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## ISLAMIC BANK FINANCING BEHAVIOUR: A PRELIMINARY STUDY

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### Abstract

*This study empirically examines the behaviour of Islamic bank financing activities to the fluctuations in the macroeconomics environment. An unbalanced panel data analysis was employed on 24 Islamic bank institutions' annual data growth from various countries for the period within the span of 1998-2008. Bank micro data such as the total financing, reserve and loan loss provision are used to determine the behaviour after controlling for banks' specific characteristics. The finding shows that Islamic bank financing operations is not tied to the changes in the real GDP growth that makes it more stable and resilient. The bank's reserve and loan loss provision manage to play its role to mellow down the Islamic bank financing behaviour and act as banks' buffers to protect the institutions from the fluctuations in the macroeconomics environment. The finding shows that the bank total financing growth is stronger during strong economic growth and weakens when economic is weaker. Though the degree of association is low as opposed to the GDP growth and the buffers policy that is positively associated to it, the institutions need to be more careful so that over-financing of fixed rate financing can be avoided. The empirical finding suggests that the Islamic bank should go for more into the profit and risk sharing to avoid any unwelcome results from the fixed rate financing instrument.*

### 1. Introduction

It is irrefutably that the bank lending volume is stronger in periods of strong economic growth and weaker in periods of weak economic growth. During strong economic growth due to high household's consumption spending thus investment demand will increase and the opposite during weak economic growth. The nerve-racking issue is that empirical studies exhibit a pro-cyclical behaviour of the conventional banks lending to the business cycle (Gruss and Sgherri, 2009; Albertazzi and Gambacorta, 2009; Rochet, 2008; Bouvatier and Lepetit 2008, among the latest empirical evidence on the matter).

The failure of conventional banks to play their role in stabilizing the economy and with the continuous global economic disorder has sparked the interest on the Islamic financial system. Muslim scholars proposed that the virtue in Islamic financial system would bring stability to economic environment. They alleged that Islamic bank with profit and risk sharing (PRS) able to weather the economic crisis better. However, much of the views presented are theoretical in concepts and descriptive in nature with little empirical evidence.

The pertinent question is whether the Islamic bank financing have a tendency to weather the economic climate situation as anticipated by most of its proponents. The more worrying issue is that at present 80% of total financing delivered by the Islamic bank financing practices are in the form of fixed rate financing (FRF). With the present situation, will the bank financing behave pro-cyclical to the business cycle? With such financing operations presently practices the capability of Islamic bank to smooth the economic cycles is now questionable.

With that in mind, this pilot study attempt to examine the impact of aggregate economic activities fluctuations on the Islamic bank financing activities. This objective provides the direction of association between real gross domestic product (GDP) growths as the main macroeconomics aggregate indicators to the Islamic bank financing growth. If the Islamic bank financing activities is stable and resilient then the degree of GDP growth need to have small impact on the Islamic bank financing growth. More importantly, the objective of the study is to evaluate the cyclicity behaviour of Islamic bank financing. In order to make it behaving counter-cyclical the reserve and loan loss provision (LLP) growth should behave positively to the financing

growth. The reserves and LLP policy verify the capability of the bank to control the financing volume to smooth the business cycle event.

Quran (Yusuf, 12:46-49) clearly stated the important of reserves and LLP instruments for managing the business cycle.

*“....He said: “For seven years you shall sow continuously, then what you reap leave 5 it on the ear, except a little whereof you eat (47). Then thereafter there shall come upon you seven hard years, in which you shall devour all that you have reserved for them, except a little you keep in store (48). Then there shall come after that a year in which the people shall have rain and in which they shall press (fruit & oil) (49). (Yusuf: 47-49).*

Reserves and LLP should act as the control device on banks financing activities. Allah instruction is that during high economic growth reduced the spending and raised spending during economic downturn to generate the economy. Thus, stabilisation policy should able to control on the financing growth so that it able to put pressure on the financing activity in the event of economic expansion. During economic contraction, reserves and LLP growth should able to amplify the financing activities.

## 2. Review of Literature

Empirical study shows that the pro-cyclical behaviour of the conventional banks is associated to the management practices on provisioning and credit rating policy (Bouvatier and Lepetit 2008, Quagliariello 2007, Bikker and Metzmakers 2005; Laeven and Majnoni, 2003 and De Lis et al, 2000) and reserves (Bliss and Kaufman, 2002). Profit driven enthusiasm is another determinant that contributing to the pro-cyclical behaviour (Albertazzi and Gambacorta, 2009 and Bikker and Hu, 2002). Some have also argued that the regulation reforms such as Basel I and Basel II (Hancock and Wilcox, 1998; and Wagster, 1999) and IAS 39 (Gruss and Sgherri, 2009 and Rochet, 2008) are likely amplifying bank pro-cyclical behaviour.

Muslim scholars argued that the roots behind this undesirable behaviour are the exercise of unfavourable instruments and activities from the *shariah*. They believed that with the existing of *shariah* compliant instrument the Islamic bank able to stabilise the economic environment. However, empirical studies by Ismail and Sulaiman (2006), Rosly and Bakar (2003) and Bakar (2006) provide symptoms on the pro-cyclical behaviour. Bakar (2006) observed that Malaysia Islamic bank investment margin fluctuating stronger than its rival does during an upswing and downswing of interest rate as one of the business cycle leading indicators. Ismail and Sulaiman (2006) analyzed the recovery rates and default rates for Malaysia Islamic bank. Their finding shows that when the economy is expanding the default rate is low and opposite when economy is contracting. Base on the finding, it is argued that there is possibility that through the debt-like financing instrument the Islamic banks financing might behave pro-cyclical.

Literatures on the conventional bank cyclical behaviour are more evidence. Early of 1990s, concerns on the pro-cyclical behaviour of bank lending activities begin to appear. In 1990s, concern perceived on the excessive pro-cyclical behaviour of banks that empirically proven to make worse the cyclical behaviour (Bernanke and Lown, 1991; Bernanke and Blinder, 1992; Kashyap and Stein, 1993 and 1994; and Asea and Blomberg, 1998). In 2000s, the analysis was more on bank pro-cyclical determinants (Gruss and Sgherri, 2009; Bouvatier and Lepetit 2008; Rochet, 2008; Quagliariello 2007 and others).

Adrian and Hyun (2008) based on US bank holding company data found that banks increase their leverage during asset price booms and reduce it during busts. Bouvatier and Lepetit (2008) with European banks data find that LLP made in order to cover expected future loan losses amplify credit fluctuations. Earlier study by Quagliariello M (2007) on Italian banks shows during economic downturns banks tends to tighten the credit supply. Bikker and Metzmakers (2005) study shows that provisioning turns out to be substantially higher when GDP growth is lower, reflecting increased riskiness of the credit portfolio when the business cycle turns downwards, which also increases the risk of a credit crunch. Laeven and Majnoni (2003) work empirically shows that many banks around the world delay provisioning for bad loans until too late, when cyclical downturns have already set in.

From the literature survey, it is evident that the idea of Islamic bank capability in smoothing the fluctuations in the economic activities are somehow lack of empirical evidence. Therefore, this particular study tries to fill up the vacuum.

## 3. Islamic Bank and Economic Stability

The major principles of Islamic finance are ban on interest-based financial instrument. As an alternative, Islamic scholars approved the application of equity-based and trade-based (al-bay) financing. With equity-based financing the lender, intermediaries and borrower relationship is transformed into a partnership through PRS

investment. As for financings on consumption spending, the trade-based financing by price mark-up and the hire purchase formula is used. *Shariah* also prohibit all financial transaction involving speculative, ambiguous and uncertain activities and financial risk transactions (Quran: 2:219 and 5:90). This makes Islamic bank more cautious, very selective and more efficient in investment selection and financing activities. Ethical investments and consumption spending financing makes the operations are within moral value structure. The financing and financial transaction must also tie to a “tangible and identifiable underlying asset.” With *shariah*-approved instruments, the banking operations are free from any exploitation and excesses.

In the PRS model, money is transformed to a productive use, risk is undertaken to justify a return. Furthermore, returns should not be fixed regardless of profits for the cause of usury. Theoretically, with this instrument, the fund provider has more attention in the soundness of the investment for the fact that return is directly related to the project success. Thus, bank will drive up the entrepreneur ensuring efficient management and the highest possible productivity and return of the projects.

During economic upswing, investment earning shows a positive trend with low rate of non-performing loan, this motivated the bank to increase its financing supply. Concurrently an important characteristic of the Islamic bank operations is to follow Allah (swt) command during the economic swing (Quran: 12:46-49). In the event of economic upswing bank should increase its reserve and LLP for the reasons of increasing in financing risk and this will lessen speculative motivated financial transaction. Increase in reserve and LLP reduced the excess fund for financing activities. As opposed to this, speculative pressures than the economic fundamentals benefit influence conventional banks that extend untied credit and pricing more.

Speculative trading, financial risk, and uncertain activities are avoided and free from all sorts of exploitation and excesses. This makes the Islamic bank selections of project and investment more cautious and selective. The transaction is also tied to a “tangible and identifiable underlying asset”. Islamic financing are also within the moral value structure with ethical investments and consumption spending. Financing by Islamic bank that is tied to real asset and based on profit and risk sharing allows market forces to work in better way to achieve economic efficiency. With that, Islamic bank allocates the resources more efficiently without any exploitation. Referring to this argument the Islamic bank investment will not increase as large as the interest-based bank in the event of economic upswing. Even though with the earning and non-performing loans (NPL) shows an encouraging signs during an economic upswing, the Islamic bank will not easily extending the financing or loosen the requirements.

During economic downturn with fewer profitable investment projects exist, though normally conventional banks tighten their underwriting standards, Islamic banks will not overreact to these swings. Though higher investment risk and with increasing number of NPL when the economy contracted the provision of equity-based financing from Islamic bank will not fall significantly. During this period the bank will reduce the reserve and LLP to increase the excess fund for financing as instructed by the Quran (12:46-49). The excess reserve on provisioning during high economic growth will be utilised in this period to finance productive projects. With the decreased in bank reserve and LLP during economic downturn, with more excess fund for financing will push the financing volume upwards. Due to the *zakat* (obligatory charity) responsibility, Islamic bank will not hold to much cash reserve in the event of low economic growth. *Zakat* instrument play the role as automatic investment motivator to the economic agents. Holding of cash reserve will be at minimum safety level and the excess cash reserve will be invested with a return at least equal to the *zakat* rate. If it is not invested the cash assets will depleted due to *zakat* obligation.

With PRS financing instrument, the profits are shared between the two parties according to some pre-agreed ratio, but if there are losses the investor bears all the financial losses (*mudharabah* agreement) or shared (*musyarakah* agreement) with the entrepreneur. The entrepreneur will not reluctant to invest due to the sharing of risk with the fund providers. Therefore, the financing activities emphasis on productivity compared to creditworthiness. With those special characteristics of PRS financing instrument, the Islamic bank able to smooth the downswing in the economic activity.

However, the operations of Islamic banking currently did not adopt the early ideas in fact they opted more too FRF instruments. *Murabahah* (mark-up) and *ijara* (lease purchase) instrument is the most widely applied presently by Islamic bank for the reason of practical and operational problems. Nevertheless, the Islamic bank FRF instruments are still complying with the *shariah* requirement.

With the unique characteristics of the Islamic bank, this will assure the institutions financing activities will not overreact to the economic swings. At any time Islamic bank able to mellow down its cyclicity behaviour by adjusting its reserve and provisioning policy. The pertinent issue now is that whether banks practically tend to use reserve and LLP to smooth their operations. Does Islamic bank reserve more and provision more when financing activities and earnings increase. The potential of Islamic bank in minimising the impact of business cycle thus depends on the reserve and LLP policy and the ratio between equity-based financing to the trade-based financing. The higher provision for equity-based financing will ensure a more effective counter-cyclical behaviour of the banking sector.

#### 4. Research Methodology

The key measure of business cycles event is fluctuations in real GDP that reflect the changes in employment level, general price level and macroeconomic activities. The model develops for this study is a blend of model by Laeven and Majnoni (2003) and Bikker and Metzmakers (2005). To estimate the Islamic bank financing cyclical behaviour this paper focuses on the growth rate of financing related to the growth of real GDP, bank reserve and LLP as the cyclical indicator. To take into account the different characteristics between individuals' bank and country, the study used the ratio of banks' variables growth to the earning assets growth rate. This is to allow for the differences between bank characteristics. The study use growth value to avoid potential misspecification and endogeneity problems due to the differences in bank and country characteristics. Previous researchers used total assets growth rate as the denominator to control on banks' and country's characteristic differences (Laeven and Majnoni, 2003 and Bikker and Metzmakers, 2005). This particular study, use the earning assets as the denominator as it is the earning assets that generates income to the bank. The earning assets include all assets that generate explicit financing income or lease receipts. It is measured by subtracting all non-earning assets such as cash and short-term funds, statutory deposits, fixed assets and other assets from the total assets.

A counter-cyclical behaviour of bank financing during economic fluctuations is revealed by the slower growth of financing volume to the growth of real GDP. Whereby, financing growth rate should diminish when real GDP is growing and increase with slower economic growth. The slower growth of financing to GDP growth is cause by increase in the reserve and LLP, the internal instrument to manage the financing volume. Therefore, reserves and LLP growth must positively correlate to financing growth. In the event of economic upswing, the reserve and LLP must also increase to safeguard the increase in financing. During economic downturn, it should move the opposite way to boost up the financing volumes. Therefore, the study hypothesises that Islamic bank financing will behaves counter-cyclical if the following condition met:

1. Bank financing growth should negatively correlate to the GDP growth.
2. Bank financing growth should positively correlate to the reserve growth.
3. Bank financing growth should positively correlate to the LLP growth.

In conducting the study, it employed the panel data method in analysing the bank financing behaviour. Annual data from 1998 to 2008 are gathered from 24 Islamic bank institutions from various countries including Malaysia, Bahrain, UAE, Turk, Kuwait, Saudi Arabia, Pakistan and South Africa (appendix 1). The data are obtained from bank's annual reports and various countries central bank reports. This study employed various banks and across countries data in order to obtain a clear and comprehensive preliminary understanding on the Islamic bank financing behaviour.

The specification model consists of variables categorises into two groups; the macroeconomic variables and bank's related variables. The function is specifying as follows:

Bank Financing =  $f$  {Macroeconomic variables and Institutional variables}

The model estimates the Islamic bank financing activities behaviour to the fluctuation in real GDP as the macroeconomic indicators. Bank reserves and LLP are the institutional characteristics that indicate the financing cyclical behaviour.

The financing figure used in the analysis is the net total financing after deducting for the provision for bad and doubtful financing. The behaviour of Islamic bank financing is given by the coefficient of correlation of the GDP growth to the ratio of total financing growth to earning assets growth (TF/EA). Bank reserves growth to earning assets growth ratio (R/EA) and ratio of LLP growth to earning assets growth (LP/EA) play the role as regulator on the financing cyclical behaviour.

To suit the present study purposes, the proposed empirical model is as follows:

$$[F/EA]_{ijt} = \alpha_0 + \beta_1 GDP_{jt} + \beta_2 M3_{jt} + \beta_3 [R/EA]_{ijt} + \beta_4 [LP/EA]_{ijt} + \beta_5 [K/EA]_{ijt} + \epsilon_{ijt}$$

$i = 1, \dots, n$  (selected bank);  $t = 1, \dots, T$  (annual data);  $j = 1, \dots, n$  (selected country);

$F_{ijt}/EA_{ijt}$  is the total financing growth to total assets growth ratio for bank  $i$  in country  $j$  at time  $t$ .  $GDP_{jt}$  is the real gross domestic product growth in country  $j$  at time  $t$ .  $M3_{jt}$  is broad money supply M3 growth in country  $j$  at time  $t$ .  $R_{ijt}/EA_{ijt}$  is bank reserve growth to total assets growth ratio for bank  $i$  in country  $j$  at time  $t$ .  $LP_{ijt}/EA_{ijt}$  is loan loss provision growth to total assets growth ratio for bank  $i$  in country  $j$  at time  $t$  and  $K_{ijt}/EA_{ijt}$  is bank capital growth to total assets growth ratio for bank  $i$  in country  $j$  at time  $t$

## 5. Description of Findings

Table 1 reports the descriptive statistics of the variables employed in this study. From the mean, median, standard deviation, skewness, kurtosis and the Jarque-Bera value indicates that the sample data is not normally distributed. For all variables, the values of mean and median are not the same; the values of skewness are not equal to zero with data distributions are not symmetrical around mean. The values of kurtosis are not equal to three. The values of Jarque-Bera are significant with high probability value leads to the rejection of the null hypothesis of a normal distribution. Therefore, the Generalize Least Square (GLS) method is more appropriate and expected to yield a much better result.

Table 1: Normality Test

Variables	Total Financing	GDP	M3	Reserve	Capital	LLP
Mean	0.956905	5.425529	13.71587	-2.612786	-1.334341	2.698082
Median	0.953090	5.788000	11.83526	0.967915	0.634123	0.799616
Maximum	49.38416	17.32900	50.83661	334.4296	92.60785	425.0362
Minimum	-58.53142	-7.35900	1.613494	-437.0229	-536.5601	-395.711
Std. Dev.	7.814411	2.916811	9.651401	54.45460	39.03878	56.65576
Skewness	-1.571268	-0.89575	1.619302	-4.245084	-12.57880	-0.69846
Kurtosis	30.28181	7.339536	5.598110	47.32196	173.4915	37.38809
Jarque-Bera	6473.315	189.1859	147.9658	17480.12	254927.2	10166.89
Probability	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000
Sum	197.1225	1117.659	2825.469	-538.2339	-274.8743	555.8050
Sum Square of Residuals	12518.33	1744.096	19095.66	607887.2	312425.5	658024.5
Observations	206	206	206	206	206	206

Sources: EViews software generated

For the stationarity test of the sample data used in the analysis, the Levin, Lin and Chu (LLC) and Im, Pesaran and Shin (IPS) method was conducted for the panel unit root testing. LLC test is preferable because of its large potential power gains (Cosar, 2002). This study also considered IPS unit root test given that the sample is relatively small since it has better small sample properties and has the additional advantage of simplicity (Cosar, 2002). Table 2 summarises the unit root test on each variables. The test shows that at level M3 and LLP is non-stationary, therefore the study proceed to test all the items for stationary at first difference. The result shows that both of the variables are stationary at first difference. Thus, the analysis will be regressed at first difference.

Table 2: Unit Root Test

Method Variables	Level				First Difference			
	LLC		IPS		LLC		IPS	
	stat	Prob	stat	Prob	stat	Prob	stat	Prob
Total Financing	-10.9780	0.0000	-4.00631	0.000	-16.8915	0.000	-6.36168	0.000
GDP	-18.8176	0.0000	-9.25771	0.0000	-16.1141	0.0000	-10.9652	0.0000
M3	-5.78781	0.0000	-0.91271	0.1807	-33.5926	0.0000	-12.4451	0.0000
Reserve	-58.5980	0.0000	-24.7537	0.0000	-26.4095	0.0000	-12.7567	0.0000
Capital	-7.10103	0.0000	-3.07596	0.0010	-10.9047	0.0000	-5.73780	0.0000
LLP	3.02722	0.9988	4.12167	1.000	-2.75349	0.003	-3.65784	0.000

Sources: EViews software generated

## 6. Model Estimation

The models are estimated using both fixed effects (FE) and random effects (RE) model with panel GLS. The estimation proceed with panel GLS in the model for the reason that the model displays autocorrelation problem. The analysis also assigned the cross-section weight in the regression due to the presence of cross-section heteroskedasticity problems in the estimation.

The result for cyclicity behaviour of Islamic bank total financing is given in table 3. Based on the Hausman test, it shows that the FE model explains better (Hausman  $\chi^2 = 1.233$  and insignificant,  $\rho = 0.9417$ ). Therefore, the null hypothesis of the RE model cannot be rejected. From the coefficient of determination ( $R^2$ ) it shows that 51.11% variation in Islamic bank total financing behaviours can be explained by changes in the determinants with significant F-statistic at 1% level of significant. The result provides evidence that Islamic bank total financing do behave counter-cyclical to the business cycle.

The insignificance of real GDP growth in determining the Islamic bank financing behaviour indicates that Islamic bank financing decision is not tied-up by the expansion and contraction in economy shown by the growth in real GDP. This finding indicates that the Islamic financing behaviour is free of any speculative financing activities when there is fluctuation in the economic environment. This result shows that Islamic bank financing activities is determine by other factors and not directly affected by changes in the real GDP growth.

More importantly the operations of Islamic bank do follows Quran (12:46-49) instruction on the reserves and LLP management. The result demonstrates that the reserve, capital and LLP are positively correlated to the Islamic bank financing activities. It shows that the buffers instruments manage the Islamic bank financing cyclicity behaviour well. All of the variables results are significant at 5% and 1% level. The finding shows that a 1% growth in reserve and capital is used to protect growth by 0.02% of the financing activities. 1% growth of LLP is used to protect growth in financing activities by 0.01%. More importantly the growth of all the instruments is greater compared to the financing growth. This shows that the Islamic bank is more cautious as the economy grow and as the economy contracted the reserve, capital and LLP falls faster compared to the financing to increase the amount of excess fund for financing activities. With the faster growth in bank reserve, capital and LLP during economic expansion, the earning assets will reduce and this will reduce the excess fund for financing supply. During economic slowdown decrease in reserve, capital and LLP growth will increase the earning asset of Islamic bank and this will increase the excess fund for financing by the Islamic bank. The excess funds need to be delivered for financing to avoid the depletion of its amount due to zakat obligatory.

On the contrary, the insignificance relationship between money supply M3 to the Islamic bank financing needs some consideration by the Islamic bank practitioners. It indicates that the financing activities are not responding to changes in money supply M3 as what it should be.

Table 3: Total Financing Cyclicity Analysis

Model Variable	FIXED MODEL			RANDOM MODEL		
	Coeff.	Std Error	t-stat	Coeff.	Std Error	t-stat
Constant	1.133913	0.156046	7.266523	1.443301	1.432969	1.007210
GDP	0.000153	0.022615	0.006783	-0.053770	0.220602	-0.243742
D(M3)	0.016263	0.010148	1.602631	0.056489	0.082193	0.687268
Reserve	0.024093*	0.009283	2.595345	0.032430**	0.014569	2.226003
D(LLP)	0.009666*	0.003098	3.120230	0.022645*	0.007025	3.223228
Capital	0.019625**	0.008075	2.430483	0.009828	0.018556	0.529675
R <sup>2</sup>	0.511078			0.127030		
Adjusted R <sup>2</sup>	0.421602			0.102230		
SEE	6.778451			7.548815		
F-test	5.711904*			5.122130*		
DW	2.200612			1.422136		
*Significant at 1%, **Significant at 5%						
Correlated Random Effects - Hausman Test						
Equation: Total Financing						
Test cross-section random effects						
Test Summary	Chi-Sq. Statistic		Chi-Sq. d.f.		Prob.	
Cross-section random	1.232932		5		0.9417	

Sources: EViews software generated

## 7. Conclusions

This particular study provides preliminary empirical evidence on the behaviour of Islamic bank financing to the aggregate economic activities fluctuations. The original idea of applying the PRS instrument by the Islamic bank in its operation at currently is difficult to practice due to various practical and operations reasons. For that reasons the financing is largely in the form of FRF.

The empirical results of this research present initial evidence on the stability of the Islamic bank financing operations to the expansions and contractions of the economic activities. The finding shows that the financing activities of Islamic banks with the reserve and LLP policy that adhered to the Quran instruction (12:46-49) the institutions manage to reduce the bank financing pro-cyclical behaviour. By avoiding speculative financial transaction and financial risk transaction, the Islamic bank able to protect itself from the economic fluctuation. The concerned is that on the large amount of FRF instruments used by the Islamic bank financing operation that might distort the capability of the systems to stabilised the economy. Although the degree of association is low as opposed to the GDP growth and the buffers policy that positively associated to it, the institutions need to be more careful so that over-financing of FRF can be avoided.

Although the result of this research shows an impressive economic behaviour of the Islamic bank, somehow this study has its own limitation. The limitation of this paper comes in the form of small sample size and it only analyse the short run cyclical behaviour of the Islamic bank financing activities. A larger sample size with longer time spanned will able to provide a more concrete evidence and understanding on the Islamic bank cyclical behaviour. Those limitations invite the needs for further research.

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