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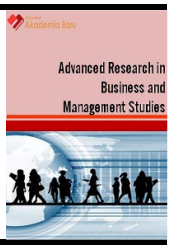

Household Debt Default of Islamic Banks: A Malaysian Case

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ABSTRACT

Based on Bank Negara financial stability and payment report (BNM, 2017), Malaysian economy is facing high household debt to GDP ratio, which is more than 70 percent since 2010 to 2017. A disturbing fact on this ratio indicates that the average Malaysian households is carrying debt more than two third of their income. For Islamic banks in Malaysia in particular, the report on the financial statements indicates that on average, almost 53 percent of their financing portfolio goes to household sector, out of which, half of the default rate is from the household sector. Hence, this paper empirically examines the determinants of household debt default of Malaysian Islamic banks. The current study attempts to explore the impact of selected bank specific factors on household nonperforming financing from year 2006 to 2016. Previous research in this area employed survey method on individual customer level. In this paper, we studied household debt default at bank level due its precarious impact on banks' performance. By utilizing panel data analysis, our result from fixed effect regression finds that household default rate decreases profitability of Islamic banks significantly. Household financing growth and household debt default lag are found to positively impact the Islamic banks' current year household debt default. This result implies that Islamic banks should diversify its financing portfolio to various economic sectors with lesser concentration in household sector to reduce their overall credit risk.

1. Introduction

Household debt refers to borrowings taken by household which include mortgages, home, vehicles, consumer durables, personal use and others [1]. A disturbing fact in Malaysian financial market is its increasing trend in household debt to GDP ratio as shown in Figure 1. The ratio has been on the uptrend from 75.9 % in 2010 to 89.1% 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 percent indicates that the average Malaysian households is carrying debt more than two third of their income putting Malaysia among the highest in the ASIA region (as illustrated in Figure 2).

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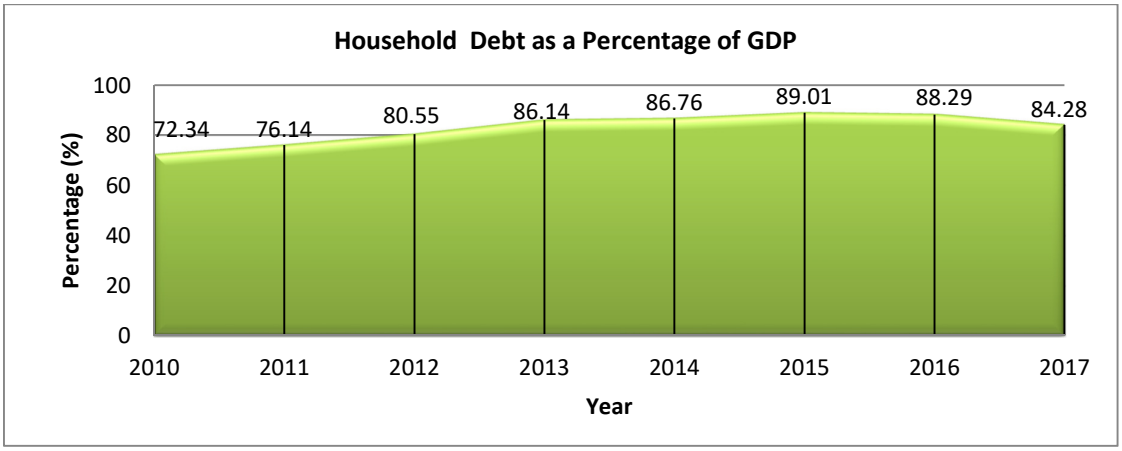
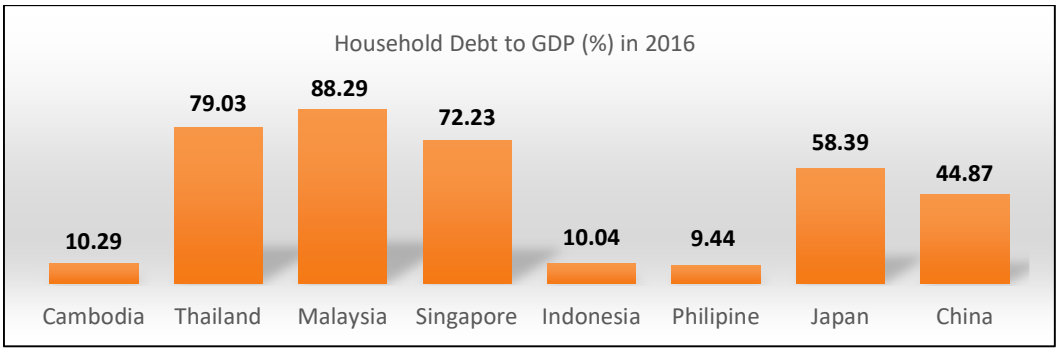
The main source of financing for household debt is from banks and other financial institutions [2]. On average, Table 1 shows on average, 52.65 percent of total financing of Islamic banks is for household debt whilst conventional banks' loans disbursed in this sector is 31 percent [3]. The statistic clearly indicates that Islamic banks' concentrate heavily in household sector financing. An analysis of the loan portfolio of Malaysian Islamic banks revealed that the default rate is also the highest in household financing. This is evidenced from Table 1 showing the nonperforming household debt to total nonperforming financing for Malaysian banks.



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

Fig. 1. Malaysian Household Debt to Gross Domestic Product



Source*: CEIC Data (2016)*

Fig. 2. Household Debt to GDP Malaysia and ASIAN Countries

What if the debt to Malaysian GDP ratio continues increase? How would increasing default rate in household debt impact bank performance? These questions are imperative to be investigated because both household debt to GDP ratio and non performing household debt have serious macroeconomic and financial implications [4]. High household debt to GDP ratio at macro level, affect both the stability of the financial system and the level of economic activity [5]. The concentration of previous studies is more on the effect of macroeconomic variables on stability financial system [6-9]. This paper is a departure from the previous strand of literature on household debt where the focus is on identifying micro factors' influence on household default rate of Islamic banks.

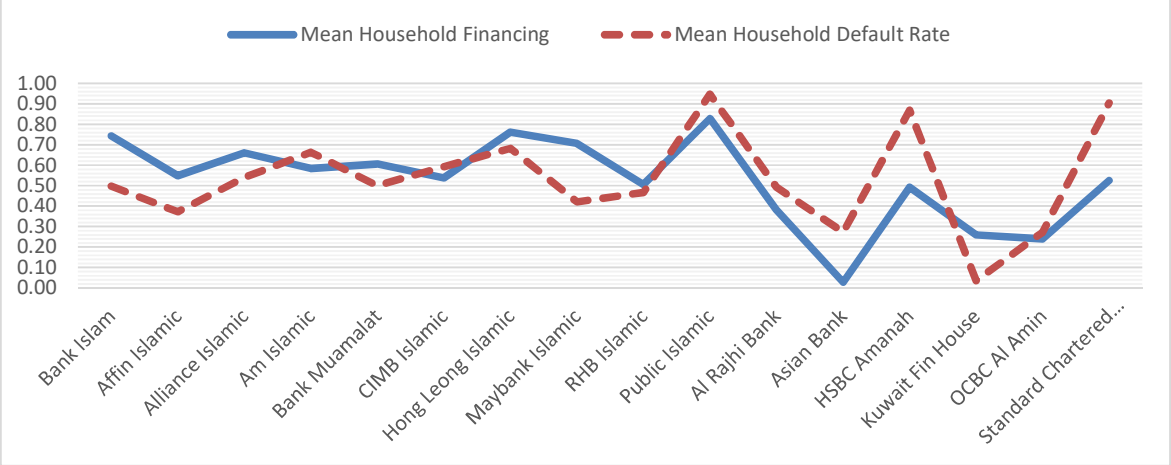
The focus on micro factors is driven on the premise that the higher is the household debt the greater is the increase in the individual (largely bank borrowers) insolvencies. Figure 3 and Table 2

shows this alarming trend of more borrowers being categorized insolvent. This increases banks' default rate as customers could not services their debt obligations. Consequently, the banks face systemic risk as more banks in the banking system experience high default risk from high non-performing loan [10].

Table 1
Household Financing in Malaysian Islamic Banks

Bank	Ownership	2010	2011	2012	2013	2014	2015	2016	Mean
Bank Islam	L	75.78	75.32	73.65	75.14	74.18	73.28	72.64	74.28
Affin Islamic	L	58.10	55.73	56.40	57.67	54.13	51.74	50.38	54.88
Alliance Islamic	L	66.35	67.10	68.26	68.17	68.12	64.11	60.75	66.12
Am Islamic	L	77.05	63.20	59.92	58.52	54.36	49.04	47.02	58.44
Bank Muamalat	L	52.17	55.67	56.60	64.00	64.75	65.45	65.51	60.59
CIMB Islamic	L	55.57	55.93	54.58	53.21	51.84	51.50	54.15	53.82
Hong Leong Islamic	L	82.65	79.40	78.23	76.65	73.39	71.89	71.44	76.24
Maybank Islamic	L	66.32	65.18	63.18	70.01	67.50	76.57	85.55	70.62
RHB Islamic	L	44.65	50.16	52.22	56.36	52.73	49.40	49.24	50.68
Public Islamic	L	87.65	87.97	87.08	85.70	81.33	75.79	74.21	82.82
Al Rajhi Bank	F	36.98	37.91	40.04	41.60	41.92	38.79	30.89	38.30
Asian Bank	F	4.23	5.28	3.17	1.83	1.69	1.82	1.71	2.82
HSBC Amanah	F	42.13	43.47	50.32	53.55	51.77	49.88	54.45	49.37
Kuwait Fin House	F	3.52	20.98	28.44	30.77	29.86	31.38	36.92	25.98
OCBC Al Amin	F	17.94	24.72	21.54	20.28	25.47	28.82	29.05	23.97
Standard Chartered Saadiq	F	51.23	59.70	50.61	53.80	49.02	53.62	49.86	52.55
Average									52.65

Note: L = Local Ownership, F= Foreign Ownership
Source: Banks' Ownership, Bank Negara Malaysia (2017); Banks' Annual Report for Specific Years



Source: Banks' Annual Report for Specific Years

Fig. 3. Household Financing and Household Default Rate for Islamic Banks

In the case of Malaysia, Islamic banks play a significant role in providing household debt financing. Currently, Islamic finance and banking assets constitute 28 percent of the total asset of banking system in 2016 [3]. Hence, stability of Islamic banks' performance is important to the overall growth of the banking system. Since, household nonperforming financing is constitutes almost half of Malaysian Islamic financing portfolio composition, thus, the objective of this paper is to identify significant determinants of household debt default at bank level. Accordingly, this present study attempts to explore the impact of selected bank specific factors on household nonperforming financing for Islamic banks. Thus, this paper seeks to also fill in the research gap in banking literature by providing empirical evidence on household debt determinants attributable to Islamic banks in Malaysia.

The rest of the paper is organized as follows. Literature review in section 2 discusses the theoretical framework and past studies on household debt. Section 3 provides explanation on the data and methodology. While, section 4 presents the regression estimation and results. Section 5 concludes the paper with implications of the result and recommendation of the future research.

Table 2
Household Default Rate in Islamic Banks

Bank	2010	2011	2012	2013	2014	2015	2016	Mean
Bank Islam	0.490	0.572	0.516	0.425	0.419	0.487	0.571	0.497
Affin Islamic	0.330	0.307	0.295	0.310	0.424	0.372	0.574	0.373
Alliance Islamic	0.472	0.424	0.439	0.472	0.481	0.918	0.571	0.540
Am Islamic	0.888	0.799	0.811	0.801	0.780	0.310	0.255	0.663
Bank Muamalat	0.458	0.577	0.370	0.516	0.410	0.582	0.597	0.501
CIMB Islamic	0.627	0.603	0.642	0.660	0.588	0.547	0.481	0.593
Hong Leong Islamic	0.903	0.807	0.541	0.554	0.550	0.816	0.614	0.683
Maybank Islamic	0.450	0.456	0.380	0.488	0.463	0.373	0.337	0.421
RHB Islamic	0.355	0.339	0.454	0.410	0.607	0.533	0.570	0.467
Public Islamic	0.928	0.928	0.941	0.965	0.953	0.966	0.947	0.947
Al Rajhi Bank	0.221	0.327	0.571	0.521	0.447	0.775	0.595	0.494
Asian Bank	0.000	0.475	0.350	0.146	0.434	0.460	0.046	0.273
HSBC Amanah	0.874	0.894	0.878	0.920	0.851	0.819	0.854	0.870
Kuwait Fin House	0.000	0.003	0.013	0.041	0.049	0.045	0.097	0.036
OCBC Al Amin	0.257	0.285	0.374	0.252	0.184	0.226	0.337	0.273
Standard Chartered Saadiq	0.910	1.000	0.965	0.941	0.907	0.882	0.725	0.904
Average								0.534

Source: Banks' Annual Report for Specific Years

2. Literature Review

Financing of household sector has significantly increased over the past ten years. Particularly in the case of Islamic banks in Malaysia, the financing to household sector of these Islamic banks constitutes half of total financing portfolio as at December 2016. Numerous sources of household finances are available, and families find many different economic needs to meet with borrowed money [5]. However, an increase in household borrowing does not always turn out well either for individual households or for the bank itself. The higher is the household debt, the greater is the increase in individual's ability to service their loans on schedule. The default from the borrower causes the bank to face impaired financing that lead to higher credit risk of the bank [11,12].

Household debt phenomenon is best explained by life cycle model theory developed by Modigliani and Brumberg [13]. The theory suggests that household debt depends on households' consumption over time, their lifetime income including initial and future wealth and the level of interest rates. For financial institutions, household debt default is due to moral hazard. Sinkey [14] defined moral hazard as irresponsible actions by one party to another party with purpose to get benefits at the expense of the other party. Moral hazard theory is further explained by Dowd [15] as one that is pervasive and inevitable feature of the financial system that motivated banks to take more risk for higher return. In the case of household debt default, a bank may incur default when its borrowers are not able to service their loans and the moral hazard took place if the bank took excessive risk taking by approving the loans at higher interest rate to sub-standard borrowers. This is clearly evident in the 2008 subprime mortgage crisis in the United States. The crisis highlighted how households respond to shocks to wealth, including housing price shocks, and whether and how this reaction depends on their income, demographics and level of indebtedness [9]. In Malaysian banking system, household impaired financing on average is about 40% of the total impaired financing for Islamic bank and commercial bank (conventional bank) [3]. This represents high risk exposure of the banks to credit risk from household sector alone. In this study, household debt default (HDD) is measured as household non performing financing divided by total household financing.

Past studies on household debt default mostly focus on macroeconomic variables. Among these studies are Jappelli *et al*., [5], Debelle [6], Sutherland *et al*., [7], Hunt [8], Rahman *et al*., [9], and Mian *et al*., [16]. Particularly for Malaysia, the study available by Khan, Abdullah, and Samsudin [17] and [18] are also examining the influence of macroeconomic variable on household debt. Debelle [6] study on household debt of OECD Countries (United states, Japan, Australia, UK, Germany, France, Netherland, Denmark, and Italy) from 1998 to 2000. The study revealed that the growth in household debt has exceeded income level. Lower interest rate and ample liquidity lead to significant increase in household debt. Three factors namely changes in interest rate, income, asset prices had been highlighted as most influential factors affecting household indebtedness. This indebtedness is small sensitive to variables instead of fixed rate mortgages.

Jappelli *et al*., [5] examine determinants of household debt to identify cross country differences. The determinants were log of capital GNP, Population Growth, GINI Income in equality index coefficient, Bank Concentration Rate, English Origin, Duration of Check collection, Private and Public registry. Meanwhile, the household debt was measured by household debt to GDP ratio. The study shows that bank insolvencies tend to be associated greater household indebtedness. European countries that experience fast debt growth had larger increases in insolvency rates. On the other hand, United Kingdom and United States confirmed that insolvencies increase when there is a large increase in household debt accumulation. Another important finding is that, institutions are also found to be highly responsible for household debt and defaults.

In Malaysia perspective, Rahman and Masih [9] investigate the increase in household debt and its relationship with GDP, Interest rate, and House prices using time series technique. The results show that, there is a co-integrating long run relationship between the variables. It is also found that house price is positive and significantly related to household debt. The result implies that in the long run the increase in household debt is contributed by the increase of house price. This result is supported by Khan *et al*., [17] which GDP and lending rate are found to be endogenous and they do not affect household debt significantly. In spite of that, interest rate may have influence on the bank lending rate which consequently has some impact on repayment of the debts in household sector. In contrast, the study by Khan *et al*., [18] using Toda Yamamoto Non-Causality test found that the direction of causality runs from the household debt to GDP, which suggest that household debt influenced GDP through its impact of aggregate demand.

Henceforth, the reviews of recent literature indicate less focus on bank specific variables' influence on household debt. Taking up the findings of Jappelli *et al*., [5] that financial institutions do influence household indebtedness, this article carried out analysis of factors associated with banking institutions and their relationship with household debt default. This is a departure from past studies which employed bank specific factors and credit risk of conventional bank [22,27,30,32] and Islamic bank studies [11-12,21,33].

Several bank-specific variables measured by financial ratios are hypothesized to have significant influence on household debt defaults. These are capital ratio (EQUITY), regulatory capital (REGCAP), return on assets (ROA), financing growth (FGrowth), financing loss provision (FLP), Risk exposure (RE) and size of total assets (SIZE).

In this study, equity capital is measured by dividing the equity of bank to total asset. Chowdhury [20] explains that banks in developing countries need to have strong capital structure which can provide dynamic cushion when dealing with financial crisis. It also suggests that the resilient capital structure could protect depositors during volatility of macroeconomic conditions. A study by Lui [31], recommends that low capital ratio indicate the bank has problem in financing its portfolio that will lead to increase the bank risks' exposure. Higher ratio implies that the bank can reduce the exposure of impaired financing by having proper capital management in mitigating the bank risks. In this study, the expected coefficient of this ratio is hypothesized to be negative and has significant relationship with household debt default.

The regulatory capital (REGCAP) is measured by amount of Tier 1 and Tier 2 divided by total risk weighted assets as reported in the bank's annual report. The higher ratio implies that the bank can reduce the exposure of impaired financing by having sufficient capital to absorb income loss from impaired financing. Hence, the coefficient of REGCAP is expected to be negative because proper capital ratio size helps the bank to manage its risk exposure. In the other words, strong bank capital could be used by banks to mitigate credit risk. Empirical study by Misman *et al*., [33], found that higher regulatory capital held by banks help them reduces their exposure to credit risk. For ROA, Anjom and Karim [22] reported that suggested that a bank with proper and well diversified lending portfolio in managing its investment policy has good income from efficient usage of its asset. In this study, return on asset is measured by earnings before taxes divided by total asset [29]. Both Ismail *et al*., [29] and Messai *et al*., [32] achieve similar result that ROA has a negatively significant effect on NPLs at 5% significant kevel. This result was also supported by Anjom *et al*., [22] in the case of Islamic banks. Thus, in this study, ROA is hypothesized to be negative towards household impaired financing for Malaysian Islamic banks.

Financing growth (FGrowth) is measured by the rate of change of the financing on the current year compared to the previous year. FGrowth has been tested against impaired financing of Islamic banks in Malaysia [11]. Their finding shows that loan growth is significant and negatively related to impaired financing for Malaysian Islamic bank over 2005 – 2013 period. In contrast, Messai and Jouini [32] found that FGrowth has positively but not significantly influenced impaired financing of 85 banks in Italy, Greece and Spain covering 2004 to 2008 study period. This result was also supported by Foos *et al*., [26] which found positively significant between loan growth and bank risk. Bearing in mind this conflicting result, this study estimate that FGrowth has a positive relationship with household debt default of Islamic banks in Malaysia. The next variable is financing loss provision. It is represented by loan loss provision to total financing ratio, which explain the relationship between total financing of bank and the provision of financing that bank have been put aside for possible future defaults. Since loan provisioning is indicative of asset quality of a bank, a policy related to loan loss provision is becoming a key factor contributing to financial system stability [25]. The presence of many banks with high financing loss provision indicates that the banking system might face high

credit risk which affects the survival of the banks and consequently, the stability of the financial system. Several studies reported financing loss provision to be significant and positively related to non-performing loans and impaired financing such as Mat Nor *et al*., [11] and Curcio *et al*., [24]. On this basis, it is hypothesized that financing loss provision has a positive and significant influence on household default rate.

Risk exposure in this study uses the loan to total asset ratio as a proxy. It is indicated by the bank's capacity and capabilities to provide loan/financing facilities to the customers over its assets [30]. The higher the total loan to total asset ratio, the greater is the bank risk exposure. We estimate risk exposure to have a negative and significant relationship with household debt default on the basis that 40 percent of financing default comes from household financing and in line with the findings of Mat Nor *et al*., [11] and Waemustafa *et al*., [12].

Asset size in this study refers to natural logarithm to total asset. This measurement has been used in many past studies such as Bougatef [23] and Misman [33] to investigate the relationship between asset size and impaired financing. The findings from these studies show that asset size is positively related to credit risk or impaired financing. We hypothesize that size has a negative and significant effect on household debt financing for Malaysian Islamic banks.

3. Methodology

In this study, financial data were extracted from Islamic bank annual reports covering study period from 2006 to 2016 (11 years). The data is unbalanced panel data of 16 Islamic banks comprising 10 local and 6 foreign Islamic banks (see Table 1). The method used was Fixed Effects model to determine the impact of bank specific factors on household debt defaults of the Islamic banks over the 11 year study period. In the panel data, the estimated equation model consists of cross sectional unit (respective Islamic bank) denoted as *i* and time period denoted as *t* and the total observation in *i* multiplied with *t*. The common panel data regression is defined as a 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. Based on the regression equation model above, the functional form for the objective of this paper is Household Debt Default (HDD) = *f [Lag of Household Debt Default as* $\mathbf{HDD_{t-1}}$*, Lag of Return on Asset as* $\mathbf{ROA_{t-1}}$*, Regulatory Capital as* $\mathbf{REGCAP_t}$ *, Shareholder Fund as* $\mathbf{Equity_t}$*, Risk Exposure as* $\mathbf{RE_t}$*, Financing Loss Provision as* $\mathbf{FLP_t}$*, Total Asset as* $\mathbf{SIZE_t}$*, Financing Growth as* $\mathbf{FGrowth_t}$*, Lag of Impaired Financing as* $\mathbf{IF}_{t-1}$ *Lag of Household Debt as* $\mathbf{LNHD_{t-1}}$*]*. The following is the econometric specification for the objective;

$$HDD_{it} = \alpha + \lambda_1 HDD_{it-1} + \lambda_2 ROA_{it-1} + \lambda_3 REGGAP_{it} + \lambda_4 EQUITY_{it} + \lambda_5 RE_{it} + \lambda_6 FLP_{it} + \lambda_7 SIZE_{it} + \lambda_8 FGROWTH_{it} + \lambda_9 IF_{it-1} + \lambda_{10} LNHD_{it-1} + \varepsilon_{it} \quad (2)$$

where α : constant
i : bank
t : time period
εit : error term of bank *i* in time *t*

4. Results and Analysis

4.1 Descriptive Analysis

Table 3 provides the descriptive statistics for all the variables in the study. For the 11 year period from 2006-2016, the mean HDD of Malaysian Islamic banks is 3.24 percent with a small standard deviation among the result (SD=0.0631). ROA_{t-1} of Islamic banks was small with a mean of 0.0061 (0.06%).

The statistic suggests that Islamic banks need to increase their efficiency in utilising their assets. The statistics on REGCAP shows that Islamic banks are well capitalised, even the EQUITY which represents Tier-1 capital exceeds the threshold level of 4%. RE which indicates the Islamic banks' financing portfolio makes up on average, 61.90 percent of their total assets. This ratio is fairly the same across the 16 banks looking at the small standard deviation (0.1125). The notable difference is that Islamic banks in Malaysia have large variation in asset size as can be inferred from the standard deviation of 1.43 for SIZE.

Table 3
Descriptive Statistic

Variable(s)	Mean	Std. Deviation
HDD_t	0.0324	0.0631
HDD_{t-1}	0.0336	0.0615
ROA_{t-1}	0.0061	0.0119
$REGGAP_t$	0.1650	0.0542
$EQUITY_t$	0.0853	0.0382
RE_t	0.6190	0.1125
FLP_t	0.0068	0.0127
$SIZE_t$	16.9711	1.4325
$FGROWTH_t$	0.2012	0.2555
IF_{t-1}	0.0331	0.0428
$LNHD_{t-1}$	15.4378	1.2774

Notes: HDD_t = Household Debt Default, HDD_{t-1}= Lag of Household Debt Default, ROA_{t-1} = Lag of Return on Asset , $REGCAP_t$ = Regulatory Capital, $Equity_t$= Shareholder Fund, RE_t = Risk Exposure, FLP_t= Financing Loss Provision, $Size_t$ = LN Total Asset, $FGrowth_t$ = Financing Growth, IF_{t-1}= Lag of Impaired Financing, $LNHD_{t-1}$= Lag of Household Debt

4.2 Correlation Analysis

The study employed correlation matrix to examine the problem of multicollinearity between independent variables, which to avoid of biased results. In case of the correlation coefficient is above 80 percent for each pair of variables, therefore, there is serious problem of multicollinearity [28].

Based on Table 4, it summarizes the value of correlation coefficient for all independent variables. The results show that all variables are correlated but not beyond the critical threshold of multicollinearity [28]. The highest score of correlation coefficient is between SIZE and $LNHD_{t-1}$ is 0.77. It is followed by REGCAP and EQUITY (0.56) and trailed by ROA_{t-1} and IF_{t-1} with -0.51. Meanwhile, for other pairs of independent variables showed that the value of correlation coefficient is below that 0.50.

Table 4
Correlation Matrix

	HDD_{t-1}	ROA_{t-1}	$REGGAP_t$	$EQUITY_t$	RE_t	FLP_t	$SIZE_t$	$FGROWTH_t$	IF_t	$LNHD_{t-1}$
HDD_{t-1}	1									
ROA_{t-1}	-0.14	1								
$REGGAP_t$	0.18	-0.15	1							
$EQUITY_t$	0.31	-0.28	0.56	1						
RE_t	-0.21	0.15	-0.11	-0.02	1					
FLP_t	0.06	-0.09	-0.03	0.24	-0.12	1				
$SIZE_t$	0.49	-0.06	0.31	0.34	-0.13	-0.06	1			
$FGROWTH_t$	-0.03	0.03	0.01	-0.08	-0.10	-0.01	0.10	1		
IF_{t-1}	0.22	-0.51	0.09	0.20	-0.30	0.14	-0.09	-0.21	1	
$LNHD_{t-1}$	0.21	0.14	0.07	-0.15	0.10	-0.37	0.77	-0.04	-0.19	1

Notes: HDD_{t-1}= Lag of Household Debt Default, ROA_{t-1} = Lag of Return on Asset , $REGCAP_t$ = Regulatory Capital, $Equity_t$= Shareholder Fund, RE_t = Risk Exposure, FLP_t= Financing Loss Provision, $Size_t$ = LN Total Asset, $FGrowth_t$ = Financing Growth, IF_{t-1}= Lag of Impaired Financing, $LNHD_{t-1}$= Lag of Household Debt

4.3 Regression Results

Based on Table 5, the model shows that all the ten bank specific variables explained 88 percent of the variation in household debt default of Islamic banks in Malaysia. The previous household debt default significantly influenced the current year household debt default. The result in table shows an increase of 1 point in HDD_{t-1} result in 0.683 point increase in household debt default for the year. In contrast, REGCAP does not significantly influence Household debt default. Nonetheless, the negative relationship (B=-0.0107) indicates that an increase HDD resulted in weakening of regulatory capital. In such a case, Islamic banks need to strengthen their regulatory capital in line with capital ratio requirement.

This study discovered when Islamic banks increase their risk exposure (that is increase financing to total asset ratio) the default rate from household debt financing decrease significantly. The result appears to suggest two possibilities with regards to Islamic banks financing portfolio management. Firstly, Malaysian Islamic banks over the study period had employed sound risk management measures towards managing their financing portfolio risks. Secondly, other sectors beside household sector did contribute to default risk of the banks. However, this result supports Misman *et al*., [33] which found similar negative and significant relationship between financing exposure and credit risk.

Financing Loss Provision turn out to have strong positive impact on HDD (B=0.234, t=3.212, p=0.0017). This is a new finding as it relates to household debt. However, the positive and significant relationship suggests that the higher the HDD the more provision allowances need to be provided by Islamic banks. This result is similar to Mat Nor *et al*., [11] which studied impaired determinants of Malaysian Islamic banks. However, our result is in contrast to Waemustafa *et al*., [12] which showed positive but not significant result between FLP and credit risk. It is observed that provision allowances of Islamic banks have the same impact with credit risk experienced by conventional bank [24]. This study provides fresh result compared to past studies in term of the impact of SIZE on default rate. Table shows SIZE is significant but negatively related to HDD. Past studies such as Bougatef [23] and Misman *et al*., [33] found negative but not significant relationship between SIZE and credit risk of Islamic Banks. The difference highlighted in this study is that the dependent variable in this study is household debt default whereas the two studies used total nonperforming financing as a proxy of

default risk. The significant results shown by this study suggest that Islamic banks practice diversification not only by sector but also by different risk classes (residential properties, vehicle, personal financing, and securities) within the household sector. This practice is able to reduce otherwise larger negative impact of HDD.

Table 5
Banks Specific on Household Debt Default in Islamic Banks

Variable(s)	Beta Coefficient	Std. Error	t-statistic	p-value
HDD_{t-1}	0.683	0.136	5.032	0.000***
ROA_{t-1}	-0.240	0.104	-2.315	0.023**
$REGCAP_t$	-0.011	0.018	-0.591	0.556
$EQUITY_t$	0.088	0.064	1.370	0.174
RE_t	-0.020	0.006	-3.138	0.002***
FLP_t	0.318	0.073	4.333	0.000***
$SIZE_t$	-0.010	0.005	-2.055	0.042**
$FGROWTH_t$	0.002	0.005	0.366	0.715
IF_{t-1}	0.017	0.060	0.286	0.776
$LNHD_{t-1}$	0.012	0.004	3.423	0.001***
C	-0.006	0.051	-0.113	0.910
Dependent Variable	Household Debt Default			
R^2	0.88			
Adjusted R^2	0.85			
F-Stats	31.18 (0.000)			
No. Observation	132			

*Notes: HDD_t = Household Debt Default, HDD_{t-1}= Lag of Household Debt Default, ROA_{t-1} = Lag of Return on Asset , $REGCAP_t$ = Regulatory Capital, $Equity_t$= Shareholder Fund, RE_t = Risk Exposure, FLP_t= Financing Loss Provision, $Size_t$ = LN Total Asset, $FGrowth_t$ = Financing Growth, IF_{t-1}= Lag of Impaired Financing, $LNHD_{t-1}$= Lag of Household Debt **p<0.05, ***p<0.01*

Three other variables namely amount of household debt financing of previous year ($LNHD_{t-1}$), past year return on asset (ROA_{t-1}) and Equity are significant to HDD. $LNHD_{t-1}$ and Equity are positively related whilst ROA_{t-1} provides negative influence to HDD. As to Equity, the finding indicates the higher the HDD, the larger would be the capital buffer required to compensate higher risk. This finding is consistent to [33] where the positive sign of Equity coefficient explained that Malaysia Islamic banks with larger equity capital tend to disburse financing more to risky sector such as household sector for higher return, knowing that they have sufficient capital to absorb any potential loss. This financing behaviour of Islamic banks mirror the high risk and high return principal of conventional finance theory. Meanwhile the negative and significant result of ROA to HDD implies that higher HDD reduced the profit accumulated from the previous year resulting in lower profitability. As ROA is an important measure of bank asset efficiency, Islamic banks therefore need to manage their HDD prudently to ensure sustainable profitability to shareholders.

5. Conclusions

This study highlights 10 bank specific determinants of household debt default of Islamic banks in Malaysia from 2006 to 2016.The findings present new evidence that HDD lag, Risk Exposure, Financing Loss Provision, Log of Household debt lag have significant influenced on HDD. The result

also shows that profitability of Islamic banks is significantly reduced by HDD. These findings imply that Islamic banks should diversify its financing portfolio to various economic sectors with lesser concentration in household sector to reduce their overall credit risk. Risk management procedures should be enhanced in Islamic banks to avoid adverse impact of related risks on the Islamic banks' performance and stability.

This study identifies the selected bank specific Islamic banking variables which significantly affects household debt default in Malaysia. Thus, the findings of this study may not represent Malaysian banking sector as whole. Future study should also incorporate Islamic banks and commercial banks for more conclusive results on household debt. In addition, more comprehensive evaluation may be derived if beyond bank specific variables such as micro and macroeconomic level n determinants are also incorporated in the model. This would therefore enrich the understanding of behavior of household debt as a pivotal factor on bank's stability.

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