



Research Article

The Variation of Islamic Banks' Deposits: Evaluation on The Impact of Financial Crisis and Bank Risks

Zuriyati AHMAD, Noorhayati YUSOF ALI & 'Atiqah Rashidah ABU SAMAH

Faculty of Business Management, Universiti Teknologi MARA Terengganu
Dungun, Terengganu, Malaysia

Correspondence should be addressed to: Zuriyati AHMAD, zuriy271@uitm.edu.my

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Abstract

In recent years, the financial crisis has led to a global impact, in turn affects the performance of the banking system. The extent of the impact in the countries which implemented the dual banking system might not be similar because of the characteristics of the banking system structure. Therefore, this paper tries to evaluate the impact of financial crisis and bank risks on deposit variation in Malaysia's Islamic banks. The impact of the crisis will be evaluated by a dichotomous variable, which aims to assess level of deposits during the crisis period. Using 15 Islamic banks in Malaysia, spanning from 2008 to 2016, with 135 observations, panel data estimation technique is applied. Findings depict that the financial crisis has deteriorated the level of deposits in Islamic banks. It implies that Islamic banks might have faced a panic attack when the crisis happened. This resulted in banks' inability to survive during the financial crisis as there are huge amount of withdrawals of the deposits. Two major bank risks which are credit and bank risks are used to test whether they can significantly variate the deposits in Islamic banks. They have revealed a clear indication to the losses in deposits Islamic banks in case undertaking risks. Further actions should be taken to by Islamic banks to overcome the impact of financial crises and the problem of bank risks.

Keywords: Financial crisis, Deposits, Bank risks, Panel data

Introduction

Financial crises are considered as one of the most important financial events in recent decades. The financial crisis has impacted the financial institutions in general and in particular, banking institutions worldwide. In fact, a wide array of impacts to the operating and financial performance of the banks has occurred globally (Smolo & Mirakhor, 2010; Kassim & Majid, 2010). Therefore, a number of fundamental questions on banking institutions has been raised. It creates challenges to the developed and developing countries in managing the risk management of the crisis. However, Smolo and Mirakhor (2010), Kassim and Majid (2010), Ahmed (2010) and Zuriyati and Nurul Huda (2017) among few researchers, claimed that the impact of the financial crisis on Islamic banks are either less or none.

Financial crises could affect the financial stability and promote the deterioration of the banking indicators. This is due to the fact that banks hold a small amount of cash deposits, and in case of unexpected deposits, withdrawals will affect their liquidity. Prompting the emergence of a financial crisis, bank panic can affect the entire banking system. Bank risks may also arise during financial crises (Zuriyati et al., 2018) and exacerbate the bank's conditions. Among the major risks in the banking system, are credit risk and liquidity risk. These risks are directly linked to what banks do and why banks fail (Ameni, Hasna & Mohamed Ali, 2017)

The decrease in deposits during the financial crisis might have a negative impact on the bank. Firstly, it will create an intense deposit competition among banks, leading to higher cost of deposits as well as causing the bank to have thinner margins. Secondly, when the deposit is weaker the bank funding source might be affected as well as the operation of the bank activities as well. This is because when the source of funding and bank liquidity decrease, the confident level of customers toward the bank will also decrease. The

conflict between customers and banks will arise and slightly affect the bank profitability. Wiranatakusama and Duasa (2017) stated that the level of resilience of the Islamic banking can be determined by bank deposits and financing. Since bank deposit is one of the major sources of bank liquidity, it can be affected by any changes from the global economic event leading to the problem of Islamic bank resilience. This paper therefore aims to evaluate the impact of financial crises and bank risks on deposit variation in Malaysia's Islamic banks.

The remaining of the paper is organized as follows. Section 2 discusses the literature review. The methodology under consideration will be highlighted in section 3. Section 4 discusses the results and discussion. Lastly, section 5 offers conclusions.

Literature Review

Substantial literature in the area of financial crises has been found in earlier works by researches such as Hasan and Dridi (2010), Abdulle and Kassim (2012) Shafique et. al (2012), Hidayat and Abduh (2012), Zuriyati and Roziani (2014) and Zuriyati and Nurul Huda (2017). These researchers have explored several dimensions of Islamic banks' behavior during financial crises. Hasan and Dridi (2010) for example, reveal that the recent financial crisis affected Islamic banking institutions differently than conventional banks. Studies by Abdulle and Kassim (2012), Shafique et. al (2012) and Hidayat and Abduh (2012) show that Islamic banks are more stable during the global financial crisis. Hidayat and Abduh (2012), in a study on the case in Bahrain, found that there is no significant impact on the Islamic banks' performance during the crisis period. Zuriyati and Roziani (2014) and Zuriyati and Nurul Huda (2017) revealed that financing in Islamic banks are not affected by the crises. Nonetheless, Uppal and Mangla (2010) obtained a contrary result. They examined the experience of the Islamic banking of two countries, Pakistan and Malaysia and found

that the Islamic banks in the country “were not immune from the ravages of the global financial crisis” to the financial crisis.

Concentrating on the impact of the financial crisis and bank deposits, Abduh, Omar and Duasa (2011) investigated the case of Malaysian Islamic banks. Using Johansen cointegration test, it shows that the financial crisis has a positive impact on the fluctuation of Islamic banks’ deposit level in Malaysia. This study claims that the previous financial crises during 1998 and 2008 had given an opportunity to the Islamic Banking to become more resilience in terms of gaining customers’ trust in managing their deposits. The high expectation from customers has led Islamic banks to have a less impact on the financial crisis compared to conventional banks. Therefore, whenever the crisis emerges, depositors will not withdraw their money subsequently, instead they will deposit more in Islamic banks. Turhani and Hoda (2016) found that the macroeconomic crisis has a positive relationship with the level of deposit. The research indicates that financial institutions’ performance showed a positive relationship during the financial crisis due to the compliance policy between commercial banks and the central bank. Deposit insurance has also become one of the reasons why the performance level of the total deposit in the banking system in Albania had improved even during the financial crisis. A finding by Ferrouhi (2017) has also been supported by Turhani and Hoda (2016) where the financial crisis is found not to be a major impact on deposit behavior in Morocco.

Concerning the impact of bank risks and deposit behavior, many studies (Andriyanti & Wasiah, 2010; Harfiah, Purwati & Ulfah, 2016; Yulianto & Solikhah, 2016 and Pimada, Mawardi & Herianingrum, 2017) have been carried out on the case of Indonesia. Andriyanti and Wasiah (2010) for example, study on the deposit level (Mudharabah deposits for the period of one month) at Bank Muamalat Indonesia. Bank liquidity risk is found to be an indication of the impact of liquidity risk on the bank deposits. If the

liquidity risk increases, the banks’ deposit of one-month Mudarabah in BMI will decrease. Andriyanti and Wasilah (2010) stated that high FDR of banks can be interpreted when the bank’s liquidity is low. This is because the higher the bank’s FDR, the higher the bank’s risk to face finance problems. Therefore, it led to the withdrawal of deposits by depositors simultaneously and in large quantities. However, Harfiah et al. (2016) reveal that liquidity risk has a positive and significant effect on bank deposits influencing the level of bank deposits of Islamic banks in Indonesia when tested through investigating seven Islamic banks in Indonesia. It indicates that when the liquidity risk is high, mudharabah deposit will increase in a similar magnitude.

Yulianto and Solikhah (2016) attempt to determine the internal factors of sharia banking to predict the Mudharabah deposits in Indonesia. This study proposes hypotheses whereby both liquidity and credit risk have a negative influence on the amount of deposits mudharabah. 34 banks are selected covering the period of January 2010 until December 2013. The credit risk shows a negative and significant impact in influencing mudharabah deposits. Meanwhile, liquidity risk has a contradicting result to credit risk as it is positive but insignificant in affecting the mudharabah deposits in Indonesia. The higher ratio of risk led to high unemployment rates that were recorded by the country in recent years, which caused more financing defaults faced by banks. Another study in Indonesia by Pimada et al. (2017) examined the impact of liquidity risk on Mudharabah deposits and revealed a similar finding to that of Yulianto and Solikhah (2016). It is found that the higher liquidity risk will influence mudharabah deposits in Indonesia. The positive result is obtained due to the increasing number of Indonesian’s financial literacy and financial inclusion and people’s awareness of the importance of the function of liquidity risk nowadays.

A comparison in the fluctuation of deposits in Islamic banks in Malaysia and Indonesia has been highlighted by Noraziah and Dety

(2017). Using the generalized method of moment (GMM), this study found that credit risk has a negative effect with both deposit of Islamic bank in Malaysia and Indonesia. The study claims that when Islamic banks experienced a higher risk, the performance of their deposits declined. Noraziah and Dety (2017) stated that when credit risk had a negative influence it showed that the problem faced by Islamic banks is bigger and can deteriorate their performance. On the other hand, Turhani and Hoda (2016) found that the level of liquidity has an impact on the level of deposits in the banking system in Albania. The higher the level of liquidity risk, the less the reliability of depositors in the banking system. This is due to the role of liquidity as a

guarantee for depositors to preserve their deposits whenever the banking system faces problems.

Methodology

While the effect of financial crisis on the deposits of Islamic banks is the primary concern of the study, this study also focuses on the impact of credit and liquidity risk on deposits. Therefore, the impacts of these variables need to be controlled. The effect of the aforementioned risk factors could therefore be isolated. For a more realistic model, the controlling variables are also included. Thus, the estimating model is respectively written as follows:

$$DEP_{it} = \alpha - \beta_1 CR_{it} + \beta_2 LR_{it} + \beta_3 BS_{it} + \beta_4 PR_{it} - \beta_5 UR_{it} - \beta_6 FC_{it} + \varepsilon \quad \text{Equation 1}$$

Based on Equation 1, DEP represents the total deposit from customers in Islamic banks, α is a constant and β represents the coefficient of the variables. CR indicates the credit risk which is represented by non-performing loans. LR represents the liquidity risk. It is calculated based on the total liquid asset per total deposit ratio acts as a proxy for liquidity risk. The liquid assets to deposit ratio is used as an analytical tool to help assess the relative risk profile of a deposit-taking institution (Fitch Rating, 2016). BS indicates the bank size representing the total bank asset, and PR is the profit rate. UR represents the unemployment rate of the country showing the economic condition of the country. FC shows the financial crisis as a dichotomous variable. The value of 1 indicates the occurrence of a financial crisis and 0 indicates a year without financial crises. Lastly, ε shows the idiosyncratic error.

this estimation technique is appropriate to test more complex behavioral models.

The model specified in equation (1) serves to test the impact of financial crises and bank risks on the deposit behavior of Malaysia's Islamic banks. The models are estimated in three different approaches. Firstly, the model is estimated using panel least square method and test for the pooled ordinary least square regression (POLS) model. POLS is considered to deny heterogeneity or individuality among banks. Thus, the model is assumed to be a constant intercept without explicitly, having an unobserved effect. However, not controlling this unobserved individual specific effect leads to bias in resulting estimates. Since individual effects are included in the model, the study should have treated them with the Random effect model (REM) and the Fixed Effect Model.

This paper investigates 15 Islamic banks spanning nine years from 2008 to 2016, with 135 observations. Due to the characteristic of data under observation, panel data estimation technique is more appropriate to be applied. The panel data model has the advantage of handling data limitation and controlling heterogeneity among variables. Moreover,

For modelling the relationship among bank Islamic banks' deposits and bank risks, financial crises and controlling variables, following bank specific data are collected from Eikon and financial statement of annual reports from Malaysian Islamic banks. Meanwhile, the macroeconomics data is collected from Bank Negara Malaysia report.

Findings

In order to ensure the robustness of the result, series of diagnostic tests such as multicollinearity and heteroscedasticity are conducted. The Variance Inflation Factor (VIF) for example, is carried out to confirm the existence of a multicollinearity problem. Multicollinearity statistics are a reliable measure to calculate the validity of the regression analysis. The Variance Inflation Factor (VIF) and the tolerance level are calculated in Table 1. As suggested by Gujarati (2007) the VIF value should be under 5 and the 1/VIF value should be nearer to zero. In order to ensure the validity of the analysis, these conditions need to be met. All the VIFs of variables are under 5 (CR =1.07, LR=1.12 ,BS=1.15, PR=1.09, UR=1.23, FC=1.41). All of 1/VIF values also are nearer to zero. The results indicate the absence of multicollinearity in the regression analysis. Mean VIF is found to be 1.18 less than 5 threshold. It depicts that there are no multicollinearity problems in the model.

The problem of heteroscedasticity exists when the error term size is distinct across the values of the independent variable. The Breusch Pagan or Cook-Weisberg test is applied to ensure that the problem does not exist. The rule of thumb is used in testing for heteroscedasticity problem. When the probability value is less than the significant level of 0.05. The result obtained shows that the probability value is 0.000. Therefore, there is heteroscedasticity problem in this study. $\chi^2 (1) = 21.30$ Prob > $\chi^2 = 0.0000$. However, following Stock and Watson (2008), the heteroscedasticity problem can be dealt with using the heteroscedasticity robust standard error method.

After the series of the tests, the results can be obtained to determine the model. In order to choose, which model is estimated the best, Breusch Pagan test is used to test which of POLS and REM is more appropriate. It is found that the validity of the result is more convenient to Pooled OLS, thus the results will be analyzed based on this model. Therefore, the final regression model is as follows;

$$\text{DEP} = 16.5267 - 0.0236\text{CR}^{***} - 1.1645\text{LR}^{***} + 0.0278\text{BS}^{***} - 0.0793\text{PR} - 0.0684\text{UR} - 0.3408\text{FC}^{***}$$

(14.85) (3.54) (14.85) (0.31) (0.32) (2.79)

Notes:

In the parentheses are *t* statistics

*** denotes significant at 1% level of significance

The R squared (R^2) of regression model is 0.6767, which indicates that 67.67% of the variation in the total deposit can be explained by financial crisis, bank risks and controlling variables used. Based on the equation credit risk and liquidity risk are found in the expected magnitude. These bank risks have a negative effect towards Islamic bank deposit. Moreover, it is revealed that credit risk has a negative and significant relationship with the total deposit where the p-value for the credit risk is 0.00. A change in the credit risk, will led to a reduction of in the total deposit of Islamic banks as found in Yulianto and Solikhah (2016) and Noraziah and Dety (2017). It

implies that if the problem of credit risk is bigger it can deteriorate the performance of Islamic banks.

As noted liquidity risk is also shown have negative and significant relationship with the total deposit is significant with a probability of 0.01. A significance of the liquidity shows a high influence the variable on the Islamic banks' deposits. Besides that, the result obtained reveals that an increase in the liquidity risk will reduce the total deposit. The result is in parallel with that of Andriyanti and Wasilah (2010) and Yulianto and Solikhah (2016). This situation happens when ratio of

liquidity risk is higher, it reduces the capability of liquidity in banks causing depositors to withdraw their money and thus the amount of deposits in banks decrease. The depositors are really sensitive towards the changes of any characteristic of the bank.

The result for the bank size is significantly positive with the total deposit at level of significance of 0.01. A similar magnitude is found in parallel with Ferrouhi (2017) and Andriyanti and Wasilah (2010). The larger the amount of bank assets, the greater the amount of bank deposit. In other words, larger banks are able to encourage and attract more deposits from customers than smaller banks. The positive relationship is due to the fact that a large bank has a stronger financial base and strong bank performance. Its exposures to risk are more than bank that have smaller banks. Nonetheless, with the bigger size of the banks and larger assets, depositors feel more secured as they believe the Islamic banks manage to paying depositor funding.

This study also reveals that profit rate is insignificant to the total deposit. It shows that profit rate has a negative relationship with the amount of deposits where 1 percent increase in profit rate will reduce the total deposit. The aforementioned assumption can be explained where depositors from Islamic banks are not motivated by profit and profit rates do not have a great on customer when investing their money (Akhtar, Akhter & Shahbaz, 2015). Depositors might withdraw their money or might not even deal with the bank even though the profit rate, offered by that bank offer is high which leads to decreasing the bank's deposits. In addition, the result found that the p-value of the unemployment rate is 0.0433 which shows an insignificant and positive relationship between the unemployment rate and the total deposit.

The major concern of this study is the impact of the financial crisis on the total deposit. In comparison with previous findings on the bank performance (Hasan & Dridi, 2010; Abdulle & Kassim, 2012; Shafique et. al 2012;

Hidayat & Abduh, 2012; Zuriyati & Roziani, 2014; and Zuriyati & Nurul Huda, 2017) the result of the financial crisis reveals a really significant impact on the total deposit at level of significance of 0.01. A negative relationship is found when the financial crisis happened and reducing 0.348% of the total deposit. This finding is in contrary with previous literature (Abduh, Omar & Duasa, 2011, Turhani & Hoda, 2016 and Ferrouhi, 2017) which found that the financial crisis has a significant relationship with the total deposits. The highly significant impact is assumed when a bank faces a panic attack in the time of the and this has resulted in customers' inability to survive during the financial crisis. Money withdrawal or not investing banks' deposits will reduce the amount of money in the banks. Besides, for the smaller banks, they will experience lower risk exposure and inability to manage their performance efficiently during that time.

Conclusion

This paper attempts to evaluate the impact of financial crises and bank risks on the deposit variation in Islamic banks in Malaysia. Two major bank risks, which are credit and bank risks with financial crises are investigated to test whether they can significantly variate and distort the deposit behavior in Islamic banks. It is found that both risks have a significant impact on the depletion of deposits in Islamic banks. The finding shows that credit risk and liquidity risk are in the expected magnitude. This result reveals a clear indication to Islamic banks that undertaking risks will lead to losses in the total deposit of such banks. While, as claimed by many researchers, Islamic banks are immune to financial shocks, this paper reveals a different finding which states that Islamic banks' deposit will be distorted by the financial crisis. The highly significant impact of the financial crisis will lead to higher withdrawal of money and lower total bank deposits. Islamic banks need to be cautious regarding the global event that can cause problems to their total bank deposits.

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