

Determinants and Challenges of Enterprise Risk Management and Its Effect on Performance of Enterprises: An Application of Mediation Analysis

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Abstract

In order to compare the performance of businesses located in industrial parks with businesses located outside of industrial parks, this study proposed the Enterprise Risk Management (ERM) index and used descriptive and partial least square structural equation model (PLS-SEM) analysis to examine the factors that influence, present difficulties for, and have an effect of enterprise risk management. The results of the analysis found that the majority of enterprises have an evolving ERM maturity level. Enterprises found in industrial parks have a higher level of complete ERM maturity than enterprises found outside industrial parks. Among the selected five determinants of ERM, for enterprises found in industrial parks, international diversification is the only determinant, whereas ownership and financial leverage are the determinants for enterprises found outside industrial parks. The findings of this research further show that ERM has a positive and significant effect on the performance of enterprises located in industrial parks but a negative and significant effect on the performance of enterprises located outside of industrial parks. This research also shows that availability and collection of historical data, difficulty in translating risks into figures, lack of risk assessment tools and technologies, lack of awareness of ERM's advantages, and organizational cultures that view risk as a challenge for enterprises can be found both inside and outside industrial parks. This study will provide necessary inputs for policymakers, the Industrial Park Development Corporation, and investors by providing insight into ERM and also serve as a base for future research areas related to ERM.

Keywords: Enterprise risk management, industrial parks, challenge, performance

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Introduction

Enterprise Risk Management (ERM) is a crucial element of an effective enterprise governance system. It is defined as a combination of strategies and activities that results in the mitigation of a negative consequence of various types of risks, like financial, operational, and strategic, to the designed business results and value created for shareholders and other stakeholders of the enterprise (Spricic et al., 2015). According to COSO's Enterprise Risk Management Framework (2004, p. 2), *“Enterprise risk management is a process, affected 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 risk to be within the risk appetite, to provide reasonable assurance regarding the achievement of entity objectives.”*

Conscious of the global best practice towards industrial parks, Ethiopia has been engaged in the development of industrial parks for the past couple of years via the Industrial Parks Development Corporation (authenticated website of Industrial Parks Development Corporation, 2022). By taking into consideration the number of jobs created and the capital injected into the market, these enterprises are expected to manage the internal and external risks properly. If these enterprises fail to apply enterprise risk management approaches, the negative consequences of the risks will be catastrophic for the enterprises and for the country's economy too. Enterprises may lose their capital, human resources, brand image, and the like. At the same time, the nation will suffer from a high unemployment rate and a shortage of hard currency (since most of the enterprises are sources of foreign currency via export).

The overall effect of these businesses' failure and bankruptcy will have an effect on the macroeconomics of the nation in one or more ways. The researcher found that it is crucial to compare studies to assess the maturity level, determinants, difficulty, and impact on the performance of enterprise risk management inside and outside of industrial parks. This is due to the important role it plays in implementing enterprise risk management and evaluating its impact on business performance. Enterprise risk management is not a brand-new idea in Ethiopia. There aren't many studies on the financial and agricultural sectors (Tamiru and Singla, 2019; Zerihun and Emnet, 2019). To the best of the researcher's knowledge, there has been no research conducted in relation to the concept of enterprise risk management in the case of industrial parks in Ethiopia.

The main objective of this research is to conduct a comparative study to analyze the determinant, challenge, and effect of enterprise risk management on enterprise performance both inside and outside of industrial parks. The following are specific objectives of the study: (i) To apply the Enterprise Risk Management Index to measure the maturity level of enterprise risk management implementation in and outside of industrial parks. (ii) to identify the determinants of enterprise risk management in and outside of industrial parks. (iii) to examine the effect of Enterprise Risk Management implementation on the performance of the enterprises in and outside of industrial parks. (iv) to identify challenges of enterprise risk management implementation in and outside of industrial parks. These specific objectives are followed by the following research questions: (i) What is the level of enterprise risk management implementation in and outside of industrial parks? (ii) What are the main determinants of enterprise risk management in and outside of industrial parks? (iii) How is the performance of the enterprise after implementing enterprise risk management in and outside of industrial parks? (iv) What are the challenges to implementing enterprise risk management in and outside of industrial parks?

Review of Related Literature

Theory of Risk Management

In the corporate risk-rationing models of risk management (Froot et al., 1993; Holmstrom and Tirole, 2000), firms hedge to mitigate the effect of corporate risk rationing on investment. Risk management helps to mitigate the effect of corporate risk rationing as it reduces the volatility of cash flows that can be used to fund new investment projects in states where access to corporate risk is limited or very costly. Froot et al. (1993) and Holmstrom and Tirole (2000) also argue that access to liquidity (e.g., cash or prearranged lines of credit for corporate risk) can function as a substitute for risk management in mitigating corporate risk rationing.

The key prediction from the corporate risk rationing model of risk management is that firms are more likely to hedge if they face corporate risk rationing. Given that the importance of risk management as an instrument to mitigate financial constraints is related to a firm's need to fund future investments, in our empirical tests, we control for investment prospects. We also control for whether firms have access to liquidity (cash, profits, and corporate risk lines) because, as

discussed, theory predicts that liquidity can be a substitute for risk management in mitigating corporate risk rationing.

Breeden and Viswanathan (2016), DeMarzo and Duffie (1991, 1995), and Raposo (1997) argue that when it is difficult for non-controlling shareholders to assess the quality of management, higher-quality managers hedge to mitigate the effect of external factors on the firm's performance and, in this way, separate themselves from lower-quality managers. Lower-quality managers cannot mimic this strategy, as setting up a hedging program is costly. The primary prediction from this signaling argument is that firms are more likely to install a risk management program when information asymmetry is high. Smith and Stulz (1985) suggested that businesses issue loans to produce tax shelters. Debt, however, also raises a company's risk of experiencing financial trouble and declaring bankruptcy. Hedging can boost business value in this paradigm by lessening the damages associated with bankruptcy. The main finding of this financial distress model of risk management is that when the danger of financial distress is high, businesses are more likely to hedge.

Theory of Enterprise Risk Management

A synopsis of the theory is as follows: Silos (between operating units and corporate functions) exist and are desirable in order to gain from the benefits of specialization. The silos are run by agents that have incentives and/or behavioral biases that lead to suboptimal risk management decisions in the form of over-management of a certain category of risks and under-management of another category ("the agency problem of corporate risk management"). The Board of Directors is risk-neutral, represents the interests of shareholders, and pursues the goal of maximizing the long-term value of the firm. The board is "enlightened" in the sense that it understands the nature of the agency's problem of risk management. It is also empowered in that it can mobilize corporate resources. But due to the structure of decentralized decision-making, the Board lacks access to full information about the risks that the silos are exposed to and their risk mitigation actions, and consequently cannot assess the firm's overall risk profile ("the information problem of corporate risk management").

As a result, the directors act to centralize information about net risk exposures inside the firm. The board adopts monitoring mechanisms and incentive systems in order to address the agency's

problems with risk management. To carry out risk governance and risk aggregation, the board invests in new risk management capabilities in the organization. The number of resources invested in these capabilities is proportional to the perceived costs related to agency and information problems in risk management at the firm. Thanks to the aggregation of risk information, the Board is able to deploy the appropriate amount of economic capital to support the level of risk-taking inherent in the firm's portfolio of business risks, taking into consideration inter-dependencies among risk exposures across the various operating units. Economic capital is costly, and the board trades off these costs against various costs related to the risk of financial distress. Before proceeding, it is important to clarify the role of the board of directors in this theory. It treats the board as a rational and empowered entity that, on behalf of shareholders, dispassionately monitors various agents in a decentralized organizational structure and enforces sound risk management. Many observers would question whether boards typically possess these attributes. The point, however, is rather to analyze how an entity that is simultaneously watching out for the interests of shareholders as well as being able to command corporate resources would respond to the agency and information problems of risk management.

In principle, top management could have performed this role so long as they were perfectly incentivized to act in the interests of the company. But boards are structurally closer to shareholders, given their fiduciary duty to promote the company's interests (in the US, this occurs through the Duty of Loyalty and Duty of Care in corporation law). It is widely recognized today that boards are responsible for informed risk oversight as part of their fiduciary duty, consistent with the view in academic finance that boards, as an institution, have emerged as a partial solution to the agency problem caused by the separation of ownership and control (Hermalin and Weisbach, 2003).

Enterprise Risk Management Frameworks

A supplement with instructions on implementation methods was created in conjunction with the release of the "Enterprise Risk Management - Integrated Framework" by the Committee of Sponsoring Organizations of the Treadway Commission (COSO). In order to help firms, execute an ERM program, it offers examples that can be adopted entirely or in part and customized to meet the needs of the organization. There are eight interconnected parts of the COSO ERM architecture from 2004: (1) The internal environment of a corporation includes its risk appetite, tone, and other

factors like board oversight. (2) Establishing objectives at a strategic level, creating a foundation for operational, reporting, and compliance goals is known as objective setting. Before management may identify probable events affecting the attainment of the objectives, the objectives must first be set. (3) Event identification is the process by which management locates probable occurrences that could have positive or negative effects on the entity and arise from both internal and external sources. (4) Risk assessment is the process of determining how much potential events could affect the accomplishment of the organization's goals. In order to decide how to handle the risks that have been discovered, evaluate them. (5) Risk Response: Following the identification of pertinent risks, management chooses its course of action. This could involve acceptance, sharing, decrease, and avoidance. (6) Control activities are the rules and guidelines that help make sure management is implementing its risk responses. (7) The identification, capture, and timely transmission of the appropriate information to the appropriate persons in a suitable manner are all parts of the concept of information and communication. (8) Monitoring involves periodically evaluating the roles and elements of risk management and making appropriate improvements.

There have been significant changes in the way businesses operate since the first framework for enterprise risk management was introduced in 2004. The business environment has grown more complicated, globally oriented, and technical. As a result, it was necessary to assess the framework, incorporate it into the present business context, and give careful thought to the impending time requirement. The following factors played a major role in the Enterprise Risk Management Framework 2004 update: A growing requirement for business openness; the complexity of doing business, which is constantly changing; the necessity to integrate strategy and risk management practices; Unpredictable global economic conditions, the development of technology, and the dangers that go along with it are all contributing factors in the continued rapid emergence of new risks. The Enterprise Risk Management framework was modified in 2017 and is now called "Enterprise Risk Management Framework: Integrating with Strategy and Performance" to reflect changes made since the 2004 edition. The recently released Enterprise Risk Management framework is made up of five elements: Risk Information, Communication, and Reporting, and Monitoring; Risk Governance and Culture; Risk, Strategy, and Objective-Setting; Risk in Execution Performance of Enterprise Risk Management

Determinants of Enterprise Risk Management

Based on researches conducted previously, one can sum up and present seven determinant factors for Enterprise Risk management. These are Chief Risk Officer (CRO), Enterprise ownership, international diversification, size, turnover, profitability and financial leverage.

In order to implement enterprise-wide risk management successfully, enterprises are expected to assign a "Chief Risk Officer" in the management system (Lam, 2000). Enterprises with a higher proportion of institutional share ownership are considered to be exposed to more pressure to introduce a control system and thus tend more towards the implementation of a holistic enterprise risk management framework. (Hoty and Liebenberg, 2011) International diversification is "the concept of lowering the total risk of an enterprise by spreading risk among many distinct projects: the total risk produced by a collection of diverse risks is less than the sum of those risks considered in isolation." (Lam, 2003). A larger enterprise is generally associated with an increasing scope and complexity of risks, which increases the likelihood of an enterprise risk management implementation. Many enterprises lack the resources and reliable mechanisms to support their risk-management activity, and this is particularly notable for small and medium-sized enterprises (Brustbauer, 2016).

For smaller businesses, it may not be necessary to fully implement Enterprise Risk Management because the costs associated with Enterprise Risk Management would be outweighed by the benefits of Enterprise Risk Management. Larger companies tend to have more resources to implement an enterprise risk management system (Beasley et al., 2005). If enterprises are able to generate more sales, the companies could expand their business operations, hire more staff, buy additional software and equipment, and also support more programs, including Enterprise Risk Management. Therefore, it can be suggested that annual turnover is one of the key factors motivating companies to be involved in enterprise risk management programs (Kleffner, Lee, and McGannon 2003). This is because companies with a higher turnover would have enough funds to support the enterprise risk management program. Thus, companies with high turnover tend to practice enterprise risk management.

Basically, enterprises require enough resources to implement enterprise risk management successfully. Resources refer to staff and, more importantly, the required funding to finance all the

enterprise risk management activities. Thus, a mandate from the top management is extremely important to ensure the successful implementation of enterprise risk management (Decker and Galer, 2010). Greater financial leverage (the amount of debt a firm uses to finance assets) is expected to generally induce a higher shortfall risk and thus higher financial distress costs. Even though the relationship between financial leverage and the adoption of an enterprise risk management system is not entirely clear (Hoyt and Liebenberg, 2011), high financial leverage is expected to positively affect the adoption of an enterprise risk management system.

Enterprise Performance and Challenges of Implementing Enterprise Risk Management

Enterprise performance is a complex and multidimensional measure widely used to establish the effectiveness of most management concepts in enterprises. There was a high level of debate since it focuses on effectiveness and efficiency (George, Walker, & Monster, 2019). Enterprise performance deals with both financial and non-financial measures that alter executive management to evaluate the extent to which enterprise goals are achieved (Kaplan & Norton, 1992). They have also been grouped as either marketing- or accounting-based.

Al-Matari, Al-Swidi, and Bt. Fadzil's (2014) literature review from 2000 to 2012 identified return on assets (ROA) with 46% as the most used, followed by return on equity (ROE) with 27% of the seven accounting-based measures to judge corporate governance. Concerning marketing-based measures, they identified Tobin's q as 78%, followed by the market-to-book value (7%), of the nine measures identified. Accounting-based performance measures are backward-looking, have a short-term focus, and depend on the accounting system employed by the organization. This makes them likely to vary between enterprises.

Marketing-based measures are forward-looking and hence reflect the long-term survival of an enterprise. Measuring enterprise performance from a purely financial or non-financial perspective is very narrow compared to the broader perspective, including financial and non-financial measures. However, accounting- and some marketing-based measures are objective, while non-financial-based measures are subjective. Scholars are more likely to use subjective measures because of the unavailability, problems, and access sensitivity of objective measures. According to Kerstin, Simone, Nicole, and Lehner (2014), implementation of enterprise risk management like other approaches has its challenges. These challenges can be summarized in five categories:

challenges in general, human error, complex environments, challenges related to the process, and identification of key risk indicators. On the other hand, Negus J. (2010) summarized the key challenges of enterprise risk management implementation as follows: demonstrating and assessing the value of enterprise risk management, Balance of risk visibility and legal exposure; risk definition and nomenclature; Selecting Risk Assessment Methodologies, Qualitative or Quantitative, A decision on ownership of enterprise risk management, issues in risk reporting, and communication protocol.

Reviews of Empirical Literature

In Jordan and Malaysia, there is a trend towards adopting ERM, but with limited practices among firms due to a lack of compliance with the countries' guidelines and standards. It is clear from this review that Malaysia has more robust enterprise risk management research, adoptions, practices, and compliance systems in place when compared to Jordan. Consistent with the literature, the managements of listed firms from the two countries have the task and responsibility of performing and monitoring the process of enterprise risk management within their firms by integrating it into their daily activities (Shatnawi, Hanefah, Anwar, and Eldaia, 2020).

In the case of Vietnam, the relationship between enterprises and ERM is consistent with theory, which suggests that increased use of risk management practices helps enterprises meet their objectives and improve their values (Kommunuri, Narayan, Mark & Jandug, 2016). According to Ahmada, Chew Ngb, and Ann McManusc (2014), among enterprises that implement Enterprise Risk Management in Australia, the majority of them belong to materials, capital, and energy firms. They have implemented Enterprise Risk Management for more than five years, embedded it in their corporate strategic processes, not outsourced the implementation to an external party, hired a Chief Risk Officer, and used both the ISO 31000 and the AS/NZS 4360:2004 frameworks. In Italy, research conducted by Florio and Leoni (2016) confirms how companies with sophisticated enterprise risk management systems have lower firm risk and better performance, suggesting that ERM systems contribute to improving operational and strategic decisions and reducing direct and indirect costs associated with risks.

Similarly, Sprcic, Pecina, and Orsag (2017) showed that ERM practice in Croatian companies is immature. Based on the Enterprise Risk Management Index, developed to determine the level of

maturity of ERM systems, more than 75% of the analyzed Croatian companies do not manage risks in an integrated (company-wide) manner, and even 40% of these companies do not manage enterprise risks at all. Croatian companies do not have structural nor cultural organization appropriate for the implementation of ERM. Only 26% of analyzed companies have a risk management department, while in the rest, if risks are managed, they are the responsibility of other departments, such as finance, controlling, etc. Thus, in such organizations, it is not possible to assign responsibility for different types of risk in a way that will enable functional and successful risk assessment and management.

Based on the data gathered, Tunisian companies have shown an increasing interest in risk management in the post-revolution context; however, an integrated approach to ERM implementation is still at an early stage. Descriptive statistics suggest that ERM is essentially developed in financial institutions, especially in banks and some large companies operating in non-financial industries, in which the level of ERM implementation is positively related to the presence of a Chief Risk Officer, an internal auditor, the type of industry, and the firm's size (Masmoudi, 2018). In the context of Nigeria, the practice of applying enterprise risk management helps to control the environment, improve the quality of risk assessment procedures, and impact segregation of duties and the level of communication systems, all of which have a significant effect on the enterprise's performance.

The implications of enterprise risk management could enhance the performance of enterprises in Nigeria. The proper implementation of the organization-wide system approach to managing all the risks of the organization could enhance the extent to which the organizational objectives are achieved and promises made to the stakeholders are fulfilled. (Ugwuanyi, Boniface, and G. Ibe, 2012). In Kenya, the ERM structure improves the performance of state corporations. In respect to the organizational structure, key areas of duty have been defined and responsibility established. Likewise, the task of power and duty clearly builds up limits of power and how much people and groups are approved to act to address issues, tackle issues, and make the most of exhibited opportunities. Besides, individuals know how their activities interrelate and contribute to the accomplishment of the organization's objectives. However, the state corporations are yet to have dedicated people who act as risk identification champions and provide training on ERM to their employees. The results revealed that risk structure, governance, and process practices had a

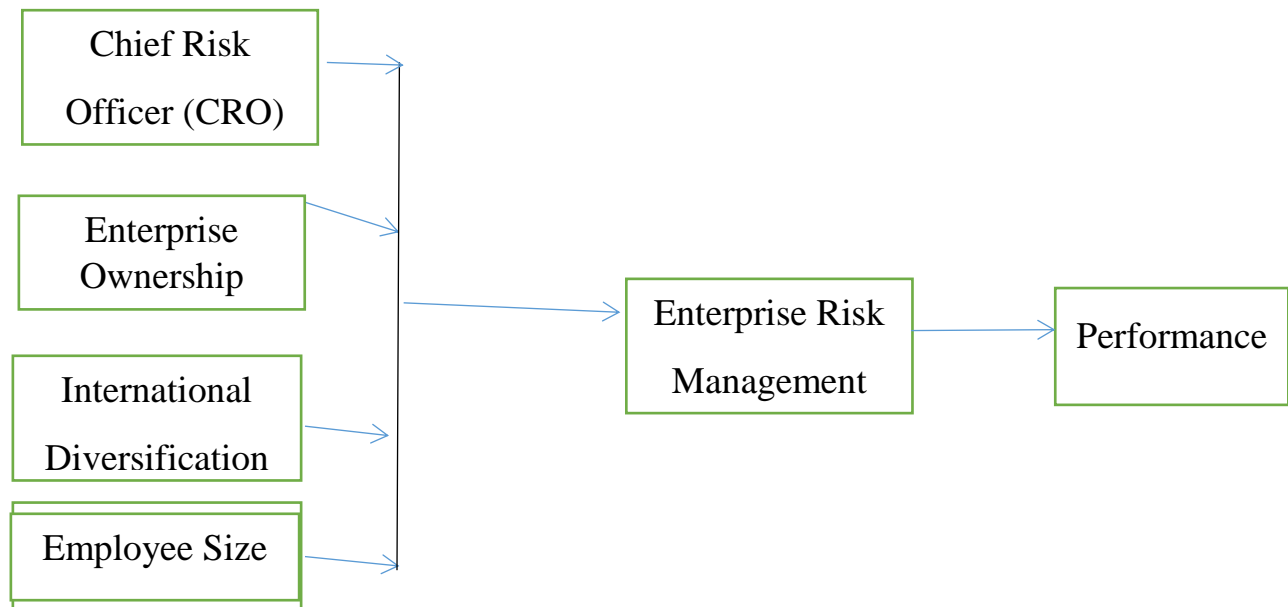
positive and significant effect on organizational performance in Kenya. (Girangwa, Rono, and Mose, 2020). In Ethiopia, according to Zerihun and Emnet, 2019, keeping a rigorous ERM is a function of setting good strategic goals, implementing participatory leadership and management styles, and rendering effective marketing services to enterprises’ productivity. In enterprises where participatory decision-making is exercised, it goes without saying that its risk performance is improved; furthermore, there would be a paved condition to manage long-term risks through identifying new opportunities and then minimizing new threats that may challenge the smooth sailing of the system.

Conceptual Framework

Based on the related theoretical and empirical literatures of enterprise risk management, the researcher designed the following conceptual framework for analyzing determinants of enterprise risk management, challenges, and the effect of enterprise risk management on performance for enterprises found within and outside industrial parks. Even if there are other determinants of enterprise risk management, the researcher focused on the presence of a chief risk officer, the form of enterprise ownership, the level of international diversification, employee size, and the status of financial leverage.

Figure 1

Conceptual Framework



Source: Researcher’s observation and Literature, 2022

Methodology of the Study

Research Approach and Design

This research has the objective of conducting a comparative analysis on the maturity level determinants, challenges, and effects of enterprise risk management implementation on the performance of enterprises within and outside industrial parks. The Mediation Model is chosen after considering the relationship (cause-effect) of variables. In order to meet the objectives, this research uses descriptive and hybrid (quantitative and qualitative) research designs and approaches, respectively. The partial list square structural equation model (PLS-SEM) method is chosen to analyze enterprise risk management determinants and their effect on the performance of enterprises found within and outside industrial parks. On the other hand, a qualitative approach is applied to study what the challenges are while exercising or applying enterprise risk management within and outside industrial parks.

Data Type, Source and Method of Collection

The data for this research will be primary data collected via a standard questionnaire designed to apply the enterprise risk management index and analyze the determinants, challenges, and effects on the performance of enterprise risk management. Primary and cross-sectional data are collected for this study via questioners from businesses located within and outside of industrial parks. The respondents are general managers or deputy general managers of the enterprise. The structured questioner has five main sections. The first section deals with background information about the respondent. The second section is about measuring an enterprise risk management implementation index, the third section is about determinants of enterprise risk management, and the fourth and fifth sections deal with performance measurement of the enterprise and challenges of enterprise risk management implementation, respectively.

Target Population and Sampling Technique

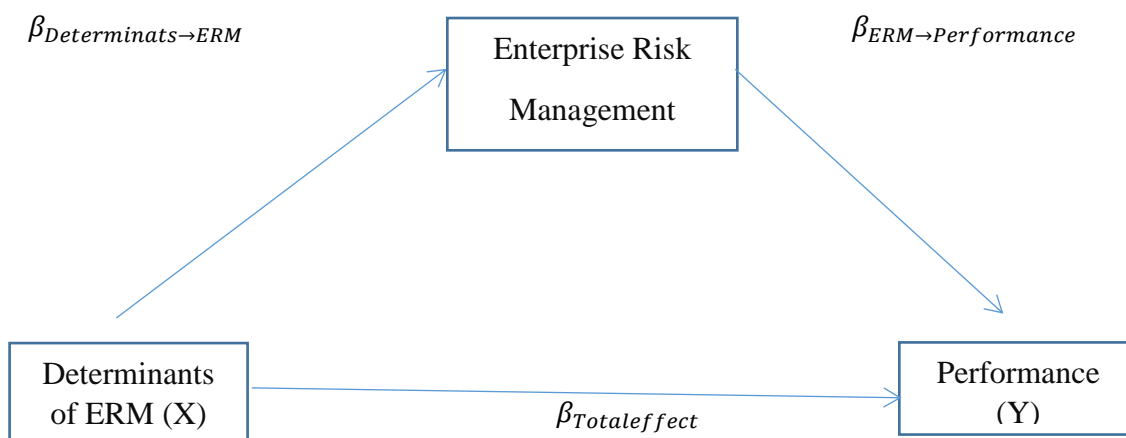
The target population of this study consists of 35 functional enterprises from industrial parks and another 35 enterprises outside of industrial parks for comparison purposes. This study considered enterprises found both in industrial parks and outside industrial parks. Since the number of functional enterprises in industrial parks is small and manageable, a census technique is used. The census technique is also used to get complete, accurate, and reliable information by considering the total population. This study, on the other hand, used a non-probability purposive sampling technique to compare enterprises found outside of industrial parks by stratifying manufacturing enterprises.

Model Specification

This study used the mediation model and partial least squares (PLS) analysis. Determinants of enterprise risk management and its effect on performance are studied using partial least squares structural equation modeling (PLS-SEM) in order to analyze hidden structures in the model not measured directly (Hair, Risher, Sarstedt, & Ringle, 2019). It allows researchers to analyze the relationship simultaneously. The mediation model is also capable of modeling latent variables and handling small sizes by considering measurement errors and estimating the parameters of entire theories simultaneously.

Figure 2

Mediation Model



Source: Own design based on literature

Step 1: $Performance_i = \beta_o + \beta_{total\ effect} X_i + e_i$ ----- equation 1

Step 2: $ERM = \beta_o + \beta_{Determinants \rightarrow ERM} + e_i$ -----equation 2

Step 3: $Performance_i = \beta_o + \beta_{Determinants \rightarrow Performance(ERM)} + \beta_{ERM \rightarrow Performance} * ERM + e_i$

Where:

$\beta_{Total\ effect}$ = Total effect of determinants of ERM on Performance.

$\beta_{Determinants \rightarrow ERM}$ = Direct effect of determinants of ERM on ERM.

$\beta_{ERM \rightarrow Performance}$ = Direct effect of ERM on performance

$\beta_{Determinants \rightarrow Performance(ERM)}$ = Direct effect of determinants of ERM on performance through ERM.

Data Analysis, Findings and Discussions

Enterprise Risk Management Implementation Level

Level of ERM implementation has been designed by using in the form of an ordinal measure of an ERM index that can take the value from 16 to 80, depending on the number of ERM characteristics on objectives of enterprise, risks, coordination, and integrated analysis. The questions were answered by using 5 level Likert-scale (1-Strongly Disagree, 2- Disagree, 3- Neutral, 4-Agree, 5- Strongly Disagree) in which the value takes from 16 to 80. Based on this enterprise’s level of ERM maturation level is summarized as below:

Table 1

Enterprise Risk Management Index

Level of ERM	Index Value
No ERM	16 – 31
Partial ERM	32 – 47
Evolving ERM	48 – 63
Complete ERM	64 – 80

Source: Developed by the researcher, 2022

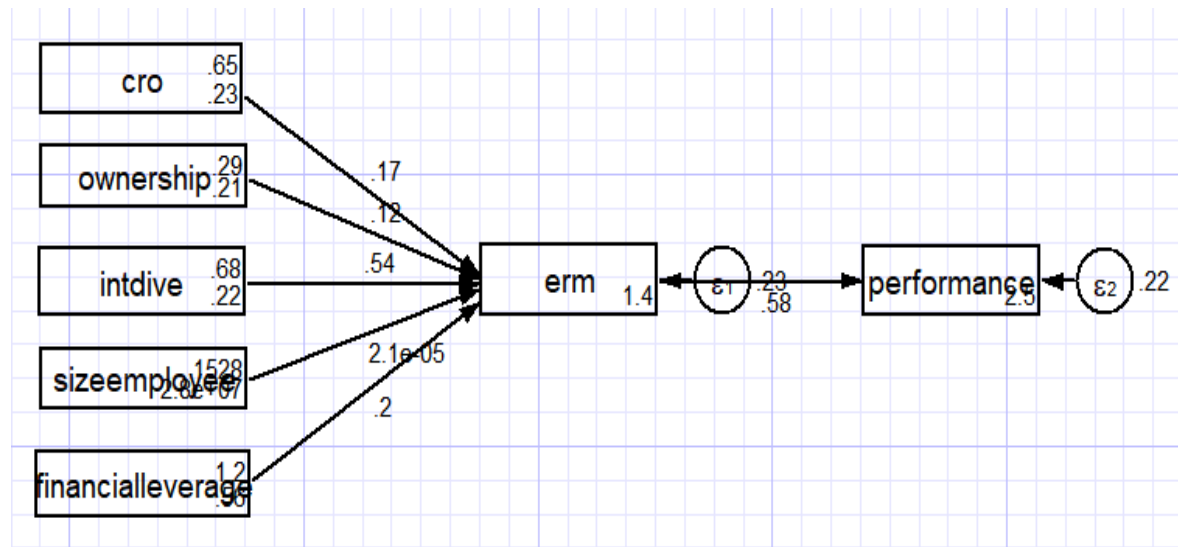
By taking the above points from the enterprises considered in this study, 9.68% of enterprises have partial ERM, 61.29% of enterprises have evolving ERM, and 29.03% of enterprises have reached the complete ERM maturity level in industrial parks. On the other hand, from the enterprises

outside the industrial parks, 13.33% have a partial ERM, 76.67% have an evolving ERM, and 10.00% have a complete ERM maturation level.

Model Building for Enterprises in industrial parks

Figure 3

Model Building for Enterprises in the Industrial Parks



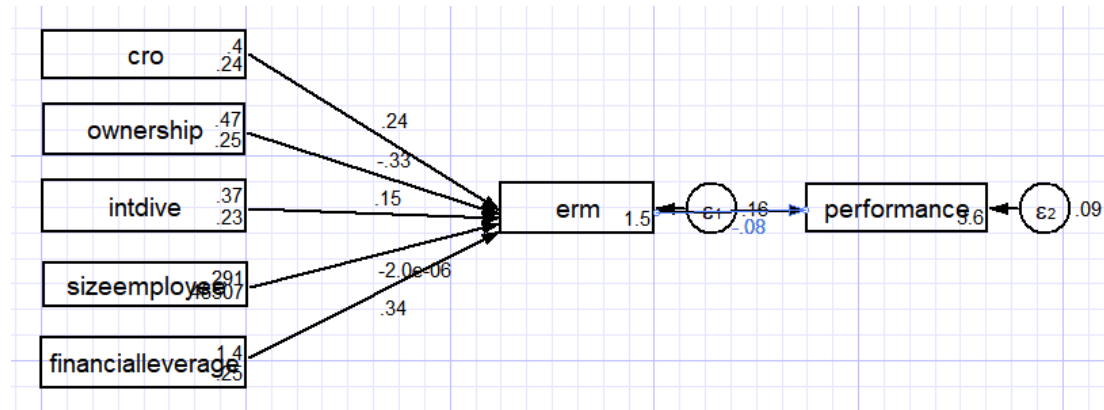
Source: Stata Output

The above figure shows the path diagram of the independent, mediator, and dependent variables with their respective path coefficients within industrial parks. Accordingly, the Chief Risk Officer, ownership, international diversification, employee size, and financial leverage have a path coefficient of 0.17, 0.12, 0.54, 0.0002, and 0.2, respectively, for Enterprise Risk Management. Since all path coefficients are positive, the independent variables are directly proportional to the mediating variable. Same as Enterprise Risk Management, which has a positive path coefficient of 0.58 towards performance. Meaning that enterprise risk management has a positive effect on the performance of the enterprises found in the industrial parks.

Model Building for Enterprises outside industrial parks

Figure 4

Model Building for Enterprises in Outside Industrial Parks



Source: Stata Output

Figure 4 shows that the path diagram of the independent, mediator and dependent variables with their respective path coefficient for enterprises found outside industrial parks. From the figure Chief Risk Officer, Ownership, international diversification, employees Size and financial leverage has a path coefficient of 0.24, - 0.33, 0.154, -0.00002, 0.34 respectively to Enterprise Risk Management. The result shows that the presence of chief risk officer, level of international diversification and status of financial leverage are directly proportional with enterprise risk management. Whereas ownership and employee size are inversely proportional with enterprise risk management. On the other hand, Enterprise Risk Management has a path coefficient of -0.8 towards performance. Which means Enterprise risk management has a negative effect on the performance of enterprises found outside the industrial parks.

Model Estimation

According to Table 2 regarding the direct effect of the independent variables on the mediator variable (ERM), only international diversification is significant with a P-value of 0.005 at the 5% significance level. On the other hand, the effect of enterprise risk management (the mediating variable) on performance (the dependent variable) is positive and significant with a P-value of 0.000 at the 5% significance level. This analysis shows that enterprise risk management has a positive effect on enterprise performance in industrial parks. Concerning the direct effect of the

independent variables on the mediator variable (ERM), ownership and financial leverage are significant with the P-values of 0.035 and 0.036, respectively, at the 5% significance level. On the other hand, the effect of enterprise risk management (the mediating variable) on performance (the dependent variable) is insignificant with a P-value of 0.483 at the 5% significance level. This result shows that enterprise risk management has no effect on the performance of the enterprises found outside industrial parks.

Table 2
Model Estimation

		Enterprises in industrial parks				Enterprises outside industrial parks			
		Coef.	OIM Std. Dev.	Z	P> /z/	Coef.	OIM Std. Dev.	Z	P> /z/
ERM	CRO	0.1685169	0.194	0.87	0.386	0.2403601	0.177	1.35	0.176
	Ownership	0.1216595	0.199	0.61	0.542	-0.331871	0.157	-2.11	0.035
	Int. diversification	0.5445593	0.196	2.78	0.005	0.1511728	0.18	0.84	0.403
	Size employee	0.0000207	0.000017	1.21	0.225	-1.95e-06	0.0003	-0.00	0.996
	Financial leverage	0.1975452	0.117	1.69	0.092	0.3362461	0.159	2.1	0.036
	Constant	1.40684	0.249	5.65	0.000	1,488581	0.297	5	0.000
Performance	ERM	0.584524		4.08	0.000	-0.079655	0.113	-0.70	0.483
	Constant	2.495238		7.66	0.000	3.635008	0.229	15.82	0.000

Source: Stata Output

Comparison of Challenges for ERM implementation in and outside industrial parks

Based on the findings of this study for enterprises located in industrial parks, the first major challenge for exercising enterprise risk management is the difficulty in translating risks into figures, followed by the availability and collection of historical data. Lack of risk assessment tools and technologies is the third major challenge for implementing enterprise risk management in

industrial parks. The fourth major challenge for the implementation of enterprise risk management is the integration of risk management within the nature of business. The board of directors' willingness and high initial cost of building a risk management system are the fifth major challenge with the same mean value. For enterprises found outside the industrial parks, the first major challenge is a lack of risk assessment tools and technologies. Difficulty in translating risks into figures and the availability and collection of historical data are the second and third major challenges, respectively. Integration of risk management within the nature of business is the fourth major challenge for implementing enterprise risk management outside industrial parks. The fifth major challenge for implementing enterprise risk management is the high initial cost of developing a risk management system, which is followed by the willingness of the board of directors as the sixth challenge.

Table 3

Comparison of Challenges for ERM Implementation in and outside Industrial Parks

SN	Description	Enterprises in industrial Parks		Enterprises outside industrial parks	
		Mean Value	Rank	Mean Value	Rank
1	The Board of Directors' willingness	3.16	5 th	2.134	6 th
2	Integration of risk management within the nature of business	3.26	4 th	2.8	4 th
3	High initial cost of building a risk management system	3.16	5 th	2.76	5 th
4	Availability and Collection of historical Data	3.387	2 nd	3	3 rd
5	Difficulty in translating risks into figures	3.516	1 st	3.03	2 nd
6	Lack of risk assessment tools and technologies	3.32	3 rd	3.323	1 st

Source: Researcher's Survey Questionnaire 2022

Conclusion and Recommendation

According to the major findings, the analyzed value of the enterprise risk management index shows that the majority of enterprises have evolving enterprise risk management maturation levels both inside and outside industrial parks. This study found that for enterprises in industrial parks, all independent variables (determinants) are directly proportional to the mediating variable (enterprise risk management), and the mediating variable (enterprise risk management) has a positive effect on the dependent variable (performance), whereas for enterprises outside the industrial parks, form of ownership and employee size have an inverse effect on enterprise risk management (the mediating variable), and enterprise risk management (the mediating variable) has a negative effect on performance (the dependent variable).

This study found that among the determinants of enterprise risk management (presence of the chief risk officer, form of enterprise ownership, level of international diversification, size of the enterprise (number of employees), and status of financial leverage), only international diversification is significant or a determinant for enterprise risk management. Enterprise risk management is significant towards the performance of enterprises found in industrial parks, while for enterprises found outside industrial parks, mode of ownership and status of financial leverage are determinants for enterprise risk management, but enterprise risk management is not significant towards the performance of the enterprises.

This study recognizes that for enterprises found in industrial parks, in relation to direct effect, international diversification is the only significant determinant variable for enterprise risk management, and enterprise risk management is significant to the enterprise's performance. For an enterprise outside the industrial park's ownership that has a direct effect on or is a significant determinant variable for enterprise risk management, no variable has a direct effect on the enterprise's performance.

This study found that only international diversification has an indirect effect on enterprise risk management, no variable has an indirect effect on the performance of the enterprises found in the industrial parks, and no variable has an indirect effect on both enterprise risk management and the performance of the enterprises found outside the industrial parks. Regarding the total effects, international diversification is significant for enterprise risk management, and enterprise risk

management and international diversification are significant for the performance of enterprises found in industrial parks. Whereas, in consideration of the total effect of variables, ownership and financial leverage are significant towards enterprise risk management, and no variable is significant for the performance of the enterprise outside the industrial parks.

Moreover, this research found that availability and collection of historical data, difficulty in translating risks into figures, lack of risk assessment tools and technologies, lack of awareness of enterprise risk management's advantages, and organizational cultures towards risk as a challenge for enterprises were found both inside and outside the industrial parks. Integration of risk management within the nature of business is the additional challenge for enterprise found in the industrial parks.

Based on the findings of this study, the following recommendations are forwarded or drawn in order to implement or exercise enterprise risk management in enterprises found within and outside of industrial parks. By taking the advantages of an enterprise risk management approach into account, enterprises found both in and outside industrial parks should integrate an enterprise risk management approach with their strategic plans and work toward its completion. In order to exercise the enterprise risk management approach, enterprises found both inside and outside industrial parks must plan and work against all challenges that hinder enterprise risk management implementation accordingly. Enterprises found both inside and outside industrial parks have to improve their enterprise risk management awareness, adapt a good organizational culture towards enterprise risk management, improve their risk assessment tools and technologies, and manage risk-related data. Likewise, enterprises in industrial parks should integrate or associate the enterprise risk management approach with their nature of business. IPDC should focus on and work toward enterprise risk management and create awareness for enterprises located in the industrial parks

Suggestion for Further Research Areas

This study was conducted to analyze the determinants, challenges, and effects of enterprise risk management on enterprise performance. In relation to this, there is still room for further investigation by considering other determinants of enterprise risk management, private industrial parks, and the enterprise's financial performance.

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References

- Al-Matari, E. M., Al-Swidi, A. K., & Bt Fadzil, F. H. (2014). The Measurement of Firm Performance Dimensions. *Asian Journal of Finance and Accounting*, 6(1). <https://doi.org/10.5296/ajfa.v6i1.4761>
- Author links open overlay panelDanijela Miloš Sprčić, Antonija Kožul, Ena Pecina (2015), State and Perspectives of Enterprise Risk Management System Development - The Case of Croatian Companies, *Procedia Economics and Finance*, Volume 30, 2015, Pages 768-779
- Author links open overlay panelSaudah Ahmad a, Chew Ng b, Lisa Ann McManus c (2014), Enterprise Risk Management (ERM) Implementation: Some Empirical Evidence from Large Australian Companies, *Procedia - Social and Behavioral Sciences*, Volume 164, 31 December 2014, Pages 541-547
- Beasley, M., Clune, R. and Hermanson, D.R. (2005), Enterprise risk management: an empirical analysis of factors associated with the extent of implementation. *Journal of Accounting and Public Policy*, Vol. 24 No. 6, pp. 521-531.
- Breeden, D. and S. Viswanathan. (2016). Why do firms hedge? An asymmetric information model. *Journal of Fixed Income* 25, 1–19.
- Brustbauer, J. (2016), Enterprise risk management in SMEs: Towards a structural model”, *International Small Business Journal*, Vol. 34 No. 1, pp. 70-85.
- Committee of Sponsoring Organizations of the Treadway Commission (COSO). (2004). *Internal Control –Integrated Framework*, AICPA, NewYork, NY.
- Danijela Milos Sprcic1, Ena Pecina, Silvije Orsag (), Enterprise Risk Management Practices in Listed Croatian Companies, *UTMS Journal of Economics* 8 (3): 219–230.
- Decker, A., & Galer, D. (2010). Getting the focus on enterprise risk management right. <http://community.rims.org/RIMS/RIMS/Community/Resources/ViewDocument/.Default.aspx?DocumentKey=47b61f84-4341-47f9-8fdc-2dd50d64ac29.>
- DeMarzo, P. and D. Duffie, 1991. Corporate Financial Hedging with Proprietary Information. *Journal of Economic Theory* 53, 261–286.
- Froot, K., D. Scharfstein, and L. Stein, 1993. Risk management: Coordinating corporate investment and financing policies. *Journal of Finance* 48, 1629–1658.
- George, B., Walker, R. M., & Monster, J. (2019). Does strategic planning improve organizational performance? A Meta-Analysis. *Public Administration Review*, 79(6), 810-819. <https://doi.org/10.1111/puar.13104>
- Grace KakiyaLucy RonoJared Mose(2020), The Influence of Enterprise Risk Management Practices on Organizational Performance: Evidence from Kenyan State Corporations, January 2020, DOI: 10.20448/2002.81.11.20

- Hair, J. F., Risher, J.J., Sarstedt, M., & Ringle, C M. (2019). When to use and how to report the results of PLS-SEM. *European Business Review*, 31(1), 2-24. <https://doi.org/10.1108/EBR-11-2018-0203>
- Hermalin, B.E. and Weisbach, M.S. (2003). Boards of directors as an endogenously determined institution: a survey of the economic literature. *Economic Policy Review*, April issue, pp. 7-26.
- Holmström, B. and J. Tirole, (2000). Liquidity and Risk Management. *Journal of Money, Credit and Banking* 32, 295–319.
- Hoyt, R. E., and Liebenberg, A. P. (2011): The value of Enterprise Risk Management, *Journal of Risk and Insurance* 78(4): 795-822.
- John Kommunuri, Anil Narayan, Mark Wheaton & Lilibeth Jandug, Enterprise Risk Management and Firm Performance Empirical evidence from Vietnam, <https://cdn.auckland.ac.nz/assets/business/about/our-departments/od-accounting-finance/NZMAS%20Symposium%202016/Enterprise%20Risk%20Management%20and%20Firm%20Performance%20John%20Kommunuri.pdf>
- Kaplan, R. S., & Norton, D. (1992). The balanced scorecard: Measures that drive performance. *Harvard Business Review*, 70(1), 71-79.
- Kleffner, A., Lee, R., & McGannon, B. (2003). The effect of corporate governance on the use of Enterprise Risk Management: Evidence from Canada. *Risk Management and Insurance Review*, 6(1), 53-73. <http://dx.doi.org/10.1111/1098-1616.00020>
- Lam, J. (2000). Enterprise-wide risk management and the role of the chief risk officer. [Online] Available: <http://www.Erisk.com>. (March 25, 2000).
- Lam, J. (2003). *Enterprise risk management: from incentives to controls*. John Wiley & Sons. New Jersey.
- Nadine Gatzert, Michael Martin (2013), Determinants and Value of Enterprise Risk Management: Empirical Evidence from the Literature, Department for Insurance Economics and Risk Management Friedrich-Alexander-University (FAU) of Erlangen-Nürnberg
- Negus, J. (2010). 10 common erm challenges. *Risk Management*, 57(2), 28–33. ABI/INFORM Global.
- Raposo, C. (1997). *Corporate risk management and optimal hedging disclosure*. London Business School Working Paper.
- Saddam Ali Shatnawi, Mustafa Mohd Hanefah, Nazratul Aina Binti Mohamad Anwar, Monther Eldaia (2020), The Factors Influencing The Enterprise Risk Management Practices and Firm Performance in Jordan and Malaysia, *International Journal of Recent Technology and Engineering (IJRTE)* ISSN: 2277-3878, Volume-8 Issue-5, January 2020
- Sana Masmoudi Sana Masmoudi Sonda Daoud Sonda Daoud (2018), Determinants of ERM implementation: the case of Tunisian companies, July 2018 *Journal of Financial Reporting and Accounting* 16(3):00-00 DOI: 10.1108/JFRA-05-2017-0044
- Smith, C.W. and R.M. Stulz, (1985). The determinants of firm's hedging policies. *Journal of Finance and Quantitative Analysis* 20, 391–405.