Risk Management Practices in Islamic Banking:
An Empirical Evidence from Malaysia

Sabri Embi,* Zurina Shafii†

I. Introduction

Risk and risk management is not a recent subject. In the Al-Quran, there is a story of how risk is being managed which is narrated in Surah Yusuf, verses 43–49. In this story, the Prophet Yusuf understood, identified and analysed the risk and provided solutions to avoid potential famine among the people of the then Egypt (Al Ali and Naysary, 2014).

The story is one of the many found in the Al-Quran which show the importance of risk management to the Muslims in various fields including Islamic banking. Islamic banks not only have to manage the common risks found in conventional banks, but also additional risks unique to them. Risk is one of the most critical elements that need to be managed (Mohd. Razif and Mohamad, 2011).

Managing risk is not only critical to the Islamic banks but also to the economy of the country where the banks operate. The failure of risk management in the banks will lead to financial losses, and continued losses will eventually lead to the bank's failure (Iskandar, 2014). Thus, risk management is crucial to the survival and success of the Islamic banks, and its importance is not to be questioned (Rosman and Abdul Rahman, 2015).

After involving a combined of more than 30 years in the field of Islamic banking and finance, the researchers are motivated to examine the risk management practices (RMPs) of Islamic banks particularly in Malaysia. Specifically, the study aims to investigate the level of the variables of understanding risk and risk management (URRM), risk identification (RI), risk assessment and analysis (RAA), risk monitoring (RM), credit risk analysis (CRA), and the risk management practices (RMPs).

At the same time, the present study also examines the impact of URRM, RI, RAA, RM, and CRA on the RMPs of the Islamic banks. The present study asks the following questions: What is the level of variables of URRM, RI, RAA, RM, CRA, and RMPs? How much URRM, RI, RAA, RM, and CRA will affect or having a relationship with RMPs.

II. Literature Review

2.1. Islamic Banking

The global banking assets are recorded as USD 1.493 trillion as of first half of 2016 (1H2016) compared to USD 1.496 trillion as of 1H2015 (Islamic Financial Services Board, 2017). As in

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* Ph. D. Candidate, Faculty of Economics and Muamalat, Universiti Sains Islam Malaysia.

† Assoc. Prof., Faculty of Economics and Muamalat, Universiti Sains Islam Malaysia.

2015, the banking sector still dominates the global Islamic financial services industry (IFSI) in 2016, representing 78.9% of the industry's assets.

As presented in the Islamic Finance Development Report 2016, the global Islamic banking assets stood at US1,599 trillion as at the end of 2016 (Al-Aboodi and Adil, 2017) which represents 73 % of the global Islamic finance assets. According to the same report, 12 countries have now achieved systemic importance[1] in 1H2016 compared to seven countries in 1H2014. In Asia, Brunei leads in terms of systemic importance with 57 % Islamic banking share compared to Malaysia, a distant second place with a market share of 23.8 %.

Despite the continued encouraging performance, there are challenges and issues in running Islamic banking. The global financial crisis of 2007 has shown, among others, that there is a failure of risk assessment (Ahmed, 2009), lack of basic risk management (Tafri *et al*., 2011) or poor level of risk management practices (Al Ali and Naysary, 2014). Thus, effective risk management practices is critical to the bank's future survival.

2.2. Risk Management Practices

According to Thijs (n.d), who works in Bank Islam Malaysia Berhad before, risk refers to uncertain future events that may affect the achievement of the bank's objectives. Uncertain future events refer to, for instance: failure of a customer to pay back his home financing debt to an Islamic bank (Thijs, n.d), and non-compliance with Shariah laws/principles (Khan and Ahmed, 2001).

Risk management, on the other hand, can be described as a comprehensive process that includes risk identification, assessment, monitoring, and decisions to reduce or minimize the risk or impact of unfortunate events (Dabari and Saidin, 2014; Ben Selma Mokni *et al.*, 2014; Soyemi *et al.*, 2014; Kanchu and Kumar, 2013). The description of risk management here is quite similar to the one provided by the Basel Committee on Banking Supervision (Tafri *et al.*, 2011).

As an Islamic bank that operates according to the *Shariah*, its products and services are structured according to the various *Shariah* contracts. For instance, the financings can be structured under the contracts of *Musharakah*, *Murabahah*, *Ijarah*, and *Tawarruq* while deposit products are normally offered under the contract of *Wadiah*, *Qard* or *Tawarruq*. The investment account is under the *Shariah* contract of either *Musharakah* or *Mudharabah*.

Due to these *Shariah* contracts, Islamic banks carry additional risks unique to it including displaced commercial risk, equity investment risk, the rate of return risk, and *Shariah* non-compliance risk. For this reason, efficient risk management is vital (Al-Tamimi and Al-Mazrooei, 2007). In Malaysia, the importance of RMPs has been highlighted in the

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1 Islamic financial sector is considered as being systemically important when the total Islamic banking assets in a country comprise more than 15% of its total domestic banking sector assets.

Financial Sector Blueprint of BNM which requires all Islamic banks to focus on minimising systemic risk by enhancing their risk management practices (PwC, 2012).

2.3. The Levels of Risk Management Practices, Understanding Risk and Risk Management, Risk Identification, Risk Assessment and Analysis, Risk Monitoring, and Credit Risk Analysis

Several prior studies have been carried out in various jurisdictions to assess the level of understanding risk and risk management (URRM) together with other variables including risk identification (RI), risk assessment and analysis (RAA), risk identification (RI), credit risk analysis (CRA), and risk management practices (RMPs).

Some of the jurisdictions include the United Arab Emirates (Al-Tamimi and Al-Mazrooei, 2007), Brunei (Hassan, 2009), Pakistan (Khalid and Amjad, 2012; Khattak *et al.*, 2013), Bahrain (Hussain and Al-Ajmi, 2012), Yemen (Abdou *et al.*, 2014). In Malaysia, very few studies have been undertaken to assess the impact of URRM, RI, RAA, and RM on the RMPs of Islamic banks (Abdul Rahman *et al.*, 2013; Abdul Rahman *et al.*, 2014; Muhammad, 2016). The following is an attempt to summarize the main conclusions of some selected studies.

Al-Tamimi and Al-Mazrooei (2007) conducted a study involving 17 out of 46 commercial banks: eight conventional national banks, five largest foreign banks, and four Islamic banks. The units of analysis were the officers involved in risk management activities comprising the branch managers, senior risk management officers, and senior credit officers. The results showed the sample's responses to be 5.50 indicating that the UAE banks are efficient in risk management.

Hassan (2009) later conducted a similar study, and the results obtained support the work of Al-Tamimi and Al-Mazrooei (2007). In both of the studies, item number six of the RMPs variable coincidently resulted in the highest mean value of 6.07, confirming that Islamic banks intend to have efficient or effective risk management.

In Malaysia, Abdul Rahman *et al*. (2014) conducted a survey using questionnaires to compare the level of RMPs among the staff of 17 Islamic banks in Malaysia and four Islamic banks in Jordan. Overall, the results of the study reveal that Islamic Banks in both countries have a high level of RMPs where the mean scores exceeded 5 out of a possible maximum score of 7.

2.4. The Influence of Understanding Risk and Risk Management, Risk Identification, Risk Assessment and Analysis, Risk Monitoring, and Credit Risk Analysis on the Risk Management Practices

The various studies that have been discussed in the preceding paragraphs also examine the influence of URRM, RI, RAA, RM, and CRA on the RMPs of Islamic banks in the various

jurisdictions. In a study by Al-Tamimi and Al-Mazrooei (2007) in the UAE, they develop the first hypothesis that proposes a positive relationship between URRM, RI, RAA, RM, and CRA, the independent variables and RMPs, the dependent variable.

The results of their study indicate that the five independent variables as a group explain 23.5 % of the variations in the RMPs ($R^2 = 0.235$). The results reveal that RI and RAA are the most influencing variables in RMPs, which means that the UAE banks need to give more attention to risk identification and risk assessment and analysis. The study by Al-Tamimi and Al-Mazrooei (2007) is supported by Hassan (2009) who conducted a similar study in Brunei. In the latter study, RI and RAA are found to significantly influence the RMPs of the banks in Brunei.

On the other hand, the results of the studies by Khalid and Amjad (2012) in Pakistan and Hussain and Al-Ajmi (2012) in Bahrain support each other as all the independent variables (URRM, RI, RAA, RA, and CRA) positively and significantly influence the RMPs. In Malaysia, a study by Abdul Rahman *et al*. (2014) shows that RAA and RM are the two variables affecting RMPs of the Islamic banks, whereas URRM and RI have no influence on the RMPs of the banks. Their findings are consistent with the studies by Khalid and Amjad (2012) and Hussain and Al-Ajmi (2012).

III. Research Methodology

3.1. Research Questions and Hypotheses

This study attempts to answer two research questions: (i) What is the level of variables of URRM, RI, RAA, RM, CRA, and RMPs among the Islamic banking practitioners? (ii) How much URRM, RI, RAA, RM, and CRA will affect the RMPs? Based on the research questions, six regression hypotheses are formulated:

Hypothesis (H)1: Understanding risk and risk management (URRM), risk identification (RI), risk assessment and analysis (RAA), risk monitoring (RM), and credit risk analysis (CRA) have positive impact on risk management practices (RMPs)

H2: URRM has a positive impact on RMPs

H3: RI has a positive impact on RMPs

H4: RAA has a positive impact on RMPs

H5: RM has a positive impact on RMPs

H6: CRA has a positive impact on RMPs

3.2. Instrument

A modified version of the questionnaire developed by Al-Tamimi and Al-Mazrooei (2007) and Abdul Rahman *et al*. (2014) is used to collect the primary data for this study. It is divided into

three sections. Section I containing eight questions solicits information about the respondents such as gender, age, academic qualification, and *et cetera*. Section II includes 36 closed-ended statements or questions relating to URRM, RI, RAA, RM, and CRA. The final section contains 11 closed-ended questions relating to RMPs variable. Each question in Sections I and II are measured by a seven-point Likert scales, ranging from (1) strongly disagree, to (7) strongly agree.

The instrument is tested for reliability and validity first before it is used in the final study (Malhotra and Birks, 2007; Peterson, 2000; Baines and Chansarkar, 2002). Cronbach's alpha coefficient is used to measure reliability as it is the most commonly used measure (Hair *et al.*, 2006). The instrument is also assessed for its face validity, content validity, and construct validity. The face validity and content validity of the survey instrument are achieved through the domain expert review process where 13 experts — eight academicians and five practitioners — are requested to examine the scales.

On the other hand, construct validity assessment is performed using the factor analysis (Sekaran, 2003) after the primary data has been collected. Finally, a pilot study is carried out according to procedures proposed by Peat *et al*. (2002) (as cited in Van Teijlingen and Hundley, 2002, p. 35) where the questionnaire was administered to pilot respondents in the same way as it was administered in the main study.

3.3. Sampling and Data Collection

The universe of the study consists of 16 full-fledged commercial Islamic banks situated in Kuala Lumpur, Malaysia. The target population includes all the officers in the head offices of the banks. The samples comprise the officers from the first-line, second-line, and third-line of defences such as the operation officers, risk officers, Shariah officers, compliance officers, legal officers, internal auditors, and members of the various committees related to risk management. The samples are selected using the purposive sampling method (Saunders *et al*., 2009), and the selection is in line with the studies by Abdul Rahman *et al*. (2013), and Abdul Rahman *et al*. (2014).

A total of 450 survey self-administered questionnaires were distributed to the targeted respondents through delivery and collection method (Saunders *et al*., 2009). The researchers managed to get back a total of 342 giving a response rate of 76 % which is considered very good for a questionnaire survey (Babbie, 2013). After data screening, 30 questionnaires were excluded due to substantial missing data and other miscellaneous reasons leaving behind 312 questionnaires for the final analysis giving an effective response rate of 69 %.

3.4. Data Screening and Data Analysis.

As suggested by Tabachnick and Fidell (2013), the researchers performed data screening and cleaning which involved checking the accuracy of the data input, dealing with missing

values, detecting and treating the outliers. The data was also screened for monotone responses as suggested by Mat Roni (2014), and to determine whether the data meet the multivariate assumptions (Hair *et al*., 2006).

After data screening, the data were analysed using the Descriptives' reports produced by the Statistical Package for the Social Sciences (SPSS) version 20. The reports were used to answer the first research question. Then, standard regression analysis was performed to test the research hypotheses thereby answering the second research question.

IV. Results and Discussion

4.1. Reliability Analysis

Table 4.0 shows the Cronbach's alpha coefficients. The cut-off point for measuring the reliability is an alpha value of above 0.65 (Nunnally and Bernstein, 1994). Table 4.0 exhibits the Cronbach coefficient alpha of all the variables with values ranging from 0.702 to 0.874 which is above the 0.65 benchmark. The values of the main study are quite similar to that obtained from the pilot study which ranges from .503 to .886.

Table 4.0: Reliability Coefficients of the Six Variables

Variable	Cronbach Alpha (main study)	Cronbach Alpha (pilot study)
URRM	.720	.779
RI	.705	.683
RAA	.810	.858
RM	.828	.852
CRA	.702	.503
RMPs	.874	.886

4.2. Descriptive Statistics

4.2.1. *Demographic Profile of the Respondents*

Using the 'Frequencies' report, the researcher analysed the demography of 300 cases out of 312 cases after deleting 12 cases due to the presence of outliers. As shown in Table 4.1, 53.3 % of the respondents were male while 46.7 % female. Majority of the respondents were bachelor degree holders (64.0%), and quite a sizeable percentage are Master's degree holders (23.7%).

Table 4.1: Demographic Profiles of Respondents

	Frequency	(%)
Gender		
Males	160	53.3
Females	140	46.7
Age		
Between 21 and 30 years	96	32.0
Between 31 and 40 years	107	35.7
More than 40 years	97	32.3
Qualification		
Master's degree	71	23.7
Bachelor's degree	192	64.0
Diploma	29	9.7
Others	8	2.7
Length of Service in the Current Bank		
Less than two years	53	17.7
Between two and five years	67	22.3
More than five years	180	60.0
Designation		
Officer	132	44.0
Assistant Manager	77	25.7
Manager	49	16.3
Senior Manager	18	6.0
Assistant General Manager	2	0.7
Deputy Director	1	0.3
Director	1	0.3
Assistant Vice President	11	3.7
Vice President	7	2.3
Senior Vice President	1	0.3
Others	1	0.3
Division/Department		
Audit	43	14.3
Compliance	15	5.0
Credit Administration	22	7.3
Legal	1	0.3
Marketing	1	0.3
Product Development	19	6.3
Risk	62	20.7
Shariah	57	19.0
Consumer	29	9.7
Commercial	15	5.0
Support	24	8.0
Treasury	3	1.0
Strategic Planning	3	1.0
Finance	2	0.7
Others	4	1.3

Majority of the respondents comprise the officer (44.0%) and Assistant Manager (25.7%), and more than half of the respondents came from relevant divisions or departments such as Risk, *Shariah*, and Audit. Although about 70 % of the respondents were holding lower (officer) and middle-level management (manager), a large number of them (60%) had more than five years of experience in their current banks. Also, almost 90% of the respondents had a Bachelor's degree or higher.

From the demographic analysis, it can be concluded that the respondents should be sufficiently well versed with their banks and subject matter, and familiar enough with their company operations. Therefore, the respondents should be able to comprehend the needs of the questionnaire. It can be concluded that the data obtained from the sample are credible and therefore provide a useful basis for subsequent analysis and inference.

4.2.2. *The Mean and Standard Deviation of Risk Management Practices, Understanding Risk and Risk Management, Risk Identification, Risk Assessment and Analysis, Risk Monitoring, and Credit Risk Analysis*

The mean values are presented in Table 4.2. They are categorised into three levels; (i) low = 1.00 to 2.99, (ii) moderate = 3.00 to 4.99, and (iii) high = 5.00 to 7.00 (Hair *et al*., 2010). From the table, it can be deduced that the levels of all the six variables are high meaning that the respondents perceived high agreement towards all variables being studied.

Table 4.2: Means and Standard Deviation (SD) for the Ten Variables

	Variable	Abbreviation	Mean	SD	Level
1	Risk management practices	RMPs	5.84	.500	High
2	Understanding risk and risk management	URRM	5.80	.534	High
3	Risk identification	RI	5.25	.533	High
4	Risk assessment and analysis	RAA	5.72	.492	High
5	Risk monitoring	RM	5.90	.520	High
6	Credit risk analysis	CRA	5.80	.531	High

4.2.2.1. Risk management Practices

Table 4.3 shows the mean of the responses to the eleven questions and standard deviations (SDs) for risk management practices (RMPs). The means and SDs for these questions ranged from 5.71 to 5.95 and 0.638 to 0.952 respectively. The average mean score for all the items of RMPs is 5.84, the level of which is categorised as high (Hair *et al*., 2010) indicating that Islamic banks in Malaysia have been efficient in their risk management practices.

Table 4.3: Means and Standard Deviations (SD) for RMPs

No	Question/Item	Mean	SD
1	The executive management of your Islamic Bank regularly reviews the bank's performance in managing its business risk	5.87	0.689
2	Your Islamic Bank is highly effective in continuous review/ feedback on risk management strategies and performance	5.77	0.725
3	Your Islamic Bank's risk management procedures and processes are documented and provide guidance to staff about managing risks	5.90	0.638
4	Your Islamic Bank's policy encourages training programmes in the areas of risk management and Islamic ethics	5.85	0.759
5	Your Islamic Bank emphasizes the recruitment of qualified people having *Shariah* knowledge in risk management	5.74	0.952
6	One of the objectives of your Islamic Bank is effective risk management	5.92	0.660
7	Your Islamic Bank is successfully implementing the Islamic Financial Services Board (IFSB) and BNM guidelines/ principles in regard to risk management	5.95	0.673
8	The application of the Basel III Accord will improve the efficiency and risk management practices in Islamic banking in general	5.71	0.801
9	I consider the level of risk management practices of my Islamic Bank to be excellent	5.74	0.787
10	I consider my Islamic Bank has risk management practices that are *Shariah* compliant	5.92	0.791
11	Your Islamic bank always manage risks within the tolerance limits as per the bank's risk appetite guideline	5.86	0.726
	Average	5.84	0.500

Table 4.3 also represents the relative importance of each of the questions for RMPs. The highest mean is 5.95 for question seven (7) indicating that the majority of the respondents agreed and highly agreed that their Islamic banks had been successfully implementing the guidelines and principles of the Islamic Financial Services Board (IFSB) and BNM regarding risk management.

4.2.2.2. Understanding Risk and Risk Management

Table 4.4 reveals that the mean of responses to the nine questions about understanding risk and risk management (URRM) is 5.80, the level of which is categorised as high (Hair *et al*., 2010). The respondents' answers to these nine questions indicate that the officers of Islamic banks in Malaysia understand risk and risk management, giving a positive answer to the first question.

Table 4.4: Means and Standard Deviations (SD) for URRM

No	Question/Item	Mean	SD
1	There is a common understanding of risk management across the Islamic banks	5.57	0.953
2	Responsibility for risk management is clearly set out and understood throughout the Islamic bank	5.64	0.864
3	Accountability for risk management is clearly set out and understood throughout the Islamic bank	5.56	0.865
4	Managing risk is important to the performance and success of the Islamic bank	6.35	0.690
5	It is crucial to apply sophisticated techniques in risk management	5.43	1.129
6	The objective of Islamic banks is to expand the applications of the advanced risk management technique/methodology	5.30	1.074
7	It is important for your Islamic bank to emphasize the continuous review and evaluation of the techniques/methodology used in risk management	6.11	0.783
8	Application of risk management techniques/ methodology reduce costs or expected losses	5.78	0.911
9	I understand that the risk management practices in Islamic banks must be according to *Shariah*	6.44	0.754
	Average	5.80	0.534

Table 4.4 also represents the relative importance of each of the questions for URRM. The highest mean is 6.44 for question nine (9) indicating that the majority of the respondents agreed and highly agreed that the risk management practices in Islamic banks must be in accordance to the *Shariah* or Islamic law. This result is similar to the one obtained by Abdul Rahman *et al*. (2014) where this particular question or statement produced the highest mean (6.43) in their study.

It is evident that the officers in the Islamic banks have a good understanding of risk and risk management, which might indicate the ability of these banks to manage risks efficiently in the future.

4.2.2.3. Risk Identification

Table 4.5 shows the mean of the responses to the six questions and standard deviations (SDs) for risk identification (RI). The means and SDs for all the nine items ranged from 3.79 to 6.14 and 0.742 to 1.430 respectively. The average mean score for all the six items of RI is 5.25, the level of which is categorised as high (Hair *et al*., 2010). The score indicates that Islamic banks in Malaysia have identified the potential risk relating to their businesses.

Table 4.5: Means and Standard Deviations (SD) for RI

No	Question/Item	Mean	SD
1	The Islamic bank carries out a comprehensive and systematic identification of its risk relating to each of its declared aims and objectives.	5.67	0.777
2	The Islamic bank finds it difficult to prioritise its main risk.	3.79	1.430
3	Changes in risk are recognised and identified with the Islamic Bank's rules and responsibilities.	5.47	0.742
4	The Islamic bank is aware of the strengths and weaknesses of the risk management systems of the other banks.	4.96	1.109
5	The Islamic bank has developed and applied procedures for the systematic risk identification of investment opportunities.	5.49	0.808
6	In the process of identifying risk, your Islamic bank always take *Shariah* compliance issues into consideration.	6.14	0.783
	Average	5.25	0.533

Table 4.5 also represents the relative importance of each of the questions for RI. The highest mean is 6.14 for question six (6) indicating that the majority of the respondents agreed and highly agreed that in the process of identifying risk, their Islamic bank always considers *Shariah* compliance issues. This result is similar to the one obtained by Abdul Rahman *et al.* (2014) where this particular question or statement produced the highest mean of 6.19 in their study.

4.2.2.4. Risk Assessment and Analysis

Table 4.6 presents the mean of the responses to the eight questions and standard deviations (SDs) for the risk assessment and analysis (RAA). The means and SDs for all the eight items ranged from 5.39 to 6.11 and 0.657 to 0.898 respectively. The average mean score for all the eight items of RI is 5.72, the level of which is categorised as high (Hair *et al.*, 2010). The score indicates that Islamic banks in Malaysia have been efficiently assessing and analysing the risk associated with their Islamic banking businesses.

Table 4.6: Means and Standard Deviations (SD) for RAA

No	Question/Item	Mean	SD
1	Islamic bank assesses the likelihood of occurring risk and its impact on the performance of Islamic bank	5.89	0.663
2	Islamic bank's risk is assessed by using quantitative analysis methods.	5.39	0.898
3	Islamic bank's risk is assessed by using qualitative analysis methods (e.g., high, moderate, and low).	5.60	0.745
4	Your Islamic bank analyses and evaluates the risk associated to opportunities that it has to achieve its objectives	5.66	0.729
5	Your Islamic bank's response to the analysis of risk includes assessment of the costs and benefits of addressing risk.	5.68	0.724
6	Your Islamic bank's response to the analysis of risk includes prioritising of risk and selecting those that need active management.	5.74	0.657
7	Your Islamic bank's response to the analysis of risk includes prioritising risk treatments where there are resource constraints on risk treatment implementation.	5.66	0.706
8	Your Islamic bank has applied a *Shariah* compliance risk assessment and analysis.	6.11	0.786
	Average	5.72	0.492

Table 4.6 also represents the relative importance of each of the questions for RAA. The highest mean is 6.11 for question eight (8) indicating that the majority of the respondents agreed and highly agreed that their Islamic bank had applied a *Shariah* compliance risk assessment and analysis This result is similar to the one obtained by Abdul Rahman *et al*. (2014) where this particular question or statement produced the highest mean (6.26) in their study.

4.2.2.5. Risk Monitoring

Table 4.7 shows the mean of the responses to the six questions and standard deviations (SDs) for risk monitoring (RM). The means and SDs for all the six items ranged from 5.66 to 6.10 and 0.670 to 0.787 respectively. The average mean score for all the eight items of RM is 5.90, the level of which is categorised as high (Hair *et al.*, 2010) indicating that Islamic banks in Malaysia are efficient in their risk monitoring activities.

Table 4.7 also represents the relative importance of each of the questions for RM. The highest mean is 6.10 for question six (6) indicating that the majority of the respondents agreed and highly agreed that the existing control and monitoring process in their Islamic bank always consider *Shariah* compliance issues. This result is consistent with the one obtained by

Abdul Rahman *et al*. (2014) where this particular question or statement produced the highest mean (6.26) in their study.

Table 4.7: Means and Standard Deviations (SD) for RM

No	Question/Item	Mean	SD
1	Monitoring the effectiveness of risk management is an integral part of routine management reporting	6.03	0.688
2	Level of control by the Islamic bank is appropriate for the risk that it faces	5.66	0.734
3	In your bank, reporting and communication processes support the effective management of risks	5.85	0.675
4	The Islamic bank's response to risk includes an evaluation of the effectiveness of the existing controls and risk management responses	5.87	0.700
5	The Islamic bank's response to risk includes action plans in implementing decisions about identified risks	5.89	0.670
6	The existing control and monitoring process in your Islamic bank always considers *Shariah* compliance issues	6.10	0.787
	Average	5.90	0.520

4.2.2.6. Credit Risk Analysis (CRA)

Table 4.8 shows the mean of the responses to the seven questions and standard deviations (SDs) for credit risk analysis (CRA). The means and SDs for all the seven items ranged from 5.27 to 6.30 and 0.688 to 1.147 respectively. The average mean score for all the seven items of CRA is 5.80, the level of which is categorised as high (Hair *et al.*, 2010). The score indicates that the Islamic banks are efficient in assessing and analysing the risk associated with their Islamic banking businesses.

Table 4.8 also represents the relative importance of each of the questions for CRA. The highest mean is 6.30 for question two (2) indicating that the majority of the respondents agreed and highly agreed that before granting credit/financing facility, their Islamic banks undertake specific analysis including the potential customer's character, capacity, collateral, capital, and conditions.

The result for the highest mean stated above is consistent with the one obtained by Khalid and Amjad (2012) where this question or statement produced the highest mean (4.52) in their study.

Table 4.8: Means and Standard Deviations (SD) for CRA

No	Question/Item	Mean	SD
1	Islamic bank undertakes a credit worthiness analysis before granting any credit/financing facility	6.22	0.707
2	Before granting credit/financing facility, your Islamic bank undertakes specific analysis including the potential customer's character, capacity, collateral, capital and conditions	6.30	0.688
3	Islamic bank's customers are classified according to risk factors (risk rating)	6.11	0.742
4	It is essential to require sufficient collateral from small customers	5.41	1.023
5	Islamic bank's policy requires collateral for granting credit/financing facility	5.27	1.147
6	It is preferable to require collateral against some credit/financing facility and not all of it	5.61	0.914
7	The level of credit/financing facility amount granted to defaulted customers must be reduced	5.67	1.077
	Average	5.80	0.531

4.3. Correlations

Using more than one variable to examine the contribution of the independent variables (URRM, RI, RAA, RM, and CRA) to the regression model may result in a multicollinearity problem among these variables. A multicollinearity test was carried out using the Pearson's correlation to analyse the correlations between the five independent variables (URRM, RI, RAA, RM, and CRA). Any correlation coefficient exceeding 0.7 indicates a potential problem (Sekaran and Bougie, 2010). The results of the correlations presented in Table 4.9 suggests that there is no problem of multicollinearity among the independent variables as none of the coefficient exceeds 0.7.

Table 4.9: Relationships among Variables

	RMPs	URRM	RI	RAA	RM	CRA
RMPs	1					
URRM	.482**	1				
RI	.501**	.483**	1			
RAA	.591**	.505**	.555**	1		
RM	.600**	.469**	.487**	.665**	1	
CRA	.404**	.436**	.279**	.384**	.348**	1

4.4. Regression

In answering the second research question, a standard regression analysis was performed to test the six regression hypotheses stated in Section 3.1. The first hypothesis is to test the impact of URRM, RI, RAA, RM, and CRA (the five independent variables) as a group on the RMPs (the dependent variable) of Islamic banks in Malaysia. The second to the sixth hypotheses is to assess the individual impact of each of the five variables on the RMPs.

In terms of the total effect of regression (referring to H1), the results (Tables 4.10 and 4.11) indicate that all the five independent variables (URRM, RI, RAA, RM, and CRA) as a group or block significantly explained 48.0 % of the variation in the risk management practices (R^2=0.480, F=54.233, p<0.01) of Islamic banks in Malaysia.

The normal R square is reported instead of the adjusted R square as the sample size of 300 for the present study is reasonably large. The adjusted R square is reported in the case of a small sample size (Pallant, 2005). The results confirm that H1 (see Section 3.1) is supported.

Table 4.10: Model Summary[b]

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.693[a]	.480	.471	.36341

a. Predictors: (Constant), URRM, RI, RAA, RM, CRA
b. Dependent Variable: RMPs

In assessing the statistical significance of the result, ANOVA (Table 4.11) is referred to. The table tests the null hypothesis that multiple R in the population equals zero (0). The model in the study reaches statistical significance (Sig = .000, this means p<.0005).

Table 4.11: ANOVA[a]

	Model	Sum of Squares	df	Mean Square	F	Sig.
1	Regression	35.811	5	7.162	54.233	.000[b]
	Residual	38.827	294	.132		
	Total	74.638	299			

a. Dependent Variable: RMPs
b. Predictors: (Constant), URRM, RI, RAA, RM, CRA

On the other hand, Table 4.12 summarises the results of multiple regression analysis of each of the five independent variables on the RMPs (H2 through H6). The results of the analysis reveal that each of the five independent variables shows a significant influence on the RMPs. They were URRM (B=0.109, t=2.040, p<0.05), RI (B=0.156, t=2.931, p<0.01), RAA

(B=0.206, t=3.321, p<0.01), RM (B=0.289, t=4.958, p<0.01) and CRA (B=0.133, t=2.778, p<0.01). Thus, the results show that H2 through H6 (see Section 3.1) are supported which indicate that Islamic banks in Malaysia have to give greater attention to URRM, RI, RAA, RM, and CRA in managing risks in the Islamic banks.

Table 4.12: Effect of URRM, RI, RAA, RM, and CRA on RMPs

Independent variable	Hypothesis	Beta (B)	t	Sig.
URRM	H2	.109	2.040	.042
RI	H3	.156	2.931	.004
RAA	H4	.206	3.321	.001
RM	H5	.289	4.958	.000
CRA	H6	.133	2.778	.006
R^2		0.480		
F		54.233		
Sig.		0.000		

Dependent variable = Risk management practices (RMPs)

Table 4.12 also shows that RM has the largest Beta coefficient of 0.289, which means that this variable makes the strongest unique contribution to the explanation of the dependent variable RMPs. RM is significant at 1 % as significant value (p-value) is 0.000. Hence, there is a positive relationship between RM and RMPs. The result is consistent with the study undertaken by Khalid and Amjad (2012) in Pakistan, where RM emerges as the most influential variable and with a much higher Beta coefficient of 0.477. Thus, Islamic banks in Malaysia have to give the greatest attention to RM in carrying out the risk management in the banks.

V. Conclusions, Implications, Limitations and Further Research
The main conclusions of the study are:
- Islamic banks in Malaysia are perceived to have high levels of RMPs, URRM, RI, RAA, RM, and CRA. Overall, the banks are effective in their risk management practices. Thus, research objective one is answered.
- URRM, RI, RAA, RM, and CRA as a group significantly impact the RMPs of the banks. Thus, H1 is supported, and the second research objective is answered.
- URRM, RI, RAA, RM, and CRA individually have a significant influence on the RMPs of the banks. Thus, H2, H3, H4, H5, and H6 are supported, and the second research objective is answered.
- RM emerges as the most influential variable that affects the RMPs of the banks, followed by RAA, RI, CRA, and URRM.

The present study makes several theoretical contributions in expanding the body of knowledge in the area of risk management in Islamic banking field by providing a substantive understanding of the level of various variables and also the relationships between the variables in the context of Malaysia. Specifically, the theoretical contribution includes establishing the effect of URRM, RI, RAA, RM, and CRA on the risk management practices (RMPs) and in providing the empirical evidence of the importance of the various variables.

Regarding practical implication, the Islamic banking practitioners should place the most attention on the risk monitoring as this is the most influential variable that affects the risk management practices of the banks, followed by risk assessment and analysis, risk identification, credit risk analysis, and understanding risk and risk management. Understanding the unique types of risk facing the Islamic banks should lead to the development of special risk management techniques and monitoring procedures that are suitable for those risks.

To the regulators such as the Bank Negara Malaysia (BNM), the findings provide an overall picture of the various variables that determine the continued survival of the Islamic banks in Malaysia. BNM need to consider these variables in future guidelines and policies issued to the industry players so that the correct focus is given to the right aspect of risk management such as risk monitoring.

The results of this study should be interpreted in the light of some limitations, and therefore caution should be taken in generalizing the findings. For instance, the findings cannot be generalised beyond the head-office of the Islamic banks in Kuala Lumpur due to the purposive sampling technique employed in the present study.

In summary, additional research is recommended to understand the risk management practices of Islamic banks further. This recommendation could be achieved by studying, for instance, the role of *Shariah* governance, risk governance, and corporate governance on the RMPs of the Islamic banks. Additional research can also be carried out to compare the RMPs between Islamic banks and conventional banks or between local Islamic banks and foreign Islamic banks.

References

Abdou, H.A., Muslem, O.A., and Ismal, R. (2014). "Risk Management Practices in the Republic of Yemen: Are Islamic Banks Different?", *Journal of Islamic Economics, Banking and Finance*, 10(3), pp. 46–73.

Abdul Rahman, R.; Alsmady, A.; Ibrahim, Z. and Muhammad, A.D. (2014). "Risk Management Practices in Islamic Banking Institutions: A Comparative Study between Malaysia and Jordan", *The Journal of Applied Business Research*, 30(5), pp. 1295–1304.

Abdul Rahman, R.; Mohd. Noor, S.B. and Dean, F. (2013). "Assessing the Risk Management Practices of Islamic Banks: Empirical Evidence from Malaysia and Pakistan", *Journal of Islamic Economics, Banking and Finance*, 9(4), pp. 11–31.

Ahmed, H. (2009). "Financial Crisis: Risks and Lessons for Islamic Finance", *ISRA International Journal of Islamic Finance*, 1(1), pp. 7–32.

Al-Aboodi, K. and Adil, M. (2017). "Islamic Finance Development Report 2016: Towards Sustainability", *ICD-Thomson Reuters*, pp. 1–120.

Al Ali, H. and Naysary, B. (2014). "Risk Management Practices in Islamic Banks in Kuwait", *Journal of Islamic Banking and Finance*, 2(1), pp. 123–148.

Al-Tamimi, H.A.H., and Al-Mazrooei, F.M. (2007). "Banks' Risk Management: A Comparison Study of UAE National and Foreign Banks", *The Journal of Risk Finance*, 8(4), pp. 394–409.

Babbie, E.R. (2013). *The Practice of Social Research*. Belmont, Calif: Wadsworth Cengage Learning.

Baines, P. and Chansarkar, B. (2002). *Introducing Marketing Research*. England: John Wiley & Sons, Ltd.

Ben Selma Mokni, R.; Echchabi, A.; Azouzi, D. and Rachdi, H. (2014). "Risk Management Tools Practiced in Islamic Banks: Evidence in MENA Region", *Journal of Islamic Accounting and Business Research*, 5(1), pp. 77–97.

Dabari, I.J. and Saidin, S.Z. (2014). "A Theoretical Framework on the Level of Risk Management Implementation in the Nigerian Banking Sector: The Moderating Effect of Top Management Support", *Procedia—Social and Behavioral Sciences*, 164, pp. 627–634.

Hair, J.F.; Black, W.C.; Babin, B.J.; Anderson, R.E. and Tatham, R.L. (2006). *Multivariate Data Analysis*. Delhi, India: Pearson Education, Inc.

Hair, J.F.; Black, W.C.; Babin, B.J. and Anderson, R.E. (2010). *Multivariate Data Analysis*. Upper Saddle River, New Jersey: Pearson Education, Inc.

Hassan, A. (2009). "Risk Management Practices of Islamic Banks of Brunei Darussalam", *The Journal of Risk Finance*, 10(1), pp. 23–37.

Hussain, H. A., and Al-Ajmi, J. (2012). "Risk Management Practices of Conventional and Islamic Banks in Bahrain", *The Journal of Risk Finance*, 13(3), pp. 215–239.

Iskandar, K. (2014). *Risk Management in Islamic Financial Institutions*. Kuala Lumpur: IBFIM.

Islamic Financial Services Board (2017). *Islamic Financial Services Industry Stability Report 2017*. K. Lumpur.

Kanchu, T. and Kumar, M. M. (2013). "Risk Management in Banking Sector: An Empirical Study", *International Journal of Marketing, Financial Services & Management Research*, 2(2), pp. 145–153.

Khalid, S and Amjad, S. (2012). "Risk Management Practices in Islamic Banks of Pakistan", *The Journal of Risk Finance*, 13(2), pp. 148–159.

Khan, T. and Ahmed, H. (2001). "Risk Management: An Analysis of Issues in Islamic Financial Industry", *Islamic Development Bank. Islamic Research and Training Institute Occasional Paper. No.5*, pp. 1–183.

Khattak, N.A.; Ur-Rehman, K.; Ullah, W. and Ullah, M. (2013). "Risk Management Practices and Attitude of Pakistani Islamic Banking System Employees", *African Journal of Business Management*, 7(33), pp. 3202–3211.

Malhotra, N.K and Birks, D.F. (2007). *Marketing Research: An Applied Approach*. (European Edition), Harlow: Prentice Hall.

Mat Roni, S. (2014). *Introduction to SPSS*. Joondalup, Australia: Edith Cowan University, SOAR Centre.

Mohd. Razif, N.F. and Mohamad, S. (2011). "Risiko-Risiko Dalam Kewangan Semasa: Penilaian Daripada Perspektif Islam", *International Conference on Management (ICM 2011) Proceeding*, pp. 373–387.

Muhammad, A.D. (2016). *Risk Management Practices in Islamic Banking Institutions: A Comparative Study between Nigeria and Malaysia* (Slide). Jeddah: Islamic Research and Training Institute.

Nunnally, J.C. and Bernstein, I.H. (1994). *Psychometric Theory* (3rd ed.). New York, NY: McGraw-Hill, Inc.

Pallant, J. (2005). *SPSS Survival Manual: A Step By Step Guide to Data Analysis Using SPSS for Windows (Version 12)*. Open University Press.

Peterson, R.A. (2000). *Constructing Effective Questionnaires*. Thousand Oaks, Calif.: Sage Publications Inc.

PwC. (2012). *Getting the Picture: Malaysia's Financial Sector Blueprint. Strengthening Our Future*. pp. 1–33.

Rosman, R. and Abdul Rahman, A.R. (2015). "The Practice of IFSB Guiding Principles of Risk Management by Islamic Banks: International Evidence", *Journal of Islamic Accounting and Business Research*, 6(2), pp.150–172.

Saunders, M.; Lewis, P. and Thornhill, A. (2009). *Research Methods for Business Students*. (5th ed.), Essex, England: Pearson Education Limited.

Sekaran, U. (2003). *Research Methods for Business: A Skill Building Approach*. (4th ed.), Hoboken, N.J.: Wiley.

Sekaran, U. and Bougie, R. (2010). *Research Methods for Business: A Skill Building Approach*. (5th ed.), Chichester: Wiley.

Soyemi, K.A.; Ogunleye, J.O. and Ashogbon, F.O. (2014). "Risk Management Practices and Financial Performance: Evidence from the Nigerian Deposit Money Banks (DMBs)",

The Business & Management Review, 4(4), pp. 345–355.

Tabachnick, B.G. and Fidell, L.S. (2013). *Using Multivariate Statistics*. Boston: Pearson Education.

Tafri, F.H.; Abdul Rahman, R. and Omar, N. (2011). "Empirical Evidence on the Risk Management Tools Practised in Islamic and Conventional Banks", *Qualitative Research in Financial Markets*, 3(2), pp. 86–104.

Thijs, J.P.M.M. (n.d.). *Risk Management in Islamic Banking* (Slide). Kuala Lumpur.

Van Teijlingen, E. and Hundley, V. (2002). "The Importance of Pilot Studies", *Nursing Standard*, 16(40), pp. 33–36.