and

(4) practical and open-minded approach in developing Islamic financial interests[2].

Three basic elements have been adopted in the implementation of Islamic banking in Malaysia to create a viable and dynamic Islamic banking system:

(1) a large number of instruments and range of different types of financial instruments must be available to meet the different needs of different investors and borrowers;

(2) a large number of institutions with adequate number of different types of institutions participating in the Islamic banking system to provides depth to the Islamic banking system; and

(3) an Islamic interbank market to support an efficient and effective system linking the system to the institutions and the instruments.

Figure 1 shows the share of Islamic assets in overall banking system is growing significantly, from around 7 per cent in 2006 to 20 per cent in 2012. As at end-2012, the country's Islamic banking system has accumulated a total of RM 119bn in assets or about 20 per cent of the total assets of the banking sector, which is RM 0.6tn[3]. To date, Malaysia has 16 Islamic banks, which comprise nine local Islamic banks and seven foreign Islamic banks[4]. Figure 2 shows the composition of Islamic financing modes. It shows that the *Bai Bithaman Ajil* and *Ijarah Thumma Al Bai* dominate the composition with 32 per cent and 23 per cent, respectively, over the period 2006-2012[5]. This dominance trend of using mark-up and debt-like instrument in the Islamic financing practices supports some of the arguments that Islamic banking is akin to conventional banking in practical term.
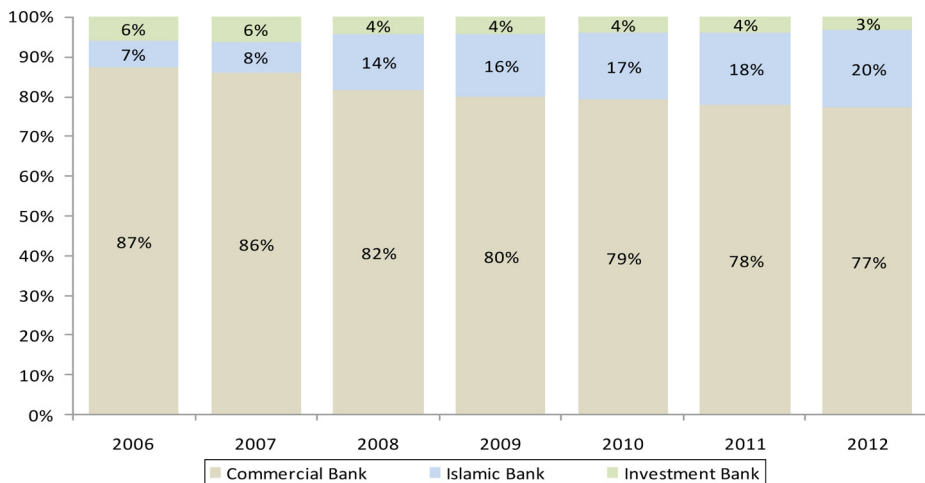
Figure 1.
Total assets: Islamic and conventional banks

Source: Bank Negara Malaysia (2013)
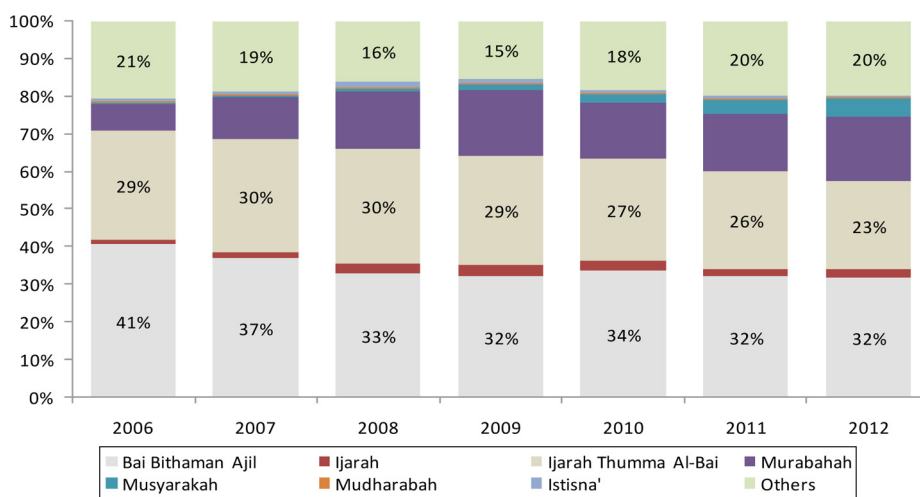
Figure 2.
Composition of
Islamic financing
modes

Source: Bank Negara Malaysia (2013)

Figure 3 illustrates a high level of correlation between Islamic base financing rate (BFR) on retail financing and conventional lending rates on loans in Malaysia. Between 2009 and 2012, the correlation of base lending rate of conventional bank and the Islamic base financing rate is about 76 per cent. Accordingly, even though conventional and *Shariah*-compliant banks Islamic bank operate in different banking environment, it is surprising that

Figure 3.
Islamic rate of return
and conventional
average lending rate

Source: Bank Negara Malaysia (2013)

the Islamic base financing rate closely tracks interest rates offered by conventional banks in Malaysia.

3. Related literature

Islamic banking is different from conventional banking from a theoretical perspective because interest (*riba*) is prohibited in Islam (rate of return on deposits cannot be fixed by the bank and interest cannot be charged on loans). A uni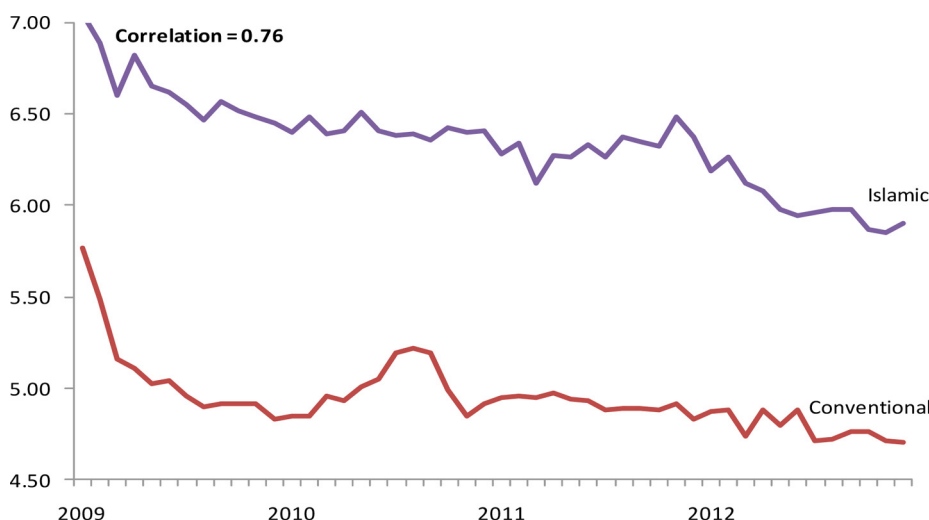que feature of Islamic banking is the PLS paradigm, which is largely based on the *Mudarabah* (profit-sharing) and *musharakah* (equity participation) concepts of Islamic contracting. This means that the ideal and most "Islamic" form of each concept should be accepted as the valid. The concepts of Islamic finance on using the rate of returns as replacement for interest can be divided into two strands of arguments. The idealist literature that attempts to look at the key concepts of Islamic finance such as PLS, money, interest and profit from an ideal perspective. Much of the literature on Islamic banking and finance in the 1960s and the theoretical studies on Islamic banking fall under this category.

Another line of argument is based on *Maslahah*-oriented literature would be at the extreme end of the continuum. According to this view, *riba* should not be interpreted in a simplistic fashion as modem bank interest. Any interest-based bank could theoretically be an Islamic bank provided that the Islamic ideals of justice, equity, fairness, non-exploitation were its guiding principles; the humane terms of providing finance to those "needing" them were practiced; and one ways of helping the economically disadvantaged classes of the society to raise their standard of living. Nonetheless, it can be seen from this that there has been a gradual shift from the idealist position to a more pragmatic, mark-up based and less risky version.

In the conventional literature, the interest rate has long been recognized not only by classical and neo-classical economists, but also by contemporary economist as one of the factors that determine the level of savings in the economy and that interest rate has a positive relationship with savings. However, Haron (2001) find a similar positive relationship behaviour of profit rate declared by Islamic banks. In other words, Islamic bank customers are guided by the profit maximization theory, as there is no pre-determined rate of return involved in Islamic banking system. Because depositors at Islamic banks possess similar attitudes to those at the conventional banks, the interest rate will continue to have an influence on the operations of Islamic banks.

In line with other studies, funding activities of Islamic banks are mainly carried out through the participatory PLS model. It is well established in the literature that Islamic banks follow their conventional counterparts in creating assets through non-PLS, debt-like instruments with a predetermined, fixed rate of return (Beck *et al.*, 2013). The study argues that there are "few significant differences in business orientation, efficiency, asset quality or stability" between conventional and retail Islamic banks. As a result, given the implicit link to interest rates on the asset side of the balance sheet, PLS rate of returns follow conventional bank deposit rates.

Recent literature on Islamic finance also try to establish the difference between Islamic rate of returns and conventional banks interest rate based on empirical assessments (Chong and Liu, 2009; Kasri and Kassim, 2009; Cervik and Charap, 2011; Ito, 2013; Ergec and Arslan, 2013; Sarac and Zeren, 2015). Cervik and Charap (2011) compare the empirical behaviour of conventional bank deposit rates and the rate of returns on retail Islamic PLS investment accounts in Malaysia and Turkey. The findings show that conventional bank deposit rates and PLS rate of returns exhibit long-run cointegration and that conventional bank deposit rates Granger cause returns on PLS accounts. Moreover, the time-varying

volatility of conventional bank deposit rates and PLS returns are correlated and are statistically significant.

Similar correlations have been observed in other studies. In the case of Malaysia, Chong and Liu (2009) find that retail Islamic deposit rates mimic the behaviour of conventional interest rates. The study shows that only a small portion of Islamic bank financing is strictly PLS-based and that Islamic deposits are not interest-free but are very much pegged to conventional deposits. The findings also suggest that the Islamic resurgence worldwide drives the rapid growth in Islamic banking rather than the advantages of the PLS paradigm, implying that similar regulations of conventional bank should be applied for the Islamic bank. This is supported by Ito (2013), who suggests that conventional interest rates and Islamic rates of return co-move in the case of Malaysian deposit market.

In terms of the behaviour of Islamic bank deposit, Kasri and Kassim (2009) examine the relationship between investment deposit and rate return including interest rate for Islamic banks in Indonesia over the period of 2000 to 2007. Using vector autoregressive model (VAR) model, the study reveals that the *Mudarabah* investment deposit in the Islamic banks are cointegrated with return of the Islamic deposit, interest rate of the conventional banks' deposit, number of Islamic banks' branches and national income in the long-run. The finding also suggests that rate of return and interest rate move in tandem, indicating that Islamic banks in Indonesia are exposed to benchmark risk and rate of return risk.

Ergec and Arslan (2013) investigate the impact of interest rate shock on deposits and loans held by conventional and Islamic banks in Turkey, while Sarac and Zeren (2015) investigate the long-term relationship between conventional banks term-deposit rates and participation banks in Turkey. Both findings point to similar conclusion that that movements in the overnight interest rate have asymmetric effects on Islamic and conventional banks in Turkey and significantly cointegrated with those of conventional banks.

A more recent work by Akhatova *et al.* (2016) examines the response of Islamic banks to monetary policy shocks is evaluated by using the structural vector autoregression (SVAR) specification. The study shows that Islamic banks' response toward interest rate hikes is immediate as compared to its conventional counterparts. This conclusion is supported by Aysan *et al.* (2017) that Islamic bank depositors' sensitivity to policy rate changes is substantially larger than that of conventional bank depositors. On the other hand, Mushtaq (2017), using the panel ARDL approach on 23 Muslim countries, finds that there is no significant relationship between Islamic banking deposit and interest rate, leading to the fact that Islamic banks are resilient towards shocks.

In practice, the main explanation of the similarity between Islamic bank profit rate and conventional bank can be attributed to the differences in perceptions of riskiness (theoretically and practically) at the institutional and systemic level, particularly on the asset side. In addition, Islamic banks lose on the grounds of liquidity, assets and liabilities concentrations and operational efficiency, whereas what they tend to win in the field of profitability. Nevertheless, Islamic banking could be a further guarantee, however still marginal, against systemic risks in certain emerging financial markets.

4. Data and estimation methodology
The study uses a panel of annual bank-level data of all Islamic banks operating in the Malaysia covering the period 2006-2012. The financial statements of Islamic banks operating in Malaysia Islamic banking sectors are collected from the Bankscope database of Bureau van Dijk's company. The macroeconomic variables: consumer price index, real gross domestic product, Islamic base financing rate (BFR) and policy rate are taken from various

issues of Quarterly Statistical Bulletin published by Central Bank of Malaysia. Table I reports the basic descriptive statistics for the sample.

Using a panel information of 17 individual banks, we initially estimate the benchmark model for Islamic bank financing with respect to bank characteristics and monetary policy. This has usually been done by introducing interaction terms between Islamic base financing rate and bank discriminatory variables. Beside these variables, we control for economic activities and consumer prices, which allow us to control for demand-side effects on Islamic bank financing. By combining time series of cross-section observation, panel data give more informative data, more variability, less co-linearity among the variables, more degree of freedom and more efficiency (Gujarati and Sangeetha, 2007). Panel-data estimation method of both pooled-regression and fixed-effect model is preferred. Fixed-effects specification is mainly used to account for time-invariant unobservable heterogeneity that is potentially correlated with the dependent variable. To test for estimation robustness of the models, we use random-effect estimations and use all diagnostic tests to validate the models. Our baseline model specification is as follows:

$$\Delta FIN_{it} = \mu_i + \sum_{j=1}^{l} \beta_j \Delta BFR_{t-j} + \gamma_0 SIZE_{it-1} + \omega_0 LIQUIDITY_{it-1} + \varphi_0 CAPITAL_{it-1}$$

$$+ \sum_{j=1}^{l} \gamma_j \Delta BFR_{t-j} * SIZE_{it-1} + \sum_{j=1}^{l} \omega_j \Delta BFR_{t-j} * LIQUIDITY_{it-1}$$

$$+ \sum_{j=1}^{l} \phi_j \Delta BFR_{t-j} * CAPITAL_{it-1} + \sum_{j=1}^{l} \kappa_j \Delta GDP_{t-1} + \sum_{j=1}^{l} \lambda_j \Delta PRICES_{t-1} + \upsilon_i + \varepsilon_{i,t}$$

where is Δ the first-difference operator, FIN is the Islamic banks financing, GDP is the logarithm of real GDP, $PRICES$ is the logarithm of consumer price index and BFR[6] is the Islamic financing rate, and $SIZE$, $LIQUIDITY$ and $CAPITAL$ are the bank size, liquidity and capitalisation, respectively. The subscript i denotes banks where $i = 1, \ldots, N$; t denotes time where $t = 2006\text{-}2012$; υ_t denotes individual bank effects; and $\varepsilon_{i,t}$ denotes error-term.

The choice of bank-specific characteristics is based on the theoretical assumptions that a certain type of bank is expected to be more responsive to financing shocks since it operates

Variable	No. of observations	Mean	SD	Minimum	Maximum
Financing	69	14.15	1.28	7.41	16.57
Assets	71	14.91	0.95	11.83	16.96
Liquidity	70	0.08	0.04	0.02	0.20
Capital	66	0.09	0.04	0.02	0.24
GDP	119	20.32	0.08	20.17	20.42
Base financing rate	119	4.60	0.05	4.51	4.66
Overnight rate	119	2.92	0.46	2.00	3.50
Prices	119	3.29	0.24	2.93	3.70

Table I.
Descriptive statistics

Notes: Financing, assets, GDP and prices are in logarithmic forms; Liquidity is defined as a ratio of liquid assets (cash and short-term funds) to total assets; Capital is defined as ratio of capital and reserve to total assets. Author's own computation from Bankscope

in a dual banking system and these characteristics are widely used in the empirical literature. Following Gambacorta (2005) and Zulkhibri (2013), the three measures for bank characteristics size (SIZE), liquidity (LIQUIDITY) and capitalisation (CAPITAL) are defined as follows:

Size: $SIZE_{it} = \ln A_{it} - \dfrac{\sum_{i=1}^{N} \ln A_{it}}{N_T}$

Liquidity: $LIQUIDITY_{it} = \dfrac{LA_{it}}{A_{it}} - \left(\sum_{t=1}^{T} \dfrac{\sum_{i=1}^{N} LA_{it}/A_{it}}{N_T} \right) \Big/ T$

Capitalisation: $CAPITAL_{it} = \dfrac{K_{it}}{A_{it}} - \left(\sum_{t=1}^{T} \dfrac{\sum_{i=1}^{N} K_{it}/A_{it}}{N_T} \right) \Big/ T$

Bank size (SIZE) is measured by the logarithm of total assets (A). Relatively, banks with a smaller size may face higher constraints to raise external funds and thus be forced to reduce their lending (Kashyap and Stein, 1995, 2000). Liquidity (LIQUIDITY) is measured by the ratio of liquid assets (cash and short-term funds) to total assets (LA). More liquid banks can draw down on their liquid assets to shield their financing portfolios and less likely to cut back on financing in the face of rising cost or rate of return. Capitalization (CAPITAL) is measured by the ratio of capital and reserve to total assets (K). Because raising bank capital is costly, the bank tends to adjust the lending behaviour to meet the required level of capital. In the face of rising rate of return, banks' cost of financing rises, while the remuneration of bank assets remains the same. Hence, financing of highly leveraged bank is expected to be more responsive to changes in the rate of return than financing of well-capitalised banks (Kishan and Opelia, 2006).

All three criteria are normalised with respect to their average (N_T) across all the banks in the respective sample to get indicators that sum to zero over all observations. For equation (1), the average of the interaction term ($\Delta BFR*SIZE$, $\Delta BFR*LIQUIDITY$ and $\Delta BFR*CAPITAL$) is therefore zero, and the parameters are directly interpretable as the overall Islamic rate of return effect on Islamic bank financing. To remove the upward trend in the case of size (reflecting that size is measured in nominal terms) or the overall mean in the case of liquidity and capitalisation, the bank characteristic variables are defined as deviations from their cross-sectional means at each period.

The assumption is that small, less liquid and poorly capitalised banks react more strongly to changes in base financing rate. This would correspond to a significant positive coefficient for the interaction terms, $\Delta BFR*SIZE$, $\Delta BFR*LIQUIDITY$ and $\Delta BFR*CAPITAL$, meaning that banks with these characteristics reduce their financing growth rate more strongly in response to a restrictive shock of base financing rate than larger, more liquid and well-capitalised banks.

Because the Islamic bank operates in the dual banking system, conventional interest rate may influence the Islamic bank financing behaviour. Equation (1) may represent the overall effect of Islamic bank financing without the monetary policy. Huang (2003) argues that under the conventional system, changes in interest rates have a larger effect on bank loans supplies because banks ability to insulate their financing supplies from changes in monetary policy will be restricted during periods of tight monetary conditions. We try to test this hypothesis for Islamic financing behaviour by including monetary policy rate where MP is monetary policy shock proxy by overnight policy rate in equation (3) and estimate the following model:

$$\Delta FIN_{it} = \mu_i + \sum_{j=1}^{l} \beta_j \Delta BFR_{t-j} + \gamma_0 SIZE_{it-1} + \delta_0 LIQUIDITY_{it-1} + \varphi_0 CAPITAL_{it-1}$$

$$+ \sum_{j=1}^{l} \gamma_j \Delta BFR_{t-j}*SIZE_{it-1} + \sum_{j=1}^{l} \omega_j \Delta BFR_{t-j}*LIQUIDITY_{it-1}$$

$$+ \sum_{j=1}^{l} \varphi_j \Delta BFR_{t-j}*CAPITAL_{it-1} + \sum_{j=1}^{l} \zeta MP_{t-j} + \sum_{j=1}^{l} \kappa_j \Delta GDP_{t-1}$$

$$+ \sum_{j=1}^{l} \lambda_j \Delta PRICES_{t-1} + \upsilon_i + \varepsilon_{i,t}$$

5. Empirical results

Table II reports the results for our benchmark model of Islamic bank financing, while Tables III-IV report the results from fixed-effect and random-effect. The direct impact of changes in the base financing rate on bank financing is negative and significant. The coefficients for base financing rate ranges from 1.78 to 5.47, which means that an increase of base financing rate by one percentage point leads to a decrease in the bank financing in the range between 1.7 per cent to 5.5 per cent. The result of our benchmark models in line with the basic theoretical prediction is similar to the lending channel of the conventional bank (Ehrmann et al., 2003). Because the Islamic rate of return implicitly tracks interest rates offered by conventional banks (Chong and Liu, 2009), the results also explain that the reduction in Islamic bank deposits may not be completely substituted by other form of financing, to continue to meet financing demand, thus lead to a reduction in Islamic bank financing. The results for fixed-effect and random-effect provide similar observation albeit with a lower impact of base financing rate on bank financing between −0.21 and −1.76. The estimated regression equations for all models explain the behaviour of financing in the range of 30 per cent to 97 per cent. All diagnostic tests confirm the good fit of the models.

The results from Tables II to IV also show the important of bank-specific characteristics with respect to the bank lending behaviour. The variable of SIZE is positive and highly significant for all models. In the fixed-effect and random-effect model, the SIZE is positive and significant ranging from 0.51 to 1.39. Larger banks might be more efficient due to scale economies, while the theoretical and empirical literature on the relationship between size and stability is ambiguous (Beck et al., 2013). This suggests that size is an important factor characterising the banks financing reaction with large banks are expected to minimizing cost. The finding is also consistent with Fadzlan and Zulkhibri (2009), suggesting that larger financial institutions in Malaysia attain a higher level of technical efficiency in their operations and exhibit an inverted U-shape behaviour.

In the case of the liquidity, the results show that the coefficient of LIQUIDITY is positively associated and highly significant with bank financing in between 1.16 and 9.47. Only banks that have a larger share of liquid assets or that are bigger can shield their lending relationships. This evidence points to the fact that Islamic banks can protect their financing portfolios by drawing down on their liquid assets and are therefore less likely to cut on financing, whereas the latter have better access to external finance owing to their size to retain their preferred liquidity ratio. This

Table II. OLS Estimation: Islamic bank financing and characteristics models

FINANCE$_{it}$	SIZE	SIZE	Bank-specific characteristics LIQUIDITY	LIQUIDITY	CAPITAL	CAPITAL
ΔBFR$_t$	−1.841*** (0.165)	−1.787*** (0.259)	−3.156*** (0.272)	−3.509*** (0.516)	−4.363*** (0.155)	−5.478*** (0.681)
Bank-specific char.						
SIZE	1.110*** (0.050)	1.113*** (0.052)	–	–	–	–
LIQUIDITY	–	–	2.282*** (1.827)	1.811*** (1.924)	–	–
CAPITAL	–	–	–	–	3.065*** (0.884)	2.887*** (0.873)
Impact of BFR						
ΔBFRxSIZE	−0.145*** (0.021)	−0.146*** (0.021)	–	–	–	–
ΔBFRxLIQUIDITY	–	–	−4.591*** (0.657)	−4.489*** (0.671)	–	–
ΔBFRxCAPITAL	–	–	–	–	−1.806*** (0.550)	−1.032*** (0.542)
Impact of MP						
ΔON$_t$	–	0.053*** (0.194)	–	0.052*** (0.194)	–	1.237*** (0.737)
Control variables						
ΔGDP$_t$	1.495* (0.635)	1.142* (0.710)	6.227* (4.329)	8.363* (4.969)	8.636** (2.115)	9.778** (7.256)
ΔPRICES$_t$	−1.311 (4.105)	−1.828 (4.561)	−6.205 (9.318)	−9.292 (10.106)	−2.899 (16.869)	−2.277 (18.852)
R-square	0.848	0.848	0.332	0.341	0.771	0.664

Notes: Standard errors are reported in parenthesis. Standard errors and covariances are White-heteroskedasticity-consistent. The subscript i denotes banks and the subscript t denotes time, where t = 2006-2012. Bank-specific characteristics: SIZE is defined as logarithm of total asset; LIQUIDITY is defined as ratio of liquid asset (interbank deposits and securities); CAPITAL is defined as capital and reserves to total assets; BFR$_t$ is the base financing rate; MP$_t$ is the overnight interest rate; GDP$_t$ is the logarithm of real GDP; PRICES$_t$ is the logarithm of consumer price index; *significant at 10%; **significant at 5%; ***significant at 1%; Own elaboration

$FINANCE_{it}$	Bank-specific characteristics					
	SIZE	SIZE	LIQUIDITY	LIQUIDITY	CAPITAL	CAPITAL
ΔBFR_t	−0.208*** (0.128)	−0.294*** (0.194)	−0.470*** (0.415)	−1.764*** (0.516)	−0.820*** (0.171)	−0.339*** (0.186)
Bank-specific characteristics						
SIZE	0.595*** (0.036)	0.508** (0.554)	–	–	–	–
LIQUIDITY	–	–	1.792*** (1.894)	1.161** (0.815)	–	–
CAPITAL	–	–	–	–	6.067** (2.354)	8.815** (2.526)
Impact of BFR						
$\Delta BFRxSIZE$	−0.222** (0.010)	−0.021** (0.159)	–	–	–	–
$\Delta BFRxLIQUIDITY$	–	–	−1.605** (0.511)	−1.458* (1.108)	–	–
$\Delta BFRxCAPITAL$	–	–	–	–	−3.011** (1.599)	−3.671** (1.335)
Impact of MP						
ΔON_t	–	−0.043*** (0.017)	–	−0.528* (0.317)	–	−0.368*** (0.169)
Control variables						
ΔGDP_t	1.193* (0.746)	1.538* (1.207)	5.170* (3.116)	5.021* (3.410)	5.386** (2.494)	8.222** (4.319)
$\Delta PRICES_t$	−0.844 (2.197)	−0.357 (2.385)	−0.361 (7.153)	−0.305 (7.446)	−0.980 (7.967)	−0.229 (9.035)
Constant	7.588*** (0.357)	8.784 (7.917)	10.902*** (0.937)	19.164*** (16.003)	18.058*** (2.494)	17.516*** (2.553)
Firm dummy	Yes	Yes	Yes	Yes	Yes	Yes
R-square	0.972	0.972	0.738	0.751	0.735	0.743
F-statistic	72.29	66.77	5.989	5.856	5.231	4.995

Notes: Standard errors are reported in parenthesis. Standard errors and covariances are White-heteroskedasticity-consistent. The subscript i denotes banks and the subscript t denotes time, where t = 2006-2012. Bank-specific characteristics: *SIZE* is defined as logarithm of total asset; *LIQUIDITY* is defined as ratio of liquid asset (interbank deposits and securities); *CAPITAL* is defined as capital and reserves to total assets; BFR_t is the base financing rate; MP_t is the overnight interest rate; GDP_t is the logarithm of real GDP; $PRICES_t$ is the logarithm of consumer price index; *significant at 10%; **significant at 5%; ***significant at 1%. Own elaboration

Table III.
Fixed-effect estimation: Islamic bank financing and characteristics models

ΔFINANCE_{it}	SIZE	SIZE	Bank-specific characteristics LIQUIDITY	LIQUIDITY	CAPITAL	CAPITAL
ΔBFR_t	−0.368*** (0.028)	−0.324*** (0.025)	−0.452*** (0.214)	−0.334*** (0.215)	−0.377*** (0.142)	−0.371*** (0.105)
Bank-specific characteristics						
SIZE	0.618*** (0.035)	1.399*** (0.496)	–	–	–	–
LIQUIDITY	–	–	9.471*** (1.805)	4.639** (2.858)	–	–
CAPITAL	–	–	–	–	7.307*** (2.284)	8.521*** (2.331)
Impact of BFR						
ΔBFRxSIZE	−0.221** (0.010)	−0.244** (0.143)	–	–	–	–
ΔBFRxLIQUIDITY	–	–	−1.539*** (0.102)	−0.189*** 0.075	–	–
ΔBFRxCAPITAL	–	–	–	–	−3.406*** (1.129)	−3.667*** (1.777)
Impact of MP						
ΔON_t	–	−0.041** (0.021)	–	−0.472** (0.231)	–	−0.323*** (0.036)
Control variables						
ΔGDP_t	1.222* (0.842)	1.423* (1.112)	5.365* (4.104)	9.664* (4.380)	6.131* (3.517)	8.530* (5.198)
ΔPRICES_t	−0.657 (2.191)	−1.394 (0.502)	−0.698 (7.112)	−0.808 (7.406)	−3.444 (2.066)	−5.773 (8.947)

Notes: Standard errors are reported in parenthesis. Standard errors and covariances are White-heteroskedasticity-consistent. The subscript *i* denotes banks and the subscript *t* denotes time, where *t* = 2006-2012. Bank-specific characteristics: *SIZE* is defined as logarithm of total asset; *LIQUIDITY* is defined as ratio of liquid asset (interbank deposits and securities); *CAPITAL* is defined as capital and reserves to total assets; *BFR_t* is the base financing rate; *MP_t* is the overnight interest rate; *GDP_t* is the logarithm of real GDP; *PRICES_t* is the logarithm of consumer price index; *significant at 10%; **significant at 5%; ***significant at 1%; Own elaboration

Table IV.
Random effect
estimation: Islamic
bank financing and
characteristics
models

finding also implies that, in periods of rising base financing rate, a borrower from a less liquid bank, on average, tends to suffer from a sharp decline in financing than does a customer of a more liquid bank. The result is in line with the findings by Brooks (2007) that finds liquidity as the main determinant explaining credit supply in Turkey.

Looking at the coefficient of capitalisation, *CAPITAL*, it appears that bank financing is positively associated with bank capitalization or the bank capital structure. The results suggest that market participants may perceive highly capitalized banks as being less risky (Kishan and Opiela, 2000). Consequently, it should be more expensive for poorly capitalized banks to finance externally. Those poorly capitalised banks try to avoid the cost of falling below the regulatory minimum capital requirements or the increased risk of violating the capital requirement by holding capital buffers and asset buffers (short-term risk-weighted assets than customer financing) that can be liquidated if the bank runs into problems with the capital requirement. The more short-term risk-weighted assets (other than customer loans) the bank holds on its balance sheet (i.e. the higher the bank's asset buffer), the lower the risk of violating the capital requirements will be. The short-term risk-weighted assets will soon be liquid, thereby reducing the capital requirement in the near future. The higher the bank's capital buffer, the lower the risk of violating the capital requirement will be.

The macroeconomic variables included in the bank financing models to control for the demand-side effect, and only the real GDP growth variable is significant in the equation, where it has a positive coefficient. The response of credit to economic activity is consistent with the expectation. The facts that the coefficient of real GDP is significant may imply that the economic activities are taken into account in financing decision in an important way. On the other hand, the price variable is negatively related to Islamic bank financing but insignificant. The rise in inflation may be associated with the variability of the inflation rate and generate uncertainty about the future return on investments. This in turn discourages firms from undertaking investments and consequently reducing their financing demand. However, the price variable is insignificant for all regressions results.

Owing to the potential interrelations between Islamic bank financing and conventional interest rate, we run all bank-financing models with overnight policy rate (*ON*). The coefficients in all regressions are negatively related to bank financing and vary within the reasonable magnitudes (0.05 to 0.52), but broadly lower than the base financing rate. The results of these regressions suggest that the reaction of banks to changes in interest rates remains the same as the change base financing rate and is robust to a different type of econometric specifications. This finding broadly supports the findings that there is no significant different between bank financing behaviour with respect to interest rates (Chong and Liu, 2009; Cervik and Charap, 2011; Ergec and Arslan, 2013; Aysan *et al.*, 2017). Furthermore, Kasri and Kassim (2009) confirm that conventional interest rate is one of the determinants for saving deposits in Indonesia. This evidence explains why the bulk of Islamic bank financing is based either on the mark-up principle and is very debt-like in nature (i.e. *Murabahah* and *Ijarah*) rather than using the principle of PLS. Despite Islamic bank operation is different from conventional bank, it seems to face asymmetric information, severe adverse selection and moral hazard problems similar to their counterpart in their attempts to provide funds to entrepreneurs. However, the use of debt-like instruments is a rational response

on the part of Islamic banks to informational asymmetries in the environments in which they operate.

We have interacted the base financing rate variable with bank size ($\Delta BFR{*}SIZE$), liquidity ($\Delta BFR{*}LIQUIDITY$) and capitalisation ($\Delta BFR{*}CAPITAL$) to further analyse the economic arguments that there is a unique role for Islamic banks in the dual banking system and the importance of heterogeneity among Islamic banks. Table II to Table IV report the results of the base financing rate with respect to bank-specific characteristics for Islamic financing using fixed-effect and random-effect model. The estimates of bank-specific characteristics coefficients provide interesting results. The estimate coefficients of $\Delta BFR \times LIQUIDITY,$ $\Delta BFR \times CAPITAL$ and $\Delta BFR \times SIZE$ consistently show a positive sign and are highly significant at the conventional level. These suggest that bank lending and their ability to obtain other sources of funding are banks are affected indirectly via bank-specific characteristics.

In summary, we find strong evidence of the asymmetric adjustment of bank financing via banks-specific characteristics which have been found in others literature for Islamic bank financing (Chong and Liu, 2009; Kasri and Kassim, 2009; Cervik and Charap, 2011; Ito, 2013; Ergec and Arslan, 2013; Sarac and Zeren, 2015) and conventional bank lending channels in line with the arguments of Kashyap and Stein (1995, 2000) and Kishan and Opiela (2000). Moreover, banks react differently to base financing rate depending on their own specific characteristics, particularly a bank with higher capitalization is expected to increase financing more than bank with greater size and liquidity. Furthermore, as the Islamic bank is operating in a dual banking system, the asymmetric information problems faced by Islamic banks is expected to affect the ability to protect their financing lines from policy-induced reduction in deposits and resulted in Islamic bank financing behaviour.

6. Conclusion

A significant number of empirical studies have explored the bank lending behaviour for conventional banks for the past decades, while studies on Islamic bank financing behaviour remain scarce due to lack of bank-level data. Under the dual banking system, to the extent that financial constraints vary with banks' ability to access other sources of financing implies that Islamic bank financing responses to bank financing rate and conventional interest rate contingent on observable bank-specific characteristics. Understanding this mechanism is crucially important, where Islamic banks have increasingly played a dominant role in Malaysia financial system.

This paper analyses the importance of bank-specific characteristics with respect to Islamic bank financing in Malaysia. The results obtained from pooled panel estimation, allow us to make several significant conclusions on the Islamic bank financing behaviour in Malaysia within a dual banking system. The evidence gathered in this study suggests that the bank-specific characteristics are important for Islamic banking financing behaviour. The Islamic banks financing behaviour is consistent with behaviour of conventional banks that the bank lending operates via banks with the level of size, liquidity and capital (Golodniuk, 2006). The results of these regressions also suggest that the reaction of Islamic banks financing to changes in interest rates is the same as the conventional banks and are robust to different types of econometric specifications.

Many problems and challenges relating to Islamic instruments, financial markets and regulations must be addressed and resolved. A complete Islamic financial system with its identifiable instruments and markets is still relatively at an early stage of

evolution. The functioning of Islamic banks should rapidly differentiate itself from conventional banking. Owing to the existence of moral hazard and adverse selection in the industry, an Islamic bank is not able to provide a full-fledge alternative finance to conventional finance. Moreover, an Islamic bank also does not develop itself in the path that was envisioned by the Islamic scholars (Saeed, 1996). One of the drawbacks is the low level of participation in PLS arrangements, which is seemed to contradictive with the essential concept of Islamic banking. In practice, it would be a good idea if Islamic banks stopped replicating the conventional banking models that mainly concentrated on the debt-based instruments and mark-up models but moved over to the PLS model.

Notes

1. *Shari'ah* (Islamic law) as defined and interpreted through the *Quran* (central religious text of Islam, which Muslims believe to be a revelation from God), *Sunnah* (words and actions of Muhamad, the Prophet of Islam) and from elaborative efforts of *Shari'ah* Scholars.

2. Yakcop, N.M (2003) "From Moneylenders to Bankers: Evolution of Islamic Banking in Relation to Judeo – Christian and Oriental Banking Traditions" International Islamic Banking Conference, Prato Italy, 9-10 September 2003.

3. Based on the exchange rate as at January 2013.

4. Some of them are Affin Islamic Bank Berhad, Alliance Islamic Bank Berhad, Bank Muamalat Malaysia Berhad, Kuwait Finance House (Malaysia) Berhad, OCBC Al-Amin Bank Berhad, Public Islamic Bank Berhad, Standard Chartered Saadiq Berhad and others.

5. *Bai Bithaman Ajil* is deferred payment sale; *Ijarah Thumma Al-Bai* is hire purchase; *Musharakah* is equity financing; *Ijarah* is leasing; *Istisna'* is contract manufacturing; *Murabahah* is cost-plus; *Mudarabah* is profit sharing.

6. Base financing rate (BFR) is a minimum profit/interest rate calculated by financial institutions based on a formula that takes into account the institution's cost of funds and other administrative costs. Computation of BFR is as follows: (intervention rate $\times$ 0.8) + 2.25/(1 − SRR). The additional factor of 0.8% in commercial banks' computation is because the commercial banks give current account facility, which is interest-free, while finance companies do not offer current account facility. The administrative margins of 2.25% is allowed for financial institutions.

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Corresponding author
Muhamed Zulkhibri can be contacted at: khibri1974@yahoo.com