

Risk Management Practiced Tools in the MENA Region: A Comparative Study between Islamic and Conventional Banks

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ABSTRACT

The purpose of the study is to investigate the current risk management practices of Islamic and conventional banks in the MENA region. The study is based on a survey of 47 banks, including 24 conventional and 23 Islamic banks. The collected data were analysed using descriptive statistics and t-tests. The findings indicate that banks in MENA region have effective risk strategies and effective risk management frameworks in place. Furthermore, the findings reveal that credit risk is considered the most important for both conventional and Islamic banks followed by liquidity risk. Finally, both conventional and Islamic banks continue to rely on traditional credit risk mitigation tools. These findings have significant contributions to the literature by comprehensively clarifying and critically analysing the current state of risk management among the Islamic banks and conventional banks located in the MENA region.

JEL Classifications: G20, G21, G28

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I. INTRODUCTION

Risk management in the financial sector is very important since the ultimate goal of the institution is to maximize revenues and shareholders value. Moreover, the recent financial crisis was marked by market volatility, lack of liquidity in many financial markets and increased systemic risk (Deloitte, 2011). This crisis has forced banks to take a critical look at how they manage risk and has exhibited some significant weaknesses in risk management in financial industry (KPMG, 2009). This difficulty has highlighted the importance of risk management; as a result many institutions have reviewed their risk management models. An active role was undertaken in re-examining their approaches of risk management, the establishment of risk management policy and approval of risk appetite.

Solid practices risk management in the banking sector is important for financial stability and economic development. A robust framework of risk management can help banks to reduce their exposure to risks, and enhancing their ability to compete in the market (Mirakhor and Iqbal, 2007). Reducing the exposure will reduce systemic risk. Thus, it is necessary for banks to put in place a comprehensive risk management to identify, measure, monitor, manage, and report the various categories of risk.

Risk management is a key element of the strategic management of the organization. This is the process whereby organizations methodically address the risks their activities with the goal of achieving sustained benefit. In this regard, CBSB (2011) forces authorities to ensure that banks have in place a comprehensive risk management. The process of risk management is a structured and consistent approach to identify and understand the potential risk factors and evaluation of consequences and uncertainties associated with these risk factors identified. Based on this information, the best plan of action is evaluated and selected to address identified risks and achieve the desired objectives.

This study extends the work of Tafri et al. (2011) but differ in some aspects. Firstly, the questionnaire is similar but not identical; in fact it investigates the liquidity risk, which has not been examined by Tafri et al. (2011). Secondly, this study explores the risk management tools practiced in Islamic and conventional banks in a different environment (MENA-Middle Eastern and North Africa region).

The main purpose is to examine the current practices in risk management methodologies of Islamic and conventional banks in the MENA region. It discusses and analyses the tools and methods used in managing credit risk, market risk, liquidity risk and operational risk among Islamic and conventional banks in the aim to identify the convergence in the practices of risk management and risk mitigation between Islamic and conventional banks.

The remainder of the paper is divided into four sections: Section II provides a brief review of the literature, Section III describes the methodology along with research hypotheses, Section IV discusses the main empirical results and Section V presents the main conclusions, limitations of the research.

II. LITERATURE REVIEW

This section presents a brief review of recent literature discussing risk management tools practiced in banks. Unlike researches published about risk management in general, the area of risk management practices in financial institutions is still under-

researched. While some empirical studies examined risk management practices and the various aspects of risk management process in the conventional banking (Al-Tamimi and Al-Mazrooei, 2007; Al-Tamimi, 2002; Alam and Masukujjaman, 2011), few studies only analysed risk management practices in Islamic banking (Hassan, 2009; Khalid and Amjad, 2012). Hence, the number of empirical studies on risk management practices in Islamic banks is still relatively small and risk management in Islamic banks still under-researched (Abdul Rahman et al., 2013). Another line of research has been focused on the comparison between the practices of risk management in Islamic banks and conventional banks (Hassan, 2011; Hussain and Al-Ajmi, 2012; Tafri et al., 2011; Nazir et al., 2012).

Hassan (2011) provided a comparative study of banks' risk management of Islamic and conventional banks in the Middle East region. The multi-regression model and ANOVA test prove that there is a positive relationship between risk management practices and understanding risk, risk management, risk identification, risk assessment, risk monitoring, and credit risk analysis in Islamic and conventional banks.

In the aim to compare the risk management practices between the Islamic and conventional banking system in Bahrain, Hussain and Al-Ajmi (2012) introduced a new modified dummy variable i.e. bank type to make the optimum comparison. The result showed that understanding of risk and risk management, risk identification, risk assessment analysis, risk monitoring, credit risk analysis have a positive and significant effect on risk management practices in Islamic and conventional banking of Bahrain. The comparative study indicated that the levels of risks faced by Islamic banks are found to be significantly higher than those faced by conventional banks. Similarly, country, liquidity, and operational, residual, and settlement risks are found to be higher in Islamic banks compared to conventional banks. Using a regression model, Nazir et al. (2012) explored the current risk management practices adopted by commercial and Islamic banks in Pakistan. The findings revealed that there is significant difference in risk management practices of the Islamic and conventional banks of Pakistan.

Tafri et al. (2011) provided a comparative analysis of the risk management tools practiced in Islamic and commercial banks in Malaysia and selected Islamic banks outside Malaysia. The investigation of the current practices of market risk, credit risk and operational risk management reported that there are significant differences between Islamic and conventional banks in the extent of the usage of market value at risk, stress testing results, credit risk mitigation methods and operational risk management tools. This present study analyses the differences and similarities between conventional and Islamic banks in the practice of managing credit risk, market risk, liquidity risk and operational risk. Thus, the objective is to compare the method the two bank types use in managing their risk. Furthermore, this research aims to ascertain the perceptions of Islamic and conventional bankers about the importance of transparency and public disclosure in the understanding of the bank's risk profile.

III. METHODOLOGY

This study covers the main Islamic and conventional banks located in the MENA region using a questionnaire survey to unravel the perceptions of risk managers about some of the issues associated with risk management in Islamic banks and conventional banks.

The questionnaire was developed with reference to works of Arrifin et al. (2008), Tafri et al. (2011), Khan and Ahmed (2001), Deloitte (2004, 2007, 2009, and 2011), and KPMG (2004). The questionnaire consists of close-ended questions and five-point scale questions. The questionnaire was sent to the respondents in March 2012 and the deadline for receiving the completed questionnaire was September 2013.

A total of 47 survey questionnaires were collected from banks risk managers whose 24 were received from conventional banks and 23 from Islamic banks. The questionnaire was distributed using different methods, namely, online and self-administered. It is noteworthy that the MENA countries covered in the study are Bahrain, Jordan, Kuwait, Lebanon, Qatar, Saudi Arabia, United Arab Emirates, Algeria, Tunisia and Egypt.

IV. RESEARCH FINDINGS

A. Risk Management System and Process

Table 1 deliberates some aspects of establishing a risk management. The table indicates that the percentages to the five statements by conventional bankers are higher than those of their Islamic counterparts. From the table, it can be seen that 83.3 per cent of conventional banks have a formal risk management system in place in their institutions as compared to Islamic banks (62.5 per cent). On the other hand, 87.5 per cent of conventional banks have a committee/section responsible for identifying, monitoring, and controlling different risks compared to 58.3 per cent only for Islamic banks. Furthermore, 100 per cent of the conventional banks believe that managing risk is important to the performance and the success of the banks; against 82.6 per cent for Islamic banks. In addition, 91.7 per cent of conventional banks think that the application of risk management techniques reduces costs and expected losses average and 83.3 per cent for Islamic banks. This finding indicates that there is a difference in the establishment of an appropriate risk management environment between Islamic and conventional banks.

Table 1
Establishing appropriate risk management environment

Items	Full sample	Conventional banks	Islamic banks
	Yes (%)	Yes (%)	Yes (%)
Do you have a formal Risk management system in place in your institutions?	72.9	83.3	62.5
Is there a committee/section responsible for identifying, monitoring, and controlling different risks?	72.9	87.5	58.3
Is the internal Auditor responsible of reviewing and identifying the risk management analysis systems, guidelines and risk reporting?	77.1	79.2	75.0
Do you think that Managing risk is important to the performance and success of the bank?	91.5	100	82.6
Do you believe that the application of risk management techniques reduces costs and expected losses average?	87.5	91.7	83.3

B. Risk Types

Banks are exposed to a variety of risks. The importance of those types depends on the asset portfolio, the way they conduct their business lines (i.e. conventional or Islamic), and regulatory requirements (Abu Hussain and Al-Ajmi, 2012). Table 2 presents the descriptive statistics of the importance of the risks in the surveyed banks as perceived by the bankers. The types of risk are shown in terms of relative importance based on the mean responses of the whole sample. From the results shown in Table 2, it can be seen that on average, as indicated by mean values, the conventional bankers rank credit risk as the most important, followed by liquidity risk and market risk. Foreign exchange risk is rated on average as the least important risk in conventional banks by the survey respondents. On the other hand, the results show that the most important risk Islamic banks face is liquidity risk followed by credit risk. Operational risk is ranked third by Islamic bankers. This finding may be explained by the inclusion of operational risk in the Basel II capital framework that made it a higher priority, and many institutions have created or expanded their programs for managing operational risk.

Table 2
The importance of risks

Items	Full sample		Conventional banks		Islamic banks		t
	Mean	SD	Mean	SD	Mean	SD	
Credit risk	4.25	0.79	4.46	0.59	4.04	1.00	1.79*
Market risk	3.98	0.96	4.25	0.61	3.70	1.30	1.73*
Liquidity risk	4.27	0.79	4.29	0.69	4.25	0.90	0.19
Foreign exchange risk	3.71	1.06	3.67	0.87	3.75	1.26	-0.28
Operational risk	4.00	0.91	4.13	0.74	3.88	1.08	0.84

***, **, and * refer to significance at 10%, 5%, and 1%, respectively

Bankers in conventional and Islamic banks reported and ranked credit risk and liquidity risk as the most important risks they face. This result may be explained by the fact that credit risk has long been identified as the dominant risk for banking firms and is an inherent part of their core lending business also credit risk cause cash flow problems and subsequently affect the liquidity of the bank. Furthermore, the introduction of the liquidity framework Basel III mandates institutions to comply with quantitative and qualitative liquidity standards. These results are somewhat similar to those found by Arrifin et al. (2009) who reported that Islamic bankers perceived credit risk as the most important. However, those findings contradict those of Khan and Ahmed (2001) and Al-Tamimi and Al-Mazrooei (2007).

The t-test is used to test the hypothesis that the risk perceptions are different between conventional and Islamic bankers. According to the results, there is no significant difference in risk perception between conventional and Islamic banks in terms of liquidity risk, foreign exchange risk and operational risk. However, the results indicate that there difference is significant at 10% for both credit risk and market risk, whereby conventional banks consider these two types of risks to be more important compared to their Islamic counterpart.

C. Credit Risk

Credit risk is the most important risks faced by banks, since the default may cause other risks such as liquidity risk, interest rate risk. For this reason, credit risk is the main cause of bank failures. The goal of credit risk management is to maximize a bank's risk-adjusted rate of return by maintaining credit risk exposure within acceptable parameters (BCBS, 2000). It is noteworthy that the global financial crisis led to large credit losses that expedite an increased focus on managing credit risk.

Risk managers were asked which tools their institutions used for measuring counterparty credit exposure. The results in Table 3 indicate that the means range between 3.11 and 3.50. The lowest mean response is allocated to the principal/notional technique. The mean responses to the first two statements (principal/notional and assessing potential counterparty/issuer exposure by simulation) by conventional bankers are relatively higher than those of their Islamic counterparts. Nevertheless, for the third statement (Sum of potential exposure for individual transaction), the mean for Islamic banks is higher compared to the conventional counterpart. However, none of these differences is statistically significant.

Table 3
Credit risk exposure techniques

Items	Full sample		Conventional banks		Islamic banks		t
	Mean	SD	Mean	SD	Mean	SD	
Principal/notional	3.11	1.35	3.43	1.34	2.78	1.35	1.46
Assessing potential counterparty/issuer exposure by simulation	3.50	1.14	3.55	1.14	3.45	1.14	0.26
Sum of potential exposure for individual transaction	3.39	1.25	3.18	1.40	3.59	1.10	-1.20

Stress testing is one method that financial institutions can employ to upgrade their capacities to assess risk in stressed market conditions and adverse economic. Table 4 shows that the majority of Islamic banks use "Default rates by underlying factor such as obligator/sector/rating/geography/vintage" technique for stress testing (a mean value of 4.36). For Islamic banks, the lowest mean response was "Do not have stress tests specially designed for risks affecting the credit portfolio". For conventional banks, the highest response was "Default rates by underlying factor such as obligator/sector/ rating/geography/vintage" and "correlation", and the lowest mean was "Recovery rates". For the full sample, results show that banks use somewhat stress testing for Default rates by underlying factor such as obligator/sector/rating/geography/vintage. The differences in using these tools between conventional and Islamic banks are significant for the first three types (Default rates by underlying factor such as obligator/sector/rating/geography/vintage, Recovery rates, and interest rate changes), whereby the Islamic banks apply these instruments more than the conventional banks. However, the difference is not significant for the last three types (correlation, spreads by underlying name, and do not have stress tests specially designed for risks affecting the credit portfolio).

Table 4
Types of the stress testing used for risk factors affecting the credit portfolio

Items	Full sample		Conventional banks		Islamic banks		t
	Mean	SD	Mean	SD	Mean	SD	
Default rates by underlying factor such as obligator/sector/rating/geography/vintage	3.89	1.29	3.32	1.14	4.36	1.44	-2.47**
Recovery rates	3.07	1.26	2.61	1.31	3.39	1.20	-2.27**
Interest rate changes	3.20	1.21	2.78	1.32	3.83	1.10	-3.11***
Correlation	3.84	1.30	3.32	1.43	2.95	1.18	1.19
Spreads by underlying name	3.00	1.27	2.64	1.37	2.95	1.16	-0.70
Do not have stress tests specially designed for risks affecting the credit portfolio	3.31	1.15	2.86	1.41	2.52	0.89	0.69

***, **, and * refer to significance at 10%, 5%, and 1% respectively

Table 5
Credit risk mitigation tools

Items	Full sample		Conventional banks		Islamic banks		t
	Mean	SD	Mean	SD	Mean	SD	
Collateral	4.31	1.00	4.33	1.09	4.29	0.91	0.14
Guarantees	4.40	0.97	4.29	1.16	4.50	0.78	-0.71
On balance sheet netting	3.31	1.02	3.61	1.03	3.00	1.00	2.18**
Off balance sheet netting	3.16	0.96	3.35	0.98	2.96	0.93	1.48
Syndication and participation	3.38	0.67	3.33	1.17	3.42	0.18	-0.28
Credit insurance programs	3.32	1.08	3.17	1.13	3.46	1.02	-1.00
Asset securitisation vehicles	2.98	1.15	2.88	1.19	3.08	1.10	-0.74
Credit derivatives	2.55	1.15	2.67	1.24	2.42	1.06	0.86

***, **, and * refer to significance at 10%, 5%, and 1% respectively

As credit risk is the most important type of risk, banks use many tools to mitigate this risk. The survey also asked risk managers about their institutions' tools used in credit risk mitigation. Table 5 provides information about the sample's responses on this item. It can be seen from the inspection of the table that the majority of surveyed banks (Islamic and conventional banks) use extensively guarantees (a mean of 4.40) and collateral (a mean of 4.31), and plan to use the other tools in the future. This finding indicates that the surveyed banks continue to rely on traditional methods to mitigate credit risk. This result is consistent with the findings of Tafri et al. (2011). Furthermore, there is a significant difference between conventional and Islamic banks in terms of on balance sheet netting, whereby the conventional banks are more extensively applying it.

The non-significant difference between Islamic and conventional banks in the use of tools for measuring counterparty credit exposure across the two types of banks and the partial differences for stress testing used for risk factors affecting the credit portfolio and the credit risk mitigation tool indicate that there is no overall difference in the usage of credit risk management tools between Islamic and conventional banks.

D. Market Risk

Since the financial crisis, an important origin of losses and build-up of leverage occurred in the trading book. Thus, financial institutions shall have in place an appropriate framework for market risk management.

In response to the financial crisis, the BCBS introduce the Basel Market Risk Amendment in 1996 codified regulatory expectations, and helped propel the implementation of internal models, illustrated by the development of Value at Risk methodologies initiated by the larger banks through the mid through late 1990s. In this regard, the results in Table 6 indicate that 52.2 per cent of conventional banks use VaR, while just 35 per cent of Islamic banks apply it, which implies that market VaR is not extensively used by Islamic banks.

Table 7 depicts that the majority of conventional banks use market VaR for foreign exchange and fixed income instruments. This result is similar to Tafri et al. (2011). For Islamic banks, market VaR is lightly used. This finding suggests that Islamic banks do not use the more technically advanced risk measurement approaches as those used by their conventional counterparts, due to the fact that Islamic banks are still developing and face serious challenges, also some Islamic banks are small in size and the lack of ratings or external sources of credit assessment for the clients of most Islamic banks (Arrifin et al., 2008).

Table 6
VaR usage for monitoring market risk

Items	Full sample	Conventional bank	Islamic banks
	Usage (%)	Usage (%)	Usage (%)
VaR usage	44.2	52.2	35.0

Table 7
Extent of usage of market risk VaR

Items	Full sample		Conventional banks		Islamic banks		t
	Mean	SD	Mean	SD	Mean	SD	
Fixed income	3.11	1.05	3.64	1.01	2.57	1.09	2.79**
Foreign exchange	3.50	1.05	3.86	0.95	3.14	1.14	1.74
Equity	3.22	1.12	3.57	1.28	2.86	0.95	1.93*
Asset backed securities	2.93	1.20	3.21	1.25	2.64	1.15	1.42
Credit derivatives	2.97	1.19	2.93	1.07	3.00	1.30	-0.16
Commodity	2.72	0.95	2.64	1.01	2.79	0.89	-0.38
Catastrophe or other events driven instruments	2.40	0.94	2.50	1.16	2.29	0.73	0.56

***, **, and * refer to significance at 10%, 5%, and 1% respectively

Given the complexity of the market risks assumed by financial institutions, VaR become insufficient. In fact, VaR does not calculate the potential impact of low frequency events that could be considerable. Stress tests are an important supplement to VaR since they take account of possible events by considering potential large moves in market prices, volatility, leverage and time needed to liquidate assets. Stress testing has become increasingly popular as a tool that financial institutions can employ to assess their ability to withstand extreme but rare events (Deloitte, 2012).

Table 8 exhibits the frequency of responses for the usage of stress tests through banks. For conventional banks, stress testing is used to report to senior management (a mean of 3.96), report to the board of directors (a mean of 3.83), understand the institution's risk profile (a mean of 3.79), set limits (a mean of 3.63), conduct strategic planning (a mean of 3.46), in response to enquiries from rating agencies and regulators (a mean of 3.45), and to trigger further analysis (a mean of 3.42).

Table 8
Level of usage of stress testing tools

Items	Full sample		Conventional banks		Islamic banks		t
	Mean	SD	Mean	SD	Mean	SD	
Report to senior management	4.00	1.17	3.96	1.30	4.04	1.04	-0.28
Report to the board of directors	3.94	1.04	3.83	1.27	4.04	0.81	-0.76
Understand the institution's risk profile	3.92	1.05	3.79	1.29	4.04	0.81	-0.97
In response to enquiries from rating agencies and regulators	3.73	1.22	3.45	1.41	4.00	1.02	-1.34
Trigger further analysis	3.46	1.21	3.42	1.35	3.50	1.06	-0.21
Set limits	3.42	1.25	3.63	1.28	3.21	1.22	1.07
Conduct strategic planning	3.36	1.29	3.46	1.29	3.25	1.29	0.49

***, **, and * refer to significance at 10%, 5%, and 1% respectively

In the case of Islamic banks, the stress testing results are extensively used for reporting to senior management, reporting to the board of directors, and understanding the institution's risk profile (a mean of 4.04), followed by its use in response to enquiries from rating agencies and regulators (a mean of 4), for triggering further analysis (a mean of 3.50), conducting strategic planning (a mean of 3.25), and setting limits (a mean of 3.21). Hence, Islamic banks extensively use the stress testing results compared to conventional banks. This finding contradicts the findings of Tafri et al. (2011). However, none of these differences is statistically significant.

E. Operational Risk

Financial institutions had traditionally focused their risk management programs on market and credit risk. The recent breakdowns resulting from enforcement actions,

major losses from failed investment strategies, misuse of client funds, computer malfunctions, have highlighted the need to upgrade operational risk management at many institutions.

The inclusion of operational risk in the Basel II capital framework made it a higher priority; furthermore many financial institutions have created or expanded their programs for managing operational risk. To capture the progress of the implementation of aspects of operational risk management, six statements are included in the questionnaire. The summaries of the responses are presented in Table 9. The mean responses of all groups to the statements range between 3.57 and 4.23, with an overall average of 3.91. The highest mean is for the statement, "Identifying risk type" followed by "gathering relevant data", then "Standardizing documentation of processes and controls". The lowest mean is for the statement "Creating metrics for monitoring each type of operational risk". This indicates that most banks have implemented some of the basic steps in an operational risk management program by identifying risk type and gathering relevant data. Similar results are found for the subgroups of conventional and Islamic banks.

Table 9
Extent of implementing operational risk management

Items	Full sample		Conventional bank		Islamic banks		t
	Mean	SD	Mean	SD	Mean	SD	
Identifying risk type	4.23	0.88	4.17	1.01	4.29	0.75	-0.46
Gathering relevant data	4.11	0.98	4.00	0.98	4.21	0.98	-0.59
Developing methodologies to quantify risks	3.88	0.81	3.58	0.97	4.17	0.64	-2.23**
Standardizing documentation of processes and controls	3.94	1.01	3.96	1.00	3.92	1.02	0.13
Roll-out of a formal operational risk training program	3.75	0.97	3.79	0.98	3.71	0.96	0.28
Creating metrics for monitoring each type of operational risk	3.57	0.99	3.63	0.88	3.50	1.10	0.45

***, **, and * refer to significance at 10%, 5%, and 1% respectively

To assess the extent of development of operational risk methodologies at the banks' organizations, 11 statements are included in the questionnaire. Table 10 reports the responses of the whole sample, conventional bankers and Islamic bankers. The mean responses to the twelve statements range between 3 and 4.13 with an overall average of 3.56. It can be seen that the tool which is extensively used by the whole sample is key risk indicators (a mean of 4.13), risk assessment techniques (a mean of 3.96), internal loss event database (a mean of 3.92), risk mapping (a mean of 3.68), internal audit results/scores (a mean of 3.59), balanced scorecard (a mean of 3.55), scenario analysis (a mean of 3.52), causal event analysis (a mean of 3.42), external loss event analysis (a mean of 3.36), and TQM techniques (a mean of 3.07). It is worth noting that the banks do not use the Six-Sigma method (a mean of 3).

Table 10
Extent of development of operational risk management methodologies

Items	Full sample		Conventional bank		Islamic banks		t
	Mean	SD	Mean	SD	Mean	SD	
Risk assessment techniques	3.96	0.91	3.83	1.09	4.08	0.73	-0.84
Key risk indicators	4.13	0.80	3.96	1.04	4.29	0.56	-1.36
Internal loss event database	3.92	1.17	3.88	1.08	3.96	1.26	-0.21
Scenario analysis	3.52	1.04	3.58	1.21	3.46	0.87	0.43
Causal event analysis	3.42	1.01	3.63	1.21	3.21	0.82	1.48
External loss event analysis	3.36	1.02	3.63	1.17	3.08	0.86	1.92*
Internal audit results/scores	3.59	1.09	3.92	1.21	3.25	0.97	2.23**
Balanced scorecard	3.55	1.19	3.48	1.16	3.61	1.22	-0.34
Risk mapping	3.68	1.07	3.57	1.08	3.78	1.05	-0.72
Six Sigma	3.00	1.00	2.79	0.93	3.21	1.07	-1.39
TQM techniques	3.07	1.02	2.91	0.95	3.22	1.09	-1.00

***, **, and * refer to significance at 10%, 5%, and 1% respectively

Islamic banks extensively use three tools, namely, key risk indicator (a mean of 4.29), risk assessment techniques (a mean of 4.08), internal loss event database (a mean of 3.96). The least employed tools are external loss event analysis (a mean of 3.08), causal event analysis and Six Sigma (a mean of 3.21), TQM techniques (a mean of 3.22), and internal audit results/scores (a mean of 3.25).

For conventional banks, the mostly used techniques are key risk indicator (a mean of 3.96), internal audit results/scores (a mean of 3.92), internal loss event database (a mean of 3.88), risk assessment techniques (a mean of 3.83), and causal event analysis and external loss event analysis (a mean of 3.63). Moreover, conventional banks gave indications that they are planning to use Six-Sigma (a mean of 2.79) and TQM techniques (a mean of 2.91).

The results of Tables 9 and 10 provide evidence that there is no significant difference in the usage of operational risk management methods between Islamic and conventional banks.

F. Liquidity Risk

The market turmoil that began in mid-2007 highlighted the importance of liquidity for the functioning of financial markets and the banking sector. Furthermore, financial innovation and global market developments have transformed the nature of liquidity risk in recent years (BCBS, 2008). These factors force banks to maintain adequate liquidity and to improve their liquidity risk management and control their liquidity risk exposures.

To capture the response of banks to the changed liquidity environment 9 settlements were developed. Table 11 indicates that the mean responses to the nine

statements by Islamic bankers are generally higher than those of their conventional counterparts. To test the hypothesis that the mean responses of the samples are not significantly different, t-statistics were used. The t-statistics indicate that the mean responses of conventional and Islamic bankers are significant for “Revise contingency funding plan (CFP)”, and “Treasury and ALM systems” (at 5% level of significance), and “Integrate treasury function with risk management function”, “Enhance liquidity stress testing”, and “Maintain liquid asset portfolios” (at 10% level of significance).

Table 11
Usage of tools in managing liquidity risk

Items	Full sample		Conventional banks		Islamic banks		t
	Mean	SD	Mean	SD	Mean	SD	
Strengthen liquidity risk management function	4.21	0.94	4.04	1.16	4.38	0.71	-1.12
Policy	3.85	1.20	3.65	1.47	4.04	0.93	-1.06
Revise contingency funding plan (CFP)	3.46	1.15	3.00	1.47	3.92	0.83	-2.58**
Diversified funding sources	3.81	1.15	3.54	1.29	4.08	1.02	-1.48
Decrease position limits (liquidity risk tolerance)	3.61	1.18	3.75	1.19	3.46	1.18	1.02
Treasury and ALM systems	3.87	1.14	3.39	1.44	4.35	0.83	-2.80**
Integrate treasury function with risk management function	4.00	1.14	3.61	1.44	4.39	0.84	-2.08*
Enhance liquidity stress testing	3.78	1.19	3.42	1.47	4.13	0.90	-1.98*
Maintain liquid asset portfolios	3.75	1.07	3.46	1.29	4.04	0.86	-2.02*

***, **, and * refer to significance at 10%, 5%, and 1% respectively

The need for stronger liquidity management has been recognized since the global financial crisis. Basel III introduced a liquidity framework that mandates institutions to comply with quantitative and qualitative liquidity standards. To meet the new challenges and requirements, institutions are asked to enhance their liquidity risk management tools, procedures and policies. In this context, surveyed Islamic banks have taken a wide array of actions.

To identify the procedures/practices used for managing liquidity risk, bankers were asked to state their perceptions of nine settlements on closed-ended questions. From Table 12, it can be seen that all banks mostly analyse type of depositors, withdrawing factor (81.3 percent) and weakly concentrate financing on short-term debt based financing (48.9 percent). The proportion of affirmative responses to the nine statements by Islamic bankers is higher than those of their conventional counterparts, except for the last statement i.e. “Preferring SME (small and medium enterprises) that have low record of non-performing financing (NPF)”.

Table 12
Procedures/practices used to manage liquidity risk

Items	Full sample Usage (%)	Conventional banks Usage (%)	Islamic banks Usage (%)
Analysing type of deposits, tenor, etc. for financing purposes	72.3	58.3	87.0
Analysing type of depositors, withdrawing factor, etc.	81.3	66.7	95.8
Retaining profit and allocation for risk investment reserves	68.8	58.3	79.2
Preferring liquid, profitable, and highly returnable economic sectors	75.0	66.7	83.3
Concentrating financing on short-term debt based financing	48.9	34.8	62.5
Financing short-term projects with more funds available in short-term deposits	70.8	62.5	79.2
Cooperation and communication with entrepreneurs	64.6	58.3	70.8
Financing monitoring and evaluation	77.1	75.0	79.2
Preferring SME (small and medium enterprises) which have low record of non-performing financing (NPF)	52.1	58.3	45.8

Table 13
Instruments used for managing liquidity risk

Items	Full sample Usage (%)	Conventional banks Usage (%)	Islamic banks Usage (%)
Cash reserves	75.0	75.0	75.0
Funds in the central bank	77.1	87.5	66.7
Funds in other banks	58.3	45.8	70.8
Using emergency liquidity facility from central bank/government	47.9	54.2	41.7
Using the money market instruments	62.5	66.7	58.3

Banks have several liquid instruments to employ. Underscoring this point, the survey findings are summarised in Table 13 above. The results shown in the table indicate that instruments mostly used by the most of the banks are funds in central banks (77.1 per cent), cash reserves (75 per cent), and money market instruments (62.5 per cent). Tools that are used to a lesser extent are emergency liquidity facility from the central bank or the government (47.9 per cent) and funds in other Islamic banks (58.3 per cent).

On the other hand, the conventional banks use extensively funds in the central bank (87.5 per cent), followed by cash reserves (75 per cent) and money market instruments (66.7 per cent). The least used instruments are funds in other banks (45.8 per cent). Instruments used by Islamic banks are cash reserves (75 per cent), funds in other Islamic banks (70.8 per cent), funds in central banks (66.7 per cent), and the least used instrument is emerging liquidity facility from central bank/government (41.7 per cent).

G. Transparency and Market Discipline

Transparency has become more challenging in recent years as banks' activities have become more complex and dynamic in the sense that many banks have in addition to traditional banking activities a large-scale international operations and significant participation in securities and/or insurance businesses. Thus, their product lines changed rapidly and included well-sophisticated transactions, and they have complex legal and managerial structures.

These banks present direful challenges to market participants and supervisors who need to formulate on-going assessments of banks' activities and risks. At the same time the potential benefits of disclosure for supervisors have grown as the scope of banks' market activities has expanded, thereby increasing the potential for market discipline to function as a complement to supervision (BCBS, 1998). Hence, transparency is one of the key points for establishing market discipline. To achieve transparency, a bank must provide timely, accurate, relevant and sufficient disclosure of qualitative and quantitative information that enables users to make proper assessment of the institution's activities and risk profile.

Bankers are asked to give their perceptions about market discipline and transparency. Table 14 reports the responses of the whole sample, conventional bankers and Islamic bankers. Roughly 79.2 per cent of conventional surveyed bankers believe that transparency is essential for achieving market discipline. The same percentage was recorded to the statement that effective disclosure permits that market participants have better understanding of the banks' risk profile. For Islamic banks, the higher percentage is associated with the statement that Enhanced public disclosure allows market discipline to work earlier and more effectively (87.5 per cent) followed by the two statements that "Transparency in financial reports on risks allow to more accurately assess a banks' financial strength and performance" and "Public disclosure can reinforce specific supervisory measures designed to encourage banks to behave prudently" (83.3 per cent).

Consequently, Islamic and conventional banks in the MENA region appreciate the role of transparency and market discipline and encourage the disclosure of risk information.

Table 14
Perceptions of the issue of market discipline and transparency in banks

Items	Full sample Usage (%)	Conventional banks Usage (%)	Islamic banks Usage (%)
Transparency is essential for achieving market discipline	75.0	79.2	70.8
Effective disclosure permit that market participants have better understanding of the banks' risk profile	77.1	79.2	75.0
Enhanced public disclosure allows market discipline to work earlier and more effectively	81.3	75.0	87.5
Market discipline based on adequate public disclosure encourage banks to maintain sound risk management systems and practices	64.6	62.5	66.7
Transparency in financial reports on risks allow to more accurately assess a banks' financial strength and performance	79.2	75.0	83.3
Public disclosure can reinforce specific supervisory measures designed to encourage banks to behave prudently	70.8	58.3	88.3
If the performance of the bank is great, the bank tend to disclose more information to the market on its risks and risk management practices	75.6	71.4	79.2

V. DISCUSSIONS AND CONCLUSIONS

The global financial and economic crisis has created a new dynamic environment for financial institutions. This unsettled market has underscored the importance of well-designed financial safety, particularly crisis prevention strategies to ensure the soundness and stability of the financial system. Prevention strategies will be promoted by risk management, public disclosure and supervisory information.

The purpose of this paper is to report the results of an empirical study of the risk management tools of conventional and Islamic banks operating in the MENA region. A questionnaire was used to obtain the information needed to achieve the study's objectives. The main conclusions of the study are:

- Bankers in MENA region are aware of the importance and the role of effective risk management in reducing costs and improving bank performance.
- Banks in MENA region have in place effective risk strategies and effective risk management frameworks (infrastructure, process and policies).
- Credit risk is the most important in the conventional and Islamic banks followed by liquidity risk. There is no significant difference in risk perception between conventional and Islamic banks in terms of liquidity risk, foreign exchange risk and operational risk

- There is difference between conventional and Islamic bank in the usage of stress testing results, the market VaR, the operational risk management and the liquidity risk management tools. These divergences may be due to the different nature of the two banks and the obligation of Islamic banks to be compliant to Islamic law (Shariah), which, prohibited interest rate in banking transactions, which might have some effect on the operation of that organization.
- Conventional banks and Islamic banks continue to rely on traditional credit risk mitigation tools.
- Banks perceive the role of transparency and market discipline and encourage the disclosure of risk information with reference to Basel II.

These findings have significant contributions to the literature by comprehensively clarifying and critically analysing the current state of risk management among the Islamic banks and conventional banks located in the MENA region. This would subsequently have significant implications to the practitioners, as well as to the policy makers and regulators to whom the findings provide important insights on the possible areas to be strengthened for a more effective and efficient management of risk for the financial institutions in general.

Hence, the further extension of this research can be focused on a comparative study between banks and insurance firms in the fast growing MENA region. The study may be conducted in another region; thereby interesting results may be expected, because risk management practices are mainly affected by specific factors such as economic conditions, competition and regulations. Further research may also consider analysing equity investment risk and rate of return risk.

REFERENCES

- Abdul Rahman, R., S.B. Noor, and T.H. Ismail, 2013, "Governance and Risk Management: Empirical Evidence from Malaysia and Egypt," *International Journal of Finance & Banking Studies*, 2(3), 21-33.
- Abu Hussain, H., and J. Al Ajmi, 2012, "Risk Management Practices of Conventional and Islamic Banks in Bahrain," *The Journal of Risk Finance*, 13(3), 215-239.
- Al-Tamimi, H, 2002, "Risk Management Practices: An Empirical Analysis of the AE Commercial Banks," *Finance India*, 16(3), 1045.
- Al-Tamimi, H., and F. Al-Mazrooei, 2007, "Banks' Risk Management: A Comparison Study of UAE National and Foreign Banks," *The Journal of Risk Finance*, 8(4), 394-409.
- Alam. Z., and M.D. Masukujjaman, 2011, "Risk Management Practices: A Critical Diagnosis of Some Selected Commercial Banks in Bangladesh," *Journal of Business and Technology*, VI(1).
- Arrifin M.N., S. Archer, and R.A.A. Karim, 2008, "Risks in Islamic Banks: Evidence from Empirical Research," *Journal of Banking Regulation*, 10(2), 153-163.
- Basel Committee in Banking Supervision (BCSB), 2011, *Core Principles for Effective Banking Supervision*, Bank for International Settlements, Basel.
- Basel Committee in Banking Supervision (BCSB), 2001, *Risk Management Practices and Regulatory Capital - Cross-sectoral Comparison*, Bank for International Settlements, Basel.

- Basel Committee in Banking Supervision (BCSB), 2000, *Principles for the Management of Credit Risk*, Bank for International Settlements, Basel.
- Basel Committee in Banking Supervision (BCSB), 1998, *Enhancing Bank Transparency: Public Disclosure and Supervisory Information that Promote Safety and Soundness in Banking Systems*, Bank for International Settlements, Basel.
- Deloitte Touche Tohmastu, 2012, *Global Management Risk Survey, Eighth Edition, Setting A Higher Bar*, Deloitte Global Services Limited.
- Deloitte Touche Tohmastu, 2011, *Global Management Risk Survey, Seventh Edition Navigating in A Changed World*, Deloitte Global Services Limited.
- Deloitte Touche Tohmastu, 2009, *Global Management Risk Survey, Sixth Edition Risk Management in the Spotlight*, Deloitte Global Services Limited.
- Deloitte Touche Tohmastu, 2007, *Global Management Risk Survey, Fifth Edition Accelerating Risk Management Practices*, Deloitte Global Services Limited.
- Deloitte Touche Tohmastu, 2004, *Global Management Risk Survey*, Deloitte Global Services Limited.
- Basel Committee on Banking Supervision, 2008, *Principles for Sound Liquidity Risk Management and Supervision*, Bank for International Settlements, Basel.
- Greuning, H.V., and Z. Iqbal, 2008, *Risk Analysis for Islamic Banks*, The World Bank, Publisher Washington, DC.
- Hassan, W.M., 2011, "Risk Management Practices: A Comparative Analysis between Islamic Banks and Conventional Banks in the Middle East," *International Journal of Academic Research*, 3(3), 288-295.
- Hassan, A., 2009, "Risk Management Practices of Islamic Banks of Brunei Darussalam," *The Journal of Risk Finance*, 10(1), 23-37.
- Iqbal, Z., and A. Mirakhor, 2007, *An Introduction to Islamic Finance: Theory and Practice*, Singapore: John Wiley & Sons.
- Khan, T., and H. Ahmed, 2001, *Risk Management: An Analysis of Issues in Islamic Financial Industry*, Islamic Research and Training Institute, Jeddah.
- Khalid, S., and S. Amjad, 2012, "Risk Management Practices in Islamic Banks of Pakistan," *Journal of Risk Finance*, 13(2), 148-159.
- KPMG International, 2009, *Never Again? Risk Management in Banking beyond the Credit Crisis*, KPMG International, Berne.
- KPMG, 2004, *Ready for Basel II –How Prepared Are Banks?* KPMG International.
- Luca, E., and M. Farahbaksh, 1998, "Islamic Banking: Issues in Prudential Regulation and Supervision," *IMF Working Paper*, No. 30.
- Nazir, M.S., A. Daniel, and M.M, Nawaz, 2012, "Risk Management Practices: A Comparison of Conventional and Islamic Banks in Pakistan," *American Journal of Scientific Research*, 68, 114-122.
- Tafri, F.H., R.A. Rahman, and N. Omar, 2011, "Empirical Evidence on the Risk Management Tools Practiced in Islamic and Conventional Banks," *Qualitative Research in Financial Markets*, 3(2), 86-104.