

RISK MANAGEMENT OF FULL-FLEDGED ISLAMIC BANKS VERSUS ISLAMIC SUBSIDIARIES OF CONVENTIONAL BANKS IN MALAYSIA: THE SUSTAINABLE GROWTH WITHIN RESTRICTED MINIMUM REQUIREMENTS

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ABSTRACT

This paper aims to analyze the risk management practices of full-fledged Islamic banks versus Islamic subsidiaries of conventional banks in Malaysia and the sustainable rate of growth within restricted minimum requirements of capital adequacy, leverage and liquidity. In achieving these objectives, the paper assesses the risk management practices of full-fledged Islamic banks, i.e. Bank Islam Malaysia Berhad and Bank Muamalat Malaysia Berhad and Islamic subsidiaries of conventional banks, i.e. Maybank Islamic Berhad and CIMB Islamic Berhad. This paper uses annual reports and focus group interview to obtain the data. The results of the analysis show that the Leverage Ratio, Liquidity Coverage Ratio (LCR) and capital requirement ratios, such as Common Equity Tier 1 capital Ratio, Core Capital Ratio (CCR) and Risk Weighted Capital Ratio (RWCR) have exceeded the minimum requirement by Basel Accord. The result of the focus group interview shows that full-fledged Islamic banks and Islamic subsidiaries of conventional banks conformed and implemented the risk management framework imposed by the regulatory agency. However, the growth rate in total asset, loan, Return On Assets (ROA) and net income margin has mixed growth except for loan to total asset which increase over the year, albeit of the minimum risk management requirement. These empirical and focus group results suggest an important policy on issues pertaining to how Islamic banks have to adjust the changes in the banking environment in terms of growth and its comparative advantages specifically on management efficiency.

Keywords: Islamic banks, conventional bank, risk management

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INTRODUCTION

In contemporary economics, Islamic banking has become one of the vital sources and helps of success and helps in economic growth, particularly in countries where there were significant *Muslim* populations. The growing market demand and attention given to the Islamic banking and finance industry has escalated the research interest in this area as well. Due to the relatively recent nature of the Islamic banking industry compared to its conventional counterpart, many aspects of the industry are not well investigated. At the moment, topics of research interests are mainly on product development and performance of the industry. In this regard, an area of concern which is highly relevant in ensuring healthy growth of the industry is the risk management aspects of the Islamic banking institutions. There are several risks involved in Banking business such as credit, liquidity, operational and market risk, however with good risk management, the bank will be able to sustain, grow and remain intact in the businesses amid the intense competition in the industry (Marliana et al., 2011). The growth and success of a financial organization depend critically on the efficiency of managing these risks. More importantly, good risk management practices are highly relevant in providing better returns to the shareholders (Akkizidis & Khandelwal, 2008; Al-Tamimi & Al-Mazrooei, 2007). In addition, prudent risk management by financial institutions is the hallmark to avoid financial distress that could lead to a full blown financial crisis.

In view of this, the issue of risk management in the financial institutions is a topic of interest not only to industry players, but also to policy makers. A growing literature suggests that risk management is even more challenging for Islamic banks as compared to the conventional counterpart. This is largely attributed to the fact that Islamic banks are faced with additional risks due to the specific features of the financing contracts, liquidity infrastructure, legal requirements and governance underlying the Islamic banks' operations (Cihak & Hesse, 2008). Additionally, Islamic banks also have to ensure that the risk management measures being adopted should not conflict with the *Shari'ah* principles (Khan & Ahmed, 2001). In view of the increasing pressure of globalization, effective and efficient risk management in Islamic financial institutions is imperative as Islamic banks endeavour to sustain with the challenges of cross-border financial flows.

In terms of sustainable growth, it can be achieved by maintaining a leverage ratio, i.e. no issuing of new equity and maintain a target dividend. It is a challenging for a business to sustain and have the optimum capital structure because of the dynamic economic environment. Due to the nature of the banking businesses, it is imperative for Islamic banks to carefully manage the capital structure in order to optimize debt to equity ratio. The matching between funding and deposit is very crucial to be managed and controlled as they involve liquidity risks. Some argued (Ariff & Nauman, 2012; Cihak & Hesse, 2008; Roseziahazni & Rosli, 2015)

that the Islamic bank's sustainability and growth are significantly affected due to the need to allocate more resources to mitigate these risks. In particular, greater risk mitigation requirements call for adequate capital and reserves, appropriate pricing and control of risks, strong rules and practices for governance, disclosure, accounting, and auditing rules, and suitable infrastructure that could facilitate liquidity management (Sundarajan & Errico, 2002).

This paper aims to analyze the risk management practices of full-fledged Islamic banks and the sustainable rate of growth within restricted minimum requirements of capital adequacy, leverage and liquidity. This study intent to analyse the growth rate and uncover the cloud of blanket of risk management practices of Islamic banks in Malaysia under the stringent requirements by regulators. This study is organized as follows. The following section reviews the literature on risk management, third section is the discussion regarding the methodology applied in this paper, fourth section is regarding results discussion, and lastly the conclusion of the paper.

LITERATURE REVIEW

Risk in the banking context arises from any transaction or business decision that contains uncertainty concerning the results. Banking risks are defined according to the adverse impact on profitability with respect to several distinct sources of uncertainty. Thus, risk will have significant impact on Islamic bank growth whereby with good risk management practices and strictest control under regulatory minimum risk requirement, Islamic banks can eventually sustain in competitive economic environment (Raza et al., 2013; Hassan, 2009). There are many theoretical and practical issues underpinning the area of risk management and Islamic banking. Some of the risks in the Islamic banks are unique and not similar to the risks in conventional banks. This is related to the unique requirement for Islamic banks to comply with *Shari'ah* principles. Moreover, in practice, Islamic banks use the profit-sharing mode not only in their sources of funds (e.g. investment deposits) but also in their financing and investment activities. In addition, a wide application of non-profit-sharing instruments for financing purposes has led to issues in the model of Islamic banks as financial intermediaries.

This leads to a variety of risks in both the profit-sharing and non-profit-sharing mode of financing and contracts that can either threaten or create opportunities for the Islamic banks (Romzie & Rahim, 2015). There are several studies on the theoretical regarding risk management, one research conducted by Shahrul (2012), explained that risks in Islamic banking can be divided into two types, i.e. systematic and unsystematic. The risks in Islamic banking vary depending upon types of instruments used in the transactions either in deposit or financing. Research done by Marliana et al. (2011), disclosed that the significance of operational risk in Islamic banking is due to the unique contractual features

and general legal environment. The principles of risk management under Basel II are well suited with Islamic banking. The different products used by Islamic banks highlight the applicability of the Basel II methodology to tackle the unique characteristics of Islamic banks.

Research on the relationship between growth and risk were conducted by many researchers and the effect of the firm's growth opportunities with systematic risk depends on the definition of growth. According to Higgins (1977) pioneer in introduction of sustainable growth rate concept, the model was based on premises that a firm wishes to have target of dividend pay-out ratio, and to maintain capital structure without issuing new equity. Specifically, Sustainable Growth Rate (SGR) is described as the rate of growth in sale at which the total debt to equity ratio remains constant while other components involved remain constant as well. Another concept of growth rate evaluation is CFSGR (Cash Flow Sustainable Growth Rate) proposed by Hamman (1996), whereby the element of cash flow break-even-point is taken into consideration. The CFSGR indicates the maximum sales growth rate by which a working capital-intensive firm can afford to grow and by restriction of the changes in the firm's cash flow at the end of the period. However, Churchill & Mullins (2001) proposed different concept of evaluating growth rate as compared to CFSGR, which is a concept of Self-Financable Growth (SFG). This concept is measured as a rate of growth that can be financed from sales revenue. When sales growth rate exceed the SFG rate, the company can make a decision whether to contain the operation or find new fund to support operation. However, growth rate evaluation concepts vary in its application due to the differences in the company background and risks nature. Hence, analysis of the relationship between risk and growth rate can be used to mitigate and manage the risk efficiently in order to have sustainable growth.

The work of Ahmed et al. (2011) aimed to investigate the firm's level factors which significantly influencing the risk management practices of Islamic banks in Pakistan for the period of 2006-2009. The study explained that credit risks, liquidity risk and operational risk have an impact on bank growth. While a study by Arif & Nauman (2012) aims to examine liquidity risk in Pakistani banks and evaluate the effect on banks' profitability. Data were retrieved from balance sheets, income statements and notes of 22 Pakistani banks within 2004-2009. Multiple regressions were applied to assess the impact of liquidity risk on banks' profitability. Results indicate that the risks significantly affected the bank profitability which in turn affected the bank's growth. There are other empirical studies regarding risk management in Islamic banks, for example, Khan & Ahmed (2001) conducted a survey of 17 Islamic banks on risk management issues. The findings confirmed that the Islamic banks faced some risks arising from profit-sharing investment deposits. Here, the bankers considered these unique risks to be more serious than the normal risks faced by financial institutions. In terms of the overall risk management processes, they found that the overall risk management processes

of the Islamic banks were satisfactory. The results showed that the Islamic banks had established a relatively good risk management environment; however, the measuring, mitigating and monitoring processes and internal controls needed to be further upgraded in order to sustain in banking business.

Hassan (2009) examines the degree to which Islamic banks in Brunei Darussalam use risk management practices and techniques in dealing with different types of risk. The study used a questionnaire survey. The main results of the study are: (1) Islamic banks in Brunei are mainly facing three types of risk which are foreign-exchange risk, followed by credit risk and operating risk, (2) the most important methods of risk identification chosen by more than 90 percent of the respondents are: (i) inspection by Shari'ah supervisors, executive and supervisory staff; (ii) audit and physical inspection; (iii) financial statement analysis; and (iv) risk survey, (3) Islamic banks in Brunei Darussalam are reasonably efficient in analysis, risk monitoring and risk assessment, (4) evidence of efficiency in credit risk management within the Islamic banking industry in Brunei Darussalam that affected the bank's performance. Roseziahazni & Rosli (2015) conducted a study aimed at examining risk management practices among deposit money banks in Nigeria and its relation to financial performance in 2012 financial year. The study used secondary data gathered through content analysis of the selected Banks' annual reports and accounts. There are three risks were taken into account as proposed under Basel II, i.e. credit risk, market risk and operational risk. Findings show that financial performance strongly determined the risk management practices, therefore banks should endeavour to enforce risk management process of risk identification, risk measurement, risk monitoring and risk control, in line with the global best practice in order to improve bank growth. A research conducted by Raza et al. (2013), explored the remodelling framework of risk measurement strategies in order to manage the current challenges of post global financial crises (2008-2011) in the banking sectors of Bahrain, the UAE and Pakistan. The research findings concluded that the banking sectors of the countries have deep concerns with potential risk challenges and they are in a continuous process to improve the risk measurement framework in accordance with the latest regulatory obligations in order to minimize the banks' delinquency ratio.

Regulatory Guidelines (Basel, Islamic Financial Service Board (IFSB) and Central Bank of Malaysia)

There are several bodies that govern and regulate the guiding principles regarding the risk management for banking sectors, i.e. Basel Committee on Banking Supervision (BCBS), Islamic Financial Services Board (ISFB) and Central Bank of Malaysia. The following are the discussions of the published risk management guideline:

1. Basel Committee on Banking Supervision (BCBS) (Basel I, II and III)

Under the 1988 Capital Accord or called Basel I, the committee recognizes that the capital buffer related to credit risk implicitly covers other risk and initially the Basel I only covered credit risk. The broad brush approach in Basel I delivered an overall cushion of capital for both the measured risk (credit and market) and other (unmeasured) banking risk. The regulatory capital calculation is based on risk weight formulated for Basel I. The exposure of risk capital adequacy under Basel I is 8% of the assets times the risk weight. The capital of the bank is required to be higher than the regulatory minimum of 8% of the risk weighted assets. Thus, the total capital for portfolio is obtained by total up the regulatory capital for individual loans. At the end, the risk-based capital adequacy ratio should be equal or greater than 8%.

$$CAR = \text{Capital} / (\text{Total Risk Weighted Assets}) \geq 8\%$$

However, the New Basel Capital Accord (Basel II) is focusing on sensitive risk other than credit and market risk. Further, developing banking practices such as securitization, outsourcing, specialized processing operations and reliance on rapidly evolving technology and complex financial products and strategies suggest that these other risks are increasingly important factors to be reflected in the credible capital assessments by both supervisors and banks. The primary purpose of the "Basel II" is to stabilize the international banking system and thus level the playing field. "Basel II" emphasizes capital adequacy, risk management techniques, internal controls, and external audits. Islamic banks are required to comply with the standardized approach and measure risk exposure for capital adequacy. Regulatory agencies are responsible for imposing "Basel II" in their jurisdictions. Since understanding risk and application of contemporary risk management techniques is a very important aspect, Islamic banks should give priority in the area of risk management practices. Risk management practices have been exfoliated by Basel II in three pillars:

(i) In Pillar 1, the minimum capital requirement for credit risk in the banking book is calculated in a new way that reflects the credit ratings of counterparties. The general requirement in Basel I that banks hold a total capital equal to 8 percent of Risk-Weighted Assets (RWA) remains unchanged. The capital requirement for market risk also remains unchanged from the 1996 Amendment. It deals with the maintenance of regulatory capital calculated for three major components of risk that a bank faces: credit risk, operational risk and market risk. The Capital Adequacy Ratio (CAR) as stipulated by Pillar 1 of Basel II is as follows:

$$CAR = \frac{(\text{Tier 1} + \text{Tier 2})}{(\text{RWA (Credit Risk)} + \text{RWA (Market Risk)} + \text{RWA (Operational Risk)})}$$

(ii) Pillar 2, which is concerned with the supervisory review process, allows regulators some discretion in how rules are applied, but seeks to achieve overall consistency in the application of the rules. It places more emphasis on early intervention when a problem arises. Supervisors are required to do far more than just to ensure that the minimum capital required under Basel II is held. Part of their role is to encourage banks to develop and use better risk management techniques and to evaluate these techniques.

(iii) Pillar 3, which is concerned with market discipline, requires banks to increase disclosure to the market of their risk assessment procedures and capital adequacy. In addition, in some instances, banks will have to increase their disclosure in order to be allowed to use particular methodologies for calculating capital. The banks will be subjected to the added pressure to make sound risk management decisions if shareholders and potential shareholders have more information about those decisions.

It is widely felt that the shortcoming in Basel II norms is what led to the global financial crisis of 2008. That is because Basel II did not have any explicit regulation of the debt that banks could take on their books, and focused more on individual financial institutions, while ignoring systemic risk. To ensure that banks do not take on excessive debt, and that they do not rely too much on short term funds, Basel III norms were proposed in 2010. Thus, in order to strengthen the risk coverage, Basel Committee has introduced the new Basel Accord which is called Basel III. Its primary function is to strengthen further practices of banks worldwide with the purpose of enhancing financial stability.

Specifically, Basel III reforms measures aim to (1) improve the banking sector's ability to absorb shocks arising from financial and economic stress, whatever the source, (2) improve risk management and governance and (3) strengthen banks' transparency and disclosures. Three ratios have been focused under Basel III, i.e. capital requirement, leverage ratio and liquidity requirement. Under capital requirement, the requirement of common equity Tier 1 of 4.5% must be maintained at all time by banks. The minimum Tier 1 capital increases from 4% in Basel II to 6% (Basel III), applicable in 2015, over risk-weighted assets (RWA). This 6% is composed of 4.5% of common equity Tier (CET1), plus an extra 1.5% of Additional Tier 1 (AT1). Two additional points under capital requirement, (i) bank need to hold a minimum mandatory reserve buffer which is 7% of equivalent to 2.5 % of risk weighted assets plus 4.5% common equity Tier 1 effective from 2019 onwards, and (ii) an additional 2.5% of capital required by regulator during higher credit growth.

Under leverage ratio, Basel Accord required the bank to maintain leverage ratio in excess of 1% to 3%. This is a non-risk-based leverage ratio and is calculated by dividing Tier 1 capital by the bank's average total consolidated assets (sum of the

exposures of all assets and non-balance sheet items). The formula expressed as follows:

$$\text{Leverage Ratio} = (\text{Tier 1 Capital}) / (\text{Average Total Consolidated Asset Value}) \geq 3\%$$

Finally, under liquidity requirement ratio proposed by Basel III, i.e. "Liquidity Coverage Ratio" that require the bank to hold sufficient high-quality liquid assets to cover its total net cash outflows over 30 days. The formula expressed as follows:

$$\text{LCR} = \frac{\text{High Quality Liquid Asset}}{\text{Total Net Liquidity Outflow over Thirty Days}} \geq 100\%$$

2. Islamic Financial Service Board (IFSB)

Islamic Financial Service Board (IFSB) was established under the IFSB act 2002. It serves as an international standard-setting body of regulatory and supervisory agencies that have vested interest in ensuring the soundness and stability of the Islamic financial services industry, which is defined broadly to include banking, capital market and insurance.

The IFSB (2005) has set out the general requirements of risk management practices to provide a comprehensive risk management and reporting process. The process should take into account appropriate steps to comply with *Shari'ah* rules and principles and to ensure the adequacy of relevant risk reporting to the supervisory authority. Thus, based on the unique nature of risks in Islamic banking, risk management practices are generally defined to include the following:

General Requirements of Risk Practices

Under the general requirement, Islamic Financial Service Board (IFSB) has stressed that Islamic banks should put in place a comprehensive risk management and reporting process, including appropriate board and senior management oversight, to identify, measure, monitor, report and control relevant categories of risks and, where appropriate to hold adequate capital against these risks.

The process shall take into account appropriate steps to comply with Shariah rules and principles and to ensure the adequacy of relevant risk reporting to the supervisory authority (IFSB, 2005).

Specific Requirements of Risk Practices

The risk management process (i.e. risk identification, measurement, monitoring, control and reporting) on each of the specific/unique risks are: (i) credit risk, (ii) equity investment risk, (iii) market risk, (iv) liquidity risk, (v) displaced commercial risk and (vi) operational risk/*Shari'ah* non-compliance risk. The management of these unique risks is mainly in accordance with the IFSB (2005) Guiding Principles of Risk Management. The main reason for using the IFSB guidelines is the unique

nature of risks in Islamic finance that are well-documented and the standardized nature of these guidelines that are recommended to Islamic banks internationally. The IFSB issued a comprehensive document on the standards concerning risk management in December 2005. The guidelines consist of the 15 principles, including the general requirements for risk management and 6 major risk areas, namely, credit risk (4 principles), equity investment risk (3 principles), market risk (1 principle), liquidity risk (2 principles), rate of return (2 principles) and operational risk (2 principles). The following are the discussions regarding the seven principles:

(i) The first principle is the general requirement for the Board of Directors (BOD) and senior management's oversight of the risk management process. This includes, for instance, a regular review of the effectiveness of the risk management activities and the BOD is ensuring the existence of an effective management structure.

(ii) The second principle is in relation to the credit risk. The principle of credit risk is based on specific products, in relation to receivables, leases and is also applicable to profit-sharing assets. The IFSB focuses on default, downgrading and concentration risks related to credit risk. The principle includes the need to recognize the credit risk exposures arising from different stages in financing and also to conduct an appropriate due diligence review of the financing products. The principle suggests remedial action in the case of the financial distress of a counterparty, such as frequent contact with the counterparty, the use of debt-scheduling or restructuring arrangements and the use of *Shari'ah*-compliant insurance/*takaful*.

(iii) The third principle is in relation to equity investment risk. Here, the principle deals with the risk inherent in the equity instruments, which are held for investment purposes, in particular, for *musharakah* and *mudarabah*. These include the setting of objectives, policies and procedures of investments that use profit-sharing instruments. There is also a need to engage independent parties to carry out audits and valuations of the investments.

(iv) The fourth principle is in relation to the market risk. The market risk exposure may occur at certain times throughout the Islamic financing contracts. The risk exists in the case of tradable, marketable or leasable assets and off-balance sheet individual portfolios.

There is a need for the establishment of a sound and comprehensive market risk management process and information system that forms a framework to assist in identifying market risks; providing guidelines to govern risk-taking activities in different portfolios; and providing a strong management information system for controlling, monitoring and reporting market risk exposure and performance.

(v) The fifth principle is in relation to liquidity risk. Here, the principle highlights the key elements for effective liquidity management within the scope of the exposure of Islamic banks. The concern is the two major types of fund provider; namely, the current account holders and the unrestricted investment account holders (IAH) who require a degree of liquidity to be maintained by Islamic banks to meet their requirements for withdrawal. Hence, the principle suggests that Islamic banks have a separate liquidity management framework for each category of current account and investment account. Islamic banks should also have in place a liquidity management policy that covers a sound process for measuring and monitoring liquidity, an adequate system for monitoring and reporting liquidity exposures on a periodic basis, adequate funding capacity, access to liquidity through fixed assets realization and through sale and lease-back arrangements, and a well-developed liquidity crisis management.

(vi) The sixth principle is in relation to the rate of return risk, including the displaced commercial risk. The rate of return risk is a strategic risk issue, as the Islamic banks are responsible for managing the expectations of their investment account holders and their liabilities to the current account holders. Islamic banks need to be aware of the possible factors that give rise to the rate of return risk; for example, an increase in benchmark rates may result in investment account holders having expectations of a higher rate of return. Islamic banks also need to have appropriate systems for identifying and measuring the factors that give rise to the rate of return risk. The IFSB guidelines encourage Islamic banks to use balance sheet techniques to minimize their exposure by using a few strategies, such as determining the future profit ratios according to the expectations of market conditions and/or by developing new *Shari'ah*-compliant instruments. For the purpose of managing displaced commercial risk, the guidelines suggest that the Islamic banks develop and maintain the appropriate level of Profit Equalization Reserve (PER), to provide risk mitigation.

(vii) The seventh principle is in relation to the operational risk, which is not only the risk arising from failed or inadequate internal processes, people and systems, but also includes *Shari'ah* non-compliance and the failure of the Islamic banks' fiduciary responsibilities. The guidelines suggest that Islamic banks consider the events that can affect their operation; for instance, failure in the internal processes and *Shari'ah* non-compliance. A prudent and controlled environment for operational risk management and periodic reviews to detect and address operational deficiencies are expected to be conducted.

There is a need for independent audits and assessments by internal and external auditors for the purpose of reviewing the banks' internal controls. For the purpose of *Shari'ah* compliance, the Islamic banks have to ensure that they adhere at all times to the *Shari'ah* rules and principles, including their contract documentation. Performing a *Shari'ah* compliance review at least annually by a separate *Shari'ah*

department is also suggested. Based on the above guidelines, IFSB has come out with exposure draft number 2 in 2005, in which the IFSB focused on the introduction of Capital Adequacy Standard (CAS) for Islamic banking.

This proposal recommended a capital adequacy standard based on the Basel II with the necessary modifications and adaptations to cater for the specifications and characteristics of the *Shari'ah* compliant products and services. The document encompasses the minimum capital adequacy requirements based predominantly on the standardized approach with respect to credit risk and the basic indicator approach with regard to operational risks of the Islamic financial services (Pillar I) and the various applicable measurement methods for market risk set out in the 1996 Market Risk Amendment.

This document does not address the requirements covered by Pillar II (supervisory review) and Pillar III (market discipline) of Basel II as these two issues will be covered by separate standards. Under CAS, the capital adequacy framework acknowledged the uses of funds for Islamic banking which are by nature Shariah compliant and it is different from asset sides of conventional banks. Additionally, the provisions for operational risk and the treatment of profit sharing investment account (PSIA) are also justified. The assets funded by restricted or unrestricted investment account should be excluded since the fund is not guaranteed by banks and any losses to be borne by the account holder. The calculation of CAR is as follows:

$$CAR = \frac{\text{Tier 1} + \text{Tier 2}}{RWA(\text{Credit Risk} + \text{Market Risk} + \text{Operational Risk}) - RWA \text{ funded by PSIA (Credit Risk} + \text{Market Risk)}}$$

3. Central Bank of Malaysia

Banking regulations can generally be defined as the frameworks controlling the creation, operation and liquidation of banks in an economy. These regulations are put in place by Central Banks and the control is usually exerted through monitoring carried out by specialized banking supervisory authorities. The most basic reason for introducing regulations is to protect depositors from undue risks to their deposits. Businesses and individuals alike hold significant portions of their funds in banks and there are valid concerns from them in respect of the protection of their funds. As a result, authorities respond to such concerns with regulations attempting to protect the bank depositors. Bank regulation and supervision can take the form of detailed and precise prescriptive rules under which all banks operate in the given territory.

For example, activity restriction rules may specify which banking activities banks can undertake to reduce their riskiness and prevent them from going bankrupt. If such rules do not truly reflect the risks involved, they could unintentionally

induce banks to be involved in unprofitable and risky ventures. Therefore, it is imperative to observe how banks operate in the given regulatory and supervisory structure and what is the resultant impact on the technical efficiency and risk taking behaviour of banks. According to section 36 of the Money Service Business Act 2011 of Bank Negara Malaysia, concerning risk management, there are three important components used in risk management systems, i.e. (i) appropriate overview by the Board of Directors and management, (ii) risk management process, and (iii) internal control. Central Bank has reinforced the minimum capital requirement with the introduction of Basel III. The new reform measures under Basel III will strengthen the existing capital and liquidity standards for banking institutions in Malaysia. Central Bank will be incorporating the individual elements of the reform package into the domestic regulatory and supervisory framework. Under Basel III requirement, the minimum requirement will be raised from Basel II standards. The capital conservation buffer has been introduced in order to have an extra cushion to minimize the likely impact of economic challenging and systemic risk in future environments.

Central Bank also has introduced leverage ratio with the intention to reinforce risk-based requirement and to constrain the build-up of excessive leveraging in the banking system. However, the Central Bank has required banking institutions to report leverage ratio beginning June 2012 and will be fully implemented in early 2018. Under the existing liquidity framework, the Central Bank also will implement the new Basel III liquidity standards with the purpose of ensuring banking institutions hold sufficient high quality liquid resources to survive an acute stress scenario.

Based on Basel Minimum requirement of liquidity targeted to be fully implemented in 2019, The Central Bank has introduced transition phases for local banking institutions as the preparation to be fully capable to follow the Basel requirement. The following **Table 1** shows the transition phases of minimum liquidity requirement under Central Bank.

Table 1:

The transition phases of minimum liquidity requirement

Year	1 June 2015	1 January 2016	1 January 2017	1 January 2018	1 January 2019
Minimum Liquidity Coverage Ratio (LCR)	60%	70%	80%	90%	100%

Source: Central Bank of Malaysia

While, the second new measurement under liquidity framework, i.e. Net Stable Funding Ratio has been introduced to create incentives for banking institutions to fund activities with more stable sources of funding over a one year horizon and also to be better able to manage the existing mismatch of funding sources. This new standard will be targeted to be in force early 2018.

Leverage Ratio, Liquidity Coverage Ratio and Minimum Capital Requirement of Islamic Banks

Islamic banks in Malaysia are guided and operated under the purview of Central Bank laws and regulations, thus the overall operations of risk management of the Islamic banks should obey the general and also specific guidelines required by Central bank such as risk appetite policy and risk exposure guidelines. As the banking sector is the catalyst of the economy, the guidelines that have been imposed are to ensure the banking business is strong and have the ability to sustain in the competitive economic environment. The strong endurance and perseverance of the banking sector will protect the customer interest which is the ultimate task of the bank as the intermediaries in the economic cycle. The Basel Committee as the international collective body that produced the banking guidelines has introduced the Basel III accord that proposed specific guidelines regarding capital adequacy requirement, liquidity and leverage minimum requirements. The Basel III accord has served as the guidelines to the national regulator in the implementation of the leverage ratio, liquidity coverage ratio and capital adequacy requirement in the local banking sector. The Islamic banks that were involved under this study, i.e. (i) Bank Islam Malaysia Berhad and Bank Muamalat Malaysia Berhad under full-fledged Islamic bank and (ii) Maybank Islamic Berhad and CIMB Islamic Berhad under Islamic subsidiaries of conventional bank.

In general, Islamic banks in Malaysia were operated in accordance with Central Bank guidelines, in which all banks are bound to adhere to the guidelines that were produced to uphold the economic stability of the country. Regarding the minimum capital adequacy, the Central Bank has required the Islamic banks to comply with the regulations under the new Basel III capital accord. Referring to **Table 2**, for the common equity Tier 1 ratio (CET 1), the minimum requirement of capital adequacy is 7%, which included 2.5% buffer and 4.5% minimum requirement.

Table 2:**Guidelines, Leverage Ratio, Liquidity Coverage Ratio and Capital Adequacy**

Islamic Banks and Regulatory	Common Equity Tier 1 Capital Ratio (CET 1) ¹	Core Capital (Tier 1) Ratio (CCR) ²	Risk Weighted Capital Ratio(RWCR) ³	Leverage Ratio ⁴	Liquidity Coverage Ratio ⁵
Bank Islam Malaysia Berhad*	12%	12%	15.3%	7.3%	94.5%
Bank Muamalat Malaysia Berhad**	13.3%	13.3%	16.1%	7.5%	84.8%
Maybank Islamic Bank Berhad****	12.44%	12.44%	16.49%	na	na
CIMB Islamic Bank Berhad***	12.72%	13.56%	16.27%	na	na

Basel III

<i>Minimum</i>	4.5%	6%	8%	3%	≥ 100%
Conservation Buffer	+2.5%	+2.5%	+2.5%		
Minimum + Buffer	7%	8.5%	10.5%		

Basel II

<i>Minimum</i>	2%	4%	8%	3%	≥ 100%
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Basel I

<i>Minimum</i>	2%	4%	8%		-
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Source: Interviews, Central Bank of Malaysia, Basel Accord, Bank Islam Malaysia Berhad Financial Statement Ended 31 December 2015, Bank Muamalat Malaysia Berhad Financial Statement Ended 31 March 2015, Maybank Islamic Berhad Financial Report Ended 31 December 2015 & CIMB Islamic Berhad Financial Report Ended 31 December 2015.

Notes:

- 1 Common Equity Tier 1 Ratio (CET 1) is defined as firm's common stock, retained earnings and other comprehensive income/total risk weighted assets.
- 2 Core Capital Ratio (CCR) is defined as equity capital, reserves, non-redeemable and also non-cumulative preferred stock/total risk weighted assets.
- 3 Risk Weighted Capital Ratio (RWCR) also referred as total capital ratio and is defined as Tier 1 + Tier 2/ RWA (credit risk) + RWA (market risk) + RWA (operational risk).
- 4 Leverage Ratio is defined as Tier 1 capital / average total consolidated asset value (based on interview).
- 5 Liquidity Coverage Ratio is defined as HLQA/total net cash outflow over next thirty calendar days (based on interview).

* Financial statements for the financial year ended 31 December 2015.

** Financial statements for the financial year ended 31 March 2015.

*** Financial statements for the financial year ended 31 December 2015.

**** Financial statements for the financial year ended 31 December 2015.

Under the next move by the Central Bank to minimize the countercyclical effect, and in line with Basel III, Islamic banks will also be required to increase the capital buffer of up to 9.5% (fully applied – i.e. 2.5% of common equity in addition to 7%). Results from **Table 2** show that both Full-Fledged Islamic banks and Islamic subsidiaries of conventional banks have exceeded the minimum requirement of 7%, i.e. 12% for Bank Islam Malaysia Berhad and 13.3% for Bank Muamalat Malaysia Berhad under full-fledged Islamic banks, while 12.44% for Maybank Islamic Berhad and 12.72% for CIMB Islamic Berhad under Islamic subsidiaries of conventional banks. Meanwhile, for countercyclical buffer, both Islamic banks have exceeded the maximum capital buffer of 9.5%. Thus, these results show that both Islamic banks have met the minimum requirement under Central Bank and Basel III accord. The Core Capital (Tier 1) Ratio results indicate that both sides whether full-fledged Islamic banks or Islamic subsidiaries of conventional banks have surpassed the minimum capital requirement of a 8.5%, i.e. 12% for Bank Islam Malaysia Berhad and 13.3% for Bank Muamalat Malaysia Berhad under Full-Fledged banks, while, 12.44% for Maybank Islamic Berhad and 13.56% for CIMB Islamic Berhad under Islamic subsidiaries of conventional banks. The results imply that both Islamic banks have well managed the capital, according to the Central Bank and Basel III requirement.

The main indicator to measure the capital adequacy requirement is the Risk Weighted Capital Ratio (RWCR) or Capital Adequacy Ratio (CAR), this regulatory capital is computed as the sum of the credit, market and operational risk capital charge (CC). Under the Basel III requirement, the Islamic banks have required to hold the minimum of 8% of Risk Weighted Capital Ratio. The requirement under Basel III is to better align economic and regulatory capital requirement; reducing the incentives for regulatory arbitrage (Van Gestel & Baesens, 2009). However, results from **Table 2** show that both Islamic banks have exceeded the more stringent minimum requirement under Basel III of 10.5% (8% of original minimum requirement plus 2.5% extra conservative buffer), i.e. (i) 15.3% for Bank Islam Malaysia Berhad and 16.1% for Bank Muamalat Malaysia Berhad which is under full-fledged Islamic banks, and (ii) 16.49% for Maybank Islamic Berhad and 16.27% for CIMB Islamic Berhad under Islamic bank subsidiary of conventional banks. As comparison, the Risk Weighted Capital Ratio (RWCR) of Islamic bank subsidiaries of conventional banks is higher than Full-Fledged Islamic banks, probably due to the strong support of liquidity from parent bank. Thus, in general, these results have shown that the Islamic banks have strictly conformed and exceeded the regulator minimum requirement of capital adequacy. Furthermore, results also imply that the Islamic Bank's condition in Malaysia is well managed and have a strong cushion in order to face the challenging economic environment. In terms of implementation of leverage ratio, Central Bank under the guideline from Basel III, has introduced the minimum leverage ratio of 3% requirement to reinforce risk based and constrain the build-up of leverage. This initiative also acts as a mitigating tool to reduce the excessive deleveraging in the banking system during

distressed periods. This leverage ratio also served as extra cushion against the risk of the model and measurement error inherently related to the various applied approaches in calculating the risk weighted assets (Central Bank, 2014). Even though the targeted date to be implemented under Basel III is beginning of 2018, however, the Central Bank has already required the Islamic Banks to report the leverage ratio starting June 2012.

Results from interviews have confirmed that full-fledged Islamic bank and Islamic subsidiaries of conventional bank, i.e. (1) Bank Islam Malaysia Berhad and Bank Muamalat Malaysia Berhad under full-fledged Islamic bank and (2) Maybank Islamic Berhad and CIMB Islamic Berhad under Islamic subsidiaries of conventional bank have followed the minimum guideline of leverage ratio imposed by the Central Bank.

In **Table 2**, only Bank Islam Malaysia Berhad and Bank Muamalat Malaysia Berhad are able to give published leverage ratio with 7.3% and 7.5% respectively. Conclusively, results from interview have imply that with more capital measure (Tier 1 capital ratio) as compared to asset exposure, i.e. average consolidated assets, both sides, i.e. full-fledged Islamic bank and Islamic subsidiaries of conventional bank have tackled leveraging issues, which is above a minimum of 3% leverage ratio as required by Basel III.

As for the liquidity minimum requirement, both sides of Islamic banks have already adopted the liquidity minimum framework based on Basel II. Under the Basel III requirement, Islamic Banks will require to implement the latest liquidity framework. The new requirement is imposed as enhancement measures to the existing Liquidity Coverage Ratio in ensuring the banks are able to have adequate funds for financing activities within a year (Central Bank Report, 2016). The result of interviews with Chief Financial Officer (CFO) of Bank Islam Malaysia Berhad, Vice President of Credit Risk of Bank Muamalat Malaysia Berhad, Chief Executive Officer (CEO) of CIMB Islamic Berhad and Deputy Chief Executive Officer of Maybank Islamic Berhad also confirmed that the new measure of the Liquidity Coverage Ratio (LCR) has been implemented in staggered phases beginning from early June 2015 until early January 2019 (see **Table 3**). This information are aligned with Basel III guideline, with Central Bank has set the transition phases of minimum liquidity requirement for Islamic banking institution to follow the same staggered phases. The information on Liquidity Coverage Ratio is shown in **Table 2**, with Bank Islam Malaysia Berhad and Bank Muamalat Malaysia Berhad are able to give published leverage ratio with 94.5% (as at 31 December 2015) and 84.8% (as at 31 March 2015) respectively. In conclusion, results from the interview has implied that both Islamic banks have 60% of High Quality Liquid Assets (HQLA) to cover cash outflow within the next thirty calendar days.

METHODOLOGY

This paper aims to analyze the risk management practices of full-fledged Islamic banks versus Islamic subsidiaries of conventional banks and the sustainable rate of growth within restricted minimum requirements of capital adequacy, leverage and liquidity. Among others, Islamic banks can sustain the growth rate without having to increase financial leverage or look for outside financing. In addressing those issues, this paper has opted two methods of data acquisition, i.e. annual report and focus group interview with top and related officers of Islamic banks. Specifically, data and information of annual report cover from 2006 to 2014 and focus group interviews were covered from 2006 up to 2015. The analysis of risk management was conducted through comparison between full-fledged Islamic banks versus Islamic subsidiaries of conventional banks with guidelines. Data from annual report was used to analyse the risk management report, while focus group interviews were conducted in order to obtain, explore and clarify the issues under study regarding risk management, leverage ratio, liquidity coverage ratio and minimum requirement of capital adequacy of the Islamic banks. The Islamic banks involved were full-fledged Islamic banks, i.e. Bank Islam Malaysia Berhad and Muamalat Malaysia Berhad and Islamic subsidiaries of conventional banks, i.e. Maybank Islamic Berhad and CIMB Islamic Berhad.

RESULTS

Risk Management Processes vs Practices of Islamic Banks

Risk Management Processes and Guidelines

The practices of risk management of Islamic banks differ depending on bank's objective, policy and strategy. The risk management strategy opted by Islamic banks must be well balanced between risk exposure approach and profit projection. Any variation on risk management plan between risk and targeted profit must be thoroughly inspected and checked. Proper and systematic risk management is crucial for Islamic banks in order to sustain in the global business challenging environment. According to the regulatory guidelines, i.e. Basel Accord, Central Bank and IFSB and related literatures, i.e. Raza et al. (2013); Roseziahazni & Rosli (2015); Romzie & Rahim, (2015); Rashidah, Ahnaf, Zuraeda & Aliyu (2014); and Noraini & Salina (2011); generally, risk management can be divided into four categories, i.e. risk identification, risk measurement, risk monitoring and risk control. The following discussions are regarding risk management process:

(1) Risk identification, effective and viable methods should be used in order to identify the type of risk involved. Under the regulatory guidelines for Islamic banking, several methods of risk identification have been proposed, i.e. inspection by Shariah advisory board, audit operation, financial analysis, SWOT analysis and Benchmarking. The risk type that have been identified such as (i) generic risk, i.e.

credit risk, market risk and operational risk, (ii) unique risk for Islamic banking, i.e. rate of return risk, equity risk, displacement risk and Shariah Non-compliance risk;

(2) Risk measurement, several analyses were proposed, i.e. GAP Analysis for Interest Rate Risk (Balance Sheet), VaR (Value at Risk) Analysis for Market Risk (Foreign Risk, Commodities Risk and Equity Risk), RAROC (Risk Adjusted Rate of Return) Analysis for Market Risk, Credit Risk and Operational Risk, Simulation Technique, Stress test/Worse Case Scenario, Internal Based rating system;

(3) Risk monitoring, for credit risk, there are various principles that can be applied such as Principle notation, potential exposure by counterparty, potential exposure of net collateral or margin, potential exposure with netting and principle plus fixed percentage. For monitoring of operational risk, several techniques can be used such as risk assessment technique, key risk indicator, internal/external loss event database, balance sheet scorecard, risk mapping and TQM technique; and

(4) Risk control, in order to control and reduce the risk, mitigation techniques were applied. The proposed techniques, i.e. for credit risk, there are collateral, guarantees, syndication and participation, on/off balance sheet netting, Asset securitization (CBO/CLO), credit insurance programs, and credit derivatives (synthetic CDOs); for market risk, the mitigation techniques such as cash reserve, fund in central bank, fund in other banks, emergency liquidity from central bank and Islamic money market. Tables below have been structured for one to one comparison between guidelines and practices and it's according to risk management process flow (see **Table 3** and **Table 4**).

Table 3:

Risk management guidelines vs the practices of full-fledged Islamic banks (Bank Islam Malaysia Berhad and Bank Muamalat Malaysia Berhad)

Risk Management	Literatures and Guidelines (Basel I&II&III/ IFSB/Bank Negara)	Risk Management Practices			
		Bank Islam Malaysia Berhad		Bank Muamalat Malaysia Berhad	
		Annual Report	Focus Group Interview	Annual Report	Focus Group Interview
Risk Framework -governance structure and a set of risk appetite statements	Practices of risk management under Basel Committee, Shariah principles of risk management under IFSB and Guideline by Bank Negara.	Risk Appetite Framework (RAF) – Risk framework incorporated the detailed capital management (Internal Capital Adequacy Assessment Process - ICAAP).	Under risk appetite framework, Bank Islam Malaysia Berhad has set the composition of financing, i.e.70% retail and 30% corporate.	Risk Appetite Statements (RAS) – Policies of Credit Risk, Market Risk, Asset Liability Management, Operational Risk and Shariah Compliance.	According to risk appetite statement, it stated that financing composition for Bank Muamalat Malaysia Berhad, i.e. 80% retail (CASA) and 20% corporate (FTA).

Risk Management	Literatures and Guidelines (Basel I&II&III/ IFSB/Bank Negara)	Risk Management Practices			
		Bank Islam Malaysia Berhad		Bank Muamalat Malaysia Berhad	
		Annual Report	Focus Group Interview	Annual Report	Focus Group Interview
Risk management Process					
(1) Risk Identification – Method of Risk Identification and Type of Risks Identified (Sources and Factors of Hazard)	<p>Identification Method:</p> <p>(i) Inspection by Supervisory/ Shariah Level</p> <p>(ii) Audit and physical Inspection</p> <p>(iii) Financial Analysis</p> <p>(iv) SWOT Analysis</p> <p>(v) Benchmarking</p> <p>Types of Risk:</p> <p>(i) Generic Risk: Credit Risk, Market Risk and Operational Risk</p> <p>(ii) Unique Risk: Rate of Return Risk, Equity Risk, Displacement Risk and Shariah Non-Compliance Risk</p>	<p>Identification Method:</p> <p>(i) Inspection by Supervisory/ Shariah /Treasury</p> <p>(ii) Audit and physical Inspection</p> <p>(iii) Financial Analysis (Annual Reviews)</p> <p>Types of Risk:</p> <p>(i) Generic Risk: Credit Risk and Operational Risk</p> <p>(ii) Unique risk for Islamic banking: Rate of Return Risk, Equity Risk and Displacement Risk</p>	<p>Identification Method:</p> <p>Risk management division has the role to manage the overall risk. While, risk department managed the day to day risk operation with collaboration from treasury department</p> <p>Types of Risk:</p> <p>Shariah risk compliance is important from an individual financing perspective (Islamic value) as compared to corporate financing (more on return than Islamic value).</p>	<p>Identification Method:</p> <p>(i) Inspection by Supervisory/ Shariah</p> <p>(ii) Daily risk manages by Treasury</p> <p>(iii) Audit and physical Inspection</p> <p>(iv) Financial Analysis</p> <p>Types of Risk:</p> <p>(i) Generic Risk: Credit Risk, Market Risk and Operational Risk</p> <p>(ii) Unique Risk: Rate of Return Risk, Equity Risk, Displacement Risk and Shariah Non-Compliance Risk</p>	<p>Identification Method:</p> <p>Special department to facilitate the risk management manage by other department such as marketing department.</p> <p>Types of Risk:</p> <p>Displacement risk – more on corporate deposit side due to the bigger amount of deposit.</p>

Risk Management	Literatures and Guidelines (Basel I&II&III/ IFSB/Bank Negara)	Risk Management Practices			
		Bank Islam Malaysia Berhad		Bank Muamalat Malaysia Berhad	
		Annual Report	Focus Group Interview	Annual Report	Focus Group Interview
(2)Risk Measurement – Application of Measurement Technique	<p>(i) GAP Analysis - Interest Rate Risk (Balance Sheet)</p> <p>(ii) VaR (Value at Risk) Analysis – Market Risk (Foreign Risk, Commodities Risk and Equity Risk)</p> <p>(iii) RAROC (Risk Adjusted Rate of Return) Analysis – Market Risk, Credit Risk and Operational Risk.</p> <p>(iv) Simulation Technique</p> <p>(v) Stress test/ Worse Case Scenario</p> <p>(vi) Internal Based Rating System</p>	<p>(i) Stress Testing – credit risks and market risks</p> <p>(ii) Sensitivity testing (simulation model) – market risks</p> <p>(iii) Economic Value Perspective (EVE) – market risk (Profit Rate Risk) of non-trading portfolio</p> <p>(iv) Earnings-at-Risk (EaR) – market risk (profit Rate Risk) of non-trading portfolio</p> <p>(v) Value-at-Risk (VaR) – market risk (Profit Rate Risk) of trading portfolio</p>	<p>Legal procedures and Shariah principles have been reviewed in terms of financing execution according to Shariah laws and the types of depositors.</p>	<p>(i) Re-pricing Gap Report</p> <p>(ii) Sensitivity Analysis (simulation model) – market risk</p> <p>(iii) Income Scenario Simulation</p> <p>(iv) Earnings Perspective (EAR)</p> <p>(v) Economic Value Perspective (EVE)</p> <p>(vi) Risk and Control Self-Assessment (RCSA) – Operational Risk</p>	<p>In terms of risk, it was similar between Islamic banks and conventional banks</p>

Risk Management	Literatures and Guidelines (Basel I&II&III/IFSB/Bank Negara)	Risk Management Practices			
		Bank Islam Malaysia Berhad		Bank Muamalat Malaysia Berhad	
		Annual Report	Focus Group Interview	Annual Report	Focus Group Interview
(3) Risk Monitoring – Type of Techniques in Monitoring Risk Exposure	<p>Credit Risk:</p> <p>(i) Principal/ Notional</p> <p>(ii) Potential Exposure with Netting by Counterparty</p> <p>(iii) Sum of Potential Exposure for individual</p> <p>Market Risk:</p> <p>Reviewing of risk by bank authorities</p> <p>Operational Risk:</p> <p>(i) Risk Assessment Techniques</p> <p>(ii) Internal / External Loss Event</p> <p>(iii) Balance Scorecard</p> <p>(v) TQM Technique</p>	<p>Credit Risk:</p> <p>(i) Annual Review and Immediately Review – exposure on individual / portfolio basis</p> <p>Market Risk:</p> <p>Monthly review and Immediately review – Treasury.</p> <p>Operational Risk:</p> <p>(i) OpRisk Guideline, procedures and limits – Three Lines Defence Approach</p>	<p>From risk perspective, it is imperative to closely monitor the risks from internal (institutions) and external risks (customer, economic and regulatory) perspectives.</p>	<p>Credit Risk:</p> <p>(i) Credit assessment – monitored daily using Guidelines to Credit risk policies (GCRP)</p> <p>Market risk:</p> <p>Monitored on daily basis by Compliance Unit</p> <p>Operational Risk:</p> <p>Managed and controlled by Internal Audit Division using self-compliance audit, internal control system, disaster recovery and planning.</p>	<p>Risks involved in Bank Muamalat are inherent in cost of funding, financings, investments (treasury activities), economic environments and etc.</p>

Risk Management	Literatures and Guidelines (Basel I&II&III/IFSB/Bank Negara)	Risk Management Practices			
		Bank Islam Malaysia Berhad		Bank Muamalat Malaysia Berhad	
		Annual Report	Focus Group Interview	Annual Report	Focus Group Interview
(4) Risk Control – Type of Techniques for Controlling and Mitigating of Risk	<p>Credit Risk Mitigation:</p> <ul style="list-style-type: none"> (i) Collateral (ii) Guarantees (iii) Syndication and participation (iv) On/Off Balance Sheet Netting (v) Asset Securitization Vehicles <p>(CBO/CLO)</p> <ul style="list-style-type: none"> (vi) Credit Insurance Programs (vii) Credit Derivatives (Synthetic CDOs) <p>Market Risk Mitigation:</p> <ul style="list-style-type: none"> (i) Cash Reserve (ii) Funds in Central Bank (iii) Funds in Other Banks (iv) Emergency Liquidity from Central Bank (v) Islamic Money market <p>Operational Risk:</p> <p>Continuous of wide risk improvements of bank</p>	<p>Credit Risk:</p> <ul style="list-style-type: none"> (i) Collateral - consists of cash, trade receivables, deposits, securities, letter of guarantee and properties. (ii) Counter parties' limits and permissible acquisition of private debt securities <p>Market Risk:</p> <ul style="list-style-type: none"> (i) Profit rate swap and hedging – profit rate risk (ii) Using individual currency or aggregate basis – foreign exchange risk (iii) Documented and Funding Contingency Plan – liquidity risk <p>Operational Risk:</p> <ul style="list-style-type: none"> (i) Continuous improvement of all aspect of bank operational risk components. 	<p>The risks mitigating method is the continuing process by bank under the guideline of Central Bank.</p> <p>The risk mitigating purpose is to protect customers, shareholder interests and economic stability and indirectly to foster bank resilience and sustain bank growth.</p>	<p>Credit Risk:</p> <ul style="list-style-type: none"> (i) Credit Risk Mitigation Technique (CRMT). Exposure limit set (ii) Collateral – consists of cash, trade receivables, deposits, securities, letter of guarantee and properties. <p>Market Risk:</p> <ul style="list-style-type: none"> (i) Offsetting positions against each other for any mismatch (ii) Acquisition of new assets and liabilities (iii) Entering new derivative financial instruments with opposite effects. <p>Operational Risk:</p> <p>The continuous improvement of internal processes, upgrading skills of human resources and system continuous updating</p>	<p>Bank has to have efficient mitigate process in order to minimize its risks. The risk mitigating conducted with the intention to protect, sustain bank growth as well as to protect customer interest. Bank also has to take into account the moral hazard which influenced the bank's operation.</p>

Source: Interviews, Central Bank of Malaysia, Basel Accord, IFSB, Bank Islam Malaysia Berhad Financial Report from 2006-2015 & Bank Muamalat Malaysia Berhad Financial Report from 2006-2015

Table 4:

Risk management guidelines vs the practices of Islamic subsidiaries of conventional banks (Maybank Islamic Berhad and CIMB Islamic Berhad)

Risk Management	Literatures and Guidelines (Basel I&II&III/ IFSB/Bank Negara)	Risk Management Practices			
		Bank Islam Malaysia Berhad		Bank Muamalat Malaysia Berhad	
		Annual Report	Focus Group Interview	Annual Report	Focus Group Interview
Risk Framework - governance structure and a set of risk appetite statements	Practices of risk management under Basel Committee, Shariah principles of risk management under IFSB and Guideline by Bank Negara.	The establishment of risk appetite and strategy under IRM (Integrated Risk management) which articulate the nature, type and risk level of the Islamic bank using Internal Capital Adequacy Assessment (ICAAP)	According to risk appetite framework, Maybank Islamic Berhad has set the composition of financing, i.e.70% retail and 30% corporate.	CIMB Group employs the EWRM (Enterprise Wide Risk Management) framework as a standardised approach which comprises, i.e. governance, risk appetite, risk management process and infrastructure.	Based on risk appetite framework, it shows that financing composition for CIMB Islamic is more dominant on retail than the corporate financing.
Risk management Process					
(1) Risk Identification – Method of Risk Identification and Type of Risks Identified (Sources and Factors of Hazard)	<p>Identification Method:</p> <ul style="list-style-type: none"> (i) Inspection by Supervisory/ Shariah Level (ii) Audit and physical Inspection (iii) Financial Analysis (iv) SWOT Analysis (v) Benchmarking <p>Types of Risk:</p> <ul style="list-style-type: none"> (i) Generic Risk: Credit Risk, Market Risk and Operational Risk (ii) Unique Risk: Rate of Return Risk, Equity Risk, Displacement Risk and Shariah Non-Compliance Risk. 	<p>Identification Method:</p> <ul style="list-style-type: none"> (i) Inspection by management risk committee (ii) Audit and financial analysis (Annual Reviews) (iii) Operational Risk Officers (“OROs”) within the various Strategic Business Units (“SBU”) are responsible to assess the risk <p>Types of Risk:</p> <ul style="list-style-type: none"> (i) Generic Risk: Credit Risk, Market Risk and Operational Risk (ii) Unique risk for Islamic banking: Rate of Return Risk, Equity Risk and Displacement Risk 	<p>Identification Method:</p> <p>Risk management committee has the role to manage the overall risk. Risk department and business unit managed the day to day risk operation with collaboration from corporate treasury</p> <p>Types of Risk:</p> <p>In terms of risk, it is similar between Islamic and conventional, the credit risk exposure such as when customer do not make payment.</p>	<p>Identification Method:</p> <ul style="list-style-type: none"> (i) Inspection and analyzing by Risk Analytics & Infrastructure Centre of Excellence (ii) Audit and physical Inspection (iii) Financial Analysis <p>Types of Risk:</p> <ul style="list-style-type: none"> (i) Generic Risk: Credit Risk, Market Risk and Operational Risk (ii) Unique Risk: Rate of Return Risk, Equity Risk, Displacement Risk and Shariah Non-Compliance Risk. 	<p>Identification Method:</p> <p>Special risk centre to manage the risks of the bank.</p> <p>Types of Risk:</p> <p>Every product has the specific risk.</p>

Risk Management	Literatures and Guidelines (Basel I&II&III/ IFSB/Bank Negara)	Risk Management Practices			
		Bank Islam Malaysia Berhad		Bank Muamalat Malaysia Berhad	
		Annual Report	Focus Group Interview	Annual Report	Focus Group Interview
(2) Risk Measurement – Application of Measurement Techniques	<p>(i) GAP Analysis - Interest Rate Risk (Balance Sheet)</p> <p>(ii) VaR (Value at Risk) Analysis – Market Risk (Foreign Risk, Commodities Risk and Equity Risk)</p> <p>(iii) RAROC (Risk Adjusted Rate of Return) Analysis – Market Risk, Credit Risk and Operational Risk.</p> <p>(iv) Simulation Technique</p> <p>(v) Stress test/ Worse Case Scenario</p> <p>(vi) Internal Based Rating System</p>	<p>(i) Stress Testing – credit risks and market risks</p> <p>(ii) Sensitivity Testing (simulation model) – market rate movement</p> <p>(iii) Repricing Gap Analysis - for IRR/RoR BB assessment</p> <p>(iv) Earnings-at-Risk (“EaR”) and Economic Value-at-Risk (“EVaR”)</p> <p>(v) Jump to Default (“JTD”) limits and Credit Spread (“CS”) PV01 – credit risk</p> <p>(vi) Value-at-Risk (VaR) – traded market risk</p>	Bank operations have been regularly reviewed to ensure the risk applied is within the tolerance interval set under risk appetite framework.	<p>(i) Risk Rating Model – retail and corporate</p> <p>(ii) Value-at-Risk (VaR), Monte Carlo Simulation (credit risk) & historical method (market risk) and back testing</p> <p>(iii) Stress testing - scenario testing for market risk</p> <p>(iv) Market Price (Mark to Market & Pricing model (Mark to Model)</p> <p>(v) Economic Value Equity & Earnings-at-Risk (EaR)</p>	Different Islamic bank has different type of risk measurement. It depends on bank policies and strategy.
(3) Risk Monitoring – Type of Techniques in Monitoring Risk Exposure	<p>Credit Risk:</p> <p>(i) Principal/ Notional</p> <p>(ii) Potential Exposure with Netting by Counterparty</p> <p>(iii) Sum of Potential Exposure for individual</p> <p>Market Risk: Reviewing of risk by bank authorities</p> <p>Operational Risk:</p> <p>(i) Risk Assessment Techniques</p> <p>(ii) Internal / External Loss Event</p> <p>(iii) Balance Scorecard</p> <p>(v) TQM Technique</p>	<p>Credit Risk:</p> <p>(i) Annual review by credit risk and business units on individual / portfolio basis.</p> <p>Market Risk: Daily basis and immediate review – Corporate Treasury.</p> <p>Operational Risk:</p> <p>(i) Operational Risk Policy (“OR Policy”) encompasses the operational risk management strategy and governance structure.</p>	The risk monitoring involved the risks from individual and institutions and external risk factors such as market rate volatility and global economic effects.	<p>Credit Risk:</p> <p>(i) Credit assessment – monitored regularly and monthly basis using Rating Classification (obligor) by Group Risk Department (GRD)</p> <p>Market risk: Monitored on daily basis by Credit Risk Centre of Excellence under Group Market Risk Committee</p> <p>Operational Risk: Managed and controlled by Internal Audit Division using internal control system.</p>	CIMB Islamic has formulated the risk strategy according to the bank risk policy which is formulated based on certain factors, such as bank and customer interests, shareholders, regulatory requirements etc.

Risk Management	Literatures and Guidelines (Basel I&II&III/ IFSB/Bank Negara)	Risk Management Practices			
		Bank Islam Malaysia Berhad		Bank Muamalat Malaysia Berhad	
		Annual Report	Focus Group Interview	Annual Report	Focus Group Interview
(4) Risk Control – Type of Techniques for Controlling and Mitigating of Risk	<p>Credit Risk Mitigation:</p> <p>(i) Collateral</p> <p>(ii) Guarantees</p> <p>(iii) Syndication and participation</p> <p>(iv) On/Off Balance Sheet Netting</p> <p>(v) Asset Securitization Vehicles</p> <p>(CBO/CLO)</p> <p>(vi) Credit Insurance Programs</p> <p>(vii) Credit Derivatives (Synthetic CDOs)</p> <p>Market Risk Mitigation:</p> <p>(i) Cash Reserve</p> <p>(ii) Funds in Central Bank</p> <p>(iii) Funds in Other Banks</p> <p>(iv) Emergency Liquidity from Central Bank</p> <p>(v) Islamic Money market</p> <p>Operational Risk:</p> <p>Continuous of wide risk improvements of bank</p>	<p>Credit Risk:</p> <p>(i) Collateral - consists of cash, trade receivables, deposits, securities, letter of guarantee and properties.</p> <p>(ii) Counter parties – bilateral and collateral netting (master agreement-international swap and derivatives.</p> <p>Market Risk:</p> <p>(i) Swap and hedging – profit rate risk</p> <p>(ii) Using individual currency or aggregate basis – foreign exchange risk</p> <p>(iii) Funding Contingency Plan – liquidity risk</p> <p>Operational Risk:</p> <p>Business Continuity Management (“BCM”), outsourcing and anti fraud management.</p>	<p>The risks mitigating method is a continuing process with the purpose to protect customers, shareholder interests and to ensure the bank’s stability and sustenance.</p>	<p>Credit Risk:</p> <p>(i) Collateral – consists of cash, land, building, trade receivables, deposits, securities, letter of guarantee and properties.</p> <p>(ii) Netting – swap & derivatives transactions</p> <p>(iii) Portfolio diversifications</p> <p>Market Risk:</p> <p>(i) Re-pricing mismatches between profit earning assets and profit bearing liabilities</p> <p>(ii) Acquisition of new assets and liabilities</p> <p>(iii) Entering new derivative financial instruments with opposite effects and hedging method</p> <p>Operational Risk:</p> <p>The continuous improvement of internal processes, people and system.</p>	<p>The effect of risk has to be managed and resolved. The risk mitigating exercises have to be conducted regularly. The intention is to protect and sustain bank growth as well as to protect customer interest.</p>

Source: Interviews, Central Bank of Malaysia, Basel Accord, IFSB, Bank Islam Malaysia Berhad Financial Report from 2006-2015 & Bank Muamalat Malaysia Berhad Financial Report from 2006-2015.

The Practices of Full-Fledged Islamic Banks versus the Practices of Islamic Subsidiaries of Conventional Banks

Based on annual report statement analysis and findings from focus group interviews which cover the period from 2006 to 2015, it can be seen that the risk management practiced by full-fledged Islamic banks and Islamic subsidiaries of conventional banks were in accordance to guidelines and generally similar practices of the risk management processes were implemented as well. Only there are certain areas of internal practices that are slightly different from the guidelines and from each other such as risk tolerance under risk appetite statement, which department manage the risk, risk identification, risk measurement, risk monitoring and risk mitigation. Specifically, both Full-Fledged Islamic Banks, i.e. Bank Islam Malaysia Berhad and Bank Muamalat Malaysia Berhad and Islamic subsidiaries of conventional banks, i.e. Maybank Islamic Berhad and CIMB Islamic Berhad have implemented various risk instruments in order to manage the risk exposure of the bank. Generally, the major risks involved are credit risk, market risk and operational risk. Bank Islam and Bank Muamalat had introduced specific policies to govern, manage and control the risks that affected the bank. Risk management practices have been formulated according to the guidelines as to ensure that the risk policies are sufficient and effective to control the risk. Both banks have implemented the good risk management practices. The running of day to day risk management of both Full-Fledged Islamic Banks and Islamic subsidiaries of conventional banks are carried out by specific risk department which will be reported to the Risk Management Committee. In terms of risk framework, both sides have emphasized formulating stringent risk policies and strategy in order to balance between the risk taken and required profit. The detail risk tolerance under risk appetite frameworks were established as the supreme guideline of the banks. Specifically, based on findings from annual report and interview results in **Table 1** and **Table 2**, the comparison of the risk management processes between Full-Fledged Islamic Banks and Islamic subsidiaries of conventional banks are as follow:

(1) Risk framework, this framework serves as the prime guideline to risk management practices by both sides of the Islamic banks. The maximum risk tolerances and financing compositions between retail and corporate must be abided by bank management. Analysis conducted from annual reports show that both sides have formulated own risk appetite frameworks. Furthermore, results from interviews show that both side, i.e. Full-Fledged Islamic Banks and Islamic subsidiaries of conventional Banks have more composition on retail as compared to corporate financing. This approach was taken due to several reasons, but one of it perhaps, is to reduce the displacement risk, whereby big corporation might move the fund to other banks.

(2) Risk identification, it is a continuing process, and it should be understood at both the transaction and portfolio levels. In terms of risk management, for Full-Fledged Islamic banks, (i) Bank Islam has special department to manage the

risk, (ii) Bank Muamalat, risks are managed by respective department such as marketing department facilitated by treasury, while for Islamic subsidiaries of conventional banks, (i) Maybank Islamic has special management risk committee, and (ii) CIMB Islamic has set-up the centre of excellence under the management level to manage the risk. Generally similar methods of risk identification have been used by both sides, i.e. inspection by Shariah advisory board, audit operation, financial analysis and benchmarking. Both Full-Fledged Islamic banks and Islamic subsidiaries of conventional banks have similar risk type such as (i) generic risk, i.e. credit risk (default risk, counterparty risk, pre-settlement risk, credit concentration risk, residual/credit mitigation risk and migration risk), market risk (rate of return risk, foreign exchange risk, equity risk, commodity inventory risk and liquidity risk) and operational risk (legal risk and Shariah compliance risk), (ii) unique risk for Islamic banking, i.e. rate of return risk, equity risk and displacement risk. Results from interview also show that in general all parties have adopted almost similar risk identification method. The risk managements were conducted at department level, for example under Full-Fledged Islamic banks, risk assessment under Bank Islam is done by risk department, Bank Muamalat risk management handled by special department with the cooperation of the marketing department. While for Islamic subsidiaries of conventional banks, Maybank Islamic has delegated the task to business unit together with credit department to manage the risk. As for CIMB Islamic, the Group Risk Department (GRD) was responsible to handle the risk matters.

(3) Risk measurement, the purpose of risk measurement is to conduct risk analysis using effective tools. Annual report analysis and focus group interview show that generally risk measurement of both Islamic banks whether Full-Fledged or Islamic subsidiaries of conventional banks apply almost the same method. For Full-Fledged, i.e. (i) Bank Islam Malaysia Berhad, the measurement techniques involved such as, i.e. stress testing uses for credit risks and market risks, sensitivity testing (simulation model) for market risks, economic value perspective (EVE) for market risk (profit rate/risk) of non-trading portfolio, earnings-at-risk (EaR) for market risk (profit rate risk) of non-trading portfolio, value-at-risk (VaR) for market risk (profit rate risk) of trading portfolio, and legal procedures and Shariah principles, (ii) Bank Muamalat Malaysia Berhad has slightly different techniques for risk measurement, i.e. re-pricing gap report, sensitivity analysis (simulation model) for market risk, income scenario simulation, earnings perspective (EAR), economic value perspective (EVE), and risk and control self-assessment (RCSA) for Operational Risk. While for Islamic subsidiaries, i.e. (i) Maybank Islamic has applied measurement method such as Stress Testing (credit risks and market risks), Sensitivity Testing (simulation model) for market rate movement, Repricing Gap Analysis for IRR/RoR BB assessment, Earnings-at-Risk ("EaR") and Economic Value-at-Risk ("EVAR"), Jump to Default ("JTD") limits and Credit Spread ("CS") PV01 (credit risk), and Value-at-Risk (VaR) for traded market risk, (ii) CIMB Islamic too has applied several similar method of risk measurement such as Risk Rating Model for retail and corporate,

Value-at-Risk (VaR) using Monte Carlo Simulation (credit risk) & historical method (market risk) and back testing, Stress Testing using scenario testing for market risk, Market Price (Mark to Market & Pricing model (Mark to Model), and Economic Value Equity & Earnings-at-Risk (EaR).

(4) Under risk monitoring, from risk perspective, it is imperative to closely monitor the risks from internal (institutions) and external risks (customer, cost of funding, economic and regulatory) perspectives. Analysis from annual reports and interviews indicated that both sides of Islamic banks, i.e. Full-Fledged and Islamic subsidiaries have practiced risk monitoring in order to efficiently manage the risks. Apart from that, both parties also are confined to regulatory guidelines under Central Bank of Malaysia. Under monitoring risk process, Full-Fledged Islamic banks, i.e. (i) Bank Islam Malaysia Berhad has applied several principles such as annual review and immediate review to monitor the exposure on individual /portfolio basis for credit risk. Market risk monitoring using monthly review and immediate review is managed by the treasury. While, for operational risk monitoring, Bank Islam Malaysia Berhad used techniques such as three lines defence approach, and legal procedures and Shariah principles, and (ii) Bank Muamalat Malaysia Berhad, credit risk has been monitored using credit assessment (Guidelines to Credit risk policies-GCRP). Market risk, has been monitored on daily basis by Compliance Unit and operational risk managed by the Internal Audit Division using self-compliance audit, internal control system, disaster recovery and planning and for operational risk (system and procedures and human resource), it has been managed and controlled by internal audit division. For Islamic bank subsidiaries, i.e. (i) Maybank Islamic Berhad has applied annual review method of credit risk and it conducted by special business units (SBU) on individual /portfolio basis. Market risk was reviewed on daily basis or immediate review by Corporate Treasury.

While, for operational risk, it was monitored using Operational Risk Policy (“OR Policy”), and (ii) CIMB Islamic Bank has regularly conducted the credit assessment using Rating Classification (obligor) and it done by Group Risk Department (GRD). Market risk has been monitored on daily basis by Credit Risk Centre of Excellence under Group Market Risk Committee. While operational risk has been managed, and controlled by Internal Audit Division using internal control system.

(5) Risk control and mitigating section, the risks mitigating method is very crucial and it's the continuing processes as well by bank under the guideline of Central Bank. The risk mitigating purpose is to protect bank sustainability and growth, thus, in turn it will protect customers, shareholder interests and economic stability as a whole. Based on annual report analysis and interview results, it showed that both parties, i.e. full-fledged Islamic banks and Islamic bank subsidiaries of conventional banks have complied to the regulatory guideline. From the analysis and interview also show that both sides applied almost similar method of risk

control and monitoring. For instance, Bank Islam Malaysia Berhad has applied several mitigating techniques, i.e. (i) credit risk, collateral which consists of cash, trade receivables, deposits, securities, letter of guarantee and properties, Counter parties limits and permissible acquisition of private debt securities, (ii) for market risk, the mitigation techniques used such as profit rate swap and hedging (profit rate risk), Using individual currency or aggregate basis (foreign exchange risk), and Documented and Funding Contingency Plan (liquidity risk), and (iii) operational risk has been managed by continuous improvement of all aspect of bank operational risk components. While the mitigating risk method under Bank Muamalat Malaysia Berhad such as, (i) Credit Risk Mitigation Technique (CRMT), (ii) collateral which consists of cash, trade receivables, deposits, securities, letter of guarantee and properties. For market risk, Bank Muamalat Malaysia Berhad used, i.e. (i) offsetting positions against each other for any mismatch, (ii) acquisition of new assets and liabilities, and (iii) entering new derivative financial instruments with opposite effects. For operational risk mitigating, Bank Muamalat Berhad has applied continuous improvement of internal processes, such as upgrading the skills of human resources and risk mitigation system. Meanwhile for Islamic bank subsidiary of conventional banks, i.e. (i) Maybank Islamic Berhad has applied several mitigating methods such as collateral which consists of cash, trade receivables, deposits, securities, letter of guarantee and properties and counter parties using both bilateral and collateral netting (master agreement- international swap and derivatives. Market risk mitigating using swap and hedging for profit rate risk, while for foreign exchange it uses individual currency or aggregate basis and Funding Contingency Plan for liquidity risk. Lastly, to alleviate the operational risk, Maybank Islamic Berhad has used Business Continuity Management ("BCM"), outsourcing and anti fraud management, and (ii) the mitigating method under CIMB Islamic Berhad are as follows: (i) for credit risk; collateral which consists of cash, land, building, trade receivables, deposits, securities, letter of guarantee and properties, netting using swap & derivatives transactions, and portfolio diversifications, (ii) for market risk; Re-pricing mismatches between profit earning assets and profit bearing liabilities, acquisition of new assets and liabilities, and entering new derivative financial instruments with opposite effects and hedging method, and (iii) for operational risk; the continuous improvement of internal processes, people and system. To conclude, based on discussions above, Islamic banks under study are having good risk management practices (see **Table 3** and **Table 4**).

The Sustainable Rate of Growth Within Restricted of Risk Minimum Requirements

Growth is something very crucial to business. The process of improving the performance of the business is considered the growth success. Business growth can be achieved and sustained by boosting the revenue of the business with greater product sales or service income, or by increasing the bottom line or profitability of the operation by minimizing costs. Thus, managing risk is a paramount task for Islamic banking in order to achieve the sustainable growth.

Central Bank of Malaysia under the Basel guideline has imposed the minimum requirement of risk exposures. This risk requirement plays important role in strengthening the resilience and maintaining the sustainable growth of the Islamic banks. The ratios were analyzed by comparing between the full-fledged Islamic banks, i.e. Bank Islam Malaysia Berhad and Bank Muamalat Malaysia Berhad and two Islamic subsidiaries of conventional banks, i.e. Maybank Islamic Berhad and CIMB Islamic Berhad. To analyse the growth of these two Islamic banks under the stringent risk requirements, data from annual report were acquired from bank scope database.

The overall research period was covered from 2006 up to 2014 due to the data availability and the bank growth was analysed based on Return on Assets (ROA). The analysis of bank growth was conducted based on ratios result from **Table 5** and **Table 6** below. The results can be gauged and analysed based on the results of the ratio that have been calculated, i.e. loan ratio, management efficiency ratio, leverage ratio, liquidity ratio and capital adequacy ratio (Leverage ratio under Basel III). In general, the analysis of the ratio shows that Islamic bank subsidiaries of conventional banks have the higher ratios than full-fledged Islamic banks. Loan ratio results show that total financing as compared to total assets of Islamic bank subsidiaries of conventional banks are higher than full-fledged Islamic banks. In terms of efficiency, i.e. operating cost compare to operating income, results show that Islamic bank subsidiaries of conventional banks are more efficient than full-fledged Islamic banks. However, for liquidity and leverage ratios show mix results, in general Islamic bank subsidiaries of conventional banks have more exposure on liquidity risk and debt as compared to full-fledged Islamic banks.

In terms of minimum capital requirement and leveraging (Basel), for full-fledged Islamic banks, Bank Islam has surpassed the minimum requirement under the research period, except for the year 2006 with negative risk weighted capital ratio of -2.84. In terms of growth, Bank Islam Malaysia Berhad shows mixed results, as shown by Return on Assets (ROA) starting from year 2007 up to 2014 and generally these results indicate that Bank Islam Malaysia Berhad still gains profit (mean) for the whole years under the research period with the asset size increase over the years. However, there is a negative result of Return On Asset (ROA) in the year 2006, and this could probably happened due to the loss in investments and excessive cost incurred as compared to the generated income in that particular year. Hence, even under the stringent minimum risk requirements, Bank Islam Malaysia Berhad still manages to achieve good performances and sustain the bank growth (see **Table 5**).

Table 5:**Growth rate within restriction of minimum risk requirement of full-fledged Islamic bank**

Islamic Banks	Year	Total Asset (000)	Loan Ratio ¹	Management Efficiency Ratio ²	Liquidity ratio ³	Leverage ratio ⁴	Capital Adequacy Ratio/ Basel Leverage ⁵	Risk Weighted Capital Ratio (RwCR)	Net Interest Margin Ratio ⁶	Return On Asset Ratio ⁷
Bank Islam	2014	45820.7	64.42	51.91	71.45	8.86	8.14	13.06	3.30	0.73
Bank Islam	2013	42836.5	55.422	54.08	65.04	11.87	7.77	13.97	3.32	1.23
Bank Islam	2012	37450.8	52.092	51.42	61.23	11.08	8.28	14.09	3.67	1.24
Bank Islam	2011	32226.5	43.94	53.902	51.45	10.51	8.69	16.31	3.47	1.17
Bank Islam	2010	20266.6	39.01	54.27	45.68	11.95	8.31	16.78	3.43	0.90
Bank Islam	2009	27497.5	35.14	56.69	42.48	17.10	5.53	13.61	5.28	0.63
Bank Islam	2008	23559.4	38.46	60.79	50.37	17.00	5.56	12.93	5.72	1.80
Bank Islam	2007	19091.2	44.38	61.98	55.93	17.82	5.31	12.01	4.48	1.38
Bank Islam	2006	14608.9	59.23	93.84	71.4	-53.59	5.33	-2.84	3.47	-8.52
Bank Muamalat	2014	20066.8	59.32	76.28	69.06	10.52	8.68	17.6	2.46	0.73
Bank Muamalat	2013	21076.4	49.18	61.71	56.76	12.20	7.57	19.1	2.88	0.80
Bank Muamalat	2012	20511	44.25	63.11	52.39	13.65	6.82	19.7	2.85	0.33
Bank Muamalat	2011	18315.2	39.13	57.62	46.24	12.45	7.43	19.2	4.02	0.77
Bank Muamalat	2010	16739.2	39.61	46.55	47.14	11.70	7.88	17.5	4.4	0.48
Bank Muamalat	2009	15914.9	41.33	44.59	47.55	11.12	8.25	17	4.81	0.54
Bank Muamalat	2008	14415.7	41.86	55.16	47.47	19.52	4.88	12.8	4.41	0.23
Bank Muamalat	2007	13814.7	40.45	57.90	45.04	17.68	5.34	13.6	2.96	0.35
Bank Muamalat	2006	13464.2	38.27	49.93	41.93	17.86	5.33	15.7	3.059	0.61

Source: Bankscope Database 2006-2014, Bank Islam Financial Statement ended 31 December 2006-2014 and Bank Muamalat Financial Statement ended 31 March 2006-2014

Notes:

- 1 Loan is defined as total financing/total assets
- 2 Management Efficiency is defined as operating cost/operating income
- 3 Liquidity ratio is defined as financing/deposit (Basel Liquidity formula cannot be calculated due to data not available)
- 4 Leverage ratio is defined as total debt/total equity
- 5 Capital adequacy ratio is defined as total equity/total assets (Leverage Ratio under Basel III)
- 6 Net interest margin is defined as net profit income (net interest income)/total assets
- 7 Return on assets is defined as net profit/average assets

As for Bank Muamalat Malaysia Berhad, results for minimum capital requirement and leverage ratio (Basel) under the period from 2006 to 2014 also exceeded the regulatory requirements. In terms of growth, results for the period 2006 to 2014 indicate mixed growth (Return on Assets), which implied that Bank Muamalat Malaysia Berhad is still making profit (mean) over the years under the research period (see **Table 5**). Meanwhile, for Islamic bank subsidiaries of conventional banks, both Maybank Islamic Berhad and CIMB Islamic Berhad had surpassed the minimum requirements (Risk Weighted Capital Ratio) under the research period (see **Table 6**). In terms of bank growth, both banks have shown mixed results just as well the Full-Fledged Islamic banks. Thus, it shows that even though under tight minimum risk requirements, both sides, i.e. full-fledged Islamic banks and Islamic bank subsidiaries of conventional banks are still able to sustain and grow the bank's performance. However, these empirical results suggest an important policy on issues pertaining to how Islamic banks especially the full-fledged Islamic banks have to adjust the changes in the banking environment in terms of growth and its comparative advantages specifically on management efficiency.

Table 6:**Growth rate within restriction of minimum risk requirement of Islamic subsidiaries of conventional bank**

Islamic Banks	Year	Total Asset (000)	Loan Ratio ¹	Management Efficiency Ratio ²	Liquidity ratio ³	Leverage ratio ⁴	Capital Adequacy Ratio/ Basel Ratio ⁵	Risk Weighted Capital Ratio (RWCR)	Net Interest Margin Ratio ⁶	Return On Asset Ratio ⁷
CIMB Islamic	2014	49863.8	72.80	46.64	88.77	14.53	6.44	15.49	2.40	0.79
CIMB Islamic	2013	49423.2	70.96	51.49	92.23	17.50	5.40	14.02	2.35	0.73
CIMB Islamic	2012	51225.0	64.57	47.43	94.94	20.86	4.58	13.27	2.3	0.85
CIMB Islamic	2011	43102.8	65.13	38.81	97.8	21.29	4.49	14.42	2.50	0.85
CIMB Islamic	2010	36038.4	62.22	29.59	100.35	25.92	3.72	17.19	2.78	0.95
CIMB Islamic	2009	27330.2	58.89	36.24	93.7	30.38	3.19	11.34	3.02	0.54
CIMB Islamic	2008	18654.0	32.01	40.34	44.98	24.03	4.00	11.69	2.53	0.53
CIMB Islamic	2007	8989.0	22.53	32.31	28.88	12.37	7.48	16.41	3.55	0.94
CIMB Islamic	2006	4795.6	33.75	43.23	72.12	6.97	12.55	33.28	4.93	0.22
Maybank Islamic	2014	146394.4	73.59	37.2	108.87	19.25	4.94	16.09	2.09	0.83
Maybank Islamic	2013	125056.7	68.88	38.53	104.65	18.43	5.15	13.71	2.19	0.97
Maybank Islamic	2012	91432.4	67.05	38.94	87.34	19.12	4.97	12.59	2.29	1.06
Maybank Islamic	2011	65928.0	69.54	39.5	96.77	15.64	6.01	12.61	2.93	1.14
Maybank Islamic	2010	44157.5	75.66	33.46	100.23	12.39	7.47	10.66	3.51	1.04
Maybank Islamic	2009	34026.6	74.47	35.29	108.43	12.30	7.52	11.56	3.47	1.17
Maybank Islamic	2008	26924.7	77.74	42.29	116.58	14.98	6.26	9.67	2.32	0.52

Source: Bankscope Database 2006-2014, Bank Islam Financial Statement ended 31 December 2006-2014 and Bank Muamalat Financial Statement ended 31 March 2006-2014

Notes:

- 1 Loan is defined as total financing/total assets
- 2 Management Efficiency is defined as operating cost/operating income
- 3 Liquidity ratio is defined as financing/deposit (Basel) Liquidity formula cannot be calculated due to data not available)
- 4 Leverage ratio is defined as total debt/total equity
- 5 Capital adequacy ratio is defined as total equity/total assets (Leverage Ratio under Basel III)
- 6 Net interest margin is defined as net profit income (net interest income)/total assets
- 7 Return on assets is defined as net profit/average assets

CONCLUSION

This paper aims to analyze the risk management practices of full-fledged Islamic banks versus Islamic subsidiaries of conventional banks in Malaysia and the sustainable rate of growth within restricted minimum requirements of capital adequacy, leverage and liquidity. This paper also analysed the ratios such as loan ratio, management efficiency ratio, leverage ratio, liquidity ratio and capital adequacy ratio (Leverage ratio under Basel III). In achieving these objectives, the paper assessed the risk management practices of full-fledged Islamic banks, i.e. Bank Islam Malaysia Berhad and Bank Muamalat Malaysia Berhad and Islamic subsidiaries of conventional banks, i.e. Maybank Islamic Berhad and CIMB Islamic Berhad. This paper used annual reports and focus group interview method to obtain the data. In terms of data collection, the paper used annual reports and focus group interview. The results of the paper shed some lights on the current risk management practices and its relation to bank growth. Central Bank has incorporated the reform measures under Basel III which is the latest update of the Basel Accord starting from Basel I and Basel II. Large parts of the Basel II requirements have been implemented by financial institutions as required by Central Bank. Risk weighted capital ratio under Basel II now served as a standard in the banking industry, while, leverage ratio and liquidity ratio that were proposed under Basel III have been implemented in phases by financial institutions with the target to be fully complied in 2018 and 2019 respectively.

Generally, both full-fledged Islamic banks versus Islamic subsidiaries of conventional banks in Malaysia have conformed and implemented the minimum capital requirements, leverage ratio and liquidity ratio as well as conservative buffer as proposed by Basel Accord, IFSB and Central Bank guidelines. Additionally, extra cushion, i.e. conservation buffer has been introduced that underpins the present Risk Weighted Capital Adequacy also have been adequately implemented by both Islamic Banks. In specific, the leverage ratio, liquidity coverage ratio and minimum capital requirement ratios, such as Common Equity Tier 1 capital Ratio, Core Capital Ratio (CCR), Risk Weighted Capital Ratio (RWCR) have been exceeded by both Islamic banks. In terms of bank growth, results of the analysis show that in spite of tight minimum risk exposure requirements, both full-fledged Islamic banks versus Islamic subsidiaries of conventional banks in Malaysia are able to sustain and grow the bank businesses (but with mixed growth). However, these empirical results suggest an important policy on issues pertaining to how Islamic banks especially the full-fledged Islamic banks have to adjust the changes in the banking environment in terms of growth and its comparative advantages specifically on management efficiency.

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