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Business Continuity Management in Jordanian Banks: Sectoral and National Influences

Ihab H. Sawalha, John R. Anchor, and Julia Meaton

Abstract

The purpose of this paper is to investigate the extent to which the Jordanian banking sector uses Business Continuity Management (BCM) as a way to manage organizational risk, disasters and crises, as well as business interruptions.

The population in this study consists of all 17 Jordanian banks registered with the Amman Stock Exchange. Data was collected via an interviewer-administered questionnaire. 11 completed questionnaires were obtained, representing a response rate of 64.7%.

All the respondents showed a high level of commitment to performing the entire range of BCM activities. There are no statistically significant differences in the practice of BCM between Jordanian banks in terms of organizational characteristics, such as size and age. This suggests that the adoption of BCM by Jordanian banks is influenced more by sectoral, than organizational, characteristics, as well as by the national context.

Key words - Business Continuity Management; Banks; Jordan; Organizational risk; disasters and crises.

1. Introduction

The second half of the 20th century has seen major and rapid changes in many aspects of the global business environment and since the countries of the Middle East, and Jordan in particular, are not isolated from the global business environment, they have also experienced similar challenges and developments (Al-Shammari and Hussein, 2008). Jordan is a small country and is one of the most open in the Middle East to foreign investment (Gentzoglanis, 2007). Nevertheless, Jordan's tradition, management systems, and business environment need to be seen within an Arab context. Its politics, economy, and culture are all based on tribalism, Islam, and a lack of democratic political systems (Al-Rasheed, 2001; and Dadfar, 1993).

Jordan has witnessed a rapid growth of both the Amman Stock Exchange and the banking sector, which contributes significantly to the country's economy and which has 54.4% of total market capitalization (Gentzoglanis, 2007). These developments, as well as trade and construction activities, have put the Jordanian banking sector, which consists of a number of local, foreign and Islamic banks, alongside those of developed countries and motivated the progress of banking operations and service banking (Miani and Daradkah, 2008). However, they have also introduced many challenges.

The banking sector worldwide faces various types of external and domestic risks which threaten the success and long-term survival of many banks. The extreme turbulence of financial markets since September 2008, the destruction of the World Trade Centre in 2001, cyber space attacks and global terrorism have convinced many banks of the need to ensure business continuity following unexpected incidents, and to realize monetary stability (Al-Tamimi and Al-Mazrooei, 2007; Swartz et al., 2003). Jordanian banks also face many domestic threats, such as rising inflation, exchange rate deterioration, changes of lending and borrowing rates in the light of developments in international markets, the consequences of Gulf War I and II, and a government budget deficit. Indeed Jordanian banks historically have experienced many economic and financial crises; for instance, in 1989, the Jordanian Dinar lost 50% of its value due to a series of financial problems (Miani and Daradkah, 2008; Abumustafa, 2006).

Jordanian banks represent an especially good context for investigating BCM, for four main reasons. First, the banking sector is held to have provided an appropriate and rich environment for the development and implementation of BCM (Swartz et al., 2003). Second, banks in Jordan have undergone significant developments during the past four decades (Miani and Daradkah, 2008). Third, banks are very vulnerable to public opinion. If customers think their banking information or activities are not secure, they will switch to another bank in order to seek better and more secure banking services. In general, banks are sensitive to the need to sustain a strong positive reputation and public confidence in the organization, compared to many other organizations. Fourth, banking is a business of risk (Al-Tamimi and Al-Mazrooei, 2007). Therefore, providing customers with secure and uninterrupted banking services lays the foundation for securing the long-term development of a bank and improves its competitive advantage.

The significance of this research is that it is undertaken in the context of the Middle East, and Jordan in particular. The majority of the published literature on BCM in banks is focused on experiences in the U.S. and Europe. Less attention has been given to the use of BCM in other geographical contexts (Rai and Mohan, 2006). This study is the first to investigate the use of BCM in the Jordanian banking sector.

The objectives of this research are to:

- Investigate the extent to which Jordanian banks use BCM.
- Identify the range of BCM practices used within Jordanian banks.
- Examine whether or not there are statistically significant differences in the practice of BCM in Jordanian banks in terms of organizational characteristics, such as size and age.

This article is organized into five sections. Section 2 presents a review of BCM literature. Section 3 discusses the research methodology. Section 4 presents the survey results and discusses them in relation to the research objectives and in the context of the existing literature. Finally, section 5 provides a summary of the key findings and some concluding remarks.

2. BCM and the banking industry

The increase in economic activity in Asia, advances in technology, and the extensive use of information and communication systems in the banking industry have changed the way banking operations are performed and have increased the level of risk associated with these operations (Rai and Mohan, 2006). In order for banks to provide better estimates of the future, provide continuous and reliable services, and cope with risks arising from the business environment, many of them are increasingly incorporating BCM into their business operations, competitive strategies, and long-term planning (Wong, 2009; Rai and Mohan, 2006). For the purpose of this study, BCM is defined as *“a tool that can be employed to provide greater confidence that the outputs of processes and services can be delivered in the face of risks. It is concerned with identifying and managing the risks which threaten to disrupt essential processes and associated services, mitigating the effects of these risks, and ensuring the recovery of a process or service is achievable without significant disruption to the enterprise”* (Gibb and Buchanan, 2006).

Technology and non-technology disasters, including man-made and natural disasters, terrorist attacks, and pandemics, have highlighted the significance of BCM in ensuring continuous business operations (Wong, 2009; Gibb and Buchanan, 2006). The main purpose of banks is to maximise revenue and to create value for shareholders and customers by providing a wide range of banking services and secure platforms for these services through the effective management of risk (Al-Tamimi and Al-Mazrooei, 2007). Therefore, a lack of sound BCM procedures will result in discontinuity of business operations and critical functions during unexpected incidents, and subsequently, loss of revenue and value (Gibb and Buchanan, 2006; Tilley, 1995).

Banks face a wide set of risks that have to be prepared for and managed effectively in order to sustain a high level of operability. These risks include: credit risk (which is generated mainly by bank loans), liquidity risk, foreign exchange risk, market risk, technology risk, and interest rate risk (Al-Tamimi and Al-Mazrooei, 2007).

Wong (2009) and Herbane et al. (2004) noted that the finance sector is leading BCM developments because of the potential impacts of these risks, its high reliance on technology and its crucial role in

supporting national economies. In a technology-based environment, BCM ensures the effective management of IT by the most appropriate plans and procedures (Gibb and Buchanan, 2006; Botha and Solms, 2004). BCM has its roots in IT disaster recovery planning which was first implemented in the late 1970s. The main focus during the 1970s and 1980s was to ensure the continuity and quick recovery of mainframe computing services and systems, while less attention was given to business and work area continuity and recovery (Tilley, 1995). In later years, the use of BCM has spread rapidly within the world's finance sector, as well as other sectors, and there has been a shift in the scope of BCM from an IT-based process into an enterprise-wide activity that encompasses many business areas. BCM has evolved into a process that identifies internal and external risks facing an organization and provides solutions for effective prevention and recovery (Elliott et al., 2010; Herbane et al., 2004; and Swartz et al., 2003).

Various frameworks for BCM have been developed - each of which highlight particular aspects of it (e.g. Momani, 2010; Tammineedi, 2010; Low et al., 2010; Elliott et al., 2010; Clas, 2008; Selden and Perks, 2007; Gibb and Buchanan, 2006; Ashton, 2005; Gallagher, 2005; Pitt and Goyal, 2004; Botha and Solms, 2004; Quirchmayr, 2004; Moore and Lakha, 2004; Meyer-Emerick and Momen, 2003; Zawada and Schwartz, 2003; Gallagher, 2003; and Nosworthy, 2000). The framework described below draws on these approaches and provides a step-by-step analysis of BCM activities.

(1) Project planning. This phase lays the foundations of BCM. It involves understanding the business and sets the initial planning, objectives and requirements of BCM. Obtaining senior management approval, support, and involvement is crucial at this stage.

(2) Creating teams and assigning roles and responsibilities. In this phase, senior management assigns a person with appropriate seniority and authority to have responsibility for BCM and to create teams from various business areas in order to develop, steer and maintain BCM. Key teams usually include: BCM team; standby site activation team; crisis communications team; operations team; crisis management team; IT disaster recovery team; support team; damage assessment and salvage team; and equipment replacement and building recovery team. In general, the number of teams and the number of people within these teams varies according to the availability of financial and human resources.

(3) *Performing risk assessment process.* This phase incorporates the identification of the risks, disasters and crises that are likely to threaten all business areas within the organization. Critical business functions which support business operations are also identified in this phase. Those are the functions that cannot be disrupted temporarily without causing loss of profits, customers, or corporate reputation (Tilley, 1995).

(4) *Performing business impact analysis (BIA).* After identifying potential risks and critical functions, a business impact analysis is performed. BIA involves an assessment of the impact of risks on business critical functions and subsequently on the continuity of business operations. This lays the foundation for the development of backup and data recovery strategies which will be the focus of the next phase. Impacts must be contextualised in order to reflect different supplier and customer perspectives. For instance, a disruption to Automated Teller Machines in the U.K. will result in some banks incurring costs of £0.30 for each transaction when customers use competitor ATMs. Independent ATM providers would lose £1.00–£1.50 for each transaction which they impose on customers (Gibb and Buchanan, 2006).

(5) *Developing backup and data recovery strategies.* Once the necessary information about the organization; potential risks; business critical functions; staff; processes; and facilities are obtained, and once the output of the BIA is ready, the business continuity teams can decide on the most appropriate continuity and recovery strategies and options available in order to mitigate loss, ensure business continuity during unexpected incidents, and recover disrupted operations. Some of these strategies have specific codes and names (Meyer-Emerick and Momen, 2003). In the banking sector, this phase is highly valued. Most banks consider state-of-the-art technology as fundamental to the development, success and efficient delivery of services. Many banks have put in place high tech IT infrastructure and achieved a high degree of computerization for continuity and recovery of operations (Rai and Mohan, 2006). Banks' IT strategies usually include: efficient data sharing; reliable data protection; a balanced portfolio of applications; best-in-class IT infrastructure and ATM systems; data centre availability; shared storage options; multiple backup solutions; database and IT security; speedy server rebuilding; redundancy of hardware and network; network management; internet banking software; and server and storage consolidation.

(6) *Developing the disaster recovery plan.* After deciding on the backup and data recovery strategies and alternatives, a disaster recovery plan is developed and documented. The plan provides guidance on the various ways business recovery and recovery support procedures and action plans should be initiated during and following a disaster or crisis in order to re-establish the disrupted processes or service(s). Business recovery procedures provide information for the IT team(s) on how to recover IT processes that support different business units in order to recover critical functions and subsequently resume normal business operations. Recovery support procedures are those used by the teams who have a corporate supporting role and who, during an incident, would have particular roles to play. Recovery support procedures include: human and facility recovery; health and safety procedures; alternate site co-ordination; original site recovery; and damage assessment.

(7) *Developing the business continuity plan.* This phase entails setting strategies for business continuity and the development of the business continuity plan. A detailed functional business continuity plan is created and documented. This plan contains all continuity and recovery strategies and the options needed for all business areas. It is important to note, however, that there is no commonly accepted template for a business continuity plan. Plans may differ with respect to an organization's specific characteristics, such as size and age. Nevertheless, business continuity plans must satisfy the requirements of all stakeholders including employees, customers and suppliers, managers, and investors.

(8) *Continuity training.* The development of the business continuity plan does not mark the end of the BCM process (Elliott et al., 2010). The business continuity plan and the disaster recovery plan need to work in real situations and not just in theory (Lindstrom et al., 2010). "*BCM is a business culture rather than a project*" (Brazeau, 2008). Hecht (2002) also asserted that "*BCM is not an event, it is a process that must change and adapt with the organization*". Therefore, the management perspective on BCM, which includes training, testing, maintenance and updating of plans, is highly significant. Training helps employees to learn by experience and to work effectively in groups. It also helps to embed BCM within the organization's culture and promotes team work during disaster and crisis situations.

(9) *Continuity testing.* Testing business continuity and disaster recovery plans helps to examine the comprehensiveness and applicability of the developed plans and their ability to cope with various disasters and crises. It ensures that the business continuity and disaster recovery plans can be executed, and that all the required resources are deployed as part of the overall BCM strategy. Moreover, full plan testing in a real atmosphere enables continuity teams to find possible weaknesses in the plans and to strengthen them. Testing also builds confidence among people; reduces panic at a time of emergency; and gets everyone familiar with their roles. Moreover, it is important not to forget that continuity training and testing is not limited to employees. Engaging customers, business partners, and other agencies that support banking operations is also significant for the success of BCM.

(10) *Continuity maintenance.* Continuous maintenance of plans helps to ensure that business continuity action plans are capable of responding effectively to the changing nature of the business environment and that they are fit for use and that quality is assured. In addition, regular maintenance protects the organization from having to develop procedures again (i.e. helps to keep plans relevant) which ensures the existence of workable business continuity action plans at all times, since the impact of having irrelevant plans is much worse than having no plan.

(11) *Continuity updating.* Maintenance and updating are closely linked. While maintenance ensures that plans are kept relevant, updating aims to ensure that any changes in business activities, systems, and operations, as well as any changes in the business environment, are documented and covered. As a result, regular updating ensures all plans are kept up-to-date and ready to use.

Continuity training, testing, maintenance, and updating activities are core elements of BCM. They help to establish an enterprise-wide continuity culture and facilitate the embedding of this culture within the culture of the organization. They also keep BCM as an ongoing process that evolves according to the requirements of business and changes in the business environment (Elliott et al., 1999). This enterprise-wide orientation for BCM is highly significant for financial organizations since these are subject to an ongoing stream of internal and external risks.

There have been a large number of studies published about BCM. However, there are relatively few empirical studies on the use and practice of BCM in financial organizations, and banks in particular,

and they focus mainly on the banking sector in the U.S. and Europe. Few of them were made in other geographical contexts, such as Asia and the Middle East, and none have been made in Jordan.

A series of empirical studies by Woodman and Hutchings (2010), Woodman (2008), and Woodman (2007), conducted in the U.K. by the Chartered Management Institute in conjunction with the Civil Contingencies Secretariat in the Cabinet Office and Continuity Forum, revealed that BCM was well-established in major financial organizations as a way of establishing compliance with regulations and as part of corporate governance and that it had a key role in providing resilience in the finance sector.

Marsh's¹ 2008 First European-wide BCM survey, conducted mainly in the U.K. and Europe, with organizations largely from the finance and manufacturing sectors, revealed that the use of BCM was increasing as a way of mitigating organizational risk, disasters and crises and of improving strategic decision making. 70% of respondents claimed that their organizations were at the later stages of BCM implementation and that many of them viewed BCM as a strategic and enterprise-wide process and as an integrated part of their risk management practices. They also reported that BCM was a senior management responsibility (Marsh, 2008).

The findings of an empirical study conducted in China in 2008 by KPMG with a total of 215 executives, participating mainly from the banking/finance, technology, and manufacturing sectors, revealed that due to industry regulations and the globalization of business, approximately two-thirds of Chinese organizations either had BCM or were in the process of adopting it. This result indicated that these organizations were aware of the significance of BCM to their business and reflected a high level of appreciation of business resilience. However, the study also revealed that many organizations had a number of shortcomings in terms of their practice of BCM. These included: lack of risk assessment; lack of business impact analysis; lack of testing of the plans; and lack of training (KPMG, 2009).

Wong (2007) studied BCM within the U.K. finance sector based on an analysis of four case studies. The study revealed that Case 1 was a disaster and crisis-prepared organization since it used BCM and was committed to performing the entire set of BCM activities including: project planning and understanding the business; creating teams and assigning roles and responsibilities; performing BIA;

¹ Marsh is the world's number one insurance broker. In the UK, it provides clients with the full spectrum of risk and insurance products and solutions (Marsh Ltd, 2011).

performing risk assessment; setting continuity and recovery strategies; developing continuity and recovery plans; training; testing; maintenance; and updating of plans. Case 2 used BCM and followed a similar approach to BCM as in Case 1; however, there was a lack of sound risk assessment which influenced the risk management process and BIA. This in turn produced business continuity plans that lacked some critical considerations. Case 3 also used BCM, but was found to lack senior management support, since it did not have a BCM team and did not have a formal risk assessment process. Moreover, BIA was considered a separate entity in which the business continuity manager and the risk manager worked in isolation. Business continuity plans were therefore incomplete. In Case 4, it was found that the Group's state of BCM development was still at an elementary stage. There was no evidence of a collective BCM effort. Therefore, the group was considered crisis- unprepared.

A global survey², conducted in 2006 by SteelEye Technology, found that 83% of respondents from the finance sector had business continuity and disaster recovery plans. The sector showed a high level of commitment to good business continuity practice and that plans were implemented, trained, tested, and maintained affordably within finance organizations of all sizes. This suggested a greater prioritization of BCM within the finance sector than in others (Williamson, 2007).

A study by Rai and Mohan (2006), which targeted five major banks in Mumbai, revealed that each of those banks used BCM. It identified a number of fundamental elements which could contribute to the successful implementation of BCM based on the experience of banks in India. These include: developing partnerships with suppliers who work alongside the organization in order to support banking operations; considering the value customers and business partners hold about the bank which has the potential to support the bank during unexpected incidents; building a wider customer base served by a variety of products and supported on multiple delivery channels had the potential to ensure a higher degree of continuity; and considering state-of-the-art IT infrastructure as critical to the growth and efficient delivery of banking services.

Herbane et al. (2004) focused on the development of a strategic framework for BCM in their study of six U.K-based financial institutions. They concluded that in order to achieve this perspective, organizations needed to show extra effort. In addition to the previously mentioned steps for BCM, they

² The survey targeted organizations in the Americas, Europe and the Asia Pacific region.

focused on engaging the firm's extended supply chain in BCM since an organization cannot work in isolation from its partners and suppliers; the value of engaging external parties, such as regulators and legislators, in order to promote BCM good practice; and the importance of having multiple teams with different skills since BCM should be based on a variety of routines. Herbane et al. (2004) found that some of the organizations included in their study had already achieved a strategic framework for BCM. Some were on their way to achieve such a framework and others were still treating BCM as an operational or functional process which had little influence on the organization as a whole.

Elliott et al. (1999) explored the use and development of business continuity within the U.K. finance sector with reference to seven organizations. The finance sector was studied because it had been subjected to a series of crises including IT problems, terrorist attacks, financial scandals and reputation crises. They also investigated the extent to which business continuity was seen as an enterprise-wide activity and as an ongoing process rather than being solely IT-focused and a stand-alone operation. As a result, they suggested a number of steps for an active business continuity process. First, they noted that the preparation of business continuity plans is not an end-point, but part of an ongoing continuity process. Second, they identified the significance of building continuity values within the culture of an organization.

A review of the above studies shows that many financial institutions, banks in particular, have introduced BCM as a way of managing organizational risk, disasters and crises regardless of their size or age. SteelEye Technology's global survey found that financial organizations of all sizes were increasingly using BCM (Williamson, 2007). Woodman and Hutchings (2010) and Herbane et al. (2004) recommended that organizations of all sizes should practise BCM. Gallagher (2003) argued that BCM should not just be a matter of concern to large organizations, but also to small and medium sized organizations since they are under continuous pressure from their customers and shareholders to do business on-line and to expand their operations, which may possibly be associated with higher levels of risk.

This suggests that BCM has become a necessity for the banking sector and suggests that organizational specific-characteristics, such as size and age, should not affect the wider adoption of BCM. For

Jordanian banks, the exposure to risk is intensified by operating in a highly volatile region; the Middle East. Therefore, BCM may be a matter of concern for all Jordanian banks irrespective of their size or age.

4. Research methodology

The purpose of this study is to investigate the extent to which the Jordanian banking sector uses BCM; to consider the range of BCM practices within Jordanian banks; and to examine whether or not there are statistically significant differences in the practice of BCM in Jordanian banks in terms of organizational characteristics, such as size (measured in number of employees) and age (measured in number of years since establishment) of the bank.

In line with the research objectives, a survey strategy was adopted. Primary and secondary data were obtained. An interviewer-administered questionnaire survey was conducted in 2009 which targeted all banks registered with the Amman Stock Exchange. The total number of the targeted banks was 17. 11 organizations responded to the questionnaire which represents a 64.7 percent response rate. Questionnaires targeted company headquarters only in order to obtain a more homogenous sample; branches and divisions were excluded. The questionnaire aimed to collect data regarding respondent titles; banks' specific characteristics, including size and age; and the practice of BCM including: (a) the use of BCM; (b) the duration for which BCM had been adopted; (c) the groups responsible for BCM; and (d) the extent to which the respondents considered the entire range of BCM-related activities in their BCM practice. In its last section, the questionnaire provided an opportunity for all respondents to give any further information which would be useful to the area of study. In order to test the relationships between BCM practices and organizational size and age, the Chi-square test was used.

5. Results

The findings of the survey are presented below.

a. Respondent profiles

11 banks responded to the questionnaire. Three respondents were BCM managers and eight were risk and compliance managers.

b. Firm specific characteristics

Organizational size was measured by number of employees. Respondents were requested to indicate the number of employees in their organizations by choosing one of five bands: 1-50 employees; 51-250; 251-500; 501-2500; and over 2500. The responses obtained showed that two organizations (18.1% of the sample) employed 51-250 employees; three organizations (27.2%) employed 251-500 employees; five organizations (45.4%) employed 501-2500 employees; and one organization (9.0%) employed more than 2500 employees (Figure 1).

Figure 1 here

Respondents were also requested to choose one of five age related options as follows: 1-10 years; 11-20; 21-30; 31- 40; and over 40 years of age. The responses obtained from the respective organizations revealed that two organizations (18.1% of the sample) were 11-20 years of age; four organizations (36.3%) were 21-30 years of age; one organization (9.0%) was 31- 40 years of age; and four organizations (36.3%) were over 40 years of age (Figure 2).

Figure 2 here

c. The practice of BCM

Four areas of BCM practice were investigated: the use of BCM; the duration for which BCM had been practised; the groups responsible for BCM; and the extent to which the respondents used the entire range of possible BCM-related activities.

The findings revealed that all the surveyed banks in Jordan used BCM as a way to manage organizational risk, disasters and crises, as well as business disruptions. One respondent also reported that *“BCM was used in order to enhance customer services, manage IT disruptions more effectively, and as a way of ensuring compliance to the regulations of the Central Bank of Jordan, the adoption of the ISO17799 and ensuring Basel II guidelines”*. This result suggests that Jordanian banks were aware of the significance of BCM to their business and that BCM was an established part of the risk and

disaster preparation of the banking sector in Jordan, whether from internal technology and system failures or external emergencies, such as market turbulence, changing customer demands, or terrorism. Such an intensive use of BCM was also found in the study of KPMG in China and SteelEye's global survey (KPMG, 2009; Williamson, 2007).

Respondents were requested to indicate the number of years for which their banks had been using BCM. Three options were provided: less than 1 year; 1-5 years; and more than 5 years. The findings revealed that five organizations (45.4% of the sample) had used BCM for 1-5 years and six organizations (54.5% of the sample) had used BCM for more than five years. The fact that the majority of the banks in Jordan had been using BCM for more than five years is possibly due to the many disasters and crises that took place at the beginning of the 21st century, such as the Y2K crisis and the 9/11 events. Man-made disasters, as well as the Y2K and 9/11 events, changed the global perspective for managing organizational risk and business disruptions and provided a major boost to the use of BCM (Wong, 2007; Gallagher, 2003; and Alonso and Boucher, 2001).

Respondents were also requested to identify who took responsibility for BCM in their organizations by choosing one of five options: senior management; board of directors; BCM team; operational staff; and operational risk department. 72.7% of the respondents reported that senior management was responsible for BCM in their organizations; 18.1% reported that the board of directors was responsible for BCM; and only one organization (9.0%) reported that the operational risk department was responsible for BCM (Figure 3). This finding is consistent with those of a number of empirical studies conducted in the U.K., such as those of Woodman and Hutchings (2010), Woodman (2008), and Woodman (2007), in which it was found that senior management was responsible for BCM.

Figure 3 here

On a five-point rating scale, in which 1 stood for 'not considered' and 5 stood for 'totally considered', respondents were also presented with the list of the 11 BCM-related literature-derived activities identified in Section 2 and were requested to specify the extent to which they considered each of these activities in their BCM practice (Table 1).

Table 1 here

These results reveal that Jordanian banks used all of the potential activities in their practice of BCM. The mean values were found to be over four for all activities. In addition, one respondent reported that *“all BCM activities were considered as part of the organization’s approach to BCM and that budgetary plans have been created for the training, testing , maintenance and updating of the business continuity plan”*.

This finding suggests firstly that Jordanian banks realize that the sector is exposed to a wide range of risks that have to be confronted continuously in order to build an organizational capability of resilience in the face of such risks. This is consistent with the findings of KPMG (2009), Woodman and Hutchings (2010), Woodman (2008), and Woodman (2007) in which it was found that respondents from Chinese and U.K. organizations were aware of the risks surrounding the banking sector, and therefore used BCM intensively. Secondly, based on their understanding of the various risks affecting the banking sector, Jordanian banks may be considered to be disaster and crisis-prepared organizations since they have incorporated the entire range of BCM activities in their BCM practice. This is consistent with Wong (2007), in which one organization was considered to be crisis-prepared since it was committed to performing all BCM activities. Thirdly, it suggests that BCM is an enterprise-wide and an ongoing process, due to the fact that the training, testing, maintenance and updating activities had relatively high mean scores. This is in line with the views of Herbane et al. (2004) who argued that BCM should be an enterprise-wide process and an ongoing activity in order to achieve its objectives. Fourthly, it suggests that the Jordanian banking sector is a leading one in terms of its use of BCM. This is consistent with the findings of the global survey conducted by SteelEye Technology, in which it was found that financial organizations were ahead of other sectors in terms of the use of BCM (Williamson, 2007; Rai and Mohan, 2006).

d. Size and age

There were no statistically significant differences found between Jordanian banks, in terms of the size of the organization, for any BCM activity (Table 2). This means that the practice of BCM in Jordanian

banks was not determined by the size of the organization. The fact that financial organizations of all sizes have considered BCM to be important to their business was noted in China (KPMG, 2009). The reason why organizations of all sizes need to consider BCM is that the vulnerability of smaller organizations to business disruptions is further compounded by the fact that most of these organizations are supply chain partners to other larger organizations; hence, a small disruption in any of these organizations can result in a major loss to their larger partners (KPMG, 2009).

Table 2 here

There were no statistically significant differences found between Jordanian banks in terms of the age of the organization for any BCM activity (Table 3). This means that the practice of BCM in Jordanian banks was not determined by the age of the organization. This result is understandable since all banks are exposed to a wide range of risks arising from their business environments; consequently all banks need BCM in order to deal with such risks. Moreover, the entire banking sector has been subjected to a series of crisis incidents, including IT problems, terrorist attacks, financial scandals and reputation crises (Elliott et al., 1999). *“Banking is a business of risk”* (Al-Tamimi and Al-Mazrooei, 2007).

Table 3 here

6. Conclusions

The main findings of this study are:

- (1) All banks in Jordan use BCM as a tool for managing organizational risk, disasters and crises, as well as business interruptions.
- (2) The majority of banks (54.5%) have been using BCM for more than five years.
- (3) In a large majority of banks (72.7%) senior management is responsible for BCM.
- (4) All the responding organizations are committed to performing all BCM-related activities.
- (5) There are no statistically significant differences in the practice of BCM in terms of size of bank.
- (6) There are no statistically significant differences in the practice of BCM in terms of age of bank.

This study has attempted to investigate the extent to which Jordanian banks use BCM. However it did not address in detail all aspects of the practice of BCM, such as the role of various internal departments in BCM, the relationship between BCM and risk management and between BCM and Basel II, and the detailed components of business continuity plans. Such issues were beyond the purpose of the study; but they are areas for further research. Moreover, this study could be replicated usefully in geographical contexts other than Jordan.

Finally, it needs to be considered whether or not the Jordanian banking sector is special in terms of its use of BCM. The findings suggest that banking is a leading sector in Jordan in terms of the use of BCM and the entire range of BCM-related activities. The results indicate that banks in Jordan are aware of the risks and volatility of the regional and global business environments and that banking is a business of risk. Therefore, all banks included in the study used BCM. Moreover, the findings showed that the practice of BCM in all the banks which participated in the study was independent of size and age of organization. This indicates that the adoption of BCM by Jordanian banks has been influenced more by sectoral, than organizational, characteristics and/or that national and regional risks have lead to its adoption being more intensive than in other geographical contexts.

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Figure (1): Size of organization

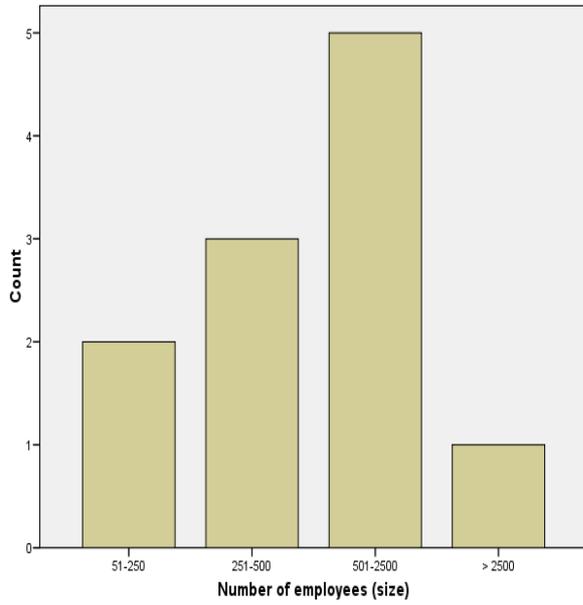


Figure (2): Age of organization

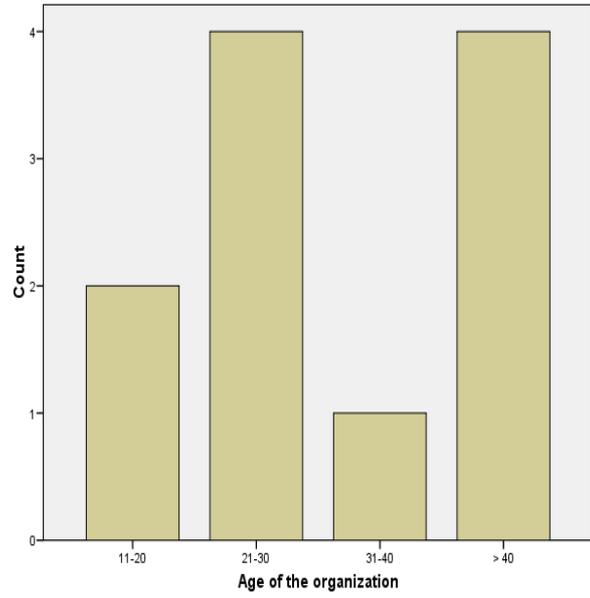


Figure (3): Responsibility for BCM

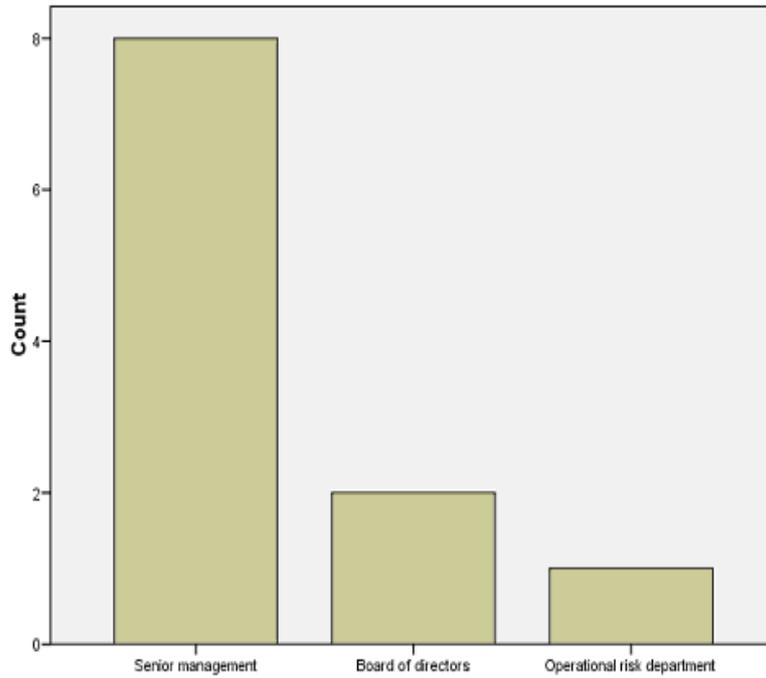


Table (1): BCM activities and corresponding mean values: rank order

BCM activities	Valid N	Mean*
Project planning	11	4.64
Developing backup and data recovery strategies	11	4.64
Developing disaster recovery plan	11	4.64
Performing risk assessment process	11	4.55
Performing business impact analysis	11	4.55
Developing business continuity plan	11	4.55
Periodic testing of plans	11	4.45
Periodic updating of plans	11	4.45
Creating teams and assigning roles and responsibilities	11	4.36
Periodic maintenance of plans	11	4.36
Periodic training of plans	11	4.09

*The mean is an average of a scale where 1 stood for 'not considered' and 5 stood for 'totally considered'

Table (2): Chi-square test: differences in the practice of BCM in Jordanian banks in terms of size of the organization

BCM activities	Exact Sig.
Project planning	.798
Creating teams and assigning roles and responsibilities	.818
Performing risk assessment process	1.000
Performing business impact analysis	1.000
Developing backup and data recovery strategies	.818
Developing disaster recovery plan	1.000
Developing business continuity plan	1.000
Periodic training of plans	.210
Periodic testing of plans	.286
Periodic maintenance of plans	.364
Periodic updating of plans	1.000

Table (3): Chi-square test: differences in the practice of BCM in Jordanian banks in terms of age of the organization.

BCM activities	Exact Sig.
Project planning	.176
Creating teams and assigning roles and responsibilities	.503
Performing risk assessment process	.420
Performing business impact analysis	.420
Developing backup and data recovery strategies	.091
Developing disaster recovery plan	1.000
Developing business continuity plan	1.000
Periodic training of plans	.782
Periodic testing of plans	.636
Periodic maintenance of plans	.503
Periodic updating of plans	.636