

OFF-BALANCE SHEET: LIQUIDITY, LEVERAGE AND DEFAULT RISK OF MALAYSIAN ISLAMIC BANKS

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¹ Corresponding author. This paper is a preliminary draft. Comments and suggestions welcomed.
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ABSTRACT

Off-balance sheet activities have grown massively since 1980s. The existence of off-balance sheet activities in banking associates with many types of risks. This paper studies the impact of off-balance sheet activities towards banking risk; default risk, liquidity risk and capital risk for 15 Islamic banks in Malaysia. The study covers three (3) years period from 2006 to 2008. In utilising General Least Square to bank panel data, the empirical evidences reveal significant relationship between off-balance sheet activities with default risk and capital risk. Increase in off-balance sheet activities reduces capital risk but source to higher default risk. There is no evidence of significant link between off-balance sheet activities with liquidity risk. Islamic banks' liquidity risk is not affected with off-balance sheet activities probably due to its nature of holding and maintains high liquidity position since it began. The findings conclude off-balance sheet management is essential in controlling bank portfolio risks.

JEL Classifications: G21

Keywords: Off-balance sheet, banking risks, Islamic banks

1. INTRODUCTION

1.1 Off-balance Sheet Activities

Off-balance sheet (OBS) activities have started grown massively in the U.S. and elsewhere since 1980s resulted from market deepening and financial innovations. Since then, many issues related to off-balance sheet activities were discussed on the literature.

OBS refers to items or activities which are not recorded on balance sheet. The most common OBS activities in banking include standby letters of credit, loan commitments and loan securitisation. Standby letters of credit and loan commitments is part of bank guarantees to extend credit. It refers to bank guarantee for funds availability to the standby beneficiary on behalf of banks' customer. In the case of contingency, banks have obligation to lend funds at certain time in the future. There is no effect on the balance sheets until the contingency is realised. Standby letters of credit is also notorious as over-the-counter put option which realised until the bank's customer default or the letter of credit expires. Until then, the put option written by bank does not involve any cash flows except fees for the opening and maintaining the credit lines.

Loan commitment is a bank pledge to lend up to certain amount of funds until the committed credit lines mature. Bank charged fee for the commitments to compensate with the potential risks exposure. It is classified into fixed-rate loan commitment and variable-rate loan commitment. For the first type of loan commitment bank have an obligation to fulfil borrowing of predetermined amount at constant fixed rate. In contrast, a variable-rate loan commitment obligates the banks to lend on demand up to maximum amount at the price determined by a previous specific formula, calculated after the

realisation of a future price (Hassan & Sackley, 1994). Apart from initial fees, bank may also earn fees (small fraction of total unused portion) for the unused fund at the end of credit lines.

Loan securitisation or loan sales involve the sales of loan originated by banks to the third party (buyer). It can be either loan sales with or without recourse. Loan participations are loan sales without recourse where bank sell the loan to the buyer at equivalent maturity period. In this type of loan sales, bank transfer the risk to the buyer and in the case of default, buyer will have to bear with the risk. For this reason, loan participations are less popular in practices as compared to loan with recourse or known as loan strip. Loan strip are loan sell to the buyer for a shorter period which are less than the maturity period. In this situation, buyer is not fully exposed to the default risks as long as bank continues to exist.

There are several explanations on the enormous growth of OBS activities in banking. Among other, the most accepted motive is the banks' attempt in minimising regulatory taxes and capital adequacy requirement. Swelling in direct finance and development of secondary market for loans also contribute to growth in OBS activities. Thus, major concern in banking management is to analyse the impact of OBS activities towards bank portfolio risks. Two contradicting thought are either OBS activities are creating banking hazards or to promote market discipline.

The aim of this paper is to investigate the impact of OBS activities in Malaysian Islamic banking towards risk of default, liquidity and leverage. In the next three sections, we will elaborate on the issue of risks, discuss on OBS activities in Islamic banking and a brief overview of Malaysian Islamic banking and financial markets. Section 2 reviews

related literature on OBS activities in banking, followed by data and methodology in section 3. The final two sections present the findings and conclusion.

1.2 Risks Associates with Off-balance Sheet Activities

Banking business is very fragile and exposed to many types of risk. It includes liquidity risk, credit risk, capital risk, market risk and operational risk. Due to this reason, bank management have to be extra careful in their decision. In this paper, we will focus on the impact of management decision on holding OBS activities as part of their assets and liabilities.

OBS items may cause to different risks exposure according to the nature of OBS activities the bank involved. OBS commitments could induce default risk and market rate risk to the issuance bank. Default or credit risk arises from the possibility of default by the counterparty and market risk refers to the possibility of adverse movement in market variation. Market risk includes the interest rate risk and exchange rate risk. Other than that, OBS financing may cause to capital risk and insolvency risk. Loan sales, loan strips in particular may invite liquidity risk and default risk to the bank. In addition, standby letters of credit can create liquidity risk, interest rate risk and credit risk for the bank.

There are several hypotheses on the utilisation of OBS activities in banking. Benveniste and Berger (1987) come out with risk-sharing hypothesis (cited in Sharpe & Tuzun, 1997), where if the bank fail, loan sales (standby letters of credit and secured loan with recourse) and bank offering deposit will have similar cash flow characteristics with a senior claim on bank's assets. In this hypothesis, the buyer is unaffected by the default borrower as long as the bank does not fail. Another hypothesis developed in James (1988,

1989) (cited in Sharpe & Tuzun, 1997) is the underinvestment hypothesis. In this hypothesis, bank management may underinvest in new safer asset in order to reduce bank risk out of holding fixed rate long-maturity risky debt. In this case, shareholders lose investment value with suboptimal investment.

Capital avoidance hypothesis is one more explanation on the utilisation of OBS activities in banking. This hypothesis considers banks' motivation of increasing OBS activities is due to regulatory tax and capital requirement. The moral hazard hypothesis occurs due to lower capital requirement on OBS activities. Hence, bank will increase the OBS activities and thus give more risk exposure to the bank. Beginning December 1990, OBS activities were subject to the capital adequacy requirement under U.S. capital adequacy standard (Jagtiani, Saunders, & Udell, 1995).

1.3 Off-balance sheet and Islamic Banking

In present there are numerous Islamic banks operates globally in both Muslim and Western countries including the Europe. Islamic banking emerges and shows massive development since the past three decades. Islamic banks operates in parallel with the conventional banks are exposes to similar banking risks.

The establishment of Islamic banks are bound under Shari'ah law with the basis of interest-free banking and profit and loss sharing principle. The rationale behind Shari'ah principles is the guideline from Quran and Sunnah which demand ethical conduct in banking, mainly to protect each stakeholder in banking. Thus the use of interest rate imposed by conventional banks is totally prohibited in Islam.

Due to this, Islamic banks have to be very creative and innovative in offering products and services to their customers without reliance to the interest earnings. Ahmad and Luo (2010) highlight the attractiveness of non-interest earning products as it has been used extensively in banking industry. Islamic banks in order to appear with product innovation, apply multi-dimensional product differentiation which include horizontal and vertical differentiation. While vertical product differentiation focus on the products quality, horizontal differentiation refer to banks offering other than its main retail product such as loans and deposits by introducing or focusing more on non-interest earning activities. It includes products and services such as assets management, mutual funds, private banking and Islamic money market. The existence of these non-interest earnings activities has increased OBS activities for Islamic banks. Realising this scenario, the examination of OBS activities towards Islamic bank portfolio risk is crucial.

1.4 Malaysian Islamic Banking and Financial Markets

Islamic banking and finance starts its roots in 1963 with the establishment of Pilgrims Fund Board (also known as Lembaga Urusan Tabung Haji) which later followed by the establishment of the first Islamic Bank, Bank Islam Malaysia Berhad (BIMB) in 1983. The market evolves with the introduction of Interest Free Banking Scheme (Skim Perbankan Tanpa Faedah) in 1990s that allow commercial banks to offer Islamic products and financial instruments. The market emerges further with the creation of Malaysian Islamic Interbank Money Market in 1994. The existence of this market facilitates the transactions of Islamic financial instruments.

At present there are 18 Islamic banks under the license issued by the central bank, Bank Negara Malaysia. Table 1 show the list of license Islamic banking institutions in Malaysia. In this paper, three (4) Islamic banks were excluded due to unavailability and insufficient of data.

Table 1
List of Licensed Islamic Banking Institutions in Malaysia

	Name
1	Affin Islamic Bank Berhad (L)
2	Al Rajhi Banking & Investment Corporation (Malaysia) Berhad (F)
3	Alliance Islamic Bank Berhad (L)*
4	AmIslamic Bank Berhad (L)
5	Asian Finance Bank Berhad (F)
6	Bank Islam Malaysia Berhad (L)
7	Bank Muamalat Malaysia Berhad (L)
8	CIMB Islamic Bank Berhad (L)
9	EONCAP Islamic Bank Berhad (L)
10	Hong Leong Islamic Bank Berhad (L)
11	HSBC Amanah Malaysia Berhad (F)
12	Kuwait Finance House (Malaysia) Berhad (F)
13	Maybank Islamic Berhad (L)
14	OCBC Al-Amin Bank Berhad (F)*
15	Public Islamic Bank Berhad (L)
16	RHB Islamic Bank Berhad (L)
17	Standard Chartered Saadiq Berhad (F)*
18	Unicorn International Islamic Bank Malaysia Berhad (F)*

Source: Bank Negara Malaysia as at 1 July 2010.

Note: L = Local owned bank

F = Foreign owned bank

* These banks were excluded from the sample. Bank Kerjasama Rakyat, the Islamic co-operative bank was included in the sample.

2. LITERATURE REVIEW

Risk issue and measurement is one important part in banking literature. The assessment of risk resulted from OBS activities has no consensus findings and appear to be contradicting. In the initial stage, OBS activities are allied with banking hazard issue that

signifies banks with higher risk involvement than on balance sheet activities. Later on, the other side of view relates OBS activities with greater market discipline and diversification benefits that reduce risk.

In early existence of OBS activities, regulator and researchers identify the key motivation of OBS activities is for the purpose to trim down leverage and solving the loan covenant problem (Morrison, 1993). By doing this, firms can increase their short-term survival and tolerate for additional financing. Consequently, further OBS activities cause to inaccurate on balance sheet measurement of leverage. Significant amount of OBS activities direct to the relevant of the inclusion of these activities in capital adequacy guidelines by the Basel Committee on Banking Supervision. Capital adequacy guidelines are designed to cover credit risk in derivative instruments (Breuer, 2002). The author suggests to decompose derivative instruments on OBS activities into own funds and borrowed funds equivalent of the replicating portfolio.

The implementation of capital adequacy requirement towards OBS activities started in 1990 form moral hazard problem of the capital avoidance hypothesis. It because OBS activities allow bank in generating fee income and evade the costs imposed on them by regulatory taxes. Other than bank capital adequacy, cash reserve requirement and moral hazard associated with fixed rate of deposit insurance also contributing to jump up of OBS activities (Sharpe & Tuzun, 1997).

On the other hand, Hassan and Sackley (1994) argue the rational of the loan commitments inclusion in a risk-based capital calculation. The authors find loan commitments may contribute to the overall diversification of portfolio risk and thus reduce bank risk. It also enables in cutting down equity risk, subordinated debt default

risk and implied asset risk. Angbazo (1997) in his study conform the argument of portfolio risk that promote diversification. He finds significant relationship between OBS activities with interest rate risk and liquidity risk. The findings conforms moral hazard hypothesis that OBS activities increase risk. In contrast there is insignificant relationship between OBS activities with leverage and default risk.

How, Karim, and Verhoeven (2005) find mixed results on the relationship of OBS activities towards liquidity risk. Depending on the types of OBS activities the results for commercial bank with Islamic financing in Malaysia varies. The result reveals derivative contracts significantly increase liquidity risk, documentary credits has significant negative relationship with liquidity risk and mortgage loan sold to Cagamas produce significant negative relationship with liquidity risk. In comparison with commercial banks without Islamic financing, commercial bank with Islamic financing have significantly lower credit and liquidity risk but significantly higher interest rate risk.

Hassan (1994) documents there are negative relationship between OBS activities with bank risk but it does not affect systematic risk. He also finds the present of market discipline in OBS banking activities which imply lower risk with the involvement of OBS activities. This is inconsistent with the capital avoidance hypothesis. Another evidence of market discipline is documents in Jagtiani, et al.(1995) where the authors find that better performing and better creditworthiness banks have a tendency to issue more OBS commitments. In contrast to Hassan (1994), Brewer and Koppenhaver (1992) discover standby letters of credit increases the systematic and total risk of bank stock return. The study evidence there is similar risk between standby letter of credit with on

balance sheet lending. The results indicate the subsistence of market discipline by observing investor reactions to OBS risk.

In continuation of moral hazard hypothesis, Sharpe and Tuzun (1997) results consistent with underinvestment hypothesis. The hypothesis specifies riskier bank are predicted to rely more on OBS activities to compensate underinvestment of new low risk assets (which come with lower return). This investment decision forfeits shareholders value thus OBS activities is used as means to mitigate the problem. The authors find highly risky banks with higher proportion of long-term maturity debt will fully utilize OBS activities as compared to low risk bank.

Recent study conduct by Calmès and Théoret (2010) find increase in OBS activities will increase banking system riskiness in Canadian banking sector. They also locate substantial increase in the volatility of banks' net operating revenue growth triggered by OBS activities. At the same time, OBS activities lower down Canadian bank mean accounting return.

3. DATA AND METHODOLOGY

Our aim is to study the impact of off-balance sheet activities towards bank risk of Malaysian Islamic banks. The sample consists of 45 observations on 15 Islamic banks in Malaysia for three years period from 2006 to 2008. The data were obtained from the financial statements of individual banks documented on the International Bank Credit Analysis Bankscope database. Consolidated statements are used only if the unconsolidated statement is unavailable or data is insufficient.

Table 2 and 3 provides summary statistics on key characteristics of the sample banks used in this study. The most significant OBS activities in U.S. bank data constitute of loan commitments (Hassan & Sackley, 1994). Statistic data for Islamic banks in Malaysia are consistent with U.S. bank data as committed credit lines represent huge amount of OBS activities as compared to guarantees and acceptance. Table 4 highlights the proportion of OBS activities relative to on balance sheet activities. The table shows growing proportion of OBS activities since 2006 to 2008. Thus the management of these activities is essential because it may influence bank portfolio risks.

Table 2
Summary Statistic of Off Balance Sheet Items

Off Balance Sheet Characteristic	Mean	Maximum	Minimum	Std. Dev.
Total Off Balance Sheet	2805.883	11108.670	10.000	2762.049
Acceptances Reported OBS	164.775	521.200	1.800	153.163
Guarantees	498.310	851.500	147.570	293.478
Committed Credit Lines	1329.428	5828.000	0.000	1525.903
Other Contingent Liabilities	1979.280	8622.870	7.500	1964.297

Table 3
Summary Statistic of On Balance Sheet Items

On Balance Sheet Characteristic	Mean	Maximum	Minimum	Std. Dev.
Default Risk*	4.3828	16.0800	1.4700	3.5061
Liquidity Risk**	27.9764	211.9000	-2.8000	45.1488
Leverage***	48.8038	79.6400	0.0000	22.1999
Total Asset	10516.1800	41728.4000	131.5000	9606.2230
Total Equity	883.2769	4561.4000	-277.8000	1015.2780
Total Liabilities	8348.5120	37167.0000	0.0000	8785.6560
Total Loans	6266.5450	30135.9000	0.0000	6743.9890

*Default Risk= Loan loss reserve/ Gross loans

**Liquidity Risk = Net Loans/ Total assets

***Leverage = Total Capital Ratio

Table 4
Aggregate Volume of Off-Balance Sheet and Total Assets of Malaysian Islamic Banks
(mil MYR)

	2006	2007	2008
Guarantees	251.000	731.247	993.257
Acceptances Reported Off-Balance Sheet	851.500	978.077	661.968
Committed Credit Lines	2051.288	5287.349	21908.780
Other Contingent Liabilities	12139.820	22525.030	32630.670
Total Off Balance Sheet Items	15293.600	29521.710	56196.470
Total Assets	87739.340	123395.900	198995.500
Percentage Of Total Asset	17.431	23.924	28.240

In order to investigate the relationship between the off balance sheets activities and on balance sheet portfolio risk of Islamic banks our study specify the following hypothesis:

H_a: Off-balance sheet activities have significant effect on default risk, leverage and liquidity risk in Islamic banks.

This study employed Pooled Cross-Section and Times-Series econometric technique because this technique allows for simultaneous consideration of intertemporal movement and cross-sectional differences of bank risk². The hypotheses had been test by the following equation:

$$\text{Bank portfolio risks} = f(\text{Total off-balance sheet activities})$$

$$\text{Bank portfolio risks} = \beta_0 + \beta_1 \text{OBS}$$

Three (3) types of bank portfolio risk being used as dependent variables:

- i. Default Risk = Loan Loss Provision / Gross Loans
- ii. Liquidity Risk = Net Loans / Total assets
- iii. Capital (Leverage) Risk = Total capital ratio

² See Hassan (1993).

As for independent variable, total off-balance sheet activities are used. These activities are classified into four (4) items as below:

- i. Guarantees
- ii. Acceptances Reported OBS
- iii. Committed Credit Lines
- iv. Other Contingent Liabilities

4. RESULT ANALYSIS

Three (3) equations, one for each bank portfolio risks, were estimated using pooled data of 15 Islamic banks for 3 years. This study has used Pooled Generalized Least Square Estimates (GLS) in identifying the relationship between off-balance sheet activities with the three (3) selected banks portfolio risks; default risk, liquidity risk and capital risk. The following table summaries results of the GLS estimates for the study.

Table 5
Relationship between OBS and Bank Portfolio Risks

	Default Risk	Liquidity Risk	Leverage
Intercept	2.7640 (10.6881)	19.0544 (7.7320)	56.2398 (16.6472)
Total Off-Balance Sheet	0.0004 (5.6196)*	-0.0009 (-1.8177)	-0.0021 (-2.3546)*
Adjusted R-Squared	0.4735	0.0634	0.1149
F-Stat for H ₀	31.5801 (0.0000)	3.3041 (0.0781)	5.5442 (0.0244)

* T-statistics are in parentheses and it is significance at 5%.

From the GLS estimates result, the computed F-statistic of default and leverage risk are 31.5801 (p=0.0000) and 5.5442 (p=0.0244) respectively. From the result of F-

statistic, the null hypothesis for default and leverage risk can be rejected. It implies OBS activities have a significant impact to the default risk and leverage risk of Malaysian Islamic banks.

There are positive relationship between OBS and default risk. It indicates an increase of 1 unit in OBS activities will also increase the level of default risk by 0.0004 units. OBS activities such as letters of credit or other similar products may expose banks indirectly to increased in credit or default risk when investors default on reimbursement (Angbazo, 1997).

While for capital or leverage risk, the result indicates negative relationship between the risk and OBS. Hence 1 unit increase in OBS activities will reduce capital risk by 0.0021 units. The result on relationship is consistent with the finding by Angbazo (1997).

For liquidity risk, the GLS estimates results fail to reject null hypothesis of this study at 5 percent significance level. The computed F-statistic is 3.3041 ($p=0.0781$). Thus, OBS activities do not have significant relationship with the liquidity risk of Islamic banks in Malaysia. An increase in OBS activities does not affect the liquidity level of Islamic banks. This may probably due to the uniqueness of Islamic banks characteristic and due to the Shari'ah compliance issues. Furthermore, Islamic banks in general hold high liquidity level in most of the time (Majid, 2003).

5. CONCLUSION AND RECOMMENDATION

This study uses bank financial statement from Bankscope database for the period of three (3) years from 2006 until 2008, in testing the hypothesis that Islamic bank off-balance

sheet activities will have significant relationship with the level of banks portfolio risks. The results have rejected the null hypothesis for default and leverage or capital risk. It is proved that OBS activities have significant relationship with the level of default and leverage risk of Islamic banks in Malaysia.

While for the liquidity risk, the result fail to reject null hypothesis and in imply that the OBS activities do not have a relationship with the level of liquidity risk of Islamic banks in Malaysia. The results of insignificant relationship between OBS with Islamic banks' liquidity risk could be explained by ample liquidity position held by them due to their nature of operation³. The changes in OBS activities of Malaysian Islamic banks do not affect liquidity position.

The findings of this study indicate the importance of OBS management as it may significantly affect bank portfolio risk and survival of the banks. This study tests the relationship between default, liquidity and leverage risk and off balance sheet activities for the period of three (3) years. For future study, the timeframe could be increased with additional variables for the model improvement.

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³ Samad and Hassan (1999) explore the performance of Malaysian Islamic banks in the perspective of profitability and operating performance, and capital and liquidity position.

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