

Household Credit Market, Bank Factors and Financial Fragility of Islamic Banks

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The objective of this paper is to verify research findings that banks' exposure to household credit market affects financial fragility of the banks. This global finding on conventional banks is tested on Malaysian Islamic banks. Using unbalanced panel data of 10 Islamic banks over the 2005 to 2016 financial year period, this paper provides empirical evidence that Islamic banks experienced similar financial fragility as conventional banks due to their exposure to household credits. The findings showed that Islamic banks' Common Equity ratio, Household Financing Growth and Household Impaired Financing and assets size positively and significantly influence financial fragility of Islamic banks. However, there is an interesting twist where risk exposure measured by total financing to total assets is significant but negatively related to Islamic banks' financial fragility. This result implies that with appropriate financing portfolio diversification and concentration risk management, Islamic banks may significantly reduce the adverse impact of household credit on their financial fragility. The risk-return trade off remain applicable to Islamic banks' risk management.

Key words: *Bank Fragility, Bank Specifics, Household Credit, Islamic Bank.*

Introduction

The prevailing trend of a high percentage of household debt to gross domestic product (GDP) is experienced by many countries such as Greece, Italy, and United Kingdom (Cecchetti, Mohanty, & Zampolli, 2011), and is increasingly becoming an important issue to a country's well-being. For Malaysia, its household debt to GDP from 2010 to 2015 shows an accelerated pattern. It climbed from 72.3 percent in 2010 to 89.1 percent in 2015. In 2016 and 2017, the household debt to GDP ratio was 88.29% and 84.28% respectively. Although there was a slight decline, the ratio which surpassed 70 percent indicates that the average Malaysian households is carrying debt more than two third of national income. Figure 1 below details this trend.

Figure 1. Malaysian Household Debt to Gross Domestic Product (GDP)

Source: *The Financial Stability and Payment System Report (2010-2017)*, BNM

This trend signals an alarming concern as the extent of household credit market will determine both the stability of the financial system and the level of economic activity (Jappelli, Pagano & Maggio, 2013). The higher the household debt, the greater the increase in individual insolvencies. In other words, individual households who have higher debts will be financially fragile and are more likely to default in their loan payments. Consequently, this will result in the banking sector's financial fragility as more banks in the banking system experience high default risk from high impaired financing (Gramlich & Oet, 2011).

Table 1: Percentage of Household Financing in Malaysian Islamic Banks

Bank / Year	2010	2011	2012	2013	2014	2015	2016	Mean
Bank Islam	75.78	75.32	73.65	75.14	74.18	73.28	72.64	74.28
Affin Islamic	58.10	55.73	56.40	57.67	54.13	51.74	50.38	54.88
Alliance Islamic	66.35	67.10	68.26	68.17	68.12	64.11	60.75	66.12
Am Islamic	77.05	63.20	59.92	58.52	54.36	49.04	47.02	58.44
Bank Muamalat	52.17	55.67	56.60	64.00	64.75	65.45	65.51	60.59
CIMB Islamic	55.57	55.93	54.58	53.21	51.84	51.50	54.15	53.82
Hong Leong Islamic	82.65	79.40	78.23	76.65	73.39	71.89	71.44	76.24
Maybank Islamic	66.32	65.18	63.18	70.01	67.50	76.57	85.55	70.62
RHB Islamic	44.65	50.16	52.22	56.36	52.73	49.40	49.24	50.68
Public Islamic	87.65	87.97	87.08	85.70	81.33	75.79	74.21	82.82
Average								64.85

Source: Banks' Annual Report for Specific Years

In Malaysia, corresponding to the high demand for household consumption, there is a marked increase in consumer borrowing (BNM, 2017). Consumers' reliance on banks is transforming banks as a common source of financing for private households. This feature is notable in the Malaysian Islamic banks' annual reports where it was found 65% of the banks' financing portfolio is to household financing on average (see Table 1 above). This portfolio allocation in lending to household sector has given significant impact to the balance sheets of a bank (Jappelli et al., 2013; Mušić, 2017). The issue is that impaired financing is also the

highest from the household finance sector compared to other sectors. Figure 2 below shows that nonperforming financing in households of Malaysian Commercial and Islamic banks constitutes 39 percent, on average. However, this impact of nonperforming household sector has not been thoroughly examined in the context of Islamic banks, in spite of household financing forming almost half of its financing portfolio composition. Thus, the objective of this paper is to present findings on the household credit market and the impact of household – related banks' specific variables on Islamic bank fragility. It also highlights the significant impact of household impaired financing on the balance sheet positions of the banks.

Figure 2. Household Impaired Financing and Total Nonperforming Financing for Malaysian Commercial Bank and Islamic banks

Source: BNM (2017) Monthly Statistical Bulletin

Literature Review

Dependent Variable: Bank Fragility (BF)

The study on stability of Islamic banks provides little empirical evidence and as such this has not yet being explored in a consistent manner (Cihak & Hesse, 2008; Houcine & Sofiane 2018). Based on Aspachs, Goodhart, Tsomocos, and Zicchino (2007), financial fragility is made up of two components: (1) probability of default (pd) and, (2) bank profitability. In this definition, high probability of default and low bank profitability indicates signs of bank fragility. In addition, Gungel (2012) examined that institutional weakness is a pivotal reason for bank fragility. At this level, an individual bank's balance sheet plays the central role in evaluation of micro variables that explain banking fragility.

Independent Variables related to Bank Risk

Household credit refers to any sort of borrowing that takes place involving a family of an individual. Numerous sources of household credits are available, and families find many different economic needs to meet with borrowed money from financial institutions (Jappelli et al., 2013). On the bank level, the refusal of payments from borrowers cause banks to face non-performing financial agreements that lead to increased bank risk (Waemustafa & Sukri, 2015). On the individual level, the 2008 mortgage and financial crises have highlighted the importance of understanding how households respond to shocks of wealth depending on their income, demographics and level of indebtedness (Rahman & Masih, 2014). For banks, they increase their loans or financing in order to get higher return or income. The study by Foos, Norden, and Weber (2010) suggests that loan growth is positive and significant to bank risk. In contrast, Mat Nor and Ahmad (2015), reported that loan growth is significant and negatively related to impaired financing for Islamic banks. These mixed results of financing growth identify a research gap which this paper explores with regard to household financing growth effect on bank risk or bank fragility (Costa-Climent, & Martínez-Climent, 2018).

A study by Lui (2013) recommends that low capital ratio indicate a bank has problems in financing portfolio that will lead to increased bank risks exposure. The higher ratio implies that the bank can reduce the exposure of impaired financing by having proper capital management in mitigating the risks. In addition to that, Chowdhury (2015) also suggest that

banks in developing countries need to have strong capital structure which can provide a dynamic cushion when dealing with financial crisis (Kamarudin et al., 2019). Klein (2013) indicates that risk exposure entails a bank's capacity and capabilities to provide loan/financing facilities to the customers over its assets. The higher the loan to total asset ratio suggests the greater is the bank's risk exposure. However, Waemustafa and Sukri (2015) and Mat Nor and Ahmad (2015) found a contrasting result whereby the loan asset ratio was negative and significant to credit risk for Malaysian Islamic banks.

Anjom and Karim (2016) recommended that a bank with a proper and well diversified plan in managing its investment policy will have a pleasing income from the usage of its assets. Asset size has been used in many past studies such as (Bougatef; Mismam, Bhatti, Low, Samsudin & Rahman, 2015) to investigate relationships with bank risk (Vlachi, 2018). The rationale for this relationship is that the larger the asset of the bank, the higher could be the proportion of loans/financing given to customers. Meanwhile, Floro (2010) advocates another key factor in contribution of financial system stability is financing loss provision. The bank can be measured as efficient when the ratio is low indicating that the bank has good quality assets. In essence, the higher financing loss provision to total financing suggests the bank is experiencing reduction in asset quality (Nikolaidou & Vogiazas, 2014; Curcio & Hasan, 2015; Fatula, 2018).

Methodology

In this study, financial data were extracted from Islamic bank annual reports covering the study period from 2005 to 2016 (12 years) from ten local Islamic banks in Malaysia. The data was unbalanced data. This paper used panel data analysis to examine the financial fragility of Islamic banks. In the panel data, the estimated equation model consists of cross sectional unit denoted as i and time period denoted as t . In panel data set, the total observation is i multiply with t . The panel data regression is defined as the following regression equation model;

$$Y_{it} = \alpha + \lambda X_{it} + \varepsilon_{it} \quad (1)$$

Where Y is the dependent variable, X is the independent variable(s), α and λ are coefficients. This symbol, ε is denoted as error term. The estimation of this paper is shown below;

$$Bf_{it} = \alpha + \lambda_1 CAP_{it} + \lambda_2 ROA_{it} + \lambda_3 RE_{it} + \lambda_4 SIZE_{it} + \lambda_5 FLP_{it} + \lambda_6 HFG_{it} + \lambda_7 HIF_{it} + \varepsilon_{it} \quad (2)$$

Where α : constant

i : bank

t : time period

ε_{it} : error term of bank i in time t

Based on the estimation equation (2), Bf_{it} is the dependent variable which represents bank fragility and is measured by non performing financing divided by total financing (Iftikhar, 2015). The seven independent variables are (i) Capital Ratio (CAP_{it}) is measured as bank equity divide total asset, (ii) Return on Asset (ROA_{it}) is measured as net income after profit divide total asset, (iii) Risk Exposure (RE_{it}) is calculated as total financing divide total asset, (iv) Financing Loss Provision (FLP_{it}) is calculated as financing loss provision divide total financing, (v) $SIZE_{it}$ is natural logarithm of bank size, (vi) Household Financing Growth (HFG_{it}) is measured by the rate of change of the household financing on the current year

compared to the previous year, (vii) Household Impaired Financing (HIF_{it}) is calculated as household impaired financing divided by total household financing.

Results and Discussion

Regression Results

Table 3 below shows the impact of household impaired financing together with 6 bank specific factors towards bank fragility based on the internal information of Malaysian Islamic banks. From table 3, R-squared is 0.87. This indicates that 87% of the changes in the Malaysian Islamic banks' financial fragility was contributed by the 7 bank specific variables. As shown in the table, bank capital is significant and positively related to financial fragility of Malaysian Islamic banks. Theoretically, the higher the capital ratio, the bigger is the capacity of the bank to absorb potential loss from financial fragility originated mainly from loan defaults.

However, larger capital based banks tend to indulge in higher risky financing because they believe they have sufficient capital to cushion against the losses. The result from this study support Godlewski (2005), Ahmad and Ahmad (2015), Waemustafa and Sukri (2015) who assert that capital ratio exerts significant and positive impact on financial fragility (measured nonperforming financing to total financing). This is in contrast to Mat Nor and Ahmad (2015) who found a negative relationship between bank capital and nonperforming financing for MENA Countries and Malaysia. A study which they made over 2005 to 2013. Hence, the positive coefficient sign of bank capital from our present study suggests that Malaysian Islamic banks apply high risk high return trade off in managing their financing portfolio. We can see this implication in the interpretation of the positive relationship between ROA and bank financial fragility.

Household financing growth reports have a positive significant relationship with bank fragility. This variable is highly significant in examining the bank fragility as it exerts significance at 1% level. The increase of household financing does expose Islamic banks to higher default and hence increases their financial fragility.

Table 3: Regression Results

Independent Variables		Dependent Variable: Bank Fragility (<i>Bf</i>)		
	Coefficient	Std. Error	t-Statistic	Prob.
CAP	0.4978	0.1137	4.3775	0.0000***
ROA	0.0002	0.2142	0.0011	0.9991
RE	-0.0467	0.0179	-2.6082	0.0109**
SIZE	0.0181	0.0033	5.4450	0.0000***
FLP	0.3309	0.1361	2.4314	0.0173**
HFG	0.0133	0.0046	2.8765	0.0052***
HIF	0.6813	0.0417	16.3290	0.0000***
C	-0.3077	0.0545	-5.6498	0.0000
R²	0.87			
Adjusted R²	0.84			
F-Stats	34.41(0.0000)			
No. Observation	97			

*Notes: Bf= Non-performing financing / total loan, CAP = Capital Ratio, ROA = Return on Asset, RE = Risk Exposure, Size = LN Total Asset, FLP= Financing Loss Provision, HFG = Household Financing Growth, HIF = Household Impaired Financing, **p<0.05, ***p<0.01*

Evidently, we can see strong evidence that non-performing financing of the household sector has significant impact on the performance of Islamic banks. The positive sign of **household impaired financing (HIF)** estimates signifies that the higher the household financing growth, the higher Islamic banks' financial fragility. It indicates if there is 1% increase in the level of HIF, the level of Islamic bank fragility will be increased by 0.68%. This empirical result supports Berger, Klapper, and Ariss, (2009), who suggested that the volume of non-performing financing would lead to bank risk exposure and weakens financial stability. In addition to that, Freitakas and Mendelsonas (2015) noted that all aggregated debt namely household, enterprise and public debt may cause financial distress in a country's economic system. Over indebtedness in the economy such as household debt is found to provide foundation problems for a financial system.

Table 3 also highlights that **financing loss provision** is positive and significantly related to bank financial fragility. This result supports current practices where banks will allocate higher provision for anticipated higher credit risk. This finding supports those of Misman et al. (2015) and Mat Nor and Ahmad (2015). However, there is an interesting twist in the result of this study where **risk exposure** (measured by total financing to total assets) is significant but negatively related to Islamic banks' financial fragility. This result implies that Islamic banks may increase in financing provision but could significantly reduce the adverse impact of household credit on their financial fragility with appropriate financing portfolio diversification and concentration risk management. This is in line with the result on **SIZE**.



This study found SIZE (natural log of total Asset) is positive and significant to financial fragility. Since, it is positively related and highly significant, it implies that Malaysian Islamic banks need to continue monitoring their financing portfolio diversification and manage their concentration risk in the household sector to mitigate financial fragility.

Conclusion

The increasing trend in Household indebtedness in Malaysia motivates this study to examine Islamic banks' financing portfolio in the household sector in relation to the banks' financial fragility. The financial fragility, the dependent variable, is measured by non-performing financing to total financing. 7 bank household debt related variables namely CAP, ROA, RE, SIZE, FLP, HFG and HIF were selected as the independent variables. This study found that household financing growth (HFG) and household impaired financing (HIF) together with asset size exert highly significant impact on Malaysian Islamic banks' financial fragility. This implies that Islamic banks should monitor and manage these dynamic factors prudently especially in terms of the diversification of their financing portfolio and their concentration risk in the household sector. The positive relationship of capital ratio to bank financial fragility suggests Malaysian local Islamic banks engage in financing in high risk sectors of the economy. While they offer higher expected returns in the risk-return trade-offs, these high risk sectors expose the Islamic banks to greater financial fragility. Hence, the findings of this study have important policy implication to Islamic banks in managing their financing portfolio and financial sustainability.

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