SOCIAL SCIENCES & HUMANITIES

Does Islamic Banking Matter in Transmitting Monetary Policy? Empirical Evidence from Indonesia and Malaysia

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ABSTRACT

As an interest-free banking system shows tremendous growth in many countries nowadays, the question of how Islamic banks contribute to monetary policy transmission is increasingly important for policymakers. This study aims to investigate and compare the role of Islamic banks in transmitting monetary policy to the real economy in Indonesia and Malaysia, two countries with established dual banking systems and a growing number of Islamic banks. To achieve its objective, the study relied on Impulse Response Functions and Variance Decomposition Analysis, based on Vector Autoregressive (VAR) methodology. The model consisted of four variables (Islamic banks' deposits, Islamic banks' financing, overnight interest rates, and economic output), while the monthly data used cover the period between January 2007 and December 2016. The principal conclusion is that deposits and financing of Islamic banks play an important although a modest role in transmitting monetary policy to the economies of Indonesia and Malaysia. A plausible explanation of this result is the relatively low market share of Islamic banks in both countries. Additionally, the lower significance of Islamic financing in Malaysia, compared to Indonesia, is due to Malaysia's smaller proportion of profit-loss sharing (PLS) financing. As a result, PLS financing has a smaller impact on Malaysian economic growth. The results suggest that to enhance their economic impact, Islamic banks need to increase their PLS-based financing. This study overall findings contribute to policy information about how Islamic banks can contribute to achieving both economic and monetary policy goals in Indonesia and Malaysia.

Keywords: Economy, Indonesia, Islamic banks, Malaysia, monetary policy transmissions

INTRODUCTION

Over the last few decades, Islamic banking has shown tremendous growth, not only in Muslim countries but worldwide. The Islamic Financial Services Industry Stability Report 2018 (Islamic Financial Services Board, 2018) reported that the assets of the global Islamic finance industry have surpassed USD 2 trillion in its three main sectors (banking, capital markets and insurance/takaful). This marks 8.3% growth and reverses the preceding two years of near-stagnation of the asset value of USD 1.89 trillion in 2016 and USD 1.88 trillion in 2015. The massive development of Islamic banking is believed to be related to its unique characteristic as an interest-free banking system, which makes it more stable and more influential for economic growth than a conventional banking system (Farooq & Zaheer, 2015).

Like conventional banks, Islamic banks are affected by a country's economic policies, including monetary policy. Indeed, monetary policy is one of the most important methods for managing money supply and liquidity, which tie closely to economic developments. Monetary policy influences the economy in various ways, including the regulation of interest rates, exchange rates, bank credit, and asset prices (Mishkin, 2010).

Bank credit often is considered a significant intermediary in monetary policy, inseparable from the banking sector's crucial role as a financial intermediary (Mishkin, 2010). Islamic banks, in contrast, have several different characteristics that alter their role in monetary policy. Because it deals with real assets, Islamic banks' interest-free monetary system transmits monetary policy more consistently to the economy than conventional monetary systems, which are heavily linked to fluctuating interest rates (Yusof et al., 2009).

Several previous studies have examined the Islamic banking sector's effectiveness in channelling monetary policy to the real economy. A number of studies investigate the impacts of monetary policies in Muslim countries, such as in Malaysia (Kassim et al., 2009; Sukmana & Kassim, 2010), Indonesia (Ascarya, 2012, 2014), Turkey (Hakan & Gulumser, 2011), and Pakistan (Naveed, 2015). In general, all of these studies concluded that Islamic banks play a positive role in monetary policy transmissions. However, they also found an interesting yet conflicting result. While Islamic banks' balance sheets are more sensitive to interest rate shocks compared to those of conventional banks in Malaysia (Kassim et al., 2009), the opposite is found in Pakistan (Naveed, 2015). This raises a question about the real impact of monetary policy on Islamic banks and the effectiveness of Islamic monetary transmission in different countries. However, despite the important insights produced regarding how a country should conduct monetary policy effectively in a dual-banking system, only a few studies have attempted this type of cross-country analysis. Indeed, a cross country analysis would also allow thorough analysis about the existence of Islamic bank lending channel as well as the factors that allegedly make

the difference on the effectiveness. Previous studies generally have not considered this question.

This study aims to investigate and compare the role of Islamic banks in channelling monetary policy to the real economies of Indonesia and Malaysia. These countries were chosen because they have an established dual-banking system and rapidly growing Islamic banks[1]. Analyzing this issue in several countries will reveal new evidence about the effectiveness of Islamic bank lending, incorporating different policies and economic characteristics. Potentially, this will enrich our scientific knowledge about Islamic monetary and developmental economics.

The study made use of Impulse Response Functions (IRF) and Variance Decomposition Analysis (VDA), based on Vector Autoregressive (VAR) methodology. The model consisted of four variables (Islamic banks' deposits, Islamic banks' financing, overnight interest rates, and economic output). Monthly data covered the ten-year period from January 2007 to December 2016.

The rest of this paper is organized as follows. Section 2 discusses monetary policy theories, from the perspective of both Islamic and conventional banks and subsequently reviews relevant literature related to the role of Islamic banks in monetary policy. Section 3 discusses the data and methodology, Section 4 presents empirical results and discusses the findings of the study, and Section 5 presents the study's implications and conclusions.

Theoretical Underpinnings and Literature Review

Monetary policy is one of the most important tools to manage money demand and supply, which eventually contribute to economic growth. It can influence the economy by various channels such as interest rates, exchange rates, bank credit, or asset prices. Under the interest rate channel, monetary policy is transmitted to aggregate demand through the interest rate. Meanwhile, the exchange rates influence economic output through net exports. Under the bank credit channel, by controlling the liquidity in the banking system, monetary policy can determine the amount of lending distributed by the banking sector, which in the end affect the economy. Finally, the asset price channel generally explains that monetary policy can affect asset prices such as company stock or property so finally, it can impact the total output (Mishkin, 2010). It is notable, however, that the bank credit channel is often seen as the most significant intermediary in monetary policy transmission due to its central role in financing development in developing countries (Mishkin, 2010).

Monetary policies are not prohibited in Muslim countries. In fact, they are simplified, because charging interest (*riba*) and speculation (*gharar*) are not allowed (Ascarya, 2014). Furthermore, compared to conventional monetary systems, an interest-

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[1] According to the 2018 Global Islamic Finance Report Malaysia and Indonesia are ranked first and sixth, respectively, in terms of worldwide Islamic financial assets (Cambridge IFA, 2018).

free monetary system is considered to be more stable in transmitting monetary policy to the economy due to its association with real assets (Yusof et al., 2009). Moreover, according to Chapra (1985), the goal of monetary policy in Islamic economics is economic welfare, full employment, socio-economic justice, and equitable distribution of income. To achieve these, Islamic monetary policies preserve economic resources, including money, in all forms of policy and provisions permitted by sharia (Ascarya, 2006). In this case, the role of the Islamic financial sector is required as a financial intermediary.

In most Muslim countries today, Islamic banks have grown side-by-side with conventional banks. The presence of these two different financial systems, though, requires monetary authorities to adopt parallel monetary policies. In an Islamic financial system, monetary policy relies on interest rates as a benchmark as well as profit sharing, transaction margins, and wages (Ascarya, 2012). Monetary authorities need to deal with both financial systems to achieve their monetary policy goals. Therefore, it is important to understand the effectiveness of the Islamic banking channel in transmitting monetary policies.

Several previous studies have tried to investigate the role of Islamic banks in monetary policy. Kassim et al. (2009), one of the earliest studies on this research topic, analyzed monetary policy in both the conventional and Islamic Malaysian banking sectors. The study examined the sensitivity of banks' balance sheets, measured by the amount of financing and deposits to changes in interest rates. Using VAR methodology, covering the period from January 1999 to December 2006, the study found that Islamic banks' balance sheets were more responsive to interest rates than those of conventional banks. Conventional banks, particularly on the credit side, were also generally insensitive to monetary policy. This study also emphasized the importance of considering the impact of monetary policy on Islamic banking institutions.

Sukmana and Kassim (2010) examined the monetary policy role of Islamic banks in the Malaysian economy from January 1994 to May 2007. The study analyzed the relevance of Islamic banking deposit and financing in channelling the interest rate (as monetary policy indicator) to industrial production index (as a macroeconomic indicator) by using the co-integration test, impulse response function, and variance decomposition analysis. It was found that Islamic banks' financing and deposits played an important role in Malaysia's monetary transmission process. This implies that policymakers should take Islamic banks into account when designing monetary policy in Malaysia.

In Turkey, Hakan and Gulumser (2011) examined responses of conventional and Islamic banks to interest rate changes. The variables in the study were the banks' balance sheets (deposits and loans) from 2005 to 2009. Theoretically, Islamic banks should be unaffected by interest rates. However, the study found that both conventional and Islamic banks were equally influenced by

interest rate movements. This changes the assumption that Islamic banks, due to their interest-free nature, are more stable than conventional banks.

Ascarya (2012) compared the impact of Islamic and conventional monetary instruments in Indonesia on economic output and inflation between January 2003 and December 2009. The proxies for Islamic monetary instruments were interbank shariah money market rates, profit and loss sharing rates, Islamic bank financing, and Bank Indonesia sharia certificates. Meanwhile, conventional monetary instruments used were interbank money market rates, loan interest rates, conventional bank loan rate, and Bank Indonesia certificates. By using Granger Causality and VAR methods, it was found that conventional monetary instruments affected inflation and economic growth negatively (except for Bank Indonesia Sharia Certificates). On the other hand, Islamic monetary instruments positively affected economic growth and inflation.

More recently, Naveed (2015) examined monetary policy transmission in Pakistan's dual banking sector. The study used interest rates as the monetary policy variable, banks' financing and deposits of both banking sectors, and other variables, such as the consumer price index and the real exchange rate, as control variables. Using a vector auto-regression model and data from January 2009 to December 2013, it concluded that because of Islamic banks' interest-free system, conventional banks were more sensitive than Islamic banks to

interest rate fluctuations. Moreover, Islamic banking in Pakistan increased the available types of interest-free financing during the period.

Overall, the studies suggest that Islamic banks have an important role in monetary policy and economy. However, the studies also found an interesting yet conflicting result. While Malaysian Islamic banks' balance sheets are more sensitive to interest rates shocks than those of conventional banks (Kassim et al., 2009), the opposite is true in Pakistan (Naveed, 2015). This raises questions about the real impact of monetary policy on Islamic banks and the effectiveness of Islamic monetary transmission in different countries. The latter issue is of concern because very few studies attempt cross-country analyses, which could provide important insights about how governments set monetary policy in dual banking systems. Cross-country analyses also would enable to find new evidence about the effectiveness of Islamic banking in countries with different economic characteristics, which also could determine unique, national monetary transmission channels. Rarely touched upon by previous studies, this is the focus of the current study.

MATERIALS AND METHODS

Because of their importance in contemporary Islamic banking, this study chose Indonesia and Malaysia for analysis. As hubs of rapidly growing Islamic finance in Southeast Asia, these two countries have well-established dual banking systems, in which Islamic banks operate in parallel with conventional

banks. Both also have a more advanced Islamic banking sector than many other countries. According to the Global Islamic Economy Report 2016 (Reuters & Standard, 2016), Malaysia and Indonesia are ranked first and ninth, respectively, in Islamic finance assets worldwide. Recent statistics also show that Islamic banks' financing has grown faster than that of conventional banks in Indonesia and Malaysia (see Figure 1 and Figure 2). This indicates that although Islamic banks' total business is smaller than that of conventional banks, it is growing more rapidly.

Indonesia started using a dual banking system in 1992 when the first Islamic bank was established. Its development was gradual, primarily because the government

adopted a sustainable strategy (for instance based on its peoples' requirements) known as the bottom-up approach (Ascarya, 2006). In contrast, Malaysia follows a top-down approach, where the government established Islamic banking in 1983 and actively intervenes in the market through banking and monetary policies (Ascarya, 2006). It also uses a comprehensive and pragmatic approach (for instance based on market demand) in developing its Islamic banking (Sukmana & Kassim, 2010). Moreover, in terms of monetary policy, both countries adopt conventional monetary policies while also using Islamic monetary instruments, such as Islamic interbank rates, profit-sharing ratios, and central bank sharia certificates. It is also notable that the
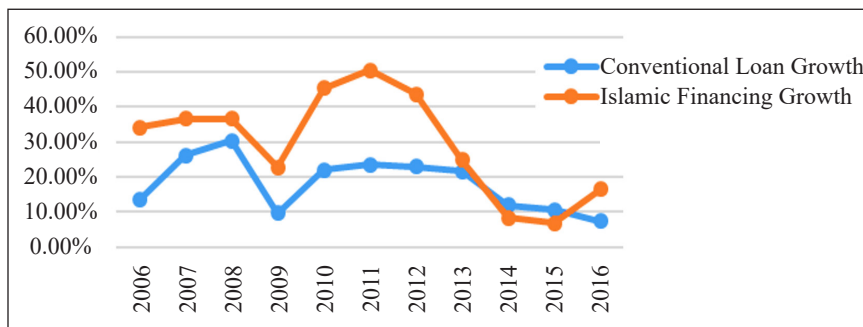

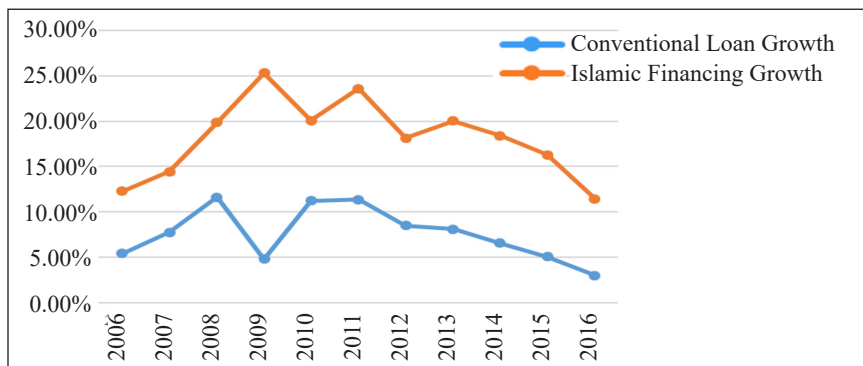*Figure 1.* Credit growth of banking sector in Indonesia

Figure 2. Credit growth of banking sector in Malaysia

variety of Islamic banking products and the market share of Islamic banks are higher in Malaysia. However, the proportion of profit-and-loss sharing financial products is higher in Indonesia.

This current study uses a Vector Autoregressive (VAR) model to investigate and compare the impact of Islamic banks on monetary policy and the economy in Indonesia and Malaysia. According to Brooks (2008), Vector Autoregressive models were popularized in the field of econometrics by Sims (1980). This model allows more than one dependent variable in the system and anticipates a simultaneous relationship between variables. In the monetary policy literature, a VAR model is the most widely used model. This method was incorporated in studies by Kassim et al. (2009), Sukmana and Kassim (2010), Hakan and Gulumser (2011), Ascarya (2012), Amar et al. (2015), and Naveed (2015).

A series of estimation techniques were carried out within the framework of a VAR model to answer research questions regarding unit root tests, optimal lag selection, stability tests, and final estimation results, using Impulse Responses Function (IRF) and Variance Decompositions (VD). The primary analysis relied on IRF and VD.

IRF is needed to understand the response of one variable to shocks from other variables in the system. Meanwhile, VD measures the proportion of movements in one variable caused by a shock to each variable in the model (Brooks, 2008). The general model utilized in this study is as follows:

$$VAR = f(IPI, IF, ID, ONR)$$

The model consists of four variables: Islamic banks' deposits, Islamic banks' financing, overnight interest rate, and economic output. The deposits and financing variables reflect the balance sheet of Islamic banks that channel monetary policy. The data is obtained from monthly statistical bulletins published by each country's central bank. Moreover, the interbank overnight interest rate (ONR) is used as a proxy for monetary policy and the industrial production index (IPI) is used as a proxy for economic output as one of the main targets of monetary policy. Data for these variables are obtained from the International Financial Report (IFS) and the Euromonitor database. All data used in this research are monthly, covering January 2007 to December 2016. The specific model specifications are formulated as follow:

$$IPI_t = \alpha_{1j} + \sum_{j=1}^{k} \beta_{1j} \, IPI_{t-j} + \sum_{j=1}^{k} \beta_{1j} \, IF_{t-j} + \sum_{j=1}^{k} \beta_{1j} \, ID_{t-j} + \sum_{j=1}^{k} \beta_{1j} \, ONR_{t-j} + \varepsilon_{1t}$$

$$IF_t = \alpha_{2j} + \sum_{j=1}^{k} \beta_{2j} \, IPI_{t-j} + \sum_{j=1}^{k} \beta_{2j} \, IF_{t-j} + \sum_{j=1}^{k} \beta_{2j} \, ID_{t-j} + \sum_{j=1}^{k} \beta_{2j} \, ONR_{t-j} + \varepsilon_{2t}$$

$$ID_t = \alpha_{3j} + \sum_{j=1}^{k} \beta_{3j}\, IPI_{t-j} + \sum_{j=1}^{k} \beta_{3j}\, IF_{t-j} + \sum_{j=1}^{k} \beta_{3j}\, ID_{t-j} + \sum_{j=1}^{k} \beta_{3j}\, ONR_{t-j} + \varepsilon_{3t}$$

$$ONR_t = \alpha_{4j} + \sum_{j=1}^{k} \beta_{4j}\, IPI_{t-j} + \sum_{j=1}^{k} \beta_{4j}\, IF_{t-j} + \sum_{j=1}^{k} \beta_{4j}\, ID_{t-j} + \sum_{j=1}^{k} \beta_{4j}\, ONR_{t-j} + \varepsilon_{4t}$$

Based on the literature discussed earlier, this study hypothesizes that Islamic banks in both countries have a positive role in channelling monetary policy into the economy. Monetary transmissions through bank lending channels work when monetary policies (ONR) are transmitted to banks' balance sheets (ID and IF) and then to the economy (IPI). This implies that Islamic deposits respond negatively to interest rate shocks, while Islamic financings respond positively to changes in Islamic deposits. Finally, industrial production index, a macroeconomic indicator, is expected to respond positively to Islamic financings.

RESULTS AND DISCUSSIONS

This section analyzes the role of Islamic banks in monetary policy based on short-run analysis using the Impulse Response Function (IRF) and Variance Decomposition

(VD). Monetary policy transmission through Islamic banks' lending channels begins with monetary policy shocks to banks' balance sheets, which then pass on to the economy. Twenty-four IRF and VD observations were made using the Cholesky Decomposition method. The results and discussion are explained below.

Islamic Bank Lending Channels in Indonesia and Malaysia

Indonesia. Figure 3 shows the response of Islamic banks' deposits in Indonesia to shock in the overnight interest rate as the indicator of monetary policy. It is shown that the shock in interest rate gives a negative impact on the number of Islamic banks' deposits in the third month by 0.002 percent. This implies that the number of Islamic banks' deposits will decline when there is a contractive monetary policy (as indicated by rising interest rates).
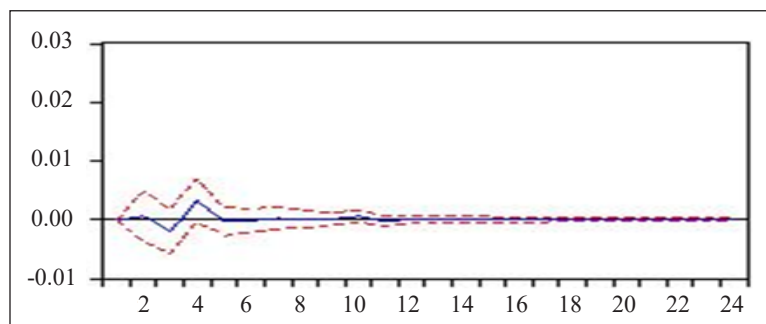

Figure 3. Impulse responses function of DLOGID to DONR in Indonesia

Nevertheless, the impact of interest rates on Islamic banks' deposits in Indonesia was less significant. This is supported by the VD results, which shows that the interest rate only contributes 2.29 percent to Islamic deposit variations (see Table 1). This means that interest rates have very little effect on Islamic banks' deposits.

Next, the effect of changes in Islamic bank deposits is examined. From Figure 4, it can be seen that the Islamic banks' financing initially move negatively until period 2 and subsequently move positively by 0.0055 percent when there is a shock on the Islamic deposits.

The positive relationship is strengthened by the VD result which shows that the variation of Islamic banks' financing is explained by its deposits as much as 14.58 percent (see Table 2). The negative relationship in the first two months indicates that contractive monetary policy initially resulted in higher Islamic deposits, which presumably related to the asymmetric information problems amongst banking consumers (as they usually did not well informed about such changes and therefore could not make fast adjustment), yet the impacts immediately disappear and positive relationship is found. The positive relationship implies that when deposits collected by Islamic banks declined due to contractive monetary policy, their total financing also decreased. The opposite is also true that a more expansive monetary policy led to greater financings.

Table 1
Variance decomposition of DLOGID in Indonesia

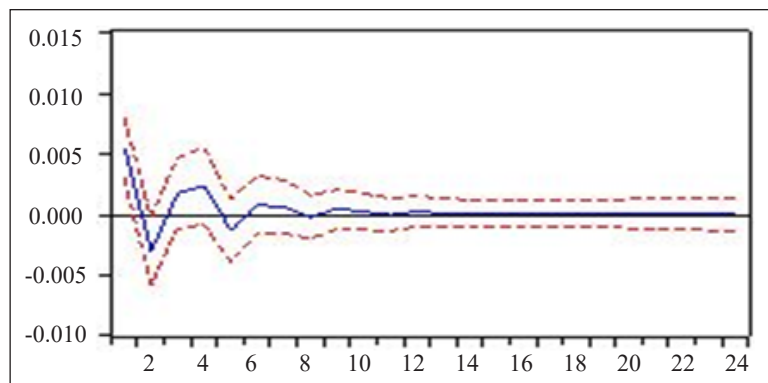| Variance Decomposition of DLOGID				
Period	S.E.	DLOGIPI	DLOGID	DLOGIF	DONR
20	0.026212	2.028183	89.59480	6.085960	2.291061
21	0.026212	2.029438	89.59025	6.089297	2.291015
22	0.026213	2.030252	89.58734	6.091414	2.290992
23	0.026213	2.030803	89.58540	6.092837	2.290964
24	0.026213	2.031270	89.58381	6.093962	2.290961

Figure 4. Impulse responses function of DLOGIF to DLOGID in Indonesia

The final step in examining the role of Islamic banks in monetary policy transmission is to test the impact of Islamic banks' financing to the economy. As shown in Figure 5, shocks to Islamic banks' financings positively affect economic output by 0.003 percent in the third month. This suggests that more Islamic financing will boost economic growth. However, given the small response, the impact is less significant.

This finding is supported by the result of the variance decomposition of the IPI variable in Indonesia (see Table 3). The result shows that Islamic bank financing is only able to explain an economic output variation of 3.31 percent until the 24th period, which indicates that Islamic banks' financings do not significantly affect economic output in Indonesia.

Table 2
Variance decomposition of DLOGIF in Indonesia

Variance Decomposition of DLOGIF					
Period	S.E.	DLOGIPI	DLOGID	DLOGIF	DONR
20	0.018626	13.73289	14.58319	67.59296	4.090955
21	0.018628	13.73525	14.58094	67.59326	4.090546
22	0.018629	13.73673	14.57942	67.59360	4.090243
23	0.018629	13.73776	14.57838	67.59385	4.090011
24	0.018630	13.73858	14.57758	67.59396	4.089872

Table 3
Variance decomposition of DLOGIPI in Indonesia

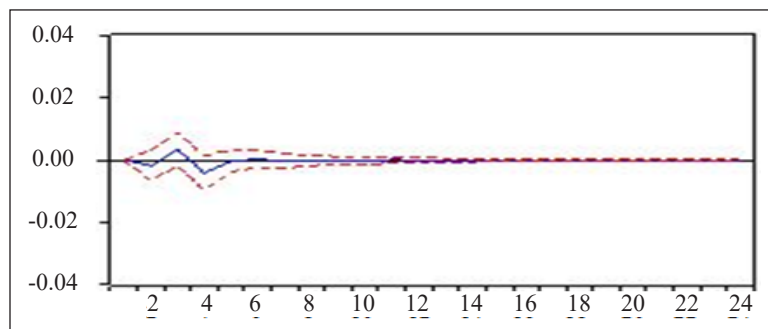| Variance Decomposition of DLOGIPI					
Period	S.E.	DLOGIPI	DLOGID	DLOGIF	DONR
20	0.031732	90.51499	1.604401	3.305314	4.575296
21	0.031732	90.51483	1.604414	3.305446	4.575307
22	0.031732	90.51474	1.604412	3.305542	4.575301
23	0.031732	90.51469	1.604411	3.305598	4.575298
24	0.031732	90.51464	1.604411	3.305654	4.575296

Figure 5. Impulse responses function of DLOGIPI to DLOGIF in Indonesia

Malaysia. For the Malaysian case, similar analytical steps were conducted. First, the impact of monetary policy shocks on Islamic banks' deposits was examined. Figure 6 shows that Islamic banks' deposits respond negatively to a change in interest rate by 0.001 percent. This indicates that when interest rates rise due to contractive monetary policy, the amount of Islamic deposits decreases.

However, the response of Islamic deposits to interest rate shocks is less significant. This is in line with the variance decomposition result (see Table 4). The variation of Islamic deposits can only be explained by interest rate by around 0.86 percent, meaning that interest rates play a very small role in Islamic banks' deposits. In other words, interest rates are not a suitable policy instrument for Islamic banks.

The next step was examining the impact of changes in Islamic banks' deposits attributable to their financings. Islamic financings show a positive response of 0.002 percent in the first month after a shock to deposits (see Figure 7). It can be inferred that when Islamic banks' deposits decrease due to monetary policy, financing amounts also decrease. The opposite also is true.

These findings regarding Islamic financing variables are also supported by VD results. Variations in Islamic financing can be explained by Islamic deposits by around 7.05 percent (see Table 5). This means that Islamic deposits indeed influenced Islamic banks' total financing in Malaysia.

The ultimate goal of monetary policy is to influence the aggregate economy. Thus, the last stage in testing bank lending channels through monetary transmission is
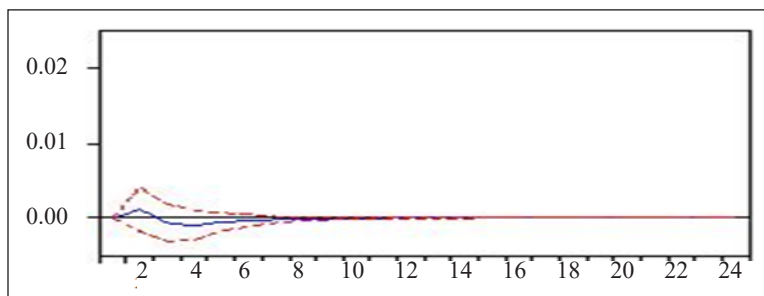

Figure 6. Impulse responses function of DLOGID to DONR in Malaysia

Table 4
Variance decomposition of DLOGID in Malaysia

Variance decomposition of DLOGID				
Period	S.E.	DLOGIPI	DLOGID	DLOGIF	DONR
20	0.018970	3.735267	95.13900	0.263032	0.862699
21	0.018970	3.735267	95.13900	0.263032	0.862699
22	0.018970	3.735267	95.13900	0.263032	0.862699
23	0.018970	3.735267	95.13900	0.263032	0.862699
24	0.018970	3.735267	95.13900	0.263032	0.862699

to assess its impact on economic output. As can be seen from Figure 8, the Malaysian economic output responds to Islamic banks' financing shocks insignificantly and inconclusively. This is consistent with the VD result (see Table 6) which shows that Islamic banks' financing only contributes 0.15% to the variation of economic output (IPI).

Table 5
Variance decomposition of DLOGIF in Malaysia

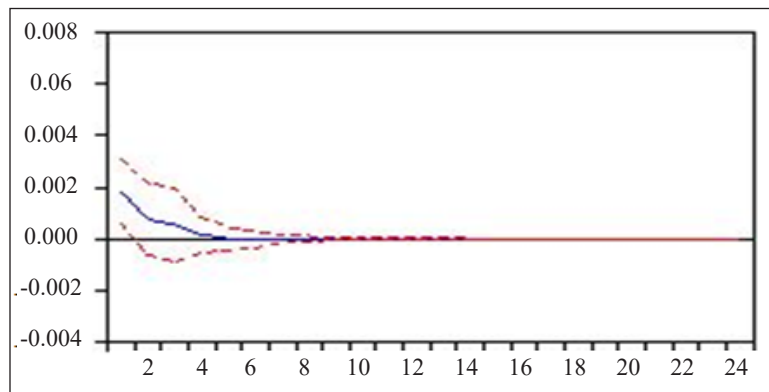| Variance decomposition of DLOGIF				
Period	S.E.	DLOGIPI	DLOGID	DLOGIF	DONR
20	0.007761	11.01267	7.049322	78.35552	3.582486
21	0.007761	11.01267	7.049322	78.35552	3.582486
22	0.007761	11.01267	7.049322	78.35552	3.582486
23	0.007761	11.01267	7.049322	78.35552	3.582486
24	0.007761	11.01267	7.049322	78.35552	3.582486

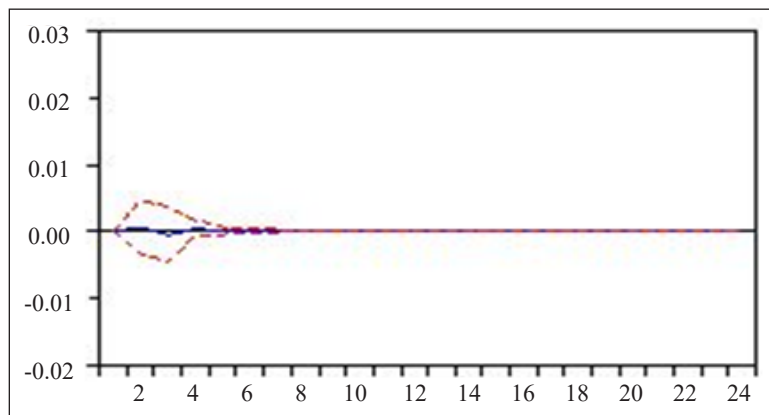*Figure 7*. Impulse responses function of DLOGIF to DLOGID in Malaysia

Figure 8. Impulse responses function of DLOGIPI to DLOGIF in Malaysia

Table 6
Variance decomposition of DLOGIPI in Malaysia

Variance decomposition of DLOGIPI					
Period	S.E.	DLOGIPI	DLOGID	DLOGIF	DONR
20	0.022940	97.18028	1.161728	0.146038	1.511956
21	0.022940	97.18028	1.161728	0.146038	1.511956
22	0.022940	97.18028	1.161728	0.146038	1.511956
23	0.022940	97.18028	1.161728	0.146038	1.511956
24	0.022940	97.18028	1.161728	0.146038	1.511956

Comparative Analysis between Indonesia and Malaysia

Table 7 compares the overall findings in Indonesia and Malaysia. The results confirm some of the study's hypothesis. The first hypothesis regarding the response of Islamic deposits to monetary policy is confirmed, as Islamic banks' deposits in Indonesia and Malaysia give a negative response to a monetary policy change, albeit the magnitude is less significant. The second hypothesis is also confirmed, as Islamic financing responds positively and significantly to Islamic deposit shock. However, because of inconclusive results, the third hypothesis regarding the effect of Islamic financing on the economy is not confirmed.

A number of possible explanations and important insights can be derived from these results. First, the impact of interest rates on Islamic deposits is similar in both countries. Islamic deposits respond negatively but not strongly to interest rate shocks. This confirms the study's hypothesis. A logical explanation for this is that Islamic bank customers transfer their funds to conventional banks to gain a higher return. This indicates that Islamic bank in both countries is exposed to displaced commercial risk, a finding shown in several earlier studies (Kassim et al., 2009; Kasri & Kassim, 2009; Sukmana & Kassim, 2010).

Second, in relation to the responses of Islamic banks' financing to shock on the Islamic bank deposits in both countries, the IRF results show that the financing policies of Islamic banks respond positively to deposit shocks since the first month both in Indonesia and Malaysia. Thus, lower total deposits, caused by monetary policy intervention, also decrease Islamic banks' financings. This result also confirms the study's hypothesis, because Islamic banks

Table 7
Summary of the results

Findings	Indonesia	Malaysia
The response of DLOGID to DONR	Negative and less significant	Negative and less significant
The response of DLOGIF to DLOGID	Positive and quite significant	Positive and quite significant
The response of DLOIPI to DLOGIF	Positive and less significant	Insignificant and inconclusive

remain heavily dependent on third-party funds as a main source of funding. Similar findings have been noted by Kasri and Kassim (2009), Sukmana and Kassim (2010), and Naveed (2015).

Furthermore, this study argues that this result relates to the low capacity of Islamic banks in both countries. Based on the VD results, Deposits make up only 7.04 percent of Malaysia Islamic banks' funding, compared with 14.58 percent in Indonesia (about double Malaysia's percentage). Nevertheless, from a policy perspective, this situation might be a good signal as it implies that Islamic banks cannot protect their asset portfolio from monetary policy intervention.

Finally, the study found that Islamic banks' financing did not contribute significantly to economic growth in either country. This conclusion is inferred from the previous results, which showed that shocks in Islamic financing did not significantly impact the Industrial Production Index. Indeed, for the case of Malaysia, Islamic banks' financing impacts economic output to a lesser degree. Overall, these results suggest that Islamic banks' financing does not contribute significantly to economic growth in either country. This result has been documented by an earlier study such as Pratama (2015).

The above result is interesting because, theoretically, an interest-free monetary system should be more stable in transmitting monetary policy to the real economy due to its association with real assets (Yusof et al., 2009). This result, however, might be explained by Islamic banks' modest financing contribution, compared to total banking sector credit in both countries. Indeed, Islamic banks' financing in Indonesia and Malaysia is less than 30 percent of the total banking sector credit. Thus, its contribution to the real economy is small.

It is also notable that Islamic banks' financing has a larger impact on economic output in Indonesia than in Malaysia, despite the fact that the proportion of assets in the Malaysian Islamic banking sector is much greater than that in Indonesia (see Figure 9). Islamic financing in Malaysia heavily focuses on Murabahah and Bai
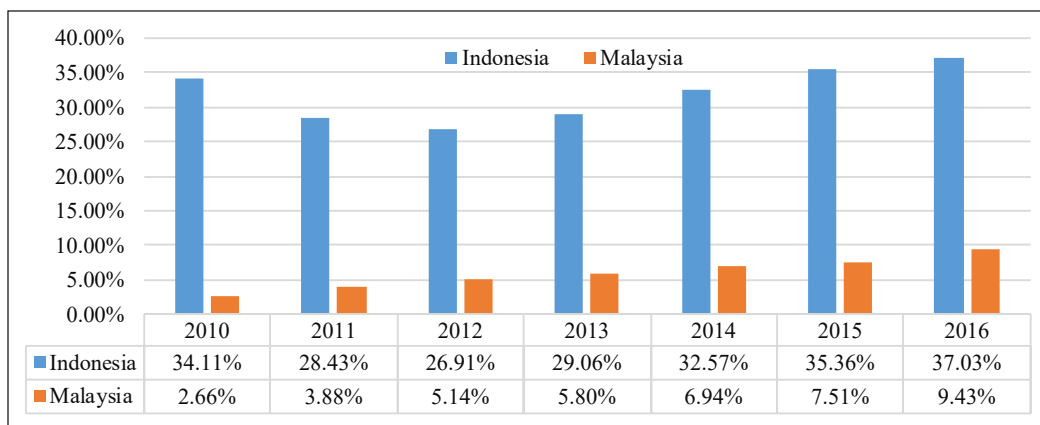

	2010	2011	2012	2013	2014	2015	2016
Indonesia	34.11%	28.43%	26.91%	29.06%	32.57%	35.36%	37.03%
Malaysia	2.66%	3.88%	5.14%	5.80%	6.94%	7.51%	9.43%

Figure 9. The proportion of profit-sharing financing in Indonesia and Malaysia

'Bithaman Ajil instruments, which could be categorized as debt-based financing. In contrast, Islamic banks in Indonesia uses more varied financing instruments, as well as a higher percentage of profit-sharing instruments. Indeed, at the end of 2016, the proportion of profit-sharing instruments in Malaysia and Indonesia were 37 percent and 9.4 percent respectively.

Taken together, it is not surprising that Islamic banks' financing in Indonesia has a greater impact on economic output than that in Malaysia. It is generally known that profit-sharing instruments are preferred in Islamic economics because of their connection to the real economy. Profit-sharing financing requires an underlying asset that will sustain activities in the financial and real economic sectors. Thus, a higher share of profit-sharing based instruments have a greater impact on economic output

CONCLUSION

This study investigates the role of Islamic banks in transmitting monetary policy to the real economy in Indonesia and Malaysia from 2007 to 2016. It concludes that Islamic banks in these countries play an important but moderate role in transmitting monetary policy to their respective economies. This conclusion plausibly explains the relatively low market share of Islamic banks in Indonesia and Malaysia. Additionally, Islamic financing in Malaysia is less prevalent compared to that in Indonesia, because of the small proportion of profit-sharing financing in Malaysia. This study's overall findings provide information for policymakers about how to position Islamic banks in their planning of monetary policy. Monetary authorities find ways other than interest rate controls to influence Islamic banks. Finally, in addition to increasing Islamic banks' assets, governments also must pay attention to banking sector compliance. Using more creative bank funding, authorities can connect Islamic banks to the real economy. This will allow Islamic banks to play a more significant role in the transmission of monetary policy and to contribute to economic development.

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