
OFF-BALANCE SHEET RISK: EVIDENCE FROM MALAYSIAN ISLAMIC AND CONVENTIONAL BANKS

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ABSTRACT

Off-balance sheet activities in banking generate different impact towards its risks. Specifically, this paper studies the impact of off-balance sheet activities towards bank risk such as default risk, liquidity risk and leverage risk for Islamic and conventional banks in Malaysia. The aim of this study is to examine the effects of individual off-balance sheet activities towards bank risks as well as to compare their off-balance sheet attitudes between Islamic and conventional banking operators in Malaysia. The study consists of three years unbalanced panel data from 2006 to 2008. The quantitative analysis using General Least Square estimation to these two different groups of banks provides mixed results. The empirical evidences reveal significant relationship between off-balance sheet activities with default risk, liquidity risk and leverage risk in different manner. The inclusion of dummy variable distinguished the effects of off-balance sheet activities on liquidity and leverage risk between Islamic and conventional banks. In general, different frameworks of Islamic and conventional banks in Malaysia lead to different treatment of off-balance sheet activities in controlling bank risk. Thus the findings provide interesting comparison among Islamic and conventional banks in Malaysia.

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

INTRODUCTION

Malaysian Banking: The Dual-Banking Systems

Malaysian banking system started with the traditional financial institutions, the conventional ones. After certain period, this market advanced with the establishment of Islamic financial institutions. This led to the dual-banking system in Malaysia that permits Islamic banks and conventional banks to operate next to each other in the same market. To date, there are 17 Islamic banks in Malaysia after the set up of the first Islamic banks, Bank Islam Malaysia Berhad (BIMB) in year 1983¹.

Fundamentally conventional banks strongly rely on interest income for each transaction while Islamic banks hold on the concept of profit and loss sharing (PLS) under *Shari'ah* law. Under this law any transaction involving interest is strictly forbidden in Islamic banking. The main concern in *Shari'ah* law is in ensuring fairly and equitable distribution among stakeholders and thus, unethical conduct such as excessive risk taking is strictly prohibited. There are several passages in the Al-Qur'an which clearly prohibit the practice of interest that causes to injustice:

“Those who devour interest will not stand except as he stands who has been driven to madness by the touch of Satan ... Allah has permitted trade and forbidden interest ... Allah will deprive interest of all blessing” (2:275-6)

“O you who believe! Fear Allah, and give up what remains of your demand for interest, if you are indeed believers. If you do not, take notice of war from Allah and his Messenger. But if you turn back, you shall have your capital sums: deal not unjustly and ye shall not be dealt with unjustly” (2:278-279)

Nowadays, both groups of banks move largely from on-balance sheet transaction to off-balance sheet transaction. This is known as non-interest earnings in banking that engages with financial market activities. Regulatory changes or deregulation in Malaysian financial

¹ Source: Bank Negara Malaysia

market allows financial institutions to offer wider ranges of products on top of traditional banking services. This is one contributing factor for the enormous increase in off-balance sheet (OBS) activities in banking. OBS activities refer to assets or liabilities which are not recorded on balance sheet, instead reported in the notes to the accounts of banks' financial statements. It consists of derivatives instruments and contingent liabilities. As part of financial innovation process, banks have high tendency to get involved with OBS activities. Islamic banking, to counter the limitation of interest-free transaction, is more than ever attracted to offer more creative and innovative products, that is non-interest earnings (Ahmad & Luo, 2010).

It is worth to note, these two groups of banks although sharing the same market, clasp different concepts and principles. Thus it is understandable Islamic and conventional banks must comply with different set of frameworks. Nonetheless, both Islamic and conventional banks have their core obligation to their depositors (equity holder in Islamic term) to remain profitable and stable. Furthermore, sharing the same market leads Islamic and conventional banks to similar risks exposure. Among the most popular OBS activities in banking, particularly the conventional banks are the loan commitment. Islamic banks on the other hand, utilised OBS activities to generate non-interest income products as any transaction involving interest, is totally prohibited in Islamic principle² (Syed-Ali, 2011).

The idea of this paper is to analyse the trade-off between benefits and risks involved in OBS activities. The intuition of this trade-off should largely depend on the motivation of holding these OBS items which leads to OBS management. Despite of the risks involved with these activities, the primary motivation of holding OBS items can be straightforward. Two major reasons for OBS transactions include the fee-based activities and the risk management. The former motivation allows banks to be more attractive and competitive by offering more innovative products shifted from their traditional financing mode. However, these fee-based activities are associated with high earnings volatility. The later motivation directs to the diversification which benefits with more diversified portfolio through securitization. OBS

² Non-interest income/bearing investment are treated either as restricted or unrestricted investment (Noibi, 2004)

activities in risk management give flexibility in financing in terms of assets liability management and minimising regulatory taxation. Hence, it is exciting to know whether Islamic and conventional banks are sharing the same motivation or should they have different views on OBS activities given their own specific frameworks.

Off-balance Sheet Activities and Risks

Contemporary banking activities have evolved more than its traditional activities of money deposits and lending. This implies to the shift of on-balance sheet activities to the off-balance sheet activities. Off-balance sheet (OBS) activities are best defined as items, assets and liabilities which are not recorded on-balance sheet. They include standby letters of credit, loan commitments and loan securitisation. Each and every type of OBS items is associated with specific types of banking risks.

Standby letters of credit and loan commitments are among the most popular types of OBS items. It is part of bank guarantees with fund availability to extend credit for the standby beneficiary on behalf of banks' customers. During contingency period, banks have compulsion to lend funds at certain time in the future. This transaction is not recorded on- balance sheets until the contingency is realised. Standby letter of credit is also known as over-the-counter put option which is realised until the bank's customer default or until the expiration of letter of credit. Until then, the put option written by bank does not involve any cash flows except fees for the opening and maintaining the credit lines. Standby letter of credit is associated with bank's risk exposure such as liquidity risk, market risks and default risks (Hassan, Karels, & Peterson, 1994).

Loan commitment refers to bank pledge to lend up to certain amount of funds until the maturity of committed credit lines. Certain amount of fees is charged by the bank for the commitments in compensating the potential risks exposure. Loan commitment can be divided into fixed-rate loan commitment and variable-rate loan commitment. The former loan commitment refers to banks' obligation to fulfil borrowing of predetermined amount at constant fixed rate. On the contrary, the later 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). In addition, bank may also earn fees (small fraction of total unused portion) for the unused fund at the end of credit lines on top of the initial fee. This type of OBS activities may expose banks to defaults and market risks.

Loan securitisation also known as loan sales technically refers to the sales of loan originated by banks to the third party (buyer). It is classified as either loan sales with or without recourse. Loan sales without recourse are the loan participation where bank sells the loan to the buyer at equivalent maturity period. In loan participation, bank transfers the risk to the buyer and in the case of default, buyer will have to bear the risk. For this reason, loan sales without recourse are less popular in practices relative to loan with recourse. Loan sales with recourse are called as loan strip. Normally this type of loan sales have shorter period, which are less than the maturity period. In this circumstance, buyer is not fully exposed to the default risks as long as bank continues to exist but banks may be exposed to liquidity risks.

In earlier research, there are two contradicting thoughts in OBS activities. It is either encouraging banking hazards or to promote market discipline. There are three hypotheses in relation to OBS hazards and market discipline; i) risk-sharing hypothesis, ii) under-investment hypothesis, and iii) capital avoidance hypothesis. Benveniste and Berger (1987) came out with risk-sharing hypothesis (cited in Sharpe & Tuzun, 1997), where if the bank fails, 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. Under-investment hypothesis developed in James (1988, 1989) (cited in Sharpe & Tuzun, 1997) where bank management may under-invest 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.

The third hypothesis relates to moral hazards behavior in OBS activities, the capital avoidance hypothesis. This hypothesis considers banks' motivation of increasing OBS activities is due to regulatory tax and capital requirement. The moral hazard 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)þ\$.

With regards to differences and similarities between Islamic and conventional banking, this paper aims to investigate the impact of OBS activities towards banking risks. The authors focus is on the impact of OBS activities in Malaysian Islamic and conventional banking towards risk of default, liquidity and leverage. In addition, this paper is to reveal whether the effect is distinguishable between these two groups of banks. Theory and empirical study of OBS and risks are further elaborated in the review of literature in section 2. Section 3 discusses on the data and methodology, followed by regression results and conclusion in section 4 and 5 respectively.

LITERATURE REVIEW

Immense growth in the OBS activities has been evolving in banking market including Malaysia. The recognised objectives of holding OBS items include portfolio diversification benefits and capital adequacy requirements. Thus numerous literatures on OBS activities array with the market discipline and moral hazards hypotheses.

Calmès and Liu (2009) documented that there are increasing figures of OBS activities in banking due to increasing non-interest income transactions. The motivation of this OBS transaction is mainly caused by promising income, evidences with increasing aggregate operating income growth for Canadian banks. The authors however argued that OBS activities provide diversification benefits due to income volatility in financial market activities. The new theory on banking behavior justified the idea with the substantial profits earns from this kind of OBS activities (Ahtiala, 2005). Stiroh (2006) further came out with new evidence on the determinants of bank risk related to non-interest activities including investment banking, securitization and loan sales. The author agreed these particular activities are volatile in income and thus, to the banks risk exposure. More recent study conducted by Calmès and Théoret(2010) found increase in OBS activities will increase banking system riskiness in Canadian banking sector. Apart from lower mean accounting return, there is substantial increase in the

volatility of banks' net operating revenue growth triggered by OBS activities. Hence, apart from its benefits, it is crucial to explore the risk behavior on OBS activities.

At present, there are no consensus findings on risk assessment resulted from OBS activities, instead it appear to be contradicting. At one side, OBS activities are allied with the issue of banking hazard that signifies banks with higher (or at least similar) risk than on-balance sheet activities. On the other hand, OBS activities create greater market discipline and diversification benefits that reduce risk. The evaluation on OBS activities is necessary in determining the bank's risk in managing their OBS items.

One key explanation on the existence of OBS activities in the firms' financial statements is the need to trim down leverage and to solve the loan covenant problem (Morrison, 1993). This is to enhance firms' short-term survival and enable them to tolerate for additional financing. Consequently, unmanageable 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. The author suggested to decompose derivative instruments on OBS activities into own funds and borrowed funds equivalent of the replicating portfolio (Breuer, 2002).

In relation to capital avoidance hypothesis, the implementation of capital adequacy requirement towards OBS activities started in 1990. This is to counter the moral hazard problem because OBS activities allow bank to generate fees income and elude 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 contributed to the boost up of OBS activities (Sharpe & Tuzun, 1997).

In contrary, Hassan and Sackley(1994) argues on the rational of the loan commitments inclusion in a risk-based capital calculation. The authors found 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. Boot and Thakor (1991) makes a distinction of loan commitment and other OBS items in term of its risk behavior. Their paper establishes that banks with loan commitments have lower assets risk than banks without loan commitments. Thus capital requirement imposed on loan commitment does not align to the purpose of reduce risk taking by banks.

Angbazo(1997) documents that portfolio risk promotes diversification and found significant relationship between OBS activities with interest rate risk and liquidity risk. The findings conformed to moral hazard hypothesis that OBS activities increase the bank's risk. In contrast, there is insignificant relationship between OBS activities with leverage and default risk. In addition, the study evidences under-investment hypothesis with the findings on the relationship of OBS activities with net-interest margin.

Hassan(1994) documents the present of market discipline in OBS banking activities, which implies lower risk with the involvement of OBS activities. There are negative relationships between OBS activities with bank risk, but did not affect systematic risk. The findings are inconsistent with the capital avoidance hypothesis. Jagtiani, et al.(1995) matched market discipline hypothesis, where the authors found that better performing and better creditworthiness of banks have a tendency to issue more OBS commitments. In contrast to Hassan (1994), Brewer and Koppenhaver(1992) discovers standby letters of credit increases the systematic and total risk of bank stock return. The study verifies there is similar risk between standby letter of credit with on-balance sheet lending. The results indicate the existence of market discipline by observing investor reactions to OBS risk.

Further view on moral hazard hypothesis, Sharpe and Tuzun(1997) results are consistent with under-investment hypothesis. The result specifies riskier bank are predicted to rely more on OBS activities to compensate underinvestment of new low risk assets. These assets composition conform to underinvestment hypothesis with lower investment return. This investment decision forfeits the optimization on shareholders' value, thus, OBS activities are used as means to alleviate 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.

This paper includes both Islamic and conventional banks in Malaysia. As widely known, Islamic banking operation and framework are different from the conventional ones. Noibi (2004) highlights the different requirements for Islamic banking in capital adequacy relative to conventional banks. Thus it is worthwhile to spend some time in analysing different types of OBS activities engaged by Islamic banks and conventional banks.

Conventional banks are involved in many securitization activities. This includes the recent financial engineering (derivative trading) called synthetic securitization such as swaps, options, swaptions, and futures and forward (Zakaria & Ismail, 2009). These instruments are considered as very risky because they are widely open for manipulation. Realising the fact that these instruments are OBS, it is more difficult to trace these activities in measuring the existing risks. Acharya and Richardson (2009) support this argument with the two reasons that cause financial crisis; i) insignificant amount of capital buffer due to securitized mortgage (OBS) and ii) less stringent capital regulation that allow the reduction of capital by banks (AAA securitized mortgage).

Islamic banks on the other hands are not allowed to be involved with excessive risk investment such as the financial engineering. However, due to significant market growth of *sukuk* in Malaysia, it is noticeable that Islamic banks play substantial role in the industry. In order to grasp the growth opportunity, Islamic banks are turning to *sukuk* instrument as part of their activities, which are OBS. It is also important to note that *sukuk* vary from the conventional financial instruments with different underlying structure and provisions. Unlike conventional instruments, *sukuk* are less affected with the financial crisis due to the unique features of *sukuk*, which the value is based on the underlying assets or its cash flows (Ahmad & Mat Radzi, 2011).

How, Karim, and Verhoeven(2005) study on Islamic financing and bank risks in Malaysia. The authors found 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 are varied. Derivative contracts significantly increase liquidity risk, documentary credits have significant negative relationship with liquidity risk and mortgage loan sold to Cagamas

produces significant negative relationship with liquidity risk. In relative to commercial banks without Islamic financing, commercial bank with Islamic financing has significant lower credit and liquidity risk, but significant higher interest rate risk.

With different composition of OBS activities in Islamic and conventional banks, this paper is to explore and compare if there is significant different between these two groups of banks in term of their of OBS risks.

METHODOLOGY

Data

This article aims to identify any different behavior between off-balance sheet (OBS) activities and bank risk in Malaysian Islamic banks and conventional banks. The study employs quantitative method using the sample of 103 observations from 16 Islamic banks and 22 conventional 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 1 and 2 provide a summary of the OBS data for both Islamic and conventional banks. From the summary data, we can see the difference between Islamic and conventional banks in terms of the item that constitute the amount of total OBS. In Islamic banks, other contingent liabilities hold the biggest amount contributed to total OBS amount. While in conventional banks, committed credit lines are the highest amount compared to the other three items. The variation represents specific need of OBS activities by Islamic and conventional banks in Malaysia. Hence, it may also influence the type and amount risks for each group of bank.

Table 1: Summary of the Data for Islamic Banks

Off Balance Sheet Characteristic	Mean	Maximum	Minimum	Std. Dev.
Total Off Balance Sheet	1136.7790	4759.9600	0.0000	1205.6590
Guarantees	16.6260	223.3300	0.0000	47.8464
Acceptances Reported OBS	29.1905	422.0900	0.0000	91.2602
Committed Credit Lines	285.6625	2497.2400	0.0000	554.5486
Other Contingent Liabilities	805.3013	3694.8200	0.0000	924.8580

Table 2: Summary of the Data for Conventional Banks

Off Balance Sheet Characteristic	Mean	Maximum	Minimum	Std. Dev.
Total Off Balance Sheet	10594.0600	46472.5600	0.0000	12913.2100
Guarantees	384.1906	2410.3800	0.0000	501.0008
Acceptances Reported OBS	352.6673	3805.7700	0.0000	721.6349
Committed Credit Lines	6125.1940	32583.3200	0.0000	7391.9150
Other Contingent Liabilities	3732.0040	36455.7300	0.0000	7928.6630

Variables

In order to evaluate the impact of OBS amount towards bank's risks, four categories of OBS items were regressed against three different types of risks appeared in banking activities. Table 3 provides a summary of the variables and its definition.

Table 3: Variables and Definitions

Variables	Definition
Default Risk (DFR)	A Ratio of Loan Loss Provision to Gross Loans
Liquidity Risk (LQR)	A Ratio of Net Loans to Total assets
Capital (Leverage) Risk (LVR)	Total capital ratio
Guarantees (G)	Amount of Guarantees
Acceptances Reported OBS (A)	Amount of Acceptances Reported OBS
Committed Credit Lines (CCL)	Amount of Committed Credit Lines
Other Contingent Liabilities (OCL)	Amount of Other Contingent Liabilities
Type	<1> for Islamic Bank, <0> otherwise

METHODOLOGY

To test the effect of off-balance sheet items towards bank risks, this study employed a panel data regression using a generalized least square (GLS) estimation. This study used unbalanced panel data for the total 38 cross-section and three year time-series. Below is the equation for the model estimation.

$$\text{Bank portfolio risks}_{it} = f(\text{Off-balance sheet activities, Type})$$

$$\text{Bank portfolio risks}_{it} = \beta_0 + \beta_1 G_{it} + \beta_2 A_{it} + \beta_3 CCL_{it} + \beta_4 OCL_{it} + \beta_5 \text{Type}_{it} + \varepsilon_{it}$$

RESULTS AND DISCUSSION

Three estimations have been made to test the effect of off-balance sheet activities towards three types of bank risk; default risk, liquidity risk and leverage risk. Table 4 summarizes the estimation result for this study. From the result, OBS does affect the level of banks risk. However the effects are different for different type of risk. As for default risk, there are only two items of OBS activities that are significantly related. Acceptances have a positive impact to default risk while committed credit lines have a negative relationship with default risk in both banks. In terms of default risk, both banks; Islamic and conventional banks act in the same manner as the Type is not significant in this model. However, OBS activities only influenced about 18% of the formation in the credit risk for both banks, while the other 80% may be influenced by other items that are not included in this study.

There are three items in OBS activities that significantly influenced the liquidity risk in Islamic and conventional banks. As we can see from table 4, guarantees and committed credit lines have a positive relationship, while acceptances have a negative relationship with liquidity risk. For liquidity risk, Islamic banks carry more liquidity risk as compared to conventional banks. A positive significant result in Type variable proved that there is a difference between Islamic and conventional banks in term of liquidity risk. This situation may due to lack of available Islamic money market instruments for Islamic banks in managing their liquidity risk.

OBS activities do also affect the leverage risk in Islamic and conventional banks. All items in OBS except other contingent liabilities have a significant influenced to the leverage risk level in Islamic and conventional banks. Guarantees and committed credit lines have a negative relationship with leverage risk. It indicates that any decreased in guarantees and committed credit lines will increase leverage risk. Islamic banks have lower leverage risk resulted from OBS activities as compared to conventional banks. This is proven by the negative significant value in Type dummy variable.

Table 4: Estimation Results for DFR, LQR and LVR

	Model 1 DFR			Model 2 LQR			Model 3 LVR		
	Coeff	T-stat	Prob	Coeff	T-stat	Prob	Coeff	T-stat	Prob
C	3.7369***	14.608	0.000	39.7398***	55.026	0.000	25.9419***	19.2622	0.000
G	-0.0003	-0.6661	0.507	0.0197***	5.8949	0.000	-0.0095***	-4.3389	0.000
A	0.0021***	4.3816	0.000	-0.0088**	-2.406	0.018	0.0069***	2.9435	0.004
CCL	-0.0001**	-2.5982	0.011	0.0006**	2.0569	0.042	-0.0008***	-3.1541	0.002
OCL	0.0000075	0.5714	0.569	0.0001	0.3083	0.759	-0.0001	-1.2108	0.229
TYPE	-0.3316	-1.0152	0.313	7.4078***	3.412	0.001	-8.4549***	-4.508	0.000
R-Sq	0.1841			0.5648			0.4741		
Adj. R-Sq	0.1421			0.5424			0.447		

***, **, * and * denotes 1%, 5% and 10% confidence level, respectively

CONCLUSION

Using three year data from 2006 until 2008, this study aims to explore and compare if there is significant difference between these two groups of banks in terms of their OBS risks. The estimation result suggests that there is a difference in the impact of OBS activities between Islamic banks and conventional banks towards liquidity and leverage risk. While for the default risk, this study fails to find any difference between Islamic banks and conventional banks.

In addition, this study conforms to the intuition of different risk behavior with different types of OBS activities. Acceptance (A) and committed credit lines (CCL) are associated with all the three risks in the study, while guarantees (G) are only associated with liquidity and leverage. On the other hand, other contingent liabilities (OCL) are insignificant within the three models. Hence, as discussed earlier, Islamic banks OBS risk mainly comprised with other contingent liabilities that imply lesser risk than the conventional banks which hold significant amount of committed credit lines.

The findings of this study indicate that OBS items do affect bank's risks. Thus, it is important for both entities to have a better management in monitoring and controlling on the OBS sheet activities.

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