The Effect Of Enterprise Risk Management On Firm Performance In Jordan, The Mediating Role Of Supply Chain Management Practices

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Abstract:

Preface: Enterprise Risk Management (ERM) and Supply Chain Management (SCM) are two critical components in the strategic and operational frameworks of modern organizations. Both play essential roles in success of businesses in today's complex and dynamic business environment.

Purpose: This paper attempts to examine the Mediating role of supply chain management practices between enterprise risk management and firm performance.

Design/Methodology/Approach: The research uses quantitative method to test the relationship between Enterprise Risk Management, Supply Chain Management Practices, and firm Performance in Jordan, the Mediating Role of Supply Chain Management Practices. The sample consists of 313 managers of manufacturing companies in Jordan. AMOS software is used for regression analysis.

Findings: The findings of the research show that ERM has a not significant effect on FP (H1 is rejected), and the results of the research show that there is a significant positive effect between SCMP on FP (H2 is accepted), and it has been shown in this research that there is a significant positive effect between ERM on SCMP (H3 is accepted). This research states that SCMP mediates ERM on FP (H4 accepted).

Value: This study is expected to contribute to the gap in ERM, SCMP, FP studies in several countries and provide an invaluable framework for future studies to adopt.

Keywords: Enterprise Risk Management (ERM), Supply Chain Management Practices (SCMP)

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I. Background and Introduction

In today's dynamic and interconnected business environment, organizations face a myriad of uncertainties and risks that can significantly impact their performance and long-term viability. Managers usually evaluate changes and activities based on mostly their outcome. Thus, they measure these activities and their impacts (Nickmanesh et al., 2013). As organizations today face increasingly complex, dynamic, and threatening environments, attention has been focused on both the running of day-to-day business affairs and the adaptation of the organization to changing environmental conditions and therefore on how to enhance performance (Mahadeen et al., 2016). Performance of firms is of dynamic significance for economic development, stakeholders, and investors. Investors need high returns on their investment, and well-organized business could bring long-term profits for its stakeholders. Companies with higher financial performance and profitability may have better environment-friendly production units, bring better quality products for their clients and enhance the income of employees (Mirza & Javed, 2013).

Risk management is an essential element of modern business operations which based on identification, assessment, and mitigation of hazards. The risk to any company varies depending upon physical location, organization structure, culture, and specific discipline. Risk management components can be tailored according to the needs and requirements of the organization (Khan et al., 2016). Corporate scandals and the fall of world-

leading business organizations have triggered scholars and professionals to reexamine the link between risk management initiatives and the performance of business organizations. The effort to deal with risk exposures has become crucial to firms' survival, companies continue to face heightened instability from the effect of globalization, deregulations, and intensive competitions, the failure of firms to be proactive in risk assessment, mitigation and control had resulted in poor firm performance (Norlida & Idris, 2016), As a response to this complexity, the adoption of Enterprise Risk Management (ERM) has become increasingly crucial for businesses seeking to proactively identify, assess, and mitigate risks across their operations, is an integrated framework and monitoring tool for managing uncertainties surrounding the business objectives.

Furthermore, in contemporary business enterprises, Supply Chain Management (SCM) has evolved into an indispensable component, closely tied to the prosperity of businesses in enhancing customer satisfaction (Pradhan et al., 2018). The implementation of SCM practices significantly contributes to the reduction of operational costs, the elevation of customer satisfaction levels, and the enhancement of a company's financial standing (Andria et al., 2020). Consequently, SCM has become the lifeblood upon which a majority of top-performing companies rely (Pradhan et al.,2018). The link between ERM and SCM practices is gaining prominence as researchers and practitioners recognize the intricate interplay between risk management strategies and supply chain dynamics. This study aims to delve into the nuanced relationship between ERM and firm performance, with a specific focus on the mediating role played by SCM practices.

The Resource-Based View (RBV) Theory

The static view of the RBV posits that a firm's resource base is the antecedent to competitive advantage (Barney, 1991). Essentially, the RBV is based on the assumptions that firms have heterogeneous resources (Alchian and Demsetz, 1972; Coates and McDermott, 2002; Alvarez, 2005; DeSarbo et al., 2007) and the resources remain imperfectly mobile over time (Barney, 1991). Additionally, sustainable competitive advantage results when these four attributes of the firm's resources are satisfied: valuable, rareness, non-substitutability and inimitability (Barney, 1991).

Parallel to above, based on Resource-Based View theory (RBV) of the organization, the existence of intangible assets, those are rare, inimitable, valuable and very difficult to substitute as strategic assets could create a competitive advantage (Mikes, & Kaplan,2013). Adopting an ERM approach to risk management and also as an instrument for internal control system enables organizations to improve resource allocation and utilization of resources through greater return on equity and better capital efficiency (Jabbour, & Abdel-Kader, 2015; Ojiako et al., 2014). Therefore, ERM could be related to competitive advantage. Consequently, based on their source-based view (RBV) theory of organization by recognizing ERM as a strategic asset which could increase competitive advantage and firm performance. The main contribution of RBV is that when all firms have access to similar resources, only management differences (e.g., risk management) determine sustainable competitive advantage. (Saeidia et al., 2019).

Moreover, Barney (2012) has postulated that SCM can ensure competitive advantage for the following reasons: (i) SCMP has the potential to encourage the securing of vital assets in factor markets; and (ii) the SCMP may show the qualities of VRIN assets. Zimmermann and Foerstl (2014) postulated that SCMP improve firm purchasing performance, which is deciphered as help for the RBV contention. The RBV posits that assets fluctuate in firms, and differences in resource levels that endure regularly empower firms to support competitive advantage (Penrose, 1959; Wernerfelt, 1984; Barney 1991). Additionally, different SCM-related practices are viewed as significant resources for better performance (Blome et al., 2013; Karimi & Rafiee, 2014, Kaur et al., 2019).

II. Literature Review

The Effect of Enterprise Risk Management on Firm Performance:

Enterprise Risk Management (ERM), came up as a response to the inadequacies of using a silo-based approach (mildest present when certain departments or sectors do not wish to share information with others in the same company) (Chapman, 2012). One of the primary objectives of implementing ERM in spite of the vast resources needed is to improve business performance (Ahmed & Manab, 2017). COSO (2004, p.2) defines ERM as "a process, effected by an entity's board of directors, management and other personnel, applied in strategy setting and across the enterprise, designed to identify potential events that may affect the entity and manage risks to be within its risk appetite, to provide reasonable assurance regarding the achievement of entity objectives."

Malik et al (2019) examined the impact of Enterprise Risk Management (ERM) on firm performance by examining whether firm performance is strengthened or weakened by the establishment of a board-level risk committee (BLRC), an important governance mechanism that oversees ERM processes. Based on 260 observations from FTSE350 listed firms in the UK from 2012–2015, found the effectiveness of ERM significantly and positively affects firm performance. also found strong BLRC governance complements this relationship and increases the firm performance effects of ERM.

Shad and Lai1 (2019) studied the influence of Enterprise Risk Management (ERM) implementation on

firm performance. A sample of 11 oil and gas Public Listed Companies (PLC's) were selected in the study. Data were collected using content analysis with regard to the companies' ERM practices and their financial performances. ERM implementation was measured using COSO's ERM integrated framework while the firm financial performance was assessed through return on assets (ROA) measurement. Results indicated the ERM is positive and significant for the firm's performance. Similarly, a positive relationship between ERM and firm's performance also found by other authors (e.g. Callahan & Soileau 2017, Berry & Xu, 2018; Rehman & Anwar, 2019).

Altanasha et al. (2019) examined the impact of Enterprise Risk Management (ERM) on the institutional performance of public shareholding companies in Jordan based on COSO (2004) ERM Integrated Framework. The questionnaire survey was adopted as the research methodology for this study, and a total of 313 questionnaires were successfully collected. The obtained data were analyzed by Structural Equation Modeling Tool (Smart-PLS), and based on the analysis, implementation of ERM was found to have a significant influence on institutional performance. From the finding's analysis, it was revealed that the enterprise risk management framework had a role in improving the performance of extraction companies in Jordan.

In 2018 Shubita investigated the relationship between Enterprise Risk Management adoption and implementation, and the performance of Banks using a sample of four out of the seven Strategically Important Banks (SIB) listed on the Nigerian found significant empirical evidence that ERM does affect the performance of Nigerian banks in both the short and long terms. The influence of ERM on the performance provides support for a study of Owais (2018) where the findings showed that ERM has a significant impact on the performance of an organization.

Rusu (2018) also evaluated the effects of financing and risk management on the firm value of companies and performed a regression analysis on a sample of 90 non-financial companies listed on the Bucharest Stock Exchange. The dependent variable was the value of the firm; used Tobin's Q as a proxy. Independent variables were: financial structure, risk management, financial return, and firm size. The findings reveal that two of the four examined variables yield significant positive effects on the value of firms (financing structure and return on assets); for the other two independent variables analyzed (risk management and firm size).

Salaudeen et al. (2018) They evaluated the relationship between enterprise risk management and performance of Twenty (20) consumer goods companies listed on the Nigerian Stock Exchange. The independent variables used are the existence of a risk management committee, the existence of financial expertise, the existence of an audit committee, the existence of Chief risk officer and board size. The study adopted research design and data were sourced from annual reports and accounts of the selected Consumer Goods Companies. The collated data were analyzed using descriptive statistics and generalized least square. The results reveal that the risk management committee, financial expertise, and board size have a significant positive effect on performance. The results also revealed that the existence of an audit committee has a significant negative effect on performance while the existence of a chief risk officer has no significant effect on performance.

The relation between ERM and FP is supported by several researchers (Malik et al., 2019; Shad & Lai1, 2015; Berry & Xu, 2018; Rehman & Anwar, 2019), where they find there is a positive impact between ERM and FP. Thus, the following hypothesis will be examined:

H1: There is a positive significant effect of ERM on FP in Jordanian companies.

The Effect of Supply Chain Management Practices on Firm Performance

Khalila et al. (2019) examined the relationship between SCM practices and organizational performance with innovation as a mediator. Data from 207 small and medium enterprises (SMEs) in Punjab, Pakistan were obtained. The suggested hypotheses were tested using PLS-SEM. Findings show no impact on organizational performance from a strategic partnership with suppliers and the level of information sharing. Besides, the quality of information sharing, the internal supply chain process, and lean practices affected firm performance significantly. These five supply chain management practices have had a strong and positive impact on innovation. Innovation meanwhile significantly and positively mediated the relationship between five practices in supply chain management and organizational performance.

Gopal et al. (2019) determined the impact of supply chain management practices (i.e., strategic supplier partnership, customer relationship, level of information sharing, quality of information sharing, postponement, and risk and reward sharing on firm performance, that is, marketing performance and financial performance). The instrument is adopted, and it is administered to 115 target respondents from 6 organizations in Chennai. A valid of 100 samples is taken for further analysis, and multiple regression analysis is employed to determine the purpose of the study. The findings indicated that supply chain management practices (i.e., strategic supplier partnership, customer relationship, level of information sharing, quality of information sharing, postponement, and risk and reward sharing) have significant and positive impact on firm performance (i.e., marketing and financial performance).

Also, the study by Alam (2022) evaluated the impact of supply chain management practices on the firm

performance in Manufacturing firms. The methodology included a quantitative approach and explanatory type with convenience sampling and linear regression analysis using a sample of 200 respondents working at various manufacturing firms in Karachi-Pakistan. The study found that strategic supplier partnership, knowledge management capability, and customer relationship significantly influence firm performance.

Moreover, the study by Silitonga et al. (2023) aimed to examine the effect of supply chain management (SCM) on competitive advantage and company performance in the industry in Bandung. The type of research is quantitative research using a questionnaire distributed directly to the companies, with as many as 40 questionnaires. Data analysis used multiple linear regression and path analysis. The results show that supply chain management influences competitive advantage, supply chain management tends to have an influence direct effect on company performance.

SCMP are extroverted doors of the companies in order to ensure mutual advantages in their own processes and increases the performance of firms. Therefore, enhanced performance may be achieved by paying more attention to SCMP (Kwamega et al., 2018). Besides, various studies have supported the impact of SCMP on FP (e.g., Khalila et al., 2019; Subhashini & Velmurugan, 2019; Alam, 2022; Silitongaet al., 2023). Therefore, the following hypothesis is proposed:

H2: There is a significant effect of SCMP on FP in Jordanian companies.

The Effect of Enterprise Risk Management Supply Chain Management Practices

Globalization has made supply chains longer and more complex, consequently, supply chains are now exposed to more risks and have become more vulnerable. Hence, the failure of an element in a supply chain can cause a ripple effect of disruptions, potentially for all the players in it, putting a supply chain at risk (Azadeh et al., 2014). Therefore, Enterprise Risk Management (ERM) is important to the supply chain (Behzadi et al., 2018). According to Marija et al. (2015) risk management is an integrating part of every supply chain aspect. Specifically, Mburu (2017) said that risk monitoring & control management strategies and risk Identification management strategies are a key function in improving supply chain performance to a greater extent.

Supply Chain Management Practices (SCMP) could be enhanced by ensuring a broader understanding of the value-add of ERM in the supply chain (Moshesh et al., 2018). ERM is promoting operational efficiency at all levels including SCMP (Curkovic et al., 2013). According to Enyinda (2018), ERM can also help the management with a step-by-step approach to identify, assess, and manage a portfolio of risks that can be detrimental to their supply chain performance. Besides, ERM it covers the process of analyzing risk relationship; identifying risk and its impact level toward supply chain activity level. Moreover, Setyawati (2018) proves that there is an important positive association between Risk Management and SCMP. Therefore, the following hypothesis is proposed:

H3: There is a positive significant effect of ERM on SCMP.

Mediating Role of Supply Chain Management Practices in the Relationship Between Enterprise Risk Management and Firm Performance

In the intricate dynamics of contemporary business operations, the interplay between Enterprise Risk Management (ERM) and firm performance is a subject of increasing significance. Recognizing the complexity of this relationship, there is a growing emphasis on understanding the potential mediating role of Supply Chain Management Practices (SCMP) in shaping the impact of ERM on firm performance. The supply chain, as a critical operational nexus, is poised to act as a mediator between the risk management strategies implemented by enterprises and their ultimate performance outcomes (Okoumba, 2018). SCMP, encompassing elements such as procurement, production, and distribution, is integral to the overall organizational efficiency and responsiveness. By investigating the mediating influence of SCMP (Apopa, 2018), researchers and practitioners aim to uncover how the effective management of risks within the supply chain can not only mitigate potential disruptions but also catalyze improvements in overall firm performance (Alam, 2022). Insights derived from exploring this mediation pathway contribute to a nuanced understanding of the intricate relationships within the organizational framework, offering valuable guidance for businesses seeking to enhance their resilience and success in an increasingly complex and uncertain business environment.

H4: There is a significant mediating effect of SCMP on ERM and FP in Jordanian companies.

Conceptual Framework

A conceptual framework is a foundation erecting the whole research project. Its devices rationally developed and explained associations between the different variables elaborated from similar studies in the literature to obtain the solutions to the problem statement. It also offers a base to devise and measure the hypotheses. The conceptual framework for the current research is represented in Figure 1 as follows:

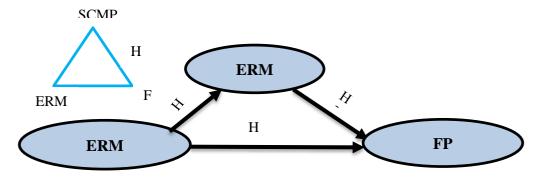


Figure 1 Conceptual Framework

III. Research Methodology

Research design

This cross-sectional survey study, based on primary data sources, utilized a self-administered questionnaire for data collection. The target population for this investigation, as indicated by data from the Amman Chamber of Industry (2018), comprised 1682 managers in Jordanian companies. Employing a stratified proportionate random sampling technique, the study aimed to minimize sampling bias and ensure a true representation of each company within the population. Considering the utilization of structural equation modeling (SEM) for data analysis, a sample size of 344 was deemed appropriate, as recommended by Awang (2015), Mahfouz et al. (2019), and Asnawi et al. (2019). Data collection employed both face-to-face meetings and an online survey approach.

The research instrument comprised two sections. The first section captured demographic statistics, including gender, age, education, and working experience. The second section consisted of 25 closed-ended questions designed to quantify constructs related to Firm Performance (FP), Enterprise Risk Management (ERM), and Supply Chain Management Practices (SCMP). Response levels were measured on a 10-point interval scale, ranging from '1 - Strongly Disagree' to '10 - Strongly Agree' (Hair et al., 2017).

Structural equation modeling in SPSS-AMOS was employed for data analysis, following the approach outlined by Awang (2015). Confirmatory factor analysis (CFA) was utilized during the field study to assess the validity and reliability of latent constructs. Empirical hypotheses were tested through path analysis, while mediation assessment was conducted using the maximum likelihood bootstrapping procedure (Awang, 2015).

Pilot test

Before commencing the field study, it was imperative to validate the latent constructs using pilot data. A sample of 100 units underwent pilot testing, employing exploratory factor analysis (EFA) as outlined by Hoque et al. (2017) and Bahkia et al. (2019). Factor loadings for all items surpassed the designated cutoff value of 0.6, as recommended by Awang et al. (2015) and Bahkia et al. (2019), affirming the validity of the latent constructs. Additionally, Cronbach's Alpha scores surpassed the threshold value of 0.7, in accordance with Hoque et al. (2017), ensuring the internal reliability of the constructs. Thus, the EFA results confirmed the validity and reliability of the latent constructs, establishing their suitability for utilization in the field study.

Result Analysis

This study analyzed Three variable, namely ERM (Enterprise Risk Management), SCMP (Supply Chain Management Practices), and FP (Firm Performance).

Prior to proceeding with additional analyses, it was essential to confirm the viability of the study data through a feasibility test. The initial step in this test involved evaluating the validity of each indicator. As per the criteria established by Hair et al. (2017), an indicator is deemed to possess good validity if its loading factor value exceeds 0.5. In cases where an indicator within the analytical model exhibited a loading factor value below 0.5, it necessitated the exclusion of that specific indicator from the subsequent analyses. The loading factor values for all indicators are detailed in Table 1.

Variable	Indicators	Valid Loading Factor	Validity
	ERM1		Valid
Enterprise Risk Management (ERM)	ERM2	0.71	Valid
	ERM3	0.71	Valid
	ERM4	0.69	Valid
	ERM5	0.69	Valid

	ERM6	0.73	Valid
	ERM8	0.72	Valid
	ERM9	0.73	Valid
	SCMP1	0.81	Valid
C. J. Cl.: M	SCMP2	0.76	Valid
Supply Chain Management Practices (SCMP)	SCMP3	082	Valid
(SCMP)	SCMP4	0.82	Valid
	SCMP5	0.74	Valid
	SCMP6	0.79	Valid
	SCMP7	0.83	Valid
	SCMP8	0.80	Valid
	FP1	0.83	Valid
	FP2	0.82	Valid
Firm Performance	FP3	0.86	Valid
	FP4	0.83	Valid
	FP6	0.83	Valid
	FP7	0.87	Valid
	FP8	0.85	Valid
	FP9	0.87	Valid
	FP10	0.79	Valid

Table no 1. Indicator Validity Test

In the assessment of Convergent Validity, this study seeks to compute the Average Variance Extracted (AVE). As per the criteria established by Bakar and Afthanorhan (2016), and Awang (2015), a construct is considered to exhibit Convergent Validity if its AVE surpasses the threshold value of 0.5. To evaluate Composite Reliability (CR) and ensure reliability, the study aims for a CR value exceeding 0.6, as recommended by Awang (2014, 2015) and Bakar & Afthanorhan (2016). The AVE and CR were computed utilizing factor loadings and are presented in Table 1. The outcomes of the validity and reliability tests can be found in Table 2.

Variables	Construct Reliability	Variance Extracted	Reliability
ERM	0.892	0.505	Reliability
SCMP	0.933	0.635	Reliability
FP	0.955	0.704	Reliability

Table no 2 Reliability Test

Moreover, the confirmatory model underwent a conformity test utilizing the Goodness of Fit Index (GOFI). The GOFI encompasses three criteria: absolute fit indices, incremental fit indices, and parsimony fit indices. This study considered several criteria from each type of GOFI, including Root Mean Square Error of Approximation (RMSEA) and Confirmatory Fit Index (CFI) for absolute and incremental fit indices, respectively. Additionally, Tucker-Lewis Index (TLI) was employed for incremental fit, and Parsimony Goodness of Fit Index (PGFI) and Parsimony Normed Fit Index (PNFI) for parsimony fit indices. The results of the goodness of fit test are detailed in Table 3, and the model is presented in Figure 1.

Fit Index	Goodness of Fit	Criteria	Criteria Cut-off value	Result
Absolute Fit	RMSEA	≤ 0.08	0.04	Fit
	CMINDF	≤ 3.00	1.445	Fit
incremental Fit	CFI	≥ 0.90	0.973	Fit
	TLI	≥ 0.90	0.972	Fit
Parsimony Fit	PGFI	≥ 0.60	0.809	Fit
	PNFI	≥ 0.60	0.899	Fit

Table no 3 Goodness of fit test results

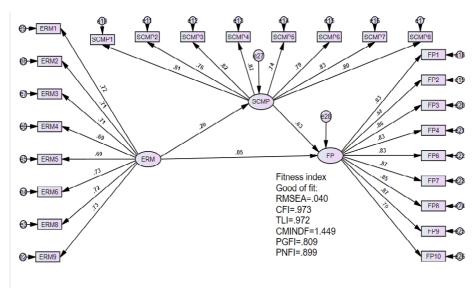


Figure no 2 Pathway Diagram of Research Results

Hypothesis Testing

This study posited four hypotheses, comprising three direct hypotheses (H1, H2, H3) and one indirect hypothesis (H4). The evaluation of hypothesis testing involved examining the Critical Ratio (CR) value and the probability (P) value derived from the data processing outcomes. A CR value exceeding 1.96 and a probability value (P) below 0.05/5% in the test results indicate a significant relationship between exogenous and endogenous variables. The outcomes of the hypothesis testing are detailed in Table 4.

Hypothesis		Estimate	C.R.	P	Result		
H1	SCMP	<	ERM	.195	2.994	.003	Significant
H2	FP	<	SCMP	.617	12.084	***	Significant
Н3	FP	<	ERM	.050	1.971	.331	Not Significant

Table no 4 Regression weight test results

Mediation Test

The assessment of mediation is based on the significance of the indirect effect between variables, as observed in the table of indirect effects with two-tailed significance. The mediation role is deemed significant when the two-tailed significance value of the indirect effect is less than 0.05. The findings of the analysis on indirect influence are presented as follows

Hypothesis		Significancy	Result
H4	ERMSCMPFP	0.009	Significantly Mediating

Table no 5 Mediation test results

Result

The research results reveal that ERM does not have a significant effect on FP, leading to the rejection of H1. On the other hand, the study demonstrates a noteworthy positive effect between SCMP and FP, supporting the acceptance of H2. Additionally, the research establishes a significant positive relationship between ERM and SCMP, confirming the acceptance of H3. Notably, the findings of this research indicate that SCMP acts as a mediates between ERM and FP, thereby accepting H4.

IV. Conclusion

This study focused on industrial companies in Jordan; however, the diverse range of products offered by these companies raised concerns about the generalizability of the research findings. The researchers acknowledged that the variability in products might limit the broader applicability of their conclusions. Additionally, the data collection method, which utilized a quantitative approach, was considered suboptimal for assessing the impact of ERM on FP. Despite the nonsignificant direct relationship found between ERM and FP, the results highlighted substantial and significant effects when considering other variables, such as ERM on SCMP and ERM on FP, especially within the context of the mediating role studied.

Although these methodological considerations exist, the research remains intriguing, particularly in light of Jordan's current status as a secure country in the Middle East. The findings imply potential future implications for business performance. It is recommended that future research extends similar investigations to service-oriented companies, offering valuable insights for both theoretical development and managerial applications. A deeper understanding of how ERM and related variables operate in diverse sectors would significantly contribute to the overall knowledge in the field.

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