The Impact of Risk Management on Financial Performance of Banks: The Case of Jordan

Ayman Abu-Rumman⁵, Ata E. M. Al-Shra'ah⁶, Tasneem Alfalah⁷, Faisal Al-Madi⁸

⁵Associate Professor, Al Ahliyya Amman University, Business School, Jordan. E-mail: a.aburumman@ammanu.edu.jo
⁶Associate Professor, The Hashemite University, Jordan. E-mail: Ata@hu.edu.jo
⁷Associate Professor, Graduate School of Business Administration, German Jordanian University, Jordan. E-mail: Tasneem.Alfalah@gju.edu.jo
⁸The Hashemite University, Jordan. E-mail: f-madi@hu.edu.jo

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Abstract: Scholars, professionals, and regulators regard efficient risk management as a pillar of bank management. The Basel Committee on Banks Regulation has introduced the Basel I Agreements, accompanied by the Basel II Agreements and recently the Basel III Agreement, to deal with this issue in the awareness of this circumstance and the need for the holistic approach to managing bank risk. Risk reduction is one of the determinants of banks’ returns. Moreover, risk reduction, if practical, avoids or mitigates unnecessary threats and effectively controls the payouts. The latest global financial crisis taught us that risk reduction and implementation are necessary to achieve continued success objectives. The purpose of this study is to analyze Lebanese banks’ risk management policy and its effect on bank performance. This study investigates the impact of risk management practices on Lebanese banks’ financial performance. Many banks had been facing risk management practices and default risks in loans because of the current financial and economic situations that Jordan is passing through. The research implemented the quantitative methodology by distributing the questionnaires to over 300 participants; however, only 123 respondents replied to them. The results were analyzed using regression analysis and proved a relationship between risk management and financial performance. The results showed a direct relationship between credit, liquidity, market risk, and financial performance. The findings showed that For every one unit increase in risk control, the risk financial performance is affected by 1%, while for every one unit increase in credit risk, the risk financial performance is affected by 1.6%, while for every one unit increase in market risk, the financial performance is affected by 1.5% and for every one-unit increase in liquidity risk the financial performance is affected by 4.7%.

Keywords: Risk Management, Risk Control, Financial Performance, Credit Risk, Market Risk.

1. Introduction

Scholars, professionals, and regulators regard efficient risk management as a pillar of bank management. The Basel Committee on Banks Regulation has introduced the Basel I Agreements, accompanied by the Basel II Agreements and recently the Basel III Agreement, to deal with this issue in the awareness of this circumstance and the need for the holistic approach to managing bank risk. Risk reduction is one of the determinants of banks’ returns [1]. Lehman Brothers Securities, Inc. filed Chapter 11 bankruptcies on 15 September 2008 to the US due to the ongoing global economic and financial crises. The spread of the worldwide turmoil posed concerns about institutions’ efficacy, including those adopted by existing institutions, in Risk Management Strategies (RMSS). Inability to handle risk is deemed a significant trigger of the recession [2]. Failure to control danger in reaction to the boom and bust of the dot.com industry, the Sarbanes Oxley Act of 2002 placed an obligation on all the stock trading firms to invest substantial funds to retain their control structures [3].

Research Problem

Financial institutions are imperatively responsible for carrying out business by acting as intermediaries among surpluses and deficit units, putting their role as mediators of critical importance for successful resource allocation in a modern economy [4]. As witnessed during the most contemporary US financial crisis in 2008 (BNM 2008), the financial institutions’ power is critical. By April 2008, the IMF (2008) had estimated cumulative worldwide damages of $945 billion. On the first anniversary of the financial crisis, the world’s significant banks reported write-downs of a minimum of $274 billion. By comparison, according to some figures by July 2008, US sub-prime mortgages and loans can exceed a trillion dollars [5].

The stability of the economy is affected by a crumple of financial institutions, which makes it necessary to keep financial institutions in operation by a robust risk management system [7]. To take a course of steps to
strengthen the bank sector's stability, a new Basel III rule book was introduced as a repercussion of the financial crisis of 2007-2009 [8]. Risk reduction is the ultimate phase through which unpredictable incidents may be detected, managed, and minimized. Risk reduction, if practical, avoids or mitigates unnecessary threats and effectively controls the payouts. Risk management is a problem that must be underlined and discussed, especially in the banking sector, in which it is highly necessary to provide a robust risk management system. The latest global financial crisis taught us that risk reduction and implementation are necessary to achieve continued success objectives.

The security risk and financial risk are the major threats facing each branch. Risk Management is a crucial element in assessing banks' success. In most situations, the banking sector has a constructive and strategic strategy with risk management. A defined risk management program is articulated relatively effectively through the organization's board of employees at all rates. Risk management practices have significant effects on financial performance over other activities, i.e., risk-policies have been considered essential risk management practices that directly impact financial performance and risk management integration in setting organizational objectives. Few local risk management studies have been conducted, including credit risk management techniques [9]. The credit risk management techniques of non-secured banks lending by business banks, the credit risk management practices reviewed by business banks in [10], and credit risk management techniques in Kenya's microfinance institutions, the credit risk management studies in Mutwiri, 2007.

The research question of this study is answering is:

- To what extent risk management has an impact on banks' financial performance?
- The questions that this thesis is answering are also as below
- What is the impact of credit risk on financial performance?
- What is the impact of market risk (interest rate and exchange rate) on financial performance?
- What is the impact of liquidity risk on financial performance?

The Objective of the Study

This study aims to determine the effect of risk management on commercial banks' financial performance in Jordan.

Other objectives are identified as below:

- To identify the effect of credit risk on the financial performance of banks.
- To study the effect of market risk (the exchange rate and interest rate) on banks' financial performance.
- To identify the effect of liquidity risk on the financial performance of banks.

2. Theoretical Review

The current study is conducted under the guidance of the theories described in the following sections. It looks to determine the influence of risk management practices on different banks' productivity, including African, Kenyan, and Ethiopian Banks.

Risk Management

According to [11], the risk management framework includes detection, prioritization, and risk estimation. This is then followed by the regulated and cost-effective use of resources to minimize, monitor, and control the possibility and influence of unexpected incidents or maximize the attainment of chances. Risks may be caused due to natural disasters, accidents, credit risk, and vagueness in economic conditions, malfunctioning of the project, official liabilities, along with deliberate adversary attacks [12]. A given number of risk management values are established comprising ISO standards, actuarial communities, the National Institute of Science and Technology, plus the Project Management Institute. These standards vary widely in their definitions, methods, and objectives based on the Risk Management process's conformity related to public safety and health, actual evaluations, project management, financial portfolios, security, engineering, or industrial process [13]. Risk management strategies generally include the transfer of risk to other parties, risk avoidance, reduction in the probability and negative impact of the risk, or acceptance of a few or all the actual or potential results of certain dangers [6].

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The efficient risk management system might result in lasting advantages for all institutes, whether small or large, private, or public [14]. Some of these advantages take place in developed innovation and improved supervision of maintenance plus contingent activities, reduced fraud and waste, improved worth for money, more efficient use of resources, closer interior focus on carrying out the correct things in a proper way, increased likelihood of change being achieved, fewer unwelcomed surprises and less time spent in firefighting, more significant competitive advantage, better delivery of services, the enhanced base for strategy setting, and superior financial performance [15].

A useful risk management structure facilitates improved decision-making using better knowledge about the dangers and their possible effects. During the risk management practice, leaving risk uncontrolled can negatively influence the shareholder's worth, which implies that a good risk management strategy enhances shareholders' value [18]. Thus, controlled risk management improves the governance procedure and thus improves effectiveness [16], [17] that the organizations making efficient usage of risk management primarily include creating a strategy with clearly described risk management, followed by its implementation. Risk management types count in strategic, governance, operational, and financial risk management. The risk management philosophy is used in this research for determining the impact of risk management on the financial output of Kenyan banks [19].

**Theory of Risk Management for Enterprises**

Enterprise Risk Management (ERM) refers to the strategy focused on adopting a consistent and systematic strategy to manage the risks that might face an institute [20]. Conversely [21] defined ERM as a comprehensive procedure to manage risks that might face companies, focusing on determining and managing risks that might threaten institutes from attaining their targets. During the ERM implementation, the following organizational aspects or areas must be considered by the risk manager, including the regulatory environment, the principal source of profit stream, business skills and expertise, brand values, intellectual assets, and people [22]. This will facilitate organizations in balancing the two significant pressures within a business; the liability of delivering success to shareholders and handling the associated threats or the business-generated risks in an economically feasible way. In this way, the risk manager can remain regularly informed of the risks that might be experienced by the organizations and thus continually monitor its exposure and be positioned for changing direction or strategy, for ensuring that the risk protection measures taken by the management are satisfactory.

**Contingency Planning Theory**

The contingency planning (CP), also referred to as planning for business stability, is declared by [23] as a vital risk management factor. CP is fundamentally based on the view that it is impossible to eliminate all the risks since the residual risks are always there. Regardless of the best organizational efforts for avoiding, preventing, or mitigating the risks, occurrences will have to occur. Specific situations, combinations of unanticipated threats or adverse events and weaknesses might unite for bypassing or overwhelming the optimum evidence safety controls formed to ensure honesty, availability, and confidentiality of information possessions [24]. The contingency planning is explained by Riley as a front planning procedure under uncertainty, with agreed objectives and scenarios, defined technical and managerial activities, and mounted potential reaction schemes for either preventing or better responding to critical situations or emergencies [25].

A contingency plan is meant to facilitate networking and coordination within organizations, agencies, and individuals for an effective and rapid response. The contingency plan guarantees standby resources and offer quick decision-making mechanisms to reduce disaster response and eventually save lives. In [26] study, a contingency plan is described as the sum of plans, processes, controls, activities, etc., related to chief disasters and incidents. The process of getting prepared for big disasters and occurrences, the formulation of elastic strategies, and assembly of appropriate resources will occur on occasion, whatever eventuates.

The term contingency refers to the resources and activities needed due to the significant disasters or incidents that are liable (dependent) on the disasters' meticulous nature. Thus, the Contingency Plan includes the preparation for the unanticipated and arrangement of the unidentified. The primary motive of the Contingency Plan is minimizing the adverse impacts or consequences of disasters and incidents. It is imperative to acknowledge that preparation and planning are the keys to all activities related to the Contingency Plan. Though the majority assume to successfully get through the crises, the Contingency Plan aims to prepare proper plans and reserve indispensable resources before any crisis for making the situation less disruptive and more manageable. Moreover, though it is better to thoroughly prepare for prevalent incidents (like an interruption to telecommunications services or power), valid CP involves planning for completely unanticipated incidents. For
instance, pre-identifying the crisis management framework and procedures for assessing and reacting correctly to any event more effectively than in the absence of no preparations been done [27].

**Empirical Review**

This section appraises the available studies at global and local levels on risk management's influence upon Kenyan banks' economic output. [28] During his USA-based study on the risk-sensitive large domestic banks, profit effectiveness has no sensitivity to the mix of loan products or insolvency risk but to credit risk. It was argued by [29] that improvement in banking management and risk management in banks is essential for guaranteed thriving financial liberalization. This finding was derived from the study related to the exchange rate and interest rate experience of Korean banks before the Asia Pacific financial crisis of 1997, which declared a significant association between commercial banks' productivity and exposure to pre-crisis risk. Further investigations were done by [30] on the existing performance of managing credit risks within the USA's most prominent financial institutes. It was reported that the identification of counterparty default risks had been the only most crucial function performed by the employed models of credit risk. Nevertheless, it must be considered that these findings are deducted from a significantly lower response rate, including only twenty-one questionnaires responses received out of a total of 100 selected banks.

**UAE Banks**

A comparative study was conducted by [31] regarding managing risks in the UAE-based domestic and foreign banks. The outcome highlighted that the banks within the United Arab Emirates encountered three significant risks: operational risk, risk-based on foreign exchanges, and credit risk. [32] reported that the critical methods employed were the analysis of financial statements and assessment by the branch managers. In contrast, [33] mentioned that risk survey, the examination of bank statement, physical assessment or audits, bank risk manager's inspection report were the critical methods employed for this purpose. It was indicated by these results that banks are now adopting refined strategies for risk management.

Furthermore, the better efficiency of domestic banks for risk management was also reported, though the variables like; risk detection, analysis, and assessment were more influential in managing risks. The findings eventually indicated that UAE-based local and foreign banks were significantly different in controlling and monitoring risks and risk examination and valuation, understanding, and management of risks, but same in Risk Management Practices, credit risk analysis, and RI. It was overall reported that foreign banks have improved mechanisms for handling risk exposure compared to local ones. A key reason for this noted by the researchers was the difference in staff quality. Moreover, the branches of foreign banks like Standard Chartered Bank, HSBC, and Citibank were needed to abide by their parent companies' regulatory requirements, which may be more precise than those that the Central Bank of the UAE has applied.

The relationship between the resources required for implementing the Basel II Accord in UAE banks and its implementation readiness was studied by [34]. The outcome showed that these banks know about the advantages, influence, and challenges linked to the Basel II Accord implementation. However, the researcher found no positive connection between UAE banks' readiness level for Basel II implementation and its impact. Moreover, the relationship between the expected implementation cost and readiness level was also not confirmed. The study reported no noticeable difference in the preparation level for the Basel II accord between the foreign and local banks of UAE. A conclusion was drawn that the UAE banks' level was significantly different concerning Basel II, depending upon employees' education level. This finding supported the significance of education to implement Basel II. A global survey was done by the Economist Intelligence Unit (2010) in the year 2009 that included 346 executives related to financial service. That survey was conducted on behalf of SAS Inc. To examine the strategies implemented by the economic institutes worldwide to strengthen their risk management ability in response to the worldwide economic crisis.

About 50% of the participants mentioned that they have done or plan to do a comprehensive overhaul of their systems for managing risk, which includes improvements in the availability and quality of data, strengthening risk control, looking for the adoption of an organization-wide mechanism towards risk and stronger incorporation of risk while keeping in lines of business. It was reported by just 40% of the participants that a broad understanding of risk management significance is attained through the organization, advising that various efforts are needed to embed an influential risk management culture in financial institutes. [35] Islamic financial institutions are also vulnerable to varied risks similar to commercial banks because of the distinct types of products and services. He also mentioned that the staff of Islamic banks had an excellent understanding of types of risks and their management, which proves their capabilities of managing risks successfully. The risk
associated with foreign exchange and credit risk is the main risk faced by the chosen banks. A regression model was used for deducing the findings that highlighted that RAA and RI had been the most dominating factors, and more attention should be given by the Islamic banks within Brunei to these factors for increasing the effectiveness of their risk management practices. The development of a clear understanding of the Basel II Accord\'s true essence may serve to enhance the efficacy of the risk management systems in Islamic banks.

Research has been conducted by [36] to evaluate risk management practices by performing a case study on the international practical actions taken in this context. This research is mainly aimed to determine the significance of information systems regarding business continuity. [37] the study was descriptive and aimed at assessing practically implemented RMPs in the information systems. The study involved a comprehensive literature review on everyday risk management and information systems risk management and incorporated other research views. The scope of the research included seven countries from 4 continents of the world. The study sample had 14 IT staff members from seven countries. The standard structured questionnaires were used for data collection. The survey questions were sent to the participants via email, and online communication was maintained with them throughout the process. It has been revealed through this study that risk management in the IT sector is on an ad-hoc basis. In all countries, the senior administration has allotted information systems risk management to the IT professionals rather than incorporating that inside the universal organizational risk management. The organizations must create a broad and comprehensive policy on using information systems to reduce the inside risks occurring due to employees.

Kenyan Banks

A comprehensive survey was done by [38] on the tactical RMPs chosen by 13 large Kenyan commercial banks. The research study\'s primary objective was to identify the strategic RMPs used by the large commercial banks and the challenges associated with those practices. The researcher deduced that a considerable level of tactical RMPs is there in significant commercial banks through his findings. It was found that those banks have employed tactical risk management policy and with slight variation in strategy within the banks, the most frequently adopted practices were based on tactical risk assessment, estimation, control, monitoring, and reporting. These practices are discussed in depth in the following sections. The researcher has recommended that the banks make the most investment in computerized risk management tools to improve evaluation and possible risk profiling. Moreover, the appointment of senior managers as tactical risk leaders would be most appropriate.

A descriptive study design to inquire about the link between risk management routines and Kenyan educational institutes\' institutional efficiency was selected by [39]. The data was gathered through semi-structured questionnaires from employees of different institutions doing jobs in security, supervision, and management. For the evaluation of data, it was encrypted and added to the system. The data was assessed using inferential and descriptive statistics, adopting both inferential statistics, especially multiple. The data was presented by applying tables, figures, and pie charts. The study highlighted that well-experienced staff, proficient employees, education, and seminars on risk management and the management system\'s development significantly contributed to improved student enrollment success. The study urged investing in risk management routines and institutions and other universities to contradict the impact of functional risks.

The research was done by [40] in Kenya to study the influence of credit risk management routines on microfinance institutions\' economic output. Moreover, to inquire about credit risk management routines on the economic performances of down-payment taking Kenyan microfinance organizations was the research aim. To gather data from participants, descriptive survey access was used. The study sample included 36 employees doing a job in the certified Deposit-taking Kenyan microfinance institutes. The study figured out from the results that in Kenya, credit risks management routines were used by down payment taking microfinance organizations to contradict the hazards they are exposed to, and it was also derived that to lessen loan loss before awarding credit to clients, down payment taking microfinance organizations used different access in processing and evaluating hazards.

To process and evaluate the hazards to lower credit risk, formulation of capacity, conditions, and use of security and borrower\’s character was entered. It was additionally analyzed by the researcher that there was a definite connection between the financial output of deposit-taking microfinance organizations and credit risk management routines.

Research on the relationship between loan losses and credit risk management routines was performed by [41]. As this research proposed to see if there is a link between loan group losses in commercial banks in Kenya and credit risk management routines, this research applied a descriptive research design. Employing the drop and
pick method from 42 Kenyan banks, the research used the regular questionnaire to gather primary data from the credit officers/managers. The questionnaire was done by only 36 of the defendants of commercial banks. The data was presented after analyzing graphs giving descriptive statistics containing percentages, means, and frequencies [42]. The presence of a considerable undesirable connection between loan losses and credit risk management routines in commercial banks in Kenya and that among most commercial banks in Kenya, credit risk management routines are employed. Furthermore, these banks’ management acknowledged the government rules associating credit risk management with the credit sharing information introduction.

3. Regression Analysis

Table 1. Model Summary

| Model | R | R Square | Adjusted R Square | Std. Error of the Estimate |
|-------|---|----------|-------------------|---------------------------|
| 1     | .628* | .394 | .374 | .02285 |
| a. Predictors: (Constant), Liquidity Risk, Risk Control, Credit Risk |

Table 2. Coefficients*

| Model | Unstandardized Coefficients | Standardized Coefficients | T | Sig. |
|-------|-----------------------------|---------------------------|---|-----|
| (Constant) | .017 | .010 | 1.744 | .085 |
| Credit Risk | .239 | .098 | .249 | 2.449 | .016 |
| Market Risk | .228 | .087 | .158 | 2.620 | .015 |
| Liquidity Risk | .273 | .094 | .172 | 2.904 | .047 |

b. Dependent Variable: Financial Performance

Tables 1 and 2: Regression Analysis

Referring to the above regression analysis, there is a direct relationship between the dependent and independent variables based on a significant error of 5% [43]. The results showed a significance level lower than 5%, meaning that there is a correlation between independent variables risk control (0.010), credit risk (0.016), market risk (0.015) liquidity risk (0.047).

Thus, the following can be concluded:

Financial Performance = 0.085 + 0.016 credit risk + 0.015 market risk + 0.047 liquidity risk.

For every one-unit increase in risk control, the financial performance is affected by 1%
For every one-unit increase in credit risk, the financial performance is affected by 1.6%
For every one-unit increase in market risk, the financial performance is affected by 1.5%
For every one-unit increase in liquidity risk, the financial performance is affected by 4.7%

Validity and Reliability Analysis

| Table 3. Component Matrix* |
|----------------------------|
| Component                  |
| 1                          |
| Financial Performance      | .804 |
| Risk Control               | .791 |
| Credit Risk                | .812 |
| Market Risk                | .811 |
| Liquidity Risk             | .703 |

Table 3: Validity and Reliability Analysis

- The above table explains the validity and reliability of the collected data based on Cronbach Alpha’s indicator.
- If the indicator showed a significantly lower than 0.5, then the collected data are not valid and reliable. Still, if the indicator showed a sign above 0.7, the collected data are valid and reliable.
- Referring to the table, all variables are reliable and ready for statistical analysis.
4. Brief Discussion of the Findings

The researcher performed an extensive study of the operational Risk Management Practices chosen by different main commercial banks. The research report's key aim was to recognize the strategic RMPs of major commercial banks and their challenges [44]. The study also found that in the main commercial banks, there is a significant amount of operational RMPs. The researcher proposed that banks spend more on computerized software for risk control, boosting financial performance, and profiling [45]. It will be more fitting to designate senior executives as situational danger leaders. The research adopted a concise research design to investigate the link between risk management routines and Lebanese operational efficiency. The data was obtained through semi-structured questionnaires from employees of different organizations employed in the risk divisions [46].

Furthermore, the findings proved that there is a direct relationship between risk management and the banks' financial performance; the higher the risk management practices are implemented in the workplace, the higher the financial performance will be, which means that for the banks which don't employ risk management practices, their financial performance will be affected in a negative way using ROA, ROE, and ROI as indicators for measuring financial performance [47].

Risk Management Practices and Performance of Banks

Due to the uncertainty and complexities of the financial climate, risk control in banks and regulatory bodies has become a central focus [48]. There have been significant technological developments over the last two decades in improving financial firms' risk-reduction approaches. To that purpose, the Basel Banking Surveillance Committee created the Basel Accords (Basel I, Basel II, and Basel III), a world-wide accepted collection of guidelines for addressing different risks. To strengthen their risk reduction systems in their banking sectors, central banks and other national authorities take stringent steps, including enforcing the Basel agreements [49].

Consequently, all the banks have taken proactive measures to establish an integrated risk management program to cope with major threats, including funding, liquidity, and operational costs. In addition to these requirements, all Lebanese banks have a fair framework for applying the Basel Agreement [50]. Therefore, risk management for many stakeholders is important and needs an effective risk management program to achieve better the operational objectives and stability of Banks [51]. A small range of local risk management experiments has now begun [52]. Therefore, a comprehensive analysis was undertaken to explain the danger to Lebanese banks and their effect on their results. Two aspects of banking risk management have been addressed in this study in Jordan. Next, a detailed review of Lebanese banks’ risk control practices [53].

Furthermore, the analysis examined the impact on the efficiency of local risk control banks. This analysis aims to examine Lebanese banks' risk management policies and their effect on bank outcomes [54]. Define, consider and monitor the causality chain between policies on bank risk control activity and different risk types in Jordan

- Assessment of Jordan bank employees' level of risk awareness.
- Assess the Lebanese banks' level of financial performance, risk interpretation, risk reduction, risk reporting, and control.
- Analyzing the main elements of the risk control activities of the Lebanese banks.
- To examine the risk control and results from the relationship between Lebanese banks.
- This work develops a multidisciplinary framework to study under which qualitative interpretation is complementary under quantitative studies. The goals of the project are to be met.
- This dissertation, therefore, concentrated primarily on quantitative approaches to science.

Summary of Key Findings

This study aims to determine the effect of risk management on commercial banks' financial performance in Jordan. This study showed a correlation between credit risk, market risk, liquidity risk, and financial performance. Also, the result of this study showed conformity with the results of previous research mentioned in the literature, such as the ones of [55] which stated that risks might be caused due to natural disasters, accidents, credit risk, and vagueness in economic conditions, malfunctioning of the project, official liabilities, along with deliberate adversary attacks.

The framework of risk management includes detection, prioritization, and risk estimation. This is then followed by the regulated and cost-effective use of resources to minimize, monitor, and control the possibility
and influence of unexpected incidents or maximize the attainment of chances. Risks may be caused due to natural disasters, accidents, credit risk, and vagueness in economic conditions, malfunctioning of the project, official liabilities, along with deliberate adversary attacks and proposed that the research appraisal has summarized several studies done in Ethiopia and the rest of the world related to banks' credit risk management and profitability. Such empirical studies have been reviewed that either determined the presence of considerable influence of credit risk on the profitability of banks or identified a positive influence of the management of credit risk on the profitability of banks, Given that the work was carried out after October 2019.

5. Limitations of Research

While current work has provided useful results to make important insights to accessible banking literature by effectively testing the theory, addressing research questions, and achieving the report's aims and objectives, no work is deemed complete without defining the boundaries. Similarly, the current thesis was often faced with several obstacles and disadvantages listed below during its implementation. The application of system approaches in this survey was limited to developing a dynamic system model and documented and understood the connections between variables in Jordan's risk management systems. This study restricts the questionnaire examination only to analyze the relationship between risk management practices and the various aspects, including risk comprehension, market risk, risk evaluation and interpretation, risk monitoring and control, and credit risk management.

However, this study has gathered data from various bank staff in selected banks' headquarters and national offices. Another weakness is the number of data samples in the current sub-data analysis because of the small number and limited banks' background in Jordan. Jordan is passing through political and economic situations, COVID 19, and the confidentiality of banks info. However, this study is subject to restrictions relevant to risk-bearing performance and the identified banks' outcomes. The examination uses a non-parametric methodology in estimating the bank efficiencies, as opposed to other evaluation results approaches already used in current studies. Moreover, this study selected all the working bank's categories in Jordan, which was very wide and could not allow me to see if risk management's impact will be the same on all categories.

6. Recommendations of Future Prospects

After the completion of this study, we can recommend the following:

- Banks should comply more seriously with international standards such as Basel I, II, and III, requiring banks to do a thorough investigation about clients to reduce credit risk.
- As we witnessed before Jordan's financial crisis, banks should avoid high-interest rates and work on launching innovative products that attract potential clients.
- Banks should avoid lending a risky party like lending the Lebanese Government (Eurobond loans), which jeopardized their liquidity.
- Banks should diversify their investments by investing in more secured assets other than the Lebanese Eurobond.

References

1. Abu-Rumman, A. (2018). Gaining competitive advantage through intellectual capital and knowledge management: an exploration of inhibitors and enablers in Jordanian Universities. Problems and Perspectives in Management, 16(3), 259-268.
2. Abu-Rumman, A. (2019). Challenging tradition: Exploring the transition towards university entrepreneurialism. Academy of Entrepreneurship Journal, 25(2), 1-15.
3. Abu-rumman, A. (2018). TQM and Competitive Advantage: Experiences within the Engineering, Electronics, and IT Industrial Sectors in Amman. In Excellence in Services 21th International Conference, 0-12.
4. Abu-Rumman, A., Mhasnah, A., & Al-Zyout, T. (2021). Direct and indirect effects of TQM on the patients’ satisfaction and loyalty in the Jordanian health care sector. Management Science Letters, 11(2), 493-502.
5. Adekunle, O., Alalade, S.Y., Agbatogun, T., & Abimbola, C. (2015). Credit risk management and financial performance of selected commercial banks in Nigeria. Journal of Economic & Financial Studies, 3(01), 01-09.
6. Adeusi, S.O., Akeke, N.I., Adebisi, O.S., & Oladunjoye, O. (2014). Risk management and financial performance of banks in Nigeria. Risk Management, 6(31), 123-129.
7. Ahmed, E. R., Rahim, N. F. A., Alabdullah, T. T. Y., & Thottoli, M. M. (2019). An Examination of Social Media Role in Entrepreneurial Intention among Accounting Students: A SEM Study. *Journal of Modern Accounting and Auditing, 15*(12), 577-589.

8. Ahmed, E.R., Alabdullah, T.T.Y., Amran, A., & Yahya, S.B. (2018). Indebtedness Theory and Shariah Boards: A Theoretical Approach. *Global Business and Management Research, 10*(1), 127-134.

9. Ahmed, E.R., Islam, A., Alabdullah, T.T.Y., and Amran, A. (2019). A Qualitative Analysis On The Determinants of Legitimacy of Sukuk. *Journal of Islamic Accounting and Business Research, 10*(3), 342-368.

10. Ahmed, E.R., Islam, A., Zaqibeh, A., & Alabdullah, T.T.Y. (2014). Risks management in Islamic financial instruments. *Advances in Environmental Biology, 8*(9), 402-406.

11. Ahmed, E.R., Islam, M.A., Alabdullah, T.T.Y & bin Amran, A. (2018). Proposed the pricing model as an alternative Islamic benchmark. *Benchmarking: An International Journal, 25*(8), 2892-2912.

12. Ahmed, E.R., Islam, M.A., and Alabdullah, T.T.Y. (2018). The moderating role of Shariah supervisory board on sukuk pricing benchmark. *International Journal of Excellence in Islamic Banking and Finance, 6*(2), 1-32.

13. Alabdullah, T.T.Y., Ahmed, E.R. (2019). Board Diversity and Disclosure of Corporate Social Responsibility Link: A Study in Malaysia. *Journal of Adv Research in Dynamic & Control System, 11*(11), 1124-1131.

14. Alabdullah, T.T.Y., Ahmed, E.R., &Thottoli, M.M. (2019). Effect of Board Size and Duality on Corporate Social Responsibility: What Has Improved in Corporate Governance in Asia? *Journal of Accounting Science, 3*(2), 121–135.

15. Alabdullah, T.T.Y., Ahmed, E.R., & Nor, M.I. (2018). New Ideas from Management, Finance and Accounting Perspective: The Research for A New Link Between A Company’s Outcome and Risk Management. *5th International Conference on New Ideas in Management, Economics and Accounting, 30*-43.

16. Alabdullah, T.T.Y., Laadjal, A., Ahmed, E.R., & Al-Asadi, Y.A.A. (2018). Board features and capital structure in emerging markets. *Journal of Advanced Management Science, 6*(2), 74-80.

17. Alabdullah, T.T.Y., Nor, M.I., and E. Ries (2018). The Determination of Firm Performance in Emerging Nations: Do Board Size and Firm Size Matter. *Management, 5*(3), 57–66.

18. Alshatti, A.S. (2015). The effect of credit risk management on the financial performance of the Jordanian commercial banks. *Investment Management and Financial Innovations, 12*(1), 338-345.

19. Andiyappillai, N., & Prakash, D.T. (2019). Implementing Warehouse Management Systems in Logistics: A Case Study. *Journal of Logistics, Supply Chain and Retail Management, 2*(1), 12-23.

20. Andiyappillai, N., & Prakash, T. (2020). Latest Developments in Logistics and Supply Chain Systems Implementations. *International Research Journal on Advanced Science Hub, 2*(3), 12-17.

21. Arif, A., & Showket, A. (2015). Relationship between financial risk and financial performance: An insight into the Indian insurance industry. *International Journal of Science and Research, 4*(11), 1424-1433.

22. Balungi, D. (2018). Credit Risk Management and Performance of Financial Institutions in Uganda: A Case Study of Housing Finance Bank, Kampala Branch. *Applied Finance and Accounting, 6*(1), 37.

23. Bank of International Settlements. (2018). *Structural changes in banking after the crisis*. Report prepared by a Working Group established by the Committee on the Global Financial System. CGFS Papers. No 60. 26 January 2018

24. Singh, B., Suman Rajest, S., Praghash, K., Uppalapati, & Regin, S.R. (2020). Nuclear structure of some even and odd nuclei using shell model calculations. In *AIP Conference Proceedings, 2292*(1), 030002. https://aip.scitation.org/doi/abs/10.1063/5.0030932

25. Bruegge, B., & Dutoit, A.H. (2000). *Object-Oriented Software Engineering: Conquering Complex and Changing Systems*. Upper Saddle River, NJ, Prentice-Hall.

26. Carey, A.A. (2001). Effective Risk Management in Financial Institutions: The Turnbull approach. *Journal of Applied Business Research, 9*(3), 24-27.

27. Chica, E.M., & Wamiori, G. (2017). Effects of Risk Management on Financial Performance of Insurance Companies in Mombasa County Kenya. *Imperial Journal of Interdisciplinary Research, 3*(5), 259-282

28. Datta, D., Mishra, S., & Rajest, S.S. (2020). Quantification of tolerance limits of engineering system using uncertainty modeling for sustainable energy. *International Journal of Intelligent Networks, 1*, 1-8. https://doi.org/10.1016/j.ijin.2020.05.006

29. Daoud, J.I. (2017). Multicollinearity and regression analysis. In *Journal of Physics: Conference Series, 949* (1).
30. Setiawan, R., Kulkarni, V.D., Al-Odeh, M., Nordin, N.A., Santhose, S.S., Raisal, I., & Rajest, S.S. (2020). The Impact of Corporate Reputation on Organizational Performance. Productivity Management, 25(1S), 668-681.

31. Kurniullah, A.Z., Kulkarni, A., Nordin, N.A., Setiawan, R., Bagale, G., Barman, R.D., & Rajest, S.S. (2020). Positive Outcomes of Human Resources Engagement and Impact on Motivation. Productivity Management, 25(1S), 638-667.

32. Iyakaremye, A. (2015). Analysis of financial performance and financial risk in agricultural companies listed on the nairobi security exchange (Doctoral dissertation, United States International University-Africa).

33. Juma, A.M., & Atheru, G. (2018). Financial Risks Analysis and Performance of Commercial Banks in Kenya. Journal of Finance and Accounting, 2(2), 76-95.

34. Kalu, E.O., Shieler, B., & Amu, C.U. (2018). Credit risk management and financial performance of microfinance institutions in Kampala, Uganda. Independent Journal of Management & Production, 9(1), 153-169.

35. Santos, L.W., Babu, R.G., & Rajest, S.S. (2020). A Genetic Programming Approach to Binary Classification Problem. EAI Endorsed Transactions on Energy, 10.4108/ea1.13-7-2018.165523

36. Matayo, W., & Muturi, W. (2018). Effect of Financial Risk on Financial Performance of Large Scale Supermarkets in Nairobi County, Kenya. International Journal of Social Sciences and Information Technology, 4(10), 574-591.

37. Mishkin, F.S., & Eakins, S.G. (2012). Financial Markets and Institutions, 7th edition. Pearson Education Limited.

38. Mudanya, L.E., & Muturi, W. (2018). Effects of Financial Risk on Profitability of Commercial Banks Listed in the Nairobi Securities Exchange. International Journal of Social Sciences Management and Entrepreneurship, 2(1), 75-93.

39. Olamiide, O., Uwalomwa, U., & Ranti, U.O. (2015). The Effect of Risk Management on Bank's Financial Performance in Nigeria. Journal of Accounting and Auditing, 1-7.

40. Paulinus, E.C., & Jones, A.S. (2017). Financial Risk Management and Corporate Performance of Deposit Money Banks in Nigeria. Archives of Business Research, 5(12), 78-87.

41. Perinpanathan, R., & Vijeyaratnam, H. (2015). The Impact of Credit Risk Management on Financial Performance A Study of State Commercial Banks in Sri Lanka. In Proceedings of International Conference on Contemporary Management.

42. Rajasekaran R., Rasool F., Srivastava S., Masih J., Rajest S.S. (2020) Heat Maps for Human Group Activity in Academic Blocks. In: Haldorai A., Ramu A., Khan S. (eds) Business Intelligence for Enterprise Internet of Things. EAI/Springer Innovations in Communication and Computing. Springer, Cham

43. Gupta, R.K. (2018). Employment Security and Occupational Satisfaction in India. Journal of Advanced Research in Dynamical & Control System, 10(10), 244-249, 2018.

44. Gupta, R.K. (2019). Minimum Wage and Minimum Work Hour in India. Journal of Advanced Research in Dynamical & Control System, 11(02-Special Issue), 2402-2405.

45. Gupta, R.K. (2020). Dhirentra Bahadur Singh, “Minimum Wage and Minimum Work Hour in India,” The Journey of Single Taxation System: A Comprehensive study of GST in India. International Journal of Disaster Recovery and Business Continuity, 11(03), 3022–3030.

46. Setiawan, R., Rani, K., Cavaliere, L.P.L., Hiep, N.T., Halder, S., Raisal, I., & Rajest, S.S. (2020). References for Shopping Online Versus in Stores What Do Customers Prefer and How to Do Offline Retailers Cope with It? Productivity Management, 25(1S), 874-898.

47. Saeed, M.S., & Zahid, N. (2016). The impact of credit risk on the profitability of the commercial banks. Journal of Business & Financial Affairs, 5(2), 2167-0234.

48. Saunders, M., Lewis, P., & Thornhill, A. (2007). Research methods. Business Students.

49. Serwadda, I. (2018). Impact of Credit Risk Management Systems on the Financial Performance of Commercial Banks in Uganda. Acta Universitatis Agriculturae et Silviculturae Mendelianae Brunnensis, 66(6), 1627-1635.

50. Shah, A. (2014). The Political Economy of Financial Risk. A Case Study of HBOS, University of Suffolk, forthcoming.

51. Shetty, C., & Yadav, A.S. (2019). Impact of Financial Risks on the Profitability of Commercial Banks in India. Shanalx International Journal of Management, 7(1), 25-35.

52. Singla M.K., Gupta J., Nijhawan P., Ganguli S., Rajest S.S. (2020) Development of an Efficient, Cheap, and Flexible IoT-Based Wind Turbine Emulator. In: Haldorai A., Ramu A., Khan S. (eds) Business Intelligence for Enterprise Internet of Things. EAI/Springer Innovations in Communication and Computing. Springer, Cham
53. Sinha, A. (2011). Financial Sector Regulation and Implications for Growth. Bank of International Settlements Paper 62.
54. Sundharam, K.P.M., & Varshney P.N. (2002). Banking and Financial Systems. Sultan Chand and Sons, New Delhi.
55. Tafri, F.H., Hamid, Z., Meera, A.K.M., & Omar, M.A. (2009). The impact of financial risks on the profitability of Malaysian commercial banks: 1996-2005. International Journal of Social, Human Science, and Engineering, 3(6), 268-282.
56. Wamalwa, M.F., & Mukanzi, C. (2018). Influence of Financial Risk Management Practices on Financial Performance of Commercial Banks in Kenya, A Case of Banks in Kakamega County. The Strategic Journal of Business & Change Management, 5(4), 1040-1056.
57. Wanjohi, J.G., Wanjohi, G., & Ndambiri, M. (2013). The effect of financial risk management on the financial performance of commercial banks in Kenya. Unpublished MBA Project.
58. Whitaker, R.B. (1999). The early stages of financial distress. Journal of Economics and Finance, 23(2), 123-132.