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THE REGULATORY FRAMEWORK ON LIQUIDITY RISK MANAGEMENT OF ISLAMIC BANKING IN MALAYSIA

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ABSTRACT

The study identifies the strengths and weaknesses of the regulatory framework (RF) in Basel Committee on Banking Supervision (BCBS), Islamic Financial Services Board (IFSB) and Bank Negara Malaysia (BNM) for liquidity risk management (LRM) Islamic banking in Malaysia, thus suggesting best practices. The study employs a comparative content analysis of the three regulations. The results showed that each body produces its own range of RF. Although BCBS is a key pillar for LRM, it is found that IFSB issues Shariah-compliant guidelines. IFSB is best practice because it puts the needs of the role of Shariah Committee in the governance structure of the system so that all the processes of governance, control, monitoring and measurement of LRM are shariah compliance. Therefore, it is imperative that RF for IFSB becomes a reference for Islamic banking institutions in managing liquidity risk, although IFSB is not a mandatory regulatory framework for Islamic banking in Malaysia.

Keyword: Liquidity risk management; Basel committee on banking supervision; Islamic financial services board; Central Bank of Malaysia; Islamic banking.

1. INTRODUCTION

Liquidity risk refers to the likelihood of certain events happening such as funds being insufficient to meet the demands of depositors or borrowers being acutely lower than actual value and the assets could not be disposed timely within the specified period. (Alfisyahrin, 2014). On the other hand, based on Maybank Berhad, it is the ability of bank to finance the increase in assets and the responsibility towards obligations in a timely manner that would prevent losses which may not be sustainable to the bank. Such risks could lead to negative implications where the income and capital of the bank are under uncontrollable threshold which would lead to the financial instability of the bank. Thus, it is the obligation of the bank

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to maintain sufficient funds to meet the demands of depositors and borrowers at the relevant cost of financing.

Potentially, the banking institution might face difficulty in fulfilling the requests of depositors when there are issues with liquidity which would impact the performance and reputation of the bank (Jenkinson, 2008). Hence, when funds requested by depositors are not disbursed timely, confidence towards the bank will be affected. In fact, poor liquidity situation may result in action to penalize the bank to be taken by the regulators (Jenkinson, 2008). In addition, changes in the structure of financing and risk management due to fierce competition to attract deposits, various financing products as well as advancement in technology would impact the bank (Akhtar, 2007). A bank that does not maintain sufficient liquidity can cause instability to its institution even with high quality assets, sufficient capital and stable earnings (Crowe, 2009; Andrew, 2012). It is submitted that poor Liquidity Risk Management (LRM) can be established from events in economic crisis relating to weaknesses in the corporate governance system, risk management and internal control. Therefore, it is incumbent on the bank to adopt a regulatory framework (RF) as a tool to discipline compliance to manage liquidity risk effectively.

Central banks throughout the world adopt various guidelines in order to prevent systemic risk in line with safeguarding of depositors and to ensure financial and economic stability. [1] In recent years, studies relating to the banking system worldwide revealed that the factors that led to the financial sector collapse are due to the weaknesses in the law and in the implementation of the supervisory structures (Alam, 2012). As a result, the adoption of the best and suitable RF is one of the ways for banking institutions to execute the implementation of the LRM efficiently, and subsequently, control the strength and stability of their institutions.

Research by Ulrich Bindseil & Jeroen Lamoot (2011) shows that there are related functions and interests in each other within the framework of liquidity risk and monetary policy operations of the central banks. Therefore, there is a large number of reviews and improvements to the legislation being constantly conducted in Malaysia within the financial industry to ensure the guidelines stay relevant and effective in maintaining the stability and growth of the Malaysian financial system. Over the last decade, there was a significant development locally and internationally in the control and supervision of the financial sector (Bindseil & Lamoot, 2011). Financial control evolves with the advancement in the financial system.

The rationale to adopt Basel III within Islamic banking has created an LRM initial study issue deemed controversial in RF aspects. Studies have concluded that Basel III is only for conventional banking without any consideration for Islamic banking (Harzi, 2012). On the other hand, the IFSB which is dedicated to Islamic banking institution is not a mandatory regulatory body for Islamic banking institutions in Malaysia. Therefore, harmonization of both RFs are recommended to generate an appropriate regulatory framework which is mandatory for all Islamic banking institution.

[1] To name a few, the examples of guidelines introduced by the central bank of Malaysia are guidelines on electronic money, guidelines on internal Capital Adequacy Assessment Process (ICAAP) and guidelines on permitted capital market activities for Islamic banks.(BNM, 2016)

This study identifies the strengths and weaknesses of RF in BCBS, IFSB and BNM for LRM of Islamic banking in Malaysia. In addition, the study also proposes the best practice amongst the RFs. This study adopted comparative content analysis method amongst the three regulatory bodies selected. The scope of this study includes t he introduction, LRM of Islamic banking, role of an effective RF in LRM, strengths and weaknesses of RF for LRM and conclusions.

2. ISLAMIC BANKING LIQUIDITY RISK MANAGEMENT

Liquidity means the ability of an institution to meet the demands of their clients for funds (Adalstyeinsson, 2014). On the other hand, liquidity management denotes assurance in the sufficiency of cash balances and high quality assets in meeting the demands of clients in respect of withdrawals and savings and assurance that the bank is able to sustain all its expenditures (Olagunju et al., 2011). In the conventional and Islamic banking systems, managing liquidity risk is a primary function since the bank acts as an entity that receives resources and funds from customers, namely individuals, corporations and investors (Akkizidis & Khandelwal, 2008; Matz, 2011). It serves as a conduit for the movement or circulation of sources of funds for financing transactions and the equilibrium of assets and liabilities (Alfisyahrin, 2014).

Studies have shown that liquidity risk management plays an important role in Islamic banking. According to Ismal (2010) for banking institutions to be stable, reducing the liquidity problem and maintaining good relations with relevant stakeholders in effectively managing the liquidity demand and supply must be a mandatory requirement of the bank. Incompetency in managing the funds or unexpected liquidity withdrawals by depositors during unstable economic conditions is a problem that often occurs.

It is submitted that strong emphasis need to be taken by Islamic financial institutions towards executing competent liquidity risk management to better and comprehensively safeguard the stability and progress of Islamic financial institution. (Akkizidis & Khandelwal, 2008) In meeting the needs of liabilities, the institution will be exposed to the risk of failure due to incompetency factor in liquidity management (Ferrari & Ruozi, 2013). However, excessive funds liquidity not appropriately utilized will also create negative impact (Adalstyeinsson, 2014).Thus, to ensure effective channeling of liquidity, it is of utmost importance that the authorized party that manages the liquidity is of competent level. This involves activities of all institutions in the local banking sector, international trade and investment.

3. LIQUIDITY RISK MANAGEMENT REGULATORY FRAMEWORK

The global financial crisis has placed LRM as a crucial regulatory agenda. In sustaining financial stability, various measures were introduced and henceforth implemented. Among the measures taken is the enforcement and regulation of liquidity risk management at the national level (Ali, 2012). For the implementation to be successful in the Islamic financial industry, central banks and international organizations have issued miscellaneous guidelines for this purpose. Various RFs for LRM that were respectively issued by the BCBS, the IFSB and BNM were identified.

Details of each of the RF are summarized as per Table 1, 2 and 3. This becomes the basis for the requirements of a relevant and specific RF for Islamic banking LRM. It is submitted that the said frameworks can be divided into several major sections namely: fundamentals of liquidity risk management, the governance system, the supervisory role, control of liquidity risk and the tool for quantitative measurement for liquidity risk.

3.1. Basel Committee on Banking Supervision (BCBS)

BCBS has introduced the "Principles for Sound Liquidity Risk Management and Supervision". Seventeen principles have been established encompassing the main fundamental principles, governance structure, risk management, measurement control tool, disclosure of information and the supervisory role for liquidity risk. In addition, there is a specific regulation for the quantitative measurement of liquidity risk, referred as Basel III. Table 1 summarizes both RFs in BCBS related to LRM.

Table 1: Regulatory Framework for Liquidity Risk management under BCBS

No	Item	BCBS	Description
1	* Fundamentals of liquidity risk management	1. The need for LRM framework. 2. The need for strategic management process. 3. The need for implementation of efficient monitoring policy. 4. The need for sound financing strategies.	1. The Bank is responsible for issuing the relevant framework so that sufficient liquidity can be maintained such as High Quality Liquidity assets (HQLA), sources of secured and unsecured financing etc. 2. The bank must identify, measure, monitor and control liquidity risk so that the framework processes become more established and effective encompassing all assets and liabilities. 3. The bank must have the management of applicable legal and regulatory aspects in controlling the exposure to liquidity risk. 4. The bank must identify the critical factors in raising sources of funding.
2	* Governance system	1. The need for liquidity risk tolerance. 2. Role of Senior Manager. 3. Role of Board of Directors (BOD) 4. Centralization of costs 5. Public disclosure of information.	1. The bank must adopt this business strategy to enable the financial system to function smoothly. 2. The senior manager is responsible for developing strategies, policies and practices to manage liquidity risks, review the information and prepares the report on liquidity to the board of directors. 3. BOD must review and approve and additionally monitor performance of the senior manager. 4. Incorporate liquidity costs, benefits and risk including performance appraisal cost and new product approval process.

No	Item	BCBS	Description
			5. Disclosure of validated information related to the strength of the bank's liquidity position allows evaluation by the public.
3	* Supervisory process	1. Overall evaluation. 2. Additional evaluation. 3. Miscellaneous interventions. 4. Upholding communication relationship.	1. A supervisor must assess the overall framework and the bank's liquidity risk position to ensure adequate resilience under liquidity stress. 2. Supervision includes monitoring a combination of internal reports, prudential reports and market information. 3. A supervisor must intervene so that effective remedial action can be taken by the bank to address deficiencies related to liquidity 4. A supervisor must communicate with other supervisors and the authorities to facilitate cooperation and the sharing of information related to supervision and oversight of liquidity risk management.
4	* Liquidity risk control	1. *Intraday* liquidity risk control. 2. Collateral control for encumbered assets and unencumbered assets. 3. Stress tests. 4. Formal Contingency Funding Plan (CFP). 5. HQLA position control and cushion of unencumbered assets.	1. To ensure that the bank is able to meet its obligations as a payment and settlement system on a timely basis. 2. A bank should manage collaterals by the right legal monitoring so that its functions can be performed effectively. 3. Bank must review the outcomes of stress tests in order to formulate strategies, policies and liquidity position. 4. Bank must have a strategic CFP to prepare for unforeseen circumstances that would affect the liquidity position. This plan allows operations to be carried out efficiently. 5. Bank must maintain the HQLA position to prevent instability of liquidity during liquidity stress scenarios including impairment of secured or unsecured funding sources.
5	* Quantitative measurements	1. *Liquidity Coverage Ratio* (LCR) Application 2. *Net Stable Funding Ratio* (NSFR) Application	1. Bank uses LCR to control short term liquidity risk where sufficient HQLA is required to withstand a 30 days stressed test scenario. Liquidity *outflows* must be less than liquidity *inflows* in meeting the imbalance between the outflows liquidity and the inflows during the short term

No	Item	BCBS	Description
		3. Additional metrics monitoring tools application	stressed situations. The bank must submit remedial plan and LCR report if the bank is unable to meet the LCR requirements. 2. Bank uses NSFR to control the long term liquidity for a period of one year where there is a need to control the maturity structure of assets and liabilities. NSFR is closely related to the available stable funding (ASF) compared to required stable funding (RSF). ASF refers to the factors in liability profiles for liability risks where as RSF refers to the factors in asset profiles for liability risks. Assets and liabilities are interconnected for stability. 3. The additional metrics are: i. Misalignment in contract maturity; ii. Concentration of funds; iii. Unencumbered assets availability; iv. LCR by major currency; v. Market-related monitoring tool

Source: BCBS 2015

Note: **Principles for Sound Liquidity Risk Management and Supervision*

**Basel III

3.2. Islamic Financial Services Board (IFSB)

IFSB has issued seventeen standards, six guiding principles and one technical note for Islamic financial services industry. Specific documents related to LRM are Risk Management Guiding Principle (IFSB-1), Liquidity Risk Management Guiding Principles (IFSB-12) and Quantitative Measurement to Liquidity Risk Management (GN-6). Documents related to governance of LRM are Principles of *Shariah* Governance System (IFSB10). The following Table 2 shows IFSB RF for LRM.

Table 2: Regulatory Framework for Liquidity Risk Management from IFSB

No	Item	IFSB	Description
1	* Fundamentals of Liquidity Risk Management	1. Need for LRM framework. 2. Need for administration process. 3. Establish interactions in liquidity risk.	1. Islamic financial institution should have centralized structure by establishing policies, procedures and strategies for managing liquidity risk in *shariah*-compliant financial contracts. 2. Processes that are comprehensive and in compliance with the law and *shariah* principles to identify, measure, monitor, report and control the liquidity risk of the Islamic financial institution. 3. Islamic financial institution must have a centralized administration by establishing

No	Item	IFSB	Description
			interactions between liquidity risks and other risk including *shariah* risk.
2	*Governance system	1. Administration set-up 2. Role of BOD 3. Role of senior manager 4. Integrated information system 5. Disclosure of information	1. Must coordinate the responsibilities of all administration staff as well as diversification of functions and units including the risk administration unit. 2. BOD are the final assessors in establishing liquidity tolerance level and shariah-compliant framework of LRM. BOD shall continuously establish, approve and re-assess the strategies of LRM. 3. The senior manager is responsible to monitor the LRM strategies to ensure that they are effective. 4. Must have an integrated information system in line with the size, characteristics and complexity of its operation in order to control liquidity risk efficiently and to enable immediate response by reporting to the relevant sections. 5. Disclosure of qualitative and quantitative information must be performed effectively and timely.
3	*Supervisory process	1. Job evaluation and LRM framework. 2.Establishing supervisory regulations 3. Liquidity support. 4. Combined supervision set-up. 5. Structuring of liquidity information. 6. Home-host and cross-sector markets. 7. Contingency plan. 8. Cooperation	1. The supervisor is responsible for the specified assessment to ensure adequacy of and support for liquidity during stress period. 2. The supervisor must establish LRM supervisory guidelines in structuring of funding, investment funding products, shariah-compliant securities and Islamic money market. 3. The supervisor must be part of the shariah-compliant liquidity support team under all situations and at the same time promoting shariah-compliant securities. 4. The supervisor must monitor the liquidity at the subsidiaries level and Islamic entity level to ensure adequacy. 5. The supervisor must review liquidity risk profiles based on verified information. Any deficiency identified must be remedied in line with the appropriate procedures. 6. The supervisor must cooperate in information-sharing assessment of liquidity position and LRM framework to safeguard the financial system from market stress in the home-host and cross-sector. 7. The supervisor must establish a plan encompassing political, macro-economic and

No	Item	IFSB	Description
			geographical factors to identify and control liquidity stress in the supervision process. 8. The supervisor must collaborate with officers of the relevant bodies for the development of shariah-compliant liquidity infrastructure in order to strengthen the liquidity of Islamic financial institutions.
4	*Liquidity risk control	1. Identifying sources of risks 2.Measure and forecast the cash flow from an imbalance balance sheet 3.Establish varied and appropriate basic funding 4. Shariah-compliant HQLA 5. Contingency funding plan (CFP) 6. Shariah-compliant collateral 7. Collaboration amongst Islamic financial institutions 8. The role of payment and settlement system 9. Liquidity control related to currency exchange.	1. An Islamic financial institution must identify the primary and secondary sources of risk related to liquidity for all markets including international markets. 2. An institution must use the appropriate metrics and method when there is a need to perform stress tests, scenario analysis and the determination of basis for liquidity risk tolerance. 3. An institution must establish a variety of basic funding in accordance to the character and size of the business, product offered, market environment, type of funding, maturity profile, currency and geographical location. Additionally, the basic funding potential, ability to raise funds and streamlining of any environmental changes either internally or externally must be tested. 4. An institution must safeguard and maintain adequate HQLA which is shariah-compliant to survive in the long term through minimal procedures and guidelines on sales of assets when securing funding during market stress situations. 5. An institution must identify unencumbered shariah-compliant collateral that that can be obtained based on types, currency and location in order to control liquidity stress during normal or stress situations. 6. This is to differentiate between encumbered assets and unencumbered assets for system identification. 7. An institution must collaborate for the purpose of liquidity management in developing shariah-compliant, solutions and trade mechanisms procedures. 8. An institution can manage short-term risk liquidity by playing the role of payment and settlement system itself. This system must ensure prompt payment to avoid systematic disorder that will prevent the smooth-running of other payment and money markets systems.

No	Item	IFSB	Description
			9. An institution must measure and review any inappropriate cash flow for foreign currency by controlling the currency that is less liquid and ensuring that it is shariah-compliant.
5	**Enhancement through Quantitative measurement	1. *Liquidity Coverage Ratio* (LCR) implementation 2. *Net Stable Funding Ratio* (NSFR) implementation 3. Specific responsibilities of supervisor in measurement tool application supervisory process	1. Liquidity risk control using the LCR measurement tool is similar to Basel III. There are differences in the specified ratio calculation indicator. All the indicators provided by the IFSB cover the criteria for shariah-compliant instrument. Addition or adjustments to meet the requirement of Islamic financial institutions. 2. Liquidity risk control using the NSFR measurement tool is similar to Basel III. There are differences in the specified ratio calculation indicator. All the indicators provided by IFSB cover the criteria for shariah-compliant instrument including the calculations for ASF and RSF. Additions or adjustments to meet the requirements of Islamic financial institutions. 3.1 The supervisor must review the tool for quantitative measurement under the *Internal Liquidity Adequacy Assessment Process* (ILAAP) and must undergo the *Supervisory Liquidity Review Process* (SLRP) periodically including all ILAAP processes and other forms of liquidity risk control. 3.2 The supervisor must perform consistent review from the initial stage, be aware of differences in all report, and evaluate specific factors of firms in potential liquidity risk market. 3.3 SA must determine clearly the major currency and request the appropriate LCR level. 3.4 The supervisor must address HQLA inadequacy problem by using *Alternative Liquidity Approaches* (ALA). Every time this approach is adopted, a re-assessment process needs to be carried out after three to five years. 3.5 Supervisor must determine the *run-off* rate and ASF factors for each deposits category and PSIA. 3.6 The supervisor must be sensitive to the monitoring of risk in wholesale funding sources to avoid withdrawal of funds by clients. 3.7 Islamic financial institutions must also monitor regularly the liquidity risk situation by submitting supervisory reports to the supervisor. 3.8 The supervisor must disclose their outward framework publicly and consistently. The

No	Item	IFSB	Description
			institution is required to disclose LCR and NSFR for every first set of financial statement from the date of enforcement. 3.9 The supervisor must determine assets for shariah-compliant HQLA by using the *haircut* and the various conditions for each level of assets.

Source: IFSB 2015

Note: * Guiding Principles of Risk Management (IFSB-1), Guiding Principles on Liquidity Risk Management (IFSB-12)
** Quantitative Measures for Liquidity Risk Management (GN-6)
*** Guiding Principles on Shariah Governance Systems (IFSB-10)

3.3. Bank Negara Malaysia (BNM)

BNM is the Central Bank of Malaysia, hence each guideline issued shall be complied by or becomes the primary practice of those in the financial services industry in the country. Some of the guidelines issued relating to LRM namely are: Liquidity Coverage Ratio, Liquidity Framework of Conventional Financial Institutions, Liquidity Framework of Islamic Financial Institutions, Risk Governance and the implementation of Basel III as a basis for liquidity risk management. Table 3 summarizes the RF of LRM from BNM.

Table 3: Regulatory Framework of Liquidity Risk Management from BNM

No	Item	BNM	Description
1	* Fundamentals of liquidity risk management	1. Need for comprehensive risk management framework for financial institutions including liquidity framework for LRM	1. Requirement to establish risk management process in security activities such as the evaluation process, verification of documentation and disclosure, performance review, as well as audit review and observation. In its effort to enhance liquidity management in Islamic financial institutions, BNM had introduced Liquidity Framework in 1998, to replace the liquid assets ratio requirement.
2	**Governance system	1. Practices of BOD 2. Role of Senior management 3. Integrated management system 4. The role of Executive 5. Remuneration	1. BOD must ensure that the corporate objectives of the financial institution are supported by sound risk strategy and effective risk management framework in line with the type, scale and complexity of its activities. In addition, BOD must provide an effective oversight on the senior manager's action to ensure consistency with the risk strategy and policies approved by BOD. 2. Senior management is responsible to ensure that the financial institution management daily activities are in line with risk strategy including

	6. Complex and opaque corporate structures 7. The role of subsidiary entities regarding risk governance	the risk appetite and policies approved by the BOD. 3. Risk management framework must be able to identify, measure and continuously monitor supported by a robust management information system that facilitates accurate, timely and reliable risk reporting at the institution. Risk management must also be integrated across the organization. Besides that, the implementation of effective risk management framework must be strengthened by effective compliance functions and subject to independent internal audit review. Therefore, financial institutions must have appropriate mechanisms to communicate risks across the organization and for reporting risk developments to the BOD and seniors managers. 4. Financial institutions must establish an independent senior risk executive role (chief risk officer or its equivalent) with distinct responsibility for the risk management function and the institution’s risk management framework across the entire organization. The executive must have sufficient stature, authority and seniority within the organization to meaningfully participate in and be able to influence decisions that affect the financial institution’s exposures to risks. In addition, financial institutions must establish and maintain an effective risk management function with sufficient authority, stature, independence, resources and access to the BOD. 5. Executive remuneration must be aligned with the risk taken. BOD must actively oversee the institution’s remuneration structure and its implementation, and must monitor and review the remuneration structure to ensure it operates as intended. 6. BOD and senior managers must be aware of and understand the financial institution’s operational and organizational structure and the risks it poses and be satisfied that it is not overly complex or opaque such that it hampers effective risk management by the financial institution. In addition, where a financial institution operates through special-purpose structures, its BOD and senior management must understand the purpose, structure and

			unique risks of these operations. Appropriate measures must be undertaken to mitigate the risk identified. 7. BOD and management of subsidiary financial institutions will be held responsible for effective risk management processes at the subsidiary level and must have appropriate influence in the design and implementation of risk management in the subsidiary. Conversely, the Board and management of a parent financial institution with local and overseas operations are responsible for the risk management of the group. Besides that, it must exercise oversight over its subsidiaries with appropriate processes to monitor the subsidiaries' compliance to the group's risk management policies.
3	*Supervisory process	1. Reporting requirement 2. Reporting requirement for LCR 3. Specific reporting requirement for LCR	1. *Islamic Financial Institutions* (IFI) are required to submit to the Bank via the financial institutions statistical system under the Report on Liquidity Framework. The report regarding maturity profile of balance sheet and off- balance sheet items denominated in RM and foreign currency, supplementary information on funding structure and stock of liquefiable assets. 2. IFI shall submit liquidity reports based on end-of-month positions to the Bank through the *Financial Institutions Network* (FINET) within the specified time not later than 30 days from the reporting position date. 3. The reporting requirement at both the entity and the consolidated level, LCR positions for each investment account fund, contractual maturity, concentration of funding data based on exposures in all currencies, available unencumbered assets which could be used as collateral and detailed list of HQLA holdings.
4	*Liquidity risk control	1. First level IFI evaluation on liquidity adequacy in a given period 2. Second level evaluation on IFI ability to cope with liquidity withdrawal	1. Assets and liabilities maturity profiles for the period of one week, between one week and one month, between one month and three months, between three months and six months, between six months and one year and a period of more than one year. IFI is permitted to employ its own in-house method provided it is justifiable to the Bank as a more accurate alternative. 2. Liquidity measurement at this level takes into account the additional emergency funds that can quickly realized from the sale of liquefiable

		shock with the availability of reserves and sufficient liquidity surplus 3. Third level evaluation of the funding structure particularly the dependency on certain markets 4. IFI is required to maintain sufficient cash flow in anticipation of unexpected major withdrawal 5. Maintenance of liquefiable assets and formally available credit lines during unexpected heavy withdrawals. 6. Use of available Statutory Reserve Requirement (SRR)	assets. IFI will normally be expected to demonstrate the availability of liquidity surplus and reserves that can support such falls in deposits. 3. Measurement for this market covers large customer deposits, interbank market, and offshore market. The information will allow IFI to assess its exposure to liquidity risk in the event of disruptions in the relevant markets. 4. IFI is required to maintain a minimum surplus in maturity mismatch from one week and one month with compliance requirement of 3% for up to one week and 5% for one week to one month. 5. Requirement for qualifying characteristics for the recognition of liquefiable assets namely Class 1 assets and Class 2 assets. Whereas formally available credit lines are arranged irrevocable credit facilities which the Islamic banking institution has paid a consideration for. The undrawn portion provides a reserve which the institution can draw upon during liquidity crisis. 6. Institution shall be allowed to draw down its SRR balances under a liquidity stress scenario only after it has made all efforts to utilize its available stock of HQLA to generate liquidity. During ordinary business conditions, the banking institution is expected to maintain its stock of non-SRR HQLA such that it avoids over reliance on SRR balance to meet LCR requirements.
5	***Enhancement of Quantitative measurement	1. Application of *Liquidity Coverage Ratio* (LCR) (Guidelines from BNM is Basel III implementation)	1. An adequate stock of HQLA, it maintains at least minimum LCR levels in accordance with timeline. A banking institution shall report and comply with the minimum LCR levels of 60% - 100%. The institution shall determine total net cash outflows over the next 30 calendar days. The institution shall cap the amount of inflows that can offset outflows which shall be capped at 75% of its total expected cash outflows. In the event of financial stress resulting in a non-compliance with the minimum prescribed LCR,

	the institution shall immediately notify the Bank for the institution be granted relief from having to comply with the minimum LCR.

Source: BNM 2015 Note: *Islamic Banking Institutions Liquidity Framework
**Risk Governance
***Liquidity Coverage Ratio

4. ANALYSIS OF THE STRENGTHS AND WEAKNESSES OF LIQUIDITY RISK MANAGEMENT

It is essential for banks dealing with liquidity risk management to refer to specific guidelines applicable to banking institutions. Undoubtedly, a thorough review of existing RFs shall lead to efficiency in LRM. The RFs were analyzed based on aspects that have been identified earlier so as to determine their respective strengths and weaknesses in relation to LRM. The analysis is shown as per Table 4. Explanation of all the aspects identified earlier shall henceforth be provided to emphasize their respective importance.

4.1. Fundamentals of Liquidity Risk Management

Risk is a challenge that has to be faced by financial institutions. In the process of making profits in any business transaction, risk is inevitable. Risk needs to be addressed and cannot be eliminated. Therefore, aspect of management is crucial to control the risk in banking and this includes liquidity management. Factors that contribute to the instability of liquidity risk is the increase in profitable money lending (Ali, 2012). Banks, regulators and the public in general have become aware of lessons learnt from events during financial crisis. Based on the lessons learnt, banks have re-evaluated their business practices (Ali, 2012).
There are various theories that highlight the importance of implementing risk management process when considering the risk management practices (Arif & Nauman Anees, 2012). Hence, a sound bank management must have a clear and intelligent mechanism to identify, control, measure and minimize liquidity risk. An established system will enable banking institutions to acknowledge the source of liquidity risk in a timely manner to avoid losses (Arif & Nauman Anees, 2012). As such, main policy in a fundamental framework is required so that the implementation of the LRM is supported by a strong foundation.

4.2. Governance System

The separation of ownership from management has resulted in the emergence of systematic governance history. From the financial industry perspective, subsequent to the financial crisis, many developed and developing countries such as Malaysia, had issued guidelines on corporate governance as best practices code. Moreover, with the emergence of Islamic financial industry, shariah governance practices code was introduced to specifically cater for Islamic funding implementation (Nawal et al, 2013).

Based on Ismail (2010), assessment of liability aspect and governance were done in Islamic banking industry of Indonesia. Governance aspect is crucial in a comprehensive effort to ensure the success of the industry. Therefore, banking institutions have dedicated a special division for risk management that includes liquidity risk. Hence, any issue related to liquidity risk becomes a corporate responsibility and will be brought up to the BOD for approval after being processed and filtered by the risk management division. In addition, Song (2014) agrees that information disclosure is necessary as an approach within the governance scope of authority to maintain the trust and consumers interest. In most jurisdictions, maintaining trusts and taking care of consumer's interests are done through disclosure and transparency. Meanwhile, Cory Howard (2014) stated that in order for banking industries to be successful, an increase in transparency must become the objective of corporate governance. Financial holding company will be required to make public disclosure of information including those which are considered confidential previously (Jamal et al, 2011). Such step can reinforce the importance of systematic governance of a banking institution in its LRM which includes the disclosure of information.

4.3. Supervisory Process

The key to minimize risk is effective supervision for the enhancement of banking system stability. The RF of risk management for existing supervisory process can be used as a reference for banks. Similar to conventional banking, Islamic banking is also subject to supervision (Sing, 2014). However, the supervisory process for Islamic banking institutions differs from the conventional banking. Islamic banking institutions adopt shariah-compliant approach because of its unique characteristics.

A supervisor must be equipped with adequate knowledge related to the challenges and Islamic financial products and the impact of the interaction between conventional banking and Islamic banking. The supervisory authority must also be sensitive and be aware of the possibility of regulatory arbitrage between conventional banks and Islamic banks. Subsequently, formal and structured supervisions which are necessary while monitoring are some of the strategies in the supervising process. This shows that specific supervision process is required to manage liquidity risk in Islamic banking.

4.4. Liquidity Risk Control

Maintaining the liquidity source at a stable level is a challenge that requires attention in Islamic banking LRM (Song, 2014). The determination of liquidity position, either in excess or shortage, consistently depends on the measures taken in monitoring the liquidity and the measurement policies. More importantly in the event of financial crisis. Adopting the concept of *ar-rahnu* to manage and operate risk represents control) is referred to by Hasan (2008) and was accepted by religious scholars presently. Besides that, another method that is used is through reserves in the central bank so as to cope with the risk of losses and the maintaining of profit distributions (Yahya, 2008). This indicates that various methodologies can be used to control risks.

According to Guglielmo (2008), a high level of understanding and knowledge related to the specified risks is necessary and the need to develop a mechanism that is important to manage risks must be in tandem with the growth of banking in capital markets. Banks should have varied sources of funds from every level of clients such as individuals, wholesalers, markets and financial instruments (Falconer, 2001). Therefore, in order to be able to identify any potential occurrence, early preventive strategies which are effective is needed in banking liquidity risk control.

4.5. Quantitative measures

It is submitted that the importance of stability in liquidity position and maturity mismatch in each bank's portfolios can be observed during the 2008 financial crisis. Hence, additional increase in monitoring, standardization and regulations need to be implemented in the financial sector. The importance of specific reference guide basics for liquidity risk control in the form of quantitative measurement can be explained through deposit ratio phenomena, for example, high deposit ratio will result in the bank facing a high liquidity risk. Therefore, the funding and deposit control should be enhanced by using quantitative measurement tools.

Liquidity risk faced by the bank is when it tries to meet the accumulated net cash outflows for a certain period of time (Ferrari & Ruozi, 2013). During this time where the bank is being analyzed, the bank must remain solvent and is able to generate firm and sufficient cash inflows. Therefore, liquidity management must be efficient in assessing the maturity mismatch of assets and liabilities as the higher the mismatch, the higher the net outflow shall be. Effective assessment should be concentrated on assets and liabilities structures and also for stability in any unexpected phenomenon (Gaston, 2013). All RF regardless of it being issued by BCBS, IFSB or BNM contains distinct guideline for cash outflows and cash inflows. This situation indicates the necessity of quantitative measurement tools for assets and liquidity stabilization in banking.

Table 4: Analysis of the Strengths and Weaknesses of Liquidity Risk Management Regulatory Framework

No.	Strengths and Weaknesses			Conclusion
	BCBS	IFSB	BNM	
1. Fundamentals of Liquidity Risk Management	Places the priority in fundamentals of LRM for applicable institutions on the bank itself.	Emphasis of framework related to RF is focused on the interactions between liquidity risk and other risks.	Absence of detailed guidelines on LRM fundamentals Suffice to only have the requirements of LRM framework and its processes.	The three entities respectively recommend IFIs to establish a distinct framework for the fundamentals of LRM which includes the identifying, monitoring, controlling and measuring processes in order to put in place an efficient LRM.
2. Governance system	The need to consolidate all costs related to liquidity in management of	There are guidelines on the role of shariah committee and in compelling IFIs for	There are distinct guidelines which itemizes the governance guiding	The three entities respectively have guidelines on the responsibility of BOD and senior manager

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	these costs. Additionally, there are guidelines on information disclosure related to liquidity risk.	centralized information system. Apart from that, there are also guidelines on information disclosure related to liquidity risk.	principles in LRM. However, there is no guideline regarding the disclosure of information on liquidity risk.	where information disclosure is an important aspect of LRM governance. However, this matter has yet to be given due attention.
3. Supervisory role	A more detailed regulatory process is needed in enhancing the review of liquidity risk and the role of supervisor to ensure that supervision is performed effectively, thus reflecting the characteristics of a charismatic supervisor.	Apart from the detailed role in supervision activities , the supervisory process of IFSB puts job evaluation and LRM framework as the main foundation in any supervisory process and in addition to the structuring of remedial steps in LRM supervision.	There is a need to prepare a general report on liquidity risk and a special report for LCR. Supervision is performed only through the preparation of the required reports and there is no specific explanation on the role of the supervisor.	The three entities respectively have distinct regulatory process to regulate liquidity risk in order to strengthen and stabilize liquidity. The role performed by the supervisor will ensure the supervision activities to be effective and orderly.
4. Liquidity Risk Control	Control under BCBS has been issued under various means such as the managing of liquidity position, collateral, stress test, HQLA control as well as CFP and others.	This control is almost similar to the guidelines of BCBS. The difference is that all instruments and control indicators are shariah-compliant.	The risk assessment is distinct whereby the levels are in progressive stages. This enables control to be performed in a more orderly and systematic manner.	Liquidity risk control is for identifying potential occurrence of an event by instituting early preventive measures. All three entities respectively have distinct strategy to control their liquidity risk.
5. Quantitative measures	Apart from LCR and NSFR there is additional matrix as a quantitative measurement	There is a shariah-compliant measurement tool for measuring liquidity risk quantitatively. In addition, there is a	The quantitative measurement tool for BNM is LCR which is also used for Islamic banking requirement.	All three entities respectively have quantitative measurement tool for LRM. Measurement tool for IFSB and BNM is Basel III.

No.	Strengths and Weaknesses			Conclusion
	BCBS	IFSB	BNM	
	tool for liquidity risk.	special guide on LCR and NSFR supervision.		
Conclusion	BCBS is pioneer in liquidity risk management regulatory framework, in other words a role model to the others.	IFSB is a reference for Islamic banking guidelines specifically due to its shariah-compliant framework.	BNM is specifically referred to by Islamic and conventional banking in Malaysia for guidelines on LRM.	Hence, the analysis reveals that LRM frameworks of BCBS, IFSB and BNM are inter-related as any flaws or additional feature are covered since each entity complements each other.
Overall	BCBS becomes the main guide for IFSB and BNM. This scenario shows that BCBS is a *role model* in liquidity risk framework. IFSB becomes a reference for BNM for its shariah-compliant RF in LRM. IFSB and BNM have come out with several RF that are almost similar to BCBS especially in the area related to quantitative measurement tool, that is, Basel III.			

Based on the above analysis, it is submitted that RF from IFSB is the best practice to be adopted by Islamic banking in LRM because it is shariah-compliant. The banking industry should evaluate the RF for LRM when formulating policies in order to identify any weaknesses and strengths so as to generate effective and appropriate policies to manage liquidity risk. However, RF of BNM has its own advantage. The RF of BNM in risk governance can be categorized as good practices. It is a known fact that, Malaysia has regulations on corporate governance and shariah governance as stated in Islamic Financial Service Act 2013. This shows that Malaysia emphasized the importance of governance system which includes liquidity risk governance. In addition, BNM has come out with guidelines on the implementation of Basel III. This explains the importance of BCBS itself and indicates that banks will implement liquidity standards according to Basel III in Malaysia by enhancing the existing liquidity framework.

5. CONCLUSION

The above discussions highlighted that there are differences in RF of LRM between BCBS, IFSB and BNM. Each of this entity has developed diverse and distinctive RF that makes financial institution becoming intelligent in managing liquidity risk and being able to evaluate best practices amongst the specified RFs. Generally, the main support for regulatory framework in banking LRM is based on BCBS. However, the uniqueness of IFSB regulatory framework in being shariah-compliant is used as a special guide for LRM by Islamic banking. Subsequently, BNM has issued a liquidity framework for both conventional and Islamic banking using BCBS and IFSB as reference. Its distinct risk governance guideline has established BNM as being exceptional. All three LRM RFs have its own vested interests.

As such, it is submitted that the best practice for LRM is the RF from IFSB because its framework is shariah-compliant. This is in accordance with the development in Islamic banking which requires a shariah-compliant framework as reference. The main element that makes RF from IFSB stands out is the presence of shariah committee in the structure of governance system. The shariah committee will ensure that all governance process, control, supervision and measurement in the RF is in compliance to shariah. In addition, there is a detailed calculation that is shariah-compliant which is incorporated in LCR and NSFR measurement tools. All the calculations cover each element, indicators and instruments that are shariah-compliant.

Elements related to management, governance, supervision, control and risk measurement form an important basis for controlling liquidity risk and in strengthening of Islamic banking institutions in facing all situations in a financial crisis. This reinforces the argument for banking industry to adopt the best RF to strengthen the stability of their financial institutions. LRM could not be controlled efficiently without the existence of regulatory compliance guide. Any potential untoward event can be prevented and controlled through this supervision. In fact, due to the diversity of RFs for LRM, this makes the existence of any flaw cause the RFs to be dependent on each other which would result in a more efficient LRM. With this, it is hoped that this study will motivate further research especially in the field related to Islamic banking liquidity risk.

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