



Systematic and Unsystematic Risk Determinants of Liquidity Risk Between Islamic and Conventional Banks

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ABSTRACT

The fundamental function of banking remains unchanged throughout the the history of banking theory. The management of risk, asset and liability remain the core function of banking. The early signal of banking crisis can be observed from the volatility of liquidity risk. Hence, this study attempted to investigate the influence of external and internal factors affecting liquidity risk of Islamic and conventional banks. This study employs time series regression analysis of Islamic banks and conventional banks from 2000 to 2010. The study found that Islamic banks maintain higher liquidity compared to conventional banks. The multivariate regression analysis shows that 4 out of 14 bank-specific factors and one macroeconomic factor significantly influence the liquidity risk of Islamic bank whereas conventional banks show that 5 out of 13 bank-specific factors are significant to liquidity risk.

Keywords: Liquidity Risk, Islamic Banking, Islamic Finance, Bank Specific Factor and Unsystematic

JEL Classifications: E58, G21, E400, E430, G010

1. INTRODUCTION

The Islamic banks today is operating side by side with conventional interest-based banks, where the advantage seems to favor the interest-based one in terms of the secondary market and accessibility to loans as a last resort in distressing situations. In 1983, the Malaysian government introduced the government investment issues this allows Islamic bank to have a first class liquid assets instrument to meet the statutory liquidity requirement. Although the situation is different for Islamic banks in Malaysia where the central bank introduces Islamic bond (Sukuk) based on Mudarabah financing as an instrument for lending as a last resort. In 1994, the establishment of Islamic Interbank Money Market (IIMM) aimed to assist Islamic bank in a distressed situation to provide a source for short-term funding requirement more effective and efficiently. However, these external Islamic secondary market was never put to test in a real distressed situation such as in the case of the 1998 economic crisis. This paper attempts to elaborate that liquidity risk in Islamic banks is internally manageable at the level of financing mode. However, Islamic bank is currently facing an excess liquidity problem that results in the low return on

investment. This is the negative consequences that arise from the extensive use of trade based instead of the profit and loss sharing mode of finance such as *Murabaha*.

The management of liquidity risk is merely unreliable without proper knowledge of risk formation in Islamic mode of financing. It is critical to initially identify the process of risk formation before proceeding to a further stage of risk management process (Muljawan, 2005). Liquidity could throw solvent bank into insolvency since it has to sell its assets far below their value to fulfill its current financial obligations. The management of risk at the grass root level allows Islamic bankers to take preventive rather than reactive measure when dealing with risks. This further allows the potential *Mudarabah* and *Musharakah* mode of financing to operate side by side with *Murabahah* in a much more secure environment with adequate risk management process at the sources' level. The actual success of an Islamic bank will then fully realized when the principle of profit and loss sharing is restored in the Islamic banking transaction. Today, the equity-based financing is considered to be a high-risk instrument and unpopular among other instruments such as debt-based financing. This

further discourages an Islamic bank to engage in real economic activities because of the fear that it will have the same fate as those Islamic banks during 1970 that suffer great losses when they were operating based on profit loss sharing mode of extensive financing. It should be noted though that the careful exercise of the equity-based mechanism will create real economic activities and generate higher returns compared to debt based mechanism.

The study aims to investigate the influence of bank-specific factors and macroeconomics factors on the liquidity risk of Islamic and conventional banks.

1.1. Hypothesis Development

1.1.1. Islamic banks external sources of liquidity

Today ongoing effort to achieved uniformity in Islamic Shari'ah's interpretation by Islamic banks around the world has resulted in the establishment of a Bahrain-based organization known as the International Islamic Financial Market (IIFM) by Islamic Development Bank Saudi Arabia, Bahrain Monetary Agency, Bank Indonesia-Indonesia, Bank of Sudan-Sudan, Bank Negara Malaysia of Malaysia, Brunei Darussalam's Ministry of Finance. IIFM attempts to make a liquidity management structure for Islamic banks' divisions available through its network that further aims to resolve the problem of uniformity in Shari'ah's interpretation (Abdul Rais, 2003). Currently, the lending of the last resort facilities remains attached to the interest based instrument. The existence IIMM remains questionable especially when (IIMM) instrument is not asset based. Therefore, it is more closely related to the debt (bond) capital markets.

1.1.2. Types of Islamic bank financing terms

Today, Islamic bank offers short, medium and long terms instruments that have fixed as well as variable maturity period. It is very vital to ensure that its assets and liability is synchronized based on the duration of each term whether it is fixed or variable. This allows Islamic banks to carefully synchronized available funds with their clients' financing needs (Ahmad, 2005). The mismatch is assumed to occur when equity financing requires a long-term commitment while debt financing involves short-term maturities. Thus, to finance assets using the equity modes of financing, the liability needs a long-term maturity to avoid liquidity risks (Sundararajan and Errico, 2002). Islamic banks have an obligation only to the demands of the deposit holders while conventional banks have an obligation to all their depositors (Errico and Farahbaksh, 1998). The demand deposit in terms of the Islamic bank liabilities needs to be fully reserved to ensure a high liquidity level because they belong to depositors at all times.

1.1.3. Sources of liquidity risk at capitalization level

The process of capital formation is vital to a financial institution regardless of the nature of its interest-free banking. The formation of risk in capital formation that the Islamic banks are facing such as the liquidity risks for Qard Hasan where this mode of deposit instrument works as a saving account for Islamic banks. However, other investment accounts face business risks where the selected business has not performed as expected due to the management's incompetence and a critical economy. The Islamic investment account may not be exposed to liquidity risks when

it deals with capital formation through the used of *Mudarabah* or *Musharakah* financing. Thus, this advantage may be fully realized with an adequate measure of risk management in Islamic banking activities. The risks encountered by Islamic finance during the capital formation process are transferred to equity-based deposits. According to IFSB (2005) there are two major types of fund providers e.g. current account and unrestricted investment account holders (IAH) where the former needs sound repayment capacity to meet the full cash withdrawal requested as and when they arise. However, IAH fund operates base on the principle of *Mudarabah* which allows Islamic bank to share its profit and loss with the *rabbul-mal* as long as the Islamic bank provides a reasonable rate of return and does not breach its fiduciary duty. This allows the IAH to retain its fund with the Islamic bank for a longer term.

1.1.4. The nature of Islamic banks' mode of financing

A thorough understanding of each mode of financing is vital to construct a reliable and efficient liquidity risk management. The nature of the Islamic banks' mode of financing is slightly more complex since they offer more than just lending facilities. Their facilities also include trading-based financing. Thus, the nature and characteristics of the exposure to risks in Islamic banking are beyond the traditional banking operation. The banks that are engaged in equity-based financing also bear business risks that are part of the business cycles. This distinctiveness demands the interest-free financial institution to be more effective and efficient in the risk management process. Islamic contract (ISCON) is used in measuring *Murabahah* financing risk refer to Table 1.

1.1.5. Liquidity risks formation of the equity-based mode of financing

Interest-free financial institutions demolished the traditional relationship between the lender and borrower which was based on interest when they approve financial facility to their customers. Islamic banks operate on the basis of profit and loss sharing where the principle and agent relationship is on the basis of capital provider and entrepreneur. This mode of financing allows capital provider and entrepreneur to share the profit from the ventures undertaken based on an agreed or mutual ratio. This participative nature allows real business activities for the fact that both parties have to bear the profit or loss that would be shared based on the agreed percentage (Sundararam and Errico, 2002). The Islamic banks that operate according to the two-windows model are virtually insolvency-proof. However, in practice, the two-tiered *Mudarabah* model is still subjected to the risk of assets and liability mismatch because the demand deposit has a guaranteed capital value and is redeemable by the depositors at par and on demand.

This study employs capital assets pricing theory that proposes that both the systematic and unsystematic risks contribute to the total risks of Islamic banks.

H_1 : There are positive relationships between the bank-specific factors and macroeconomics factors on the liquidity risks of Islamic banks and conventional banks.

H_2 : There are no relationships between the bank-specific factors and macroeconomics factors on the liquidity risk of Islamic banks and conventional banks.

The study uses SPSS to develop the ordinary least square relationship between liquidity and its bank-specific and macroeconomic determinants. The time-series data was obtained from the Islamic banks' annual report from the year 2001 to 2011. Multivariate regression analysis of the ratio data was obtained from the published annual reports of Islamic and conventional banks in Malaysia. In order to conduct hypothesis testing, the value of the test statistics was obtained. The model for the study was derived based on the following equation for the conventional banks and Islamic banks respectively:

Conventional bank;

$$\begin{aligned} \text{Liquid}_{CB} = & \alpha + \alpha_1 \text{RSF}_i + \alpha_2 \text{FLP}_i + \alpha_3 \text{DTAR}_i + \alpha_4 \text{LEV}_i + \alpha_5 \text{REGCAP}_i \\ & + \alpha_6 \text{SIZE}_i + \alpha_7 \text{DER}_i + \alpha_8 \text{FINANCE}_i + \alpha_9 \text{RWA}_i + \alpha_{10} \text{EM}_i \\ & + \alpha_{11} \text{MGT}_i + \alpha_{12} \text{CR}_i + \alpha_{13} \text{DEPTA}_i + \alpha_{14} \text{ROA}_i \\ & + \alpha_{15} \text{Yield curve} + \alpha_{16} \text{CPI}_i \\ & + \alpha_{17} \text{GDP}_i + \alpha_{18} \text{OutputGap}_i + \alpha_{19} \text{M3}_i + \varepsilon_{it} \end{aligned} \quad (1)$$

Islamic banks;

$$\begin{aligned} \text{Liquid}_{IB} = & \alpha + \alpha_1 \text{RSF}_i + \alpha_2 \text{FLP}_i + \alpha_3 \text{DTAR}_i + \alpha_4 \text{LEV}_i + \alpha_5 \text{REGCAP}_i \\ & + \alpha_6 \text{SIZE}_i + \alpha_7 \text{DER}_i + \alpha_8 \text{FINANCE}_i + \alpha_9 \text{RWA}_i + \alpha_{10} \text{EM}_i \\ & + \alpha_{11} \text{MGT}_i + \alpha_{12} \text{CR}_i + \alpha_{13} \text{ISCON}_i + \alpha_{14} \text{ROA}_i \\ & + \alpha_{15} \text{IslamicRate} + \alpha_{16} \text{GDP}_i \\ & + \alpha_{17} \text{CPI}_i + \alpha_{18} \text{Output Gap}_i + \alpha_{19} \text{M3}_i + \varepsilon_{it} \end{aligned} \quad (2)$$

1.2. Findings

1.2.1. Descriptive statistic of dependent and bank specific variables

The mean of the liquidity of the Islamic banks is 46% whereas the mean for the conventional banks is 36% (Table 2). This implies that the Islamic banks are maintaining a greater percentage of liquidity compared to the conventional banks. The lack of a lender of the last resort and the interbank money market provide a limited option for Islamic banks but to maintain adequate provision to meet their expected loss from their financing activities. Other explanations could be due to the Islamic banks' unique assets and liability structure that consists of profit and loss sharing-based investment account that allows both risk and profit to be shared among Islamic banks and their customers.

The standard deviation of liquidity shows that small variations in terms of liquidity where most Islamic banks under study maintain a similar percentage of cash according to their risk intensity of financing portfolio. Islamic banks show lower credit risk compared to their conventional counterparts with the mean of 18% whereas the conventional banks' credit risk mean is 23%. The standard deviation of credit in the conventional bank is larger compared to the Islamic bank which implies that at an individual bank's level, conventional banks

Table 1: Operational definitions

Variables	Definition
Bank specific factors	
CR	Non-performing finance for the current year to total loan of bank _i in year _t
LEV	Tier 2 capital to tier 1 capital of bank _i in year _t
RSEC	Risky sector finance (RSEC) to total loans bank _i in year _t RSECT=Property loans (residential properties loans+non-residential property loans+real estate loans+construction loans)+purchase of securities loans+consumption credit loans
REGCAP	Tier 1 capital to total assets of bank _i in year _t
FLP	Financing loss provisions to total finance of bank _i in year _t
FINANCE	Total Finance to total assets of bank _i in year _t
RWA	Risk-weighted assets to total assets of bank _i in year _t
ISCON	Financing by <i>Shari'ah</i> concept (<i>Bai-Bhithaman Ajil</i>) to total finance of bank _i in year _t
DER	Total liabilities to total equity of bank _i in year _t
EM	Total assets to share capital of bank _i in year _t
LIQUID	Cash+short term market securities to total assets of bank _i in year _t
DTAR	Total liabilities to total assets of bank _i in year _t
MGT	Earning assets to total assets of bank _i in year _t
ROA	Net profit after taxes to total assets of bank _i in year _t
LnSIZE	Natural logarithm of total assets of bank _i in year _t
External factors	
GDP growth	Growth rate of real GDP
Inflation	Percentage change in the CPI consumer price index
M3	M3 is currently defined as M2 plus financial assets
Output gap	$\frac{\text{GDP}^{\text{potential}} - \text{GDP}^{\text{actual}}}{\text{GDP}^{\text{potential}}}$
Yield curve	10 years government bond and 3 month treasury bills yields
Islamic interbank rate	Short-term 3 month Islamic interbank rate

experienced variations in term of their credit risk exposure. This could be explained by the differences in their risk appetite between each bank. This is unlike the Islamic banks where the credit risk exposure is similar judging from the smaller variation in standard deviation.

The risky sector finance, on the other hand, shows slightly higher for Islamic banks with the mean of 60% whereas the mean of the risky sector loan of conventional banks is 53%. The high concentration of risky sector loans could have contributed to their *Murabahah*-based (markup sales) financing plus the *bai bhithaman ajil* (deferred payment sales) contracts as measured by the Islamic contract variable that is accountable for the 67% of the total Islamic banks' financing. The mean of the financing loss's provision of Islamic banks is 10% whereas the mean of

Table 2: Descriptive statistics

Variable	Conventional banks Mean±Standard deviation	Variable	Islamic banks Mean±Standard deviation
LIQUID	0.3640±0.09179	LIQUID	0.4639±0.20286
CR	0.2375±0.10411	CR	0.1811±0.09172
RSL	0.5380±0.16801	RSF	0.6078±0.18223
LLP	0.0947±0.03681	FLP	0.1027±0.03958
DTAR	0.9608±0.01091	DTAR	0.9599±0.01866
LEV	0.6048±0.19082	LEV	0.3914±0.15592
REGCAP	0.0731±0.01816	REGCAP	0.303±0.08975
SIZE	4.1999±0.08538	DER	3.6461±0.89546
DER	3.7020±0.95685	FINANCE	0.7058±0.16101
FINANCE	0.5929±0.07711	RWA	0.7972±0.18100
RWA	0.5783±0.21224	SIZE	1.1780±0.04122
EM	1.7551±0.43332	EM	1.9342±0.38522
MGT	0.8913±0.06376	MGT	0.8937±0.09047
ROA	0.1075±0.03718	ISCON	0.6701±0.17680
YieldCur	2.7973±0.40493	ROA	0.1065±0.03889
CPI	2.1550±0.1.3003	IslamicRate	3.0190±0.46177
GDP	5.1910±0.02.0528	CPI	2.1550±1.29960
M3	4.0568±2.03493	GDP	5.1910±2.05180
OutputGap	1.4727±0.92281	OutputGap	1.4727±0.92238
Inflation	2.1550±0.1.3003	M3	4.0638±2.03281

conventional banks is 9%. The higher general loss provision has been allocated to meet the expected losses that may occur from their non-performing financing.

The conventional banks' loan loss provision is smaller as the increase in off-balance sheet activities allows conventional banks to obtain an external source of liquidity. The mean of the to asset ratio of the conventional bank is 96% whereas the mean for the Islamic banks is 95%. As commonly known, banks generate their incomes from lending and financing activities. As a result, most of their assets are funded with the depositors' money which is compensated by interest income generated from financing and loans. Hence, any mismatch between assets and liability could affect the banks' soundness.

The ratio above shows that conventional banks are slightly better in attracting funds from the depositors' money. Islamic banks maintain a greater amount of buffer against unexpected losses judging from the mean of 30% whereas the conventional banks' mean is 7%. This could be the measures taken by Islamic banks to comply with the Basel requirement for the risky sectors financed by Islamic banks. The size of conventional banks is four times larger than their Islamic banks counterpart with the mean of 4.1999 and the mean of 1.1780, respectively. The larger size of conventional banks allows them to gain the economic of scale while reducing their transaction costs. This advantage allows conventional banks to generate slightly more profit compared to Islamic banks as evidenced in higher return on assets (ROA) with the mean of 10.75 and the mean of 10.65% respectively.

However, the risk-weighted assets of Islamic banks is higher with the mean of 79% compared with the conventional banks' mean of 53%. This is consistent with the higher concentration of Islamic banks that mainly rely on it financing to generate income whereas conventional banks are able to generate alternative fee-based income from off-balance sheet activities. This is also evident in a

continuous growth in financing in contrast to conventional banks that might engage in loan securitization, loan selling and other off-balance sheet activities. The management's efficiency in terms of asset utilization is slightly better performed by Islamic banks in contrast with conventional banks with the mean of 89.37% and 89.13%, respectively.

1.2.2. Descriptive statistics and macroeconomic variables

The study included five macroeconomic variables for Islamic banks namely Islamic interbank rate mean 3.0190, Consumer price index mean 2.1550, Gross Domestic Product mean 5.1910, output gap mean 1.4727 and Money supply (M3) 4.0638. Conventional banks' macroeconomic indicators are the CPI mean of 2.1550, GDP mean of 5.1910, output gap mean of 1.4727, M3 mean of 4.0638 and yield curve mean of 2.7973. The study employs Islamic interbank rate as a proxy for a benchmark rate against a conventional interest rate. The influence of these systematic and unsystematic risk variables are discussed in the regression results.

Table 3 exhibits the result of the Pearson correlation of Islamic banks' macroeconomic variables. This result indicates that N = 165, the Islamic rate is negative but not significant to liquidity and the GDP shows positive but not significant to liquidity. In addition, the variables that show negative significance to liquidity are output gaps and inflation. In contrast, money supply shows positive significance to liquidity risk.

Table 4 provides the results on the conventional banks' macroeconomic variables; the results show that the yield curve, the CPI is positively significant to liquidity whilst the GDP is positive but not significant to liquidity risk. On the contrary, the output gap is negatively significant to liquidity risk whereas Money supply (M3) is not significant to the liquidity of conventional banks.

Tables 3 and 4 show that Islamic and conventional banks' macroeconomic variables have a similar correlation to the liquidity risk. This could be explained by the fact that both Islamic and conventional banks are operating side by side and competing for the same customers as conventional banks are also offering Islamic banking products through their subsidiaries. However, money supply (M3) shows the largest correlation of -0.744 to liquidity. It is important to note that the macroeconomics variables included in this study are free from multicollinearity issues with R > 0.8 as mentioned in Tranmer and Elliot (2008).

Tables 5 and 6 indicate that bank-specific factors variables of Islamic and conventional banks' correlation to liquidity risk are below R < 0.3, this evidenced that the variables included in this study are free from multicollinearity issues with the threshold of R < 0.8. The results of this study show that Islamic contracts (BBA and Murabahah) are negatively significant to liquidity risk. This implies that higher financing concentration based on Islamic contract which is primarily of debt-based financing could provide greater needs for liquidity while exposing banks assets portfolio to liquidity risk.

1.2.3. Liquidity risk and macroeconomic factors

Table 7 indicates that only inflation is positively significant to liquidity risk with the P > 0.01 out of five macroeconomic factors

included in this study. This implies that the increase in the inflation rate is encouraging banks to maintain a greater proportion of liquid assets. The finding of this study is consistent with Fisher effect assumption which suggests that liquidity effect encourages banks

to maintain a greater amount of cash to maintain their liquidity position to meet the need of depositors when they wish to withdraw their money from banks consequently lowering the funding cost. The increase in inflation could hurt banks especially the mismatch between borrower and lender where the bank receive the same rate of interest income while spending a great deal of interest expenses for short-term borrowing. In the study of Bordeleau and Graham (2010), they suggest that the increases in interest rates penalize bank for holding long-term maturity liquid assets.

Table 3: Correlation matrix for Islamic banks' macroeconomics determinants

Pearson correlation	IslamicRate	GDP	OutputGap	M3	Inflation
IslamicRate	1.000				
GDP	0.139	1.000			
OutputGap	-0.184	-0.111	1.000		
M3	-0.744	-0.281	0.501	1.000	
Inflation	0.681	0.199	-0.167	-0.547	1.000

Table 4: Correlation matrix for conventional banks' macroeconomics determinants

Pearson correlation	YieldCur	CPI	GDP	M3	OutputGap
YieldCur	1.000				
CPI	0.653	1.000			
GDP	0.096	0.001	1.000		
M3	-0.618	-0.49	-0.282	1.000	
OutputGap	-0.008	-0.038	-0.111	0.502	1.000

1.2.4. Liquidity and profitability

The finding of this study shows that liquidity ratio (LIQUID) is positively significant with ROA this implies that Islamic banks adopt a conservative strategy in managing liquidity problem by maintaining sufficient cash reserve and at the same time these banks are able to generate profit. This is evidenced from Islamic banks' LIQUID mean of 0.4639. The finding is consistent with previous studies Ghazali (2008), who found a positive relationship between Liquidity and ROA. Bourke (1989). Kosmidou and Pasiouras (2005) also found a significant positive relationship between Liquidity and ROA. The finding is contradictory to the findings of Choon et al. (2012) who found that LIQUID is negatively significant to ROA which implies that more financing were made by Islamic bank with lower liquidity. The study by

Table 5: Correlation matrix Islamic banks' specific risk determinants

Pearson correlation	LIQUID	CR	RSF	FLP	DTAR	LEV	REGCAP	DER	FINANCE	RWA	SIZE	EM	MGT	ISCON	ROA
LIQUID	1.000														
CR	-0.141	1.000													
RSF	0.203	0.345	1.000												
FLP	-0.051	0.08	-0.045	1.000											
DTAR	0.185	0.026	0.282	0.01	1.000										
LEV	0.092	0.175	0.022	0.244	0.276	1.000									
REGCAP	-0.143	0.191	-0.131	0.132	-0.464	0.15	1.000								
DER	0.231	0.047	0.33	0.023	0.815	0.299	-0.356	1.000							
FINANCE	-0.24	0.063	-0.329	0.098	-0.216	0.283	0.245	-0.298	1.000						
RWA	-0.457	0.17	-0.22	0.153	-0.068	0.253	0.366	0.002	0.549	1.000					
SIZE	0.256	0.022	0.113	0.108	0.224	0.315	-0.251	0.195	0.247	-0.156	1.000				
EM	-0.018	0.14	0.174	0.183	0.42	0.24	-0.118	0.527	-0.126	0.182	0.101	1.000			
MGT	0.001	0.095	-0.081	-0.053	-0.021	0.123	-0.111	-0.164	0.454	-0.023	0.435	-0.267	1.000		
ISCON	-0.249	0.541	0.364	-0.074	0.201	-0.015	-0.044	0.192	-0.122	0.133	-0.166	0.206	-0.068	1.000	
ROA	0.046	-0.071	-0.259	-0.03	-0.394	-0.045	0.212	-0.436	0.196	-0.111	-0.02	-0.519	0.178	-0.142	1.000

Table 6: Correlation matrix conventional banks' specific risk determinants

Pearson correlation	LIQUID	CR	RSL	LLP	DTAR	LEV	REGCAP	SIZE	DER	FINANCE	RWA	EM	MGT	ROA
LIQUID	1													
CR	-0.429	1												
RSL	0.212	-0.003	1											
LLP	-0.282	0.539	-0.055	1										
DTAR	-0.026	-0.093	0.139	0.021	1									
LEV	-0.149	0.047	-0.006	0.133	0.311	1								
REGCAP	-0.035	-0.041	-0.239	-0.045	-0.689	-0.571	1							
SIZE	0.107	-0.444	-0.455	-0.164	0.119	0.106	-0.011	1						
DER	-0.151	0.043	0.037	0.17	0.839	0.145	-0.396	0.108	1					
FINANCE	-0.621	0.214	-0.29	0.142	0.056	0.368	-0.028	-0.101	0.102	1				
RWA	-0.144	0.257	-0.251	0.137	0.045	0.177	0.01	0.138	0.126	0.127	1			
EM	0.277	-0.377	0.445	-0.358	0.378	0.292	-0.488	-0.037	0.129	-0.021	-0.129	1		
MGT	0.217	-0.141	0.203	-0.341	0.167	0.123	-0.083	-0.136	0.016	0.136	0.022	0.413	1	
ROA	0.342	-0.416	-0.027	-0.363	-0.116	-0.014	0.081	0.196	-0.247	-0.036	-0.044	0.394	0.216	1

Table 7: Regression results of Islamic and conventional banks

Variables	Islamic banks		Sig	Variables	Conventional banks		Sig
	Beta	T statistic			Beta	T statistic	
(Constant)		0.183	0.86	(Constant)		2.023	0.045
CR	-0.01	-0.132	0.90	CR	-0.234	-2.459	0.015
RSF	0.17	2.144	0.03	RSL	-0.04	-0.475	0.636
FLP	-0.02	-0.347	0.73	LLP	0.067	0.883	0.379
DTAR	-0.02	-0.131	0.90	DTAR	-0.259	-1.539	0.126
LEV	0.069	0.867	0.39	LEV	0	0.004	0.997
REGCAP	0.127	1.503	0.14	REGCAP	-0.203	-1.703	0.091
DER	0.291	2.231	0.03	SIZE	-0.084	-1.022	0.309
FINANCE	-0.02	-0.18	0.86	DER	0.111	0.837	0.404
RWA	-0.37	-3.741	0.00	FINANCE	-0.599	-7.693	0.000
SIZE	-0.03	-0.278	0.78	RWA	-0.027	-0.402	0.689
EM	0.018	0.18	0.86	EM	-0.017	-0.173	0.863
MGT	0.1	1.153	0.25	MGT	0.281	4.051	0.000
ISCON	-0.24	-2.898	0.00	ROA	0.196	2.447	0.016
ROA	0.057	0.621	0.54	YieldCur	0.146	1.572	0.119
IslamicRate	0.115	0.979	0.33	GDP	0.04	0.647	0.519
GDP	0.027	0.391	0.70	M3	0.15	1.321	0.189
OutputGap	0.077	0.93	0.35	OutputGap	0.03	0.401	0.689
M3	0.241	1.527	0.13	Inflation	0.038	0.443	0.658
Inflation	0.216	2.252	0.03				

Köhler (2012) suggested that banks with a larger proportion of liquid assets are more stable enabling them to buffer against shock when needed. The higher liquidity ratio of Islamic bank can also be due to the fact that higher equity and trade financing is evidenced in Islamic banks compared to its conventional counterparts.

1.2.5. Liquidity and financing concentration

The increase in sector concentration which is measured by risky sector concentration to total finance shows positive significance to liquidity risk with a $P > 0.05$. This is especially relevant to Islamic banks that operate their business in a high inflation environment and at the same time maintain a larger cash reserve to maintain their sound liquidity position as discovered in the study by Pappas et al. (2012). The unique structure of the assets and liabilities of Islamic banks' might have played a significant role in determining their liquidity policy.

1.2.6. Liquidity risk and Islamic contracts

The higher concentration of BBA and *Murabahah* financing which is accountable for 67% of the total Islamic banks assets portfolio. The regression result shows that Islamic contracts or debt-based mode of financing using BBA and *Murabahah* are negatively significant to liquidity with a $P > 0.001$. This implies that the higher concentration of Islamic contract could reduce the banks' need to maintain sufficient reserve in the form of loan loss provision while IAH are being used as alternative source of internal liquidity funding especially when the banks are exposed to unexpected losses. In addition, this debt-based financing could also be exposed to Shariah compliance risk as this financing is a benchmark for LIBOR, which is *usury*-based and the holy Quran has prohibited any engagement in *usury* as mentioned in the hadith narrated by Jabir¹. The Prophet (PBUH) "May cursed the receiver and the payer of interest, the one who records it and the two witnesses to the transaction and said: They are all alike."

1 Muslim, Kitab al-Musaqat, Bab la'ni akili al-riba wa mu'kilihi; also in Tirmidhi and Musnad Ahmad

The solution to this ongoing issues could be achieved through the introduction of cost-based funding through the calculation of break-even point analysis from the Islamic banks' financing activities. The *Murabahah* and BBA are able to survive the crisis with the advantage of equity-based financing in Islamic banks' liability, namely the IAH based on profit and loss sharing. However, such facility may not be available in the future when the depositors confidence have deteriorated due to excessive engagement in Shari'ah non-compliance risk activities.

2. CONCLUSION

Islamic banking activities are unique in its principle when compared to conventional banking. Although Islamic banks exist side by side with conventional banks, the unique nature of the mechanism used requires a special risk management process to be adopted in order to reduce risks and to become competitive in the financial industry. For instance, the debt-based financing is considered very popular among Islamic banks because of its low risk especially with risk-averse clients who prefer the debt-based mode of financing. However, the issue of compliance is always argued within the debt-based mode of financing. With clear understand of the risk creation process in equity-based financing, it allows bankers to come up with prudent and suitable risk management process, and further encourage principle of profit and loss sharing which is the fundamental focus of Islamic banks. The unique nature of Islamic banks' mixture of assets and liabilities form a new type of risks especially liquidity risk which is a very significant risk in Islamic banking. This is because the mismatch of its assets and liabilities may result in a serious bank run to demand depositors. However, with the Two-Windows model, an Islamic bank is virtually insolvency proof that allows it to operate more efficiently based on real economic activities. These activities are based on the principle of *Mudarabah* and *Musharakah* on assets instead of depending only on the principle of *Mudarabah* financing. Thus, thorough understanding the sources of liquidity

risk of each mode of financing is vital to Islamic bankers. This allows Islamic banks to manage their liquidity risks internally, hence, able to provide another liquidity option besides Islamic capital market to seek for liquidity solution.

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