SEMARAK ILMU PUBLISHING

Semarak International Journal of Modern Accounting and Finance

Journal homepage:
https://semarakilmu.my/index.php/sijmaf/index
ISSN: 3030-6329

Analysis of Lending/Financing Rates and Profit Motive among Islamic Banking Customers

Muhammad Firdaus Mohd Shihabuddin[1], Sharifah Fairuz Syed Mohamad[1,*], Wahibah Wahab[1], Mazlynda Md. Yusuf[1], Mohamed Fairooz Abdul Khir[2]

[1] Universiti Sains Islam Malaysia, Nilai, Negeri Sembilan, Malaysia
[2] International Center for Education in Islamic Finance (INCEIF), Malaysia

ARTICLE INFO

Article history:
Received 14 October 2024
Received in revised form 28 November 2024
Accepted 3 December 2024
Available online 31 December 2024

Keywords:
Base lending rate; error-correction model; Granger Causality

ABSTRACT

This study investigates the relationship between four terms with respect to Islamic financing, including Islamic financing / conventional loan amounts, base lending, and base financing rates. Theoretically, changes in interest rate would lead profit-motivated customers into substituting Islamic financing for conventional bank loans and vice versa. This study is conducted to identify the co-integrating and causality relationship between conventional loans, base lending rates and base financing rates on Islamic financing. This study also predicts whether there is any form of profit motive among Islamic financing customers. The data used were taken from Bank Negara Malaysia (BNM) from 2014 to 2019 on a monthly basis. To confirm that unit root is absent, a stationary test employing the Augmented Dickey-Fuller (ADF) test was implemented. This then proceeded with various methods such as the Johansen-Juselius cointegration test, Granger Causality test, Vector Error Correction Model (VECM), as well as Impulse Response Function (IRF). This study comes to the conclusion that Islamic bank customers are possibly profit-driven and that the movement of interest rates will have an impact on their Islamic financing decision.

1. Introduction

The Islamic financial system in Malaysia was originally created in 1983, and Bank Islam Malaysia Berhad was the first Islamic bank to operate at that time. During that time, Malaysia was looking forward to providing society with a financial system that could serve the Muslim community, especially full-fledged alternative finance that adheres to Islamic principles. A total of 147 Islamic banks were operating internationally as of the end of 2013, which is an increase of roughly 28% since 2010. As of 2010, there were 115 Islamic banks. From 2010 to 2013, the average growth rates for total assets, equity, as well as net income were 44.9, 6%, and 6%, correspondingly [1]. Malaysia had 29 Islamic banking institutions by January 2008, including 12 full-fledged Islamic banks, 4 Islamic investment banks, 9 conventional banks that offered Islamic windows, and 5 development financial

* *Corresponding author.*
E-mail address: zulariffin@uthm.edu.my

https://doi.org/10.37934/sijmaf.3.1.114a

institutions that provided Islamic banking services. Up to now, Islamic financial institution has been producing a variety of Islamic products and services. Commercial conventional banks also initiated Islamic windows for their banking system, and there are also new full-fledged financial institutions as well as Islamic banks.

Originally, Islamic financing should go back to the essence of giving loans in Islam. Due to the prohibition of interest, Islam allows giving out loans without interest. This means that a person will loan his money to another who is in need, and the latter will pay back his dues once he has the payment amount; with no extra charge. However, if he personally and willingly pays off the dues with extra amount, then this is still permissible in Islam. The second type of loan that is allowed in Islam, according to Iqbal and Shafiq [2] is the benevolent loan, which is termed as Qardhul Hasan, considered as a special purpose financing instrument to the community who go through financial difficulty and pro-longed condition on unavailability of funds to pay back. The term Hasan is defined as 'beautiful' where this is mentioned in quite a few places in the Quran. This shows that kindness should be spread in a beautiful way, which is seen as a spirit of a person helping his own brother without even expecting any payment to be paid back. Although the brother is finally out of distress, he may think of paying the other back. Financing based on these pure Islamic attributes is quite challenging to monitor through the eyes of Islamic banks today therefore the modifications of such have emerged. Therefore, the use of Qardhul Hasan remains as a more informal way of lending among those who know each other instead of the way banks give out loans to practically anyone who fulfils their requirements.

The financial instruments available today are, in essence, governed by a quite different concept. In terms of operational tools, there is a difference between shariah-based and shariah-compliant contracts [3]. Shariah-based tools are financial contracts based on a participatory mode. It means that there is a participation of risk and reward, such as the musharaka contract, whereas a shariah-compliant tool is a non-participatory mode and is made up of by legal form such as the murabahah contract. This type of product creates debt just like conventional products and is similar in economic substance. Currently, shariah-compliant financial contracts dominate in the industry as it is not easy for shariah-based contracts to win the market.

Bai Bithamin Ajil (BBA) is one of the home financing products based on the murabahah contract which was quite popular before the growth of tawarruq and musyarakah based product [4]. In a BBA, a sales agreement that is shariah-compliant, the bank purchases the asset from the developer at market value and then resells it to the customer at a mark-up. Subsequently, the customer will have to pay the bank the principal and profit margin in deferred installments at a fixed rate and at a certain period of time. BBA funding is not very distinct from conventional bank loans in this regard. Theoretically, in terms of bank selection, a dual banking system offers a comparative benefit for customers. In general, customers can compare products clearly between conventional and Islamic ones. They will go for the Islamic option if the financing rate is lower compared to the interest rate. Otherwise, they can switch to conventional loans which unfortunately happen to Muslim customers as well. This phenomenon happens due to the fact that customers have lower financial literacy and have no clear distinction on financing preferences; whether to stick to Islamic principles or the financing cost will matter more to them. In fact, the lower deviation of Islamic banks from standard banks means that clients remain skeptical about the real concept and the true essence of Islamic banking. Due to this substitution impact, it is implied that although Islamic banks adhere to an interest-free policy, they are nonetheless subject to interest-rate risks. These issues were also discovered in research by Kader and Leong, who discovered that any rise in the return rate would cause customers to choose conventional products from 1999 to 2007 [5].

In relation to the above deliberation, the study's aim is to predict the co-integrating relationship between conventional loans and financing rates and to determine whether the base lending rate directly causes Islamic financing by identifying the co-integrating relationship between conventional loans, base lending rate and base financing rate on Islamic financing; which is in addition to extend the analysis in Kader and Leong [5] by including the most recent available data. Specifically, the objectives of the paper include:

i. To identify the co-integrating relationship between conventional loans, base lending rates, and base financing rates on Islamic financing.
ii. To determine whether the base lending rate directly causes Islamic financing.
iii. To predict whether there is any possibility of profit motive among Islamic financing customers.

2. Literature Review

2.1 The Islamic Financial System

One of the world's most rapidly growing financial system industries is Islamic finance which was worth more than $1 trillion in 2010 and has been expected to increase three times higher by 2015 [6]. Earlier in 2009, there were over 300 banks performing interest-free banking in 80 countries around the world. These interest-free financial services have attracted many Muslims and non-Muslims who show a high interest in Islamic banks' financial products [7]. However, although Islamic banking in Muslim countries and its main financial hubs are growing fast [8], an extensive Islamic financial system is still in its infant phase despite the notable growth of Islamic banking globally. A similar argument was made by Cham [1] in his study in which he investigated the growth rate determinants in Islamic banking and found that the number of Muslim population does not affect growth in Islamic banking. In fact, the shariah legal system also does not contribute to the growth.

Many issues and difficulties related to the Islamic financial system arise and have been discussed by scholars. These problems demand a serious discussion to bring in solutions accordingly to ensure that Islamic financial can reach their fullest potential in providing sustainable growth worldwide. One of the issues that are still discussed today is that Islamic banks use interest rates as a benchmark. Due to the absence of a clear division between Islamic and conventional banking processes, Islamic banks do not charge interest; rather, they utilize the interest-based benchmark as a reference in their product pricing [9].

2.2 Islamic Finance: Crisis and Economic Activities

In an effort to demonstrate that Islamic finance can prevent financial downturns, Mehta [10] combined the Islamic finance religious principle with recent work in this area in a theoretical analysis. During the US subprime mortgage crisis in 2000, the study observed the behavior of Islamic banks in Malaysia particularly. Specifically relating to Islamic banks, it was found that they managed to withstand the crisis as well as able to emerge more effectively. One of the key elements that contribute to the success was discovered to be the non-interest component and the lack of speculative activity. It is also stated that the profit and loss sharing mode practiced in Mudarabah contracts can minimize the risk of default and absorb shock in the financial system [10]. This phenomenon proves that real economic activity forms the foundation of Islamic finance, which is why it can withstand a financial crisis. At the same time, the interest rate is not a real economic indicator and thus cannot represent economic activities [11]. In a study related to housing, Tan [12]

found that the base lending rate had actually played a vital role as a determinant of residential housing activities which is measured by the house price index. In another study related to capital structure, Shaari *et al.,* [13] found significant negative effects of the base lending rate on long term total debts specifically after period of recession.

2.3 Base Lending Rates and other Indicators

A study by Bader *et al.,* [14] showed that both companies operating in accordance with Islamic law's profit-share model and conventional standards match each other, supported by the working documents commissioned from World Bank or the International Monetary Fund. Later, Zulkhibri [15] examined the relationship between the Islamic base financing rates (BFR) with respect to retail financing as well as conventional lending rates on loans in Malaysia in his study on the impact of monetary policy on Islamic bank financing in Malaysia. Moreover, the source is taken from Bank Negara Malaysia, and it analyzed both financing rates and lending rates, where it was found that they are positively correlated at 76 percent. Although conventional banks and Shariah-compliant Islamic banks operate under various banking environments, the correlation shown between Islamic base financing rates and interest rates employed by conventional banks supported that both rates closely track each other [15].

Various investigations were carried out to study the interest rate impact with respect to Malaysian Islamic banks, where changes in interest rates affect the growth of financing in Islamic banks [16]. Similarly, Kader and Leong [5] investigated empirically how interest rate changes in a dual banking system are affecting Islamic bank financing demand. Using monthly data from Malaysian Islamic banks from 1999 to 2007, they discovered that any rise in the basic lending rate would encourage customers interested in making a profit to borrow money from Islamic banks and vice versa. According to the study, Islamic banks are vulnerable to interest rate risk, although working on interest-free ideologies, because most clients are profit-seekers. This finding is supported by a recent study by Zulkhibri [15], in which he conducted a similar study on the impact of monetary policy related to Islamic bank financing in Malaysia and the author emphasized the bank's particular characteristics in the dual banking system. In addition, the author claimed that liquidity, level of bank size, as well as capital are the three specific characteristics which are found to be the factors in determining Islamic financing behavior. It was suggested that this is no different from conventional lending behavior [15].

The same concept applied to customers with respect to purchasing Islamic and conventional products. Clients of Islamic banks are most likely to prefer profit maximization as the Islamic banking system does not fix the rate of return. The financing rate, which is the ceiling rate, is actually fixed by Islamic banks, but the floating rate is the bank's rebate [17]. This practice has led to confusion among the customers and gave a bad perception to the Islamic banks that the products are always overpriced. Apart from that, Islamic bank, which also operates as a business entity at this moment, is also practicing a repayment policy such as mortgage financing that is similar to its conventional counterparts, implying both are profit-oriented [18]. Customers choose which product is to be purchased by comparing the interest rate and profit rate provided by various institutes in the industry. They will give priority to the most convenient to them, and in the case of the UK, out of nine factors for Islamic banking preference, the religion principle is the fourth factor [19]. This shows that customers will not specifically choose Islamic banking products solely because they are offered by an Islamic institution but rather depend on other factors that have more attraction or seem more beneficial to them, such as a lower interest rate. Additionally, Masood *et al.,* [19] uses primary data to identify the factors that influence the Islamic home financing preference and found that key

components such as service quality, product choice and Islamic debt policy play a role. The Islamic debt policy in this case looks at the degree of compliance and adherence to Quran and Sunnah in Islamic banks' debt policies.

A number of studies were carried out to determine the components and movement of profit rate and identified that conventional as well as Islamic banks are subjected to the same market rate volatility. Thus, Islamic banks will adjust their financing rate and profit rate in accordance with the market rate changes accordingly to stay competitive with conventional banks [20]. Apparently, Beik and Arsyianti [21] discovered that the elevated default premium and overhead cost cause an increase in the financing rate. Meanwhile, Isa and Shafie [22] introduced a statistical approach using stochastic forecasting to produce a more Shariah-compliant benchmark rate that is proven by simulation will be fair to both customers and banks. The benchmark rate is forecasted using 15-year time series of base financing rate.

A much earlier study by Rosly [23] offers a theoretical justification for how interest rate changes affect Islamic banks' performance under the dual scheme framework. The researcher highlights that Islamic banks are subject to interest rate risks and that their excessive reliance on BBA funding, where the rate of profit (financing rate) is fixed, is the primary cause of this situation. According to Rosly [23], if interest rates increase, the base lending rate (BLR) and rates of return on deposits of conventional banks will adjust to reflect changes in market interest rates. As a result, the conventional bank's profit margin would not be affected as a result. The Islamic bank, nevertheless, is unable to increase the rate of return with respect to its deposits since the BBA profit margin is fixed. Thus, the return provided for Islamic deposits is decreased, which leads depositors to prefer conventional banks. This is where the substitution effect comes into play.

Additionally, several scholars have argued that Islamic banking is just a pure imitation of conventional banking schemes, particularly the bank's operational aspects. It makes claims such there is no significant distinction between mark-up and interest and that the majority of Islamic financing is debt-like and not based on the actual Shariah principles [24]. However, it must be noted that the legal form is what makes the two schemes different from each other.

In Kpodar and Imam [25], the authors examined various sorts of determinants that led to Islamic Banking's global expansion employing country-level data for the years 1992 to 2006. They examined a number of independent pattern types, in contrast to earlier studies that singled out the causes of the financial crisis as the only factors influencing the rise of Islamic banking. Their outcomes indicated that the likelihood of Islamic banking developing in each country increases with per capita income, Muslims' share of the population, Middle East economic integration, being a net oil exporter, and being close to the Islamic financial center. However, if interest rates rise, it will be detrimental to Islamic banking since it will cause a rise in individuals' opportunity costs to deposit their money in Islamic banks because they learned that Islamic banks should not be considered a replacement for conventional banks but as a supplement to them. The fact that the conventional banking system is prohibited by shariah rules is not an issue and priority for them.

Other than that, Korkut and Ozgur [26] also found that conventional interest rates have a significant impact on profit share rate with respect to participation banks in Turkey. In a similar vein, a concept known as the financial intermediation services indirectly measured (FISIM) in Malaysia demonstrated by calculation that in the framework of the 2008 System of National Account, base financing rate and base lending rate both have a similar trend except for the term used in the contracts are different [27]. Furthermore, on the connection between Islamic as well as conventional monetary policy rates, utilizing a panel Vector Error Correction Model (VECM) and the Wald test, Yusoff *et al.,* [28] discovered cointegration and a long-term relationship between the two in six nations from 2009 to 2018.

With the various literature discussing aspects of conventional and Islamic rates with different products, the focus of this research on how changes in interest rates affect the demand for Islamic bank funding is crucial. In addition, this study will also show the analysis of lending/financing rates and profit motives among Islamic banking customers.

3. Methodology

3.1 Data and Variables

From 2014 to 2019, on a monthly basis, this research employs secondary data from Bank Negara Malaysia's Monthly Statistical Bulletin. The time frame is chosen due to the availability and consistency of the variables involved. The main variables for this study are base lending rate (BLR), base financing rate (BFR), total Islamic financing (TIF) and total conventional loans (TCL) which follow Kader and Leong [5] and Yusof *et al.,* [29]. The first step in running this study is to interpret the data sample using descriptive analysis. Measurements of tendency and measures of variability (spread) make up descriptive statistics. Measures of variability comprise variance, standard deviation, kurtosis, maximum and minimum variables, and skewness. Meanwhile, measures of central tendency comprise mean, median, and mode. The method chosen in this study has been used in previous studies, including Wuhan *et al.,* [30], Francois *et al.,* [31], and Ahiadorme *et al.,* [32].

3.2 Theoretical Framework

The theoretical framework for this study is shown in Figure 1 below.

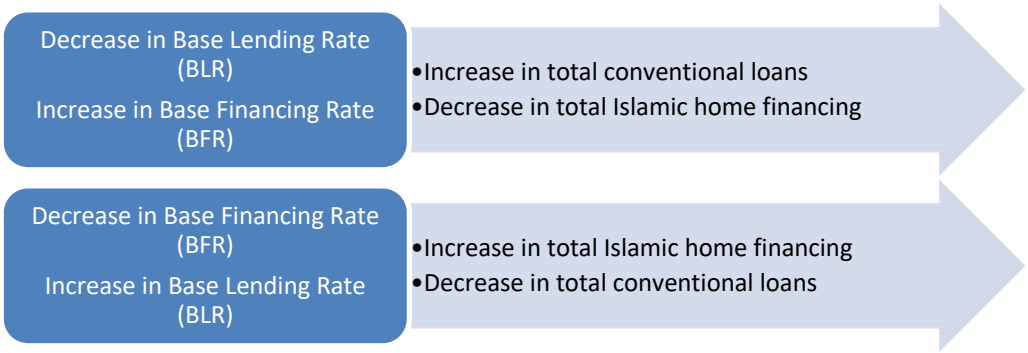

Fig. 1. Theoretical framework of research

3.3 Model and Equations

3.3.1 Unit root test and co-integration test

A unit root test called the Augmented Dickey-Fuller (ADF) test is employed to check for stationarity in time series data. In addition, the data is stationary if it has no unit root problem and non-stationary data has a unit root problem that can lead to spurious regression. If all variables have the same order of integration, we need the Johansen-Juselius cointegration test to investigate the long-term relationship between Islamic financing and the two concerned rates (Islamic and conventional financing rates). However, the best lag model needs to be determined before proceeding with this cointegration test; that is through testing the stability of the VAR.

3.3.2 Vector Error Correction Model (VECM) and Granger Causality

If there is no cointegration between the variables, the research will use a standard VAR model to regress the first differences of variables. However, a Vector Error Correction Model (VECM) will be run if cointegration occurs. This will be followed by the Granger Causality test, as cointegration suggests that there is at least one causality from one variable to another. The Granger Causality test will identify the causality direction.

The standard Granger Causality based on VAR or VECM model is employed to establish the causality direction between variables after examining the long-run relationship between the variables. The VECM may be applied if the variables are co-integrated. It is known as an augmented Granger Causality test for this approach. In this method, the VAR system is enhanced by the error correcting term (ECT). The ECT parameter's t-statistic significance indicates that there exists proof of the long-run causality and relationship between the variables. Thus, the equations for VECM involve two time-series variable x_t and y_t which are written below:

$$\Delta Y_t = \alpha_1 + p_1 e_1 + \sum_{i=0}^{n} \beta_i \, \Delta Y_{t-i} + \sum_{i=0}^{n} \delta_i \, \Delta X_{t-i} + \sum_{i=0}^{n} \gamma_i \, \Delta Z_{t-i} \quad (1)$$

$$\Delta X_t = \alpha_2 + p_2 e_{i-1} + \sum_{i=0}^{n} \beta_i \, \Delta Y_{t-i} + \sum_{i=0}^{n} \delta_i \, \Delta X_{t-i} + \sum_{i=0}^{n} \gamma_i \, \Delta Z_{t-i} \quad (2)$$

If there is cointegration between the series, there will typically be at least one causal impact that runs from one variable to another. Since the cointegration test fails to reveal the causal effect's direction, the Granger Causality test will be carried out in the VECM context. The Impulse Response Function (IRF) will then be used to further explore the factors' transmission mechanisms once the causality has been established. It is inadequate to interpret the Granger Causality test results because doing so simply illustrates the direction of the causal effects.

3.3.2 Impulse Response Function

Once the causality is recognized, the impulse response function is performed. Using the IRF is more helpful in examining the innovations' transmission mechanism in one variable to a specific variable. Here, the IRF will show how the rates respond to some shocks and see if the responses are immediate or delayed.

4. Results

4.1 Descriptive Analysis

This section will analyze the results from the descriptive analysis, Johansen-Juselius (JJ) cointegration test, unit root test, Granger Causality test, Vector Error Correction Model (VECM), and Impulse Response Function (IRF). The correlation and significance of each variable will be explained in this chapter.

Table 1 illustrates the descriptive analysis with respect to all variables utilized in this research from the year 2014 to 2019 using monthly available data from the Statistical Bulletin of Bank Negara Malaysia. This analysis uses the natural logarithm for total Islamic financing and total conventional loans to make them consistent in value along with other variables, considering both variables have a high standard deviation. Thus, the new symbol for total Islamic financing and total conventional loans is LTIF and LTCL, respectively.

Table 1
Descriptive statistics for variables

Variables	N	Mean	Standard Deviation	Skewness	Kurtosis
LTIF	69	12.97404	0.21964	-0.14042	1.97461
BLR	69	6.75165	0.11144	-0.23628	2.28931
BFR	69	6.83578	0.12723	-0.01028	1.98138
LTCL	69	14.21758	0.101893	-0.20698	1.98213

Based on Table 1, all variables have a standard deviation between 0.1 and 0.3, which is adequately low to prove that these variables are accurate and close to their mean value. The positive skewness of all variables shows that the data tail is extended toward the left, which means that the value of the mode is higher than the mean and median of the data. Since all variables have a kurtosis value less than 3, it is anticipated that the data is not normally distributed. This distribution is called platykurtic, which means it has shorter and thinner tails compared to the normal distribution, and there are fewer extreme outliers exist in this distribution.

4.2 Model Results

4.2.1 Unit root test and co-integration test

The next step is the unit root analysis which is to determine if the variables are I(0), I(1), or I(2) processes. The subsequent unit root test is performed for each variable at both the level and the first difference employing the Augmented Dickey-Fuller (ADF) test with the inclusion of the intercept. The following is the hypothesis of the unit root test in the ADF test:

H_0: $\lambda = 0$; The series is not stationary and has a unit root problem

H_1: $\lambda < 0$; The series is stationary and has no unit root problem

Table 2 shows that at level form, the null hypothesis fails to be rejected at a 5% significant level because all variables have a p-value of more than 0.05. There exists a unit root problem, and the series is not stationary. Apart from that, the variables are tested at the first difference level, and the results show that all variables have a p-value of 0.00. Here, a 5% significant level allows the null hypothesis to be rejected. It is claimed that the series is stationary and free of unit root problems. The order of integration is I(1) as a result.

Table 2
Unit root test at level form

Series	Coefficient	P-value	Result
LTIF	-0.07904	0.75720	Do not reject the null hypothesis, series is not stationary
LTCL	-0.06960	0.79200	Do not reject the null hypothesis, series is not stationary
BLR	-0.11436	0.58070	Do not reject the null hypothesis, series is not stationary
BFR	-0.10705	0.63730	Do not reject the null hypothesis, series is not stationary

The best lag for this model must be established using VAR estimation before performing the Johansen-Juselius (JJ) Cointegration test. The lag order chosen by the criterion is 3, according to the VAR Lag Order Selection Criteria. The next stage is to do a stationarity and stability test to determine whether or not the VAR is stable. Figure 2 demonstrates that the VAR is stable since all the roots are contained within the unit circle.

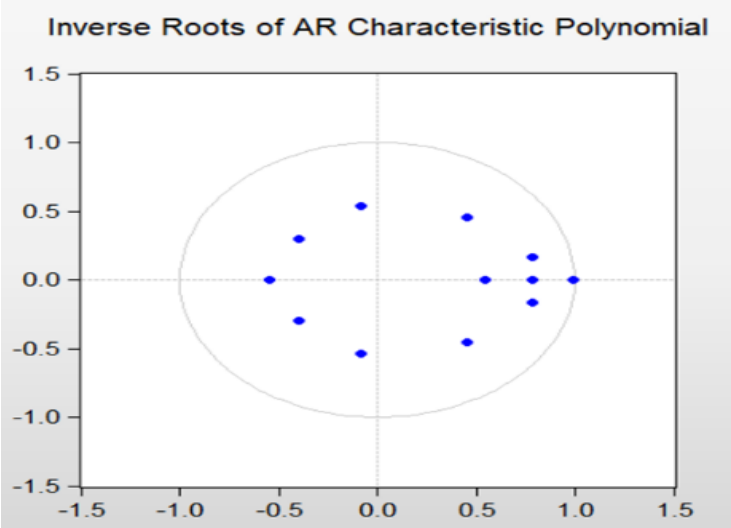

Fig. 2. Testing stability of VAR

After the stability of the VAR is confirmed, the Johansen-Juselius test can be conducted. Lag for difference terms needs to be one less than the optimal lag. In our case optimal lag is 3, so lag 2 is chosen to run the Johansen-Juselius test. The result for the Johensen-Juselius test is defined by the maximum eigenvalues (ME) and critical values (CV) at a 5% significant level, as in Table 3. The null hypothesis will be rejected if ME is greater than CV and fail to be rejected otherwise. The findings in Table 3 indicate that the null hypothesis is rejected when r=0. When r=1, ME is smaller than CV; thus, we fail to reject the null hypothesis. In addition, the result proves that this model only has one co-integrating vector, which means that this model has a long-run relationship between the variables. In other words, the variables in this model, which include the base lending rate, base financing rate, total conventional loans and total Islamic financing, shall have some co-integration among them; which in turn answers part of the first objective. However; this result does not confirm the degree of co-integration among these variables; therefore, must be preceded with the vector error correction model (VECM) to identify the short- and long-term effects.

Table 3
Johansen-Juselius test

Hypothesis	Maximum Eigenvalues (ME)	Critical Values (CV) at 5%	Result
$H_0: r = 0$	28.65526	27.07	ME> CV,reject H0
$H_1: r > 0$			
$H_0: r = 1$	14.32022	20.97	ME< CV,fail to reject H0
$H_1: r > 1$			
$H_0: r = 2$	5.09989	14.07	ME< CV,fail to reject H0
$H_1: r > 2$			
$H_0: r = 3$	0.44183	3.76	ME< CV,fail to reject H0
$H_1: r > 3$			

4.2.2 Vector Error Correction Model (VECM) and Granger Causality

The VECM approach is employed to continue the investigation and determine the long- and short-run relationships between Islamic financing and other variables. Tables 4 and 5 include the equations for the long- and short-run relationships based on the VECM method's findings, as given below:

Table 4
Long-run coefficient

Co-integrating Equation	Coefficients
LTIF (-1)	1.0000000
BLR (-1)	0.3333538
BFR (-1)	-0.327330
LTCL (-1)	-2.155605
C	17.65916

Table 5
Short-run coefficient

Coefficient terms	Error Correction	D(LTIF)
C1	CointEq1	-0.156692*
C2	D(LTIF(-1))	-0.050232
C3	D(LTIF(-2))	0.098345
C4	D(BLR(-1))	0.066461
C5	D(BLR(-2))	0.458044*
C6	D(BFR(-1))	-0.044289
C7	D(BFR(-2))	-0.332554*
C8	D(LTCL(-1))	0.282810
C9	D(LTCL(-2))	0.096760
C10	C	0.008108

*significant at 5% level

The combination from Tables 4 and 5 provide both the long- and short-run coefficients as a whole given by:

$$(LTIF) = C(1)*(LTIF(-1) + 0.333534*BLR(-1) - 0.32733*BFR(-1) - 2.15561*LTCL(-1) + 17.65916) + C(2)*D(LTIF(-1)) + C(3)*D(LTIF(-2)) + C(4)*D(BLR(-1)) + C(5)*D(BLR(-2)) + C(6)*D(BFR(-1)) + C(7)*D(BFR(-2)) + C(8)*D(LTCL(-1)) + C(9)*D(LTCL(-2)) + C(10)$$

where,

$$LTIF = log\ of\ total\ Islamic\ financing$$
$$BLR = base\ lending\ rate$$
$$BFR = base\ financing\ rate$$
$$LTCL = log\ of\ total\ conventional\ loan$$

The first term, C (1), is the coefficient representing the long-term equation while the rest C (2) until C (9) represents the short-term coefficients.

Based on VECM results, it is found that BLR and BFR have a short relationship with LTIF. All variables in the short-run equation are insignificant because of having a p-value of more than 0.05 except for C (5) and C (7), which are BLR and BFR. Therefore, it can be said that there is causality between BLR and LTIF and between BFR and LTIF. However, this method does not show the direction of the causality. Further analysis is done to explore the causality direction with the Granger Causality test. It is performed to examine the causality direction for BFR and BLR with LTIF. The null hypothesis is set to reject the p-value less than 0.05. Based on Granger causality test results in Table 6, the hypotheses for 'BLR does not Granger-cause LTIF' and 'BFR does not Granger-cause LTIF' are rejected. As a result, both BLR and BFR Granger cause LTIF however, LTIF does not granger cause both BLR and

BFR. In other words, both rates of lending and financing do play significant roles in influencing the Islamic financing component to increase or increase; thus, answering the first objective.

Table 6
Granger Causality on variables

Null hypothesis	P-value
BLR does not granger cause LTIF	0.0001
LTIF does not granger cause BLR	0.5798
BFR does not granger cause LTIF	0.0029
LTIF does not granger cause BFR	0.6975

4.2.3 Impulse response function

The final step is to utilize Impulse Response Function to see how the Islamic financing response to some shocks from the rates. Figure 3 shows that LTIF goes upward if the positive shock is put on BLR (increase BLR). This response shows that customers will switch to Islamic financing if BLR becomes higher. Meanwhile, for BFR, the LTIF graph goes upward if BFR is put on negative shock (decrease BFR). It means that customers choose Islamic financing at lower rates of BFR and switch to conventional if BFR is increased.

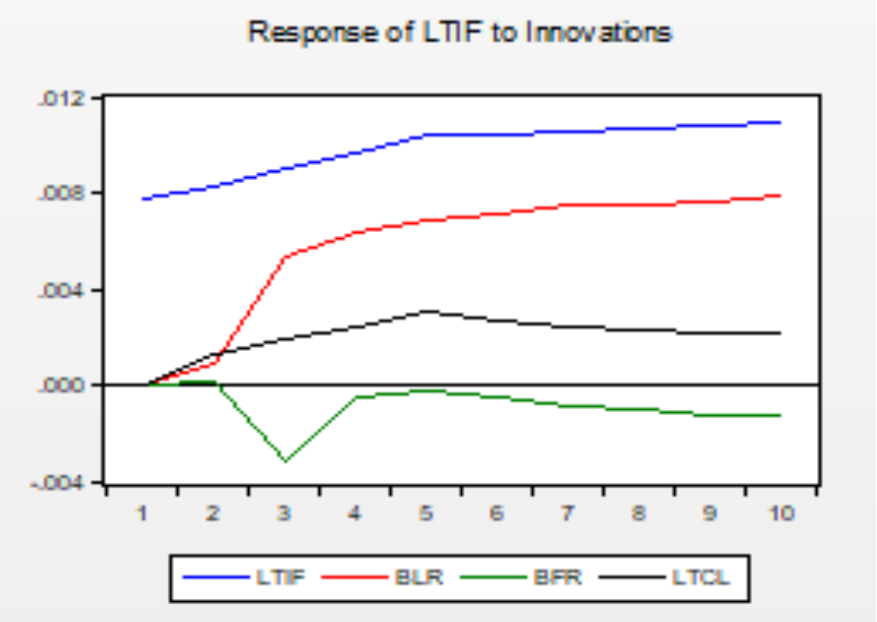

Fig. 3. Impulse response function of LTIF with given shocks

From Figure 3, it is notably clear that shocks put on both BLR and BFR will have significant effects on the total Islamic financing; which infer that as BLR rates are decreased, customers from the Islamic home financing products may shift to conventional loans and vice versa. This may also mean that customers are more inclined towards the lower rates rather than choosing an Islamic home financing product due to religious concerns. Hence; this answers the third objective.

5. Conclusions

The findings of this study demonstrate that customers may be profit motivated. Theoretically, the changes in interest rate would lead profit-motivated customers to substitute either conventional bank loans for Islamic financing or vice versa. According to the study, any increases in the base lending rate would also persuade customers to obtain financing from Islamic banks, whilst any decreases in the base lending rate may have the opposite effect. However, this research found that there is a co-integrating relationship between Islamic financing (LTIF) and the interest rates (BLR and BFR). LTIF has a long-run and short-run relationship with both rates which means there is causality between BLR and LTIF and also between BFR and LTIF.

This study also proves that LTIF appears to be responding positively to BFR & BLR shocks by using the Impulsive Response Function method. Nevertheless, it is relatively more immediate to respond to BLR shocks. This suggests that Islamic bank customers may be profit-driven and that the fluctuation of BLRs (interest rates) will have an impact on their Islamic financing decisions. Hence, customers would favor conventional loans over Islamic financing during periods of falling interest rates and vice versa during periods of rising interest rates.

However, a major limitation of this paper is the correlation between LTIF and other variables cannot be observed as all variables are stationary at first difference; thus, Ordinary Least Square cannot be conducted. Future research in this area can include more variables to find out if there is a more significant variable that shifts customers from conventional loans to Islamic financing or vice versa and to use a bigger time frame to get a more accurate result.

Acknowledgement
The authors gratefully acknowledge the sponsor of this research, Minister of Higher Education of Malaysia (MOHE) for funding this research project. This paper is part of the project entitled: A New Approach to Profit Calculation in Islamic Home Financing – project reference code (FRGS/1/2018/SS01/USIM/02/1).

References

[1] Cham, Tamsir. "Determinants of Islamic banking growth: an empirical analysis." *International Journal of Islamic and Middle Eastern Finance and Management* 11, no. 1 (2018): 18-39. https://doi.org/10.1108/IMEFM-01-2017-0023
[2] Iqbal, Zamir, and Bushra Shafiq. "Islamic finance and the role of Qard-al-Hassan (Benevolent Loans) in enhancing inclusion: a case study of AKHUWAT." *ACRN Oxford Journal of Finance and Risk Perspectives* 4, no. 4 (2015): 23-40.
[3] Hanif, Muhammad. "Sharīʿah-compliance ratings of the Islamic financial services industry: a quantitative approach." *ISRA International Journal of Islamic Finance* 10, no. 2 (2018): 162-184. https://doi.org/10.1108/IJIF-10-2017-0038
[4] Elmi, N.A., Ismail, M.I., & Al-Barq, S.M.M. (2011). The Most Popular Islamic Bank's Financing Concepts in Malaysia. https://www.academia.edu/4354471/Most_Popular_Islamic_banks_financing_concepts_in_Malaysia
[5] Abdul Kader, Radiah, and Kok Leong Yap. "The impact of interest rate changes on Islamic bank financing." (2008): 1-14.
[6] Schottmann, Sven Alexander. "From duty to choice: marketing Islamic banking in Malaysia." *South East Asia Research* 22, no. 1 (2014): 57-72. https://doi.org/10.5367/sear.2014.0189
[7] Awan, Abdul Ghafoor. "Comparison of Islamic and conventional banking in Pakistan." *Proceedings 2nd CBRC, Lahore, Pakistan* (2009): 1-36.
[8] Nouman, Muhammad, Karim Ullah, and Saleem Gul. "Why Islamic banks tend to avoid participatory financing? A demand, regulation, and uncertainty framework." *Business & Economic Review* 10, no. 1 (2018): 1-32. https://doi.org/10.22547/BER/10.1.
[9] Kassim, Salina Hj, Nur Harena Redzuan, and Nor Zalina Harun. "What drives house Price in Malaysia? In search of an alternative pricing benchmark for Islamic home financing." *Planning Malaysia* 15 (2017). https://doi.org/10.21837/pm.v15i4.314
[10] Mehta, Megha. "Can Islamic banks avert banking crises?." PhD diss., University of Nottingham, 2008.

[11] Ghauri, Shahid Mohammad Khan. "Why interest-rate cannot benchmark for Islamic financial product pricing?." *Benchmarking: An International Journal* 22, no. 7 (2015): 1417-1428. https://doi.org/10.1108/BIJ-04-2013-0049
[12] Teck-Hong, Tan. "Base lending rate and housing prices: Their impacts on residential housing activities in Malaysia." *Journal of Global Business and Economics* 1, no. 1 (2010): 1-14.
[13] Shaari, Siti Nabilah Mohd, Nik Nurul Aswani Nik Kamarudin, and Suryani Abdul. "The Impact of Base Lending Rate on Capital Structure in Malaysia." (2022).
[14] Bader, Mohammed Khaled I., Shamsher Mohamad, Mohamed Ariff, and Taufiq Hassan Shah. "Cost, revenue, and profit efficiency of Islamic versus conventional banks: international evidence using data envelopment analysis." *Islamic economic studies* 15, no. 2 (2008).
[15] Zulkhibri, Muhamed. "The impact of monetary policy on Islamic bank financing: bank-level evidence from Malaysia." *Journal of Economics, Finance and Administrative Science* 23, no. 46 (2018): 306-322. https://doi.org/10.1108/JEFAS-01-2018-0011
[16] Yusoff, Liza Marwati Mohd, Aisyah Abdul Rahman, and Norazlan Alias. "Interest rate and loan supply: Islamic versus conventional banking system." *Jurnal kollomi Malaysia* 35 (2001): 61-68.
[17] Asni, Fathullah, Mohd Amirul Mahamud, and Jasni Sulong. "Management of Community Perception Issues to Ceiling and Floating Rates on Islamic Home Financing Based on Maqasid Shariah Concept." *International Journal of Academic Research in Business and Social Sciences* 11, no. 7 (2021): 100-109. https://doi.org/10.6007/IJARBSS/v11-i7/9852
[18] Amin, Hanudin. "Examining the influence of factors critical for the consumer to accept the offered Islamic home financing." *Journal of Islamic Accounting and Business Research* 11, no. 7 (2020): 1379-1402. https://doi.org/10.1108/JIABR-07-2018-0110
[19] Masood, Omar, Jamel E. Chichti, Walid Mansour, and Muzafar Iqbal. "" Islamic bank of Britain" case study analysis." *International Journal of Monetary Economics and Finance* 2, no. 3-4 (2009): 206-220. https://doi.org/10.1504/IJMEF.2009.029059
[20] Nor, Fauzias Mat, Amir Shaharuddin, Norhaziah Nawai, Ainulashikin Marzuki, and W. Zainuddin Wan Abdullah. "Qualitative Study of Profit Margin Determinants and Pricing Practices: An Islamic Banking Perspective." *International Journal of Banking and Finance* 13, no. 2 (2017): 43-93. https://doi.org/10.32890/ijbf2017.13.2.8505
[21] Beik, Irfan Syauqi, and Laily Dwi Arsyianti. "Why the rate of financing in Islamic banks is high? An analysis based on Malaysian case." *Tazkia Islamic Finance and Business Review* 3, no. 1 (2008).
[22] Isa, Zaidi, and Nur Amalina Shafie. "A Stochastic Approach for Determining Profit Rate of Islamic Financing Products." *International Journal of Economics and Financial Issues* 7, no. 1 (2017): 154-163.
[23] Rosly, Saiful Azhar. "Al-Bay'Bithaman Ajil financing: impacts on Islamic banking performance." *Thunderbird International Business Review* 41, no. 4-5 (1999): 461-480. https://doi.org/10.1002/tie.4270410410
[24] Hamoudi, Haider Ala. "Jurisprudential schizophrenia: on form and function in Islamic finance." *Chi. J. Int'l L.* 7 (2006): 605.
[25] Kpodar, Mr Kangni, and Patrick A. Imam. *Islamic banking: how has it diffused?*. International Monetary Fund, 2010. https://doi.org/10.2139/ssrn.1669870
[26] Korkut, Cem, and Önder Özgür. "Is there a link between profit share rate of participation banks and interest rate?[:] the case of Turkey." (2017): 135-158.
[27] Samah, Khairul Aidah, Mohd Yazid Kasim, and Mohd Fahmi Mohd Arupin. "Calculation of financial intermediation services indirectly measured (FISIM) for Islamic banking activity in Malaysia." *Statistical Journal of the IAOS* 36, no. 3 (2020): 677-682. https://doi.org/10.3233/SJI-200657
[28] Yusoff, Zetty Zahureen Mohd, and Nur Iylia Azhar. "Relationship between conventional and Islamic interbank rates of a dual banking system in Malaysia, Middle East, and Western countries." *Journal of International Business, Economics and Entrepreneurship* 4, no. 2 (2019): 38-38.
[29] Yusof, Mohd Husnin Mat, Syahrul Hezrin Mahmud, Mohd Ariff Nafizi Ibrahim, Mat Nor, and Muhammad Fauzi Embong. "A Relationship among Interest Rate, Inflation, Population and House Price Index." *Journal of Advanced Research in Business and Management Studies* 29, no. 1 (2022): 9-19. https://doi.org/10.37934/arbms.29.1.919
[30] Khurshid, Adnan. "The effect of interest rate on investment; Empirical evidence of Jiangsu Province, China." *Journal of International Studies Vol* 8, no. 1 (2015). https://doi.org/10.14254/2071-8330.2015/8-1/7
[31] Meyer, Danie Francois, Chama Chipeta, and Richard Thabang Mc Camel. "An Analysis of the Effectiveness of Interest Rates to Facilitate Price Stability and Economic Growth in South Africa." *Studia Universitatis Babes-Bolyai Oeconomica* 63, no. 3 (2018): 68-90. https://doi.org/10.2478/subboec-2018-0015

[32] Ahiadorme, Johnson Worlanyo, Emmanuel Sonyo, and Godwin Ahiase. "Time series analysis of interest rates volatility and stock returns in Ghana." *Emerging Economy Studies* 5, no. 2 (2019): 89-102. https://doi.org/10.1177/2394901519870765