

## ENTERPRISE RISK MANAGEMENT AND PERFORMANCE OF PAKISTAN MANUFACTURING FIRMS: DOES THE EQUITY OWNERSHIP MATTER?

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### ABSTRACT

The increasing bankruptcies, around the world, have triggered a debate on the relationship between risk management practices and their impact on the performance of manufacturing firms listed in Pakistani stock exchange. The prime objective of this study is to explore the link between enterprise risk management (ERM) and the performance of manufacturing firms in Pakistan. This study has also examined the mediating role of equity ownership in the relationship between enterprise risk management and the performance of manufacturing firms. The response rate is 64.1 percent. The SEM-PLS is used to analyze the data. The resource-based view and agency theory have used to develop the conceptual model of this study. The findings have provided support to the hypothesized results. The findings offer an in-depth and valuable insight into the issues related to enterprise risk management and the performance of manufacturing firms. Moreover, organizations become able to enhance their capabilities of operational and strategic decision-making. From a strategic perspective, the performance of a firm is increased by ERM along with a reduction in the costly surprises.

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## 1. INTRODUCTION

Scholars have been triggered by a corporate failure to re-determine the relationship between organizational performance and initiatives of risk management. In the 21st century, the worst and significant collapse included WorldCom, Enron, and Lehman Brothers (Drausnick, 2012). Several complexities arise for corporate organizations along with the risk challenges in the environment. Corporate organizations need the ability to manage risk for their survival (Ugwuanyi & Ibe., 2012). Sharp instability is faced by business firms because of deregulations, globalization, and several other

challenges (Ahmed & Manab, 2016). The performance of a firm becomes poor because of a lack of ability of firms to mitigate risk, control, and assess. Practically, the business performance can be improved through risk management skills, performance assessments, and change in expectations of customers, imperatives engagement, and competences. The significance of the risk management issue has increased because of these challenges (Rostami et al., 2015).

The importance of risk management strategies for the survival of firms has been emphasized by the 1997 financial crisis of Asia and the recent global financial crisis in 2008. It is reflected through the global economic recession that there is a need for increasing the capabilities of surveillance and monitoring by the regulatory agencies to ensure a reliable financial system across the globe (Brummer, 2015). The significant drivers of economic growth are financial institutions that enhance the individual's welfare through supporting the capability of transferring and holding business assets by the business entities and householders (Jacobs & Manzi, 2019). Irrespective of the role of this sector, monumental challenges are witnessed by the global financial institutions in carrying out efficient and effective intermediation (Chowdhury, 2016). There was a decline of 51% in the market capitalization of global markets of equity resulting in US\$21 trillion dollars from US\$51 trillion dollars in 2009. The performance of firms across the globe has been negatively influenced by these developments.

A risk management strategy, which takes into account the interrelations of various types of risks rather than the traditional risk management strategy is referred to as ERM (Bromiley et al., 2015). The traditional risk management strategy includes physical mitigation, insurance buying, and reduction of liability. All the types of risks are considered by ERM along with the development mechanism to ensure the management of uncertainties and risks. Business organizations are enabled through ERM to recognize, control, use, finance, and overview the exposures from different sources to improve the performance of the firm. ERM has been described by the COSO as the initiative for the promotion of understanding of a range of risks' sources (Fraser & Simkins, 2016).

Organizations become able to enhance their capabilities of operational and strategic decision-making. From a strategic perspective, the performance of the firm is increased by ERM along with a reduction in costly surprises. Moreover, it positively adds to the development of the risk culture of the organization (Teece et al., 2016). The performance of the firm is improved through the accumulative influence of such decisions (Khanna et al., 2016). The empirical findings related to the expected ERM benefits on the performance of the firm are inconsistent (Hrovatin et al., 2016). It has been suggested by some studies in the literature to introduce specific organizational variables to deal with inconsistencies (Argyris, 2017). Managerial ownership has been identified, as the possible incentive to result in the alignment of interest between the owners and the firm's management.

The implementation of ERM is the decision of the board. Some studies argued that interest alignment between the owners and members of boards will improve the management decisions for risks. This can improve the performance of a firm. Baron and Kenny (1986) contended that when the relationship between a criterion variable and predictor is weak or no consistent, a moderating variable can be incorporated. Therefore, the board equity ownership is used as a moderating variable to improve the relationship between firm performance and ERM practices (Shatnawi et al., 2019).

Note that an effective process of risk management is ensured by the board of directors to be in place. The interest of shareholders and board members can be aligned through board equity ownership in line with several studies (Liu et al., 2014). Therefore, the capacity of board monitoring

can be improved through interest alignment, which increases the performance of firms (Zona et al., 2018). Board equity ownership supports the success of implementing ERM. The ability of the board to monitor is improved through board equity ownership that can result in effective implementation of risk management (Hopkinson, 2017). Therefore, the study aims at analyzing the influence of ERM practices on firms' performance in the financial industry of Pakistan.

## 2. HYPOTHESIS DEVELOPMENT

### 2.1 COMPLIANCE AND FIRM PERFORMANCE

The 2003 global world survey based on 1400 CEO confirmed a positive association between firm performance and compliance with regulatory provisions (Sanchez & Baixauli, 2015). Therefore, compliance (Compl) is a crucial element of ERM to improve the performance of performance. Similarly, Alves and Mendes (2001) indicated that financial institutions can improve positive abnormal returns of firms through compliance with provisions of the Portuguese Securities Market Commission. Ammann et al. (2011) investigated the influence of 64 individual attributes of governance such as compliance on the performance of firms. A positive relationship was established between ownership structure, compliance, and performance of firms. Similarly, the stakeholder's opinion was examined on the relationship between mortgage firms' performance and compliance with regulatory requirements of financial reporting of primary mortgage institutions.

A study revealed that positive influence is created by compliance with the performance of Pakistan's primary mortgage institutions. Zandona (2017) asserted that organizations should go beyond compliance. The implementations of strategies and objectives of businesses are based on the management styles, value-laden, and preferences. The firms are encouraged to comply with the regulatory provisions through commitment that influences the performance of firms. Alternatively, the emphasis has been given by some scholars on the nature of provision because of the flexibility of some regulations and rigidity of others. Erkens et al. (2012) conducted a cross-country analysis, in which it was found that regulatory restrictions on financial institutions during 2007/2008 made them perform better in the global financial crisis. Alternatively, Moshirian (2011) contended that the financial crisis of 2006 was precipitated because of excessive compliance with policies of the financial sector. The collapse of the financial sector occurs because of laxity on regulatory agencies to control the financial institutions' excessive behavior of risk-taking or promoting policies for system destabilization. Thus, the performance of financial institutions can be improved through sound regulatory provisions. Likewise, Schmidt et al. (2017) revealed that the performance of a firm can be improved through customer perception and regulatory compliance. It is concluded by the study that eco-innovation can be supported through sound regulatory provisions.

H1: The risk compliance has a significant impact on the firm performance

### 2.2 RISK CULTURE AND FIRM PERFORMANCE

The influence of organizational culture on the success of firms has been examined by several studies. The organization is held by its culture and it improves the association between different business units. The norms are reflected through organizational culture and it promotes the success of firms (Ahmed, 2016). The business objectives and strategies involve a sound risk culture, which is a key challenge for the financial firm (Epstein, 2018). Likewise, Battistella et al. (2016) asserted that

the most crucial competitive factor possessed by an organization is the corporate culture. There is hardly a successful company, which does not possess a visible and unique organizational culture.

It was indicated by Naranjo-Valencia et al. (2016) that the adoption of ERM and its speed is positively influenced by organizational culture. This view was supported by Agarwal and Ansell (2016) that without a sound and effective risk culture, the firms cannot succeed in implementing ERM. In a similar way, it was revealed by the findings of a joint survey conducted by Protiviti Inc and Risk Management Association that risk culture is an important challenge to improve the performance of the firm and its practices of risk management.

A similar study indicated that almost 55% of the respondents feel that risk culture is not a crucial part of business objectives and strategies rather an element of risk management only. Aksoy et al. (2014) revealed a strong influence of organizational culture on the performance and efficiency of the organization. Therefore, using risk culture only focuses on the function of risk management, but it does not improve the performance of the business.

H2: The risk culture has a significant impact on firm performance.

## **2.3 RISK MANAGEMENT INFORMATION SYSTEM AND FIRM PERFORMANCE**

Florio and Leoni (2017) focused on financial services and found that organizations become able to appreciate the ERM value through a viable information management system for risk (RMIS). It is certain to have management information on risk to monitor and make decisions for informed risk management. It was contended by Serpella et al. (2014) contended that there is a need for an information management system for risk to make effective decisions about risk exposure. It was noted by Chee that the organization can avail the opportunity to conduct an in-depth analysis through good information management and formulate reports, which can fulfill various needs of stakeholders. Vieru and Rivard (2014) believed that standard procedures of workflow, operations, and organizational systems are required by the organization to possess a good information system.

Diverse information needs are possessed by organizations. Organizations work to get a competitive advantage through innovations in their information systems. Superior policies, processes, and methodologies for risk management are supported by the information system of ERM, which can improve the performance of the firm. The goals of ERM with the strategies of the organization are aligned. Descriptive analysis was used by Hashim et al. (2012) used to examine the relationship between the performance of firm and information system management in Pakistan. It was found by the study that there is a positive and significant relationship between organizational efficiency and information management system. Al-gharaibeh & Malkawi(2013) conducted a similar study in Jordan. They examined the influence of the Management Information System (MIS) on the governmental organizations' performance. it was found by the study that there is a positive and significant influence of MIS on the performance of the firm. A sample of 100 staff members was used by Hashim et al. (2012) to determine the influence of MIS on the performance of the firm. It was found by the study that there is a positive influence of MIS on the municipalities in the Northern Jordan. The performance of the firm is directly or indirectly influenced by the information system (IS). Therefore, it can possibly improve the risk management effectiveness and efficiency of the organization.

H3: The Risk Management Information System has a significant impact on firm performance.

## 2.4 INNOVATIVENESS OF ORGANIZATION AND FIRM PERFORMANCE

In order to achieve a milestone in risk management practices, there is a need to develop innovative ideas by the organization (Hatak et al., 2014). The internal, as well as external commitments of the firms, are influenced through innovativeness. There was no significant difference found by Damanpour and Evan (1990) between the firms with different innovativeness level. Different influences can be created by innovativeness because of inertia. The researchers argued that the inertia effect could be created by innovativeness. When the risk related to innovation is higher, the novelty is greater. Similarly, the relationship between the performance of the firm and innovativeness was examined Damanpour and Evan (1990). A uni-dimensional constructed was used by the study to explain the association between the performance of firm and innovativeness. It was asserted that the performance of the firm is not improved by innovativeness. A sample of 877 firms was used by Hsu and Cheng (2012) to analyze the practices of innovation in Taiwan's small enterprises. It was revealed by the study that there is a positive and insignificant relationship of innovation with the performance of the firm. A structural analysis was formulated by Hsu and Cheng (2012) to define the influence of innovativeness as a crucial success factor for technology-intensive firms. It was indicated by the findings that there is a significant influence of innovativeness on performance.

Similarly, the relationship between the sustainability of small firms and innovativeness was determined by Epstein,(2018) in the manufacturing sector. It was found by the results that firms could remain competitive because of innovativeness. The relationship between organizational innovations, styles, and performance was examined by Epstein (2018) in Thailand. It was found by the study that there is a significant influence of organizational innovation on the performance of the firm. Moreover, a study was conducted by Aksoy et al. (2014) based on a survey of 127 senior level managers. It was found that there is a positive and significant relationship between the performance of the firm and innovativeness.

H4: Innovativeness has a significant impact on firm performance.

## 2.5 BOARD EQUITY OWNERSHIP AND FIRM PERFORMANCE

Significant debate exists about the role of board members having an equity interest in improving the performance of the firm. Empirical evidence was provided by Arouri et al. (2014) that formed a positive association between the performance of firm and ownership of board equity. It was contended by the Ribbon Committee (Chowdhury, 2016) that ownership of board equity can decrease the problem of agency and improve the monitoring of the board. This can ultimately improve the performance of the firm. Similarly, it was reported by Ammann et al. (2011) that there is a positive relationship between ownership of board equity and the performance of the firm. Similarly, it was argued that the organizational ability to discipline its management has a positive relationship with board equity ownership (BOE). The important policy decisions can be made and ratified by the board of directors about the issues of risk management and investment management.

It was argued that BEO could act as a proxy variable for good governance in the firms. This makes sense as the directors' stock ownership can result in improved performance and good governance. It also promotes ERM implementation as an effective business strategy for improving the performance of the firm. Alternatively, it was argued by Ammann et al. (2011) that the

performance of the firm is negatively linked with the number of board meetings, ownership of board stock, and ownership of managerial stock. Likely, Al-gharaibeh & Malkawi (2013) conducted a study on Vietnam and found that when the range of ownership board lies in 0-22%, the performance of the firm declines.

Similarly, the ownership of the board greater than 22% of the overall stock of a firm increases the performance of the firm. It has been reported by some studies that there is a non-linear association between inside ownership i.e. board equity and management with the performance of the firm. The influence of insider ownership was found by Al-gharaibeh&Malkawi (2013) on the performance of the firm through choices of capital-structure. The study used a sample of civilian-run firms in China listed on its stock market. It was indicated by the empirical findings that there is a non-linear relationship between the value of the firm and managerial ownership. The influence of two contradictory positions related to ownership of equity such as entrenchment effects and convergence of interest formed the curve-linear relationship regard to equity ownership.

H5: The board equity ownership has a significant impact on the firm performance

## **2.6 THE ROLE OF BOARD EQUITY OWNERSHIP AS MEDIATOR ON THE RELATIONSHIP OF ERM SUCCESS FACTORS, ERM FRAMEWORK AND PERFORMANCE OF FIRM**

There are several challenges linked with the implementation of ERM. These challenges have undermined their value. It has been suggested by studies that there is a need to develop new ideas by the organizations to improve their performance. Organizations should develop innovative ideas to maintain their competitive position and deal with the changing needs of customers. According to Togoket *al.* (2014), the subject of ERM is still important because of inconsistent findings in the literature review regarding the influence of ERM on the performance of the firm. To explain the association, researchers have suggested incorporating contingent variables in the study. It has been affirmed by the studies that effective risk management can result in proper monitoring initiative of the board. To deal with risk, the ERM scheme should be regarded as a strategic policy decision by the firms.

With the increase in shareholding by the top management, there can be improvements in the ability of a firm to take the risk. It has been assumed in this research that the increase in shareholdings of the board from a low to moderate level, the capability of the firm to take risks is improved. Alternatively, with the decrease in the shareholding of the board to a considerable level, the risk-taking ability of the firm decreases as well. Based on the agency theory, actions can be taken by managers, which are not consistent with the interests of owners to maximize wealth. An obligation has been put on the agent to ensure efficient risk management in business.

H6: Risk compliance has a significant impact on board equity ownership.

H7: Risk culture has a significant impact on the board equity ownership

H8: Risk management information system has a significant impact on board equity ownership.

H9: Innovativeness has a significant impact on board equity ownership.

H10: Board equity ownership mediates the relationship between risk compliance and firm performance.

H11: Board equity ownership mediates the relationship between risk culture and firm performance.

H12: Board equity ownership mediates the relationship between risk management information

systems and firm performance.

H13: The board equity ownership mediates the relationship between innovativeness and firm performance.

### 3. METHODOLOGY AND MEASUREMENT

The study has employed surveys based to achieve the research questions. The data is collected from the chosen listed manufacturing firms in Pakistan Stock Exchange (PSX). The adapted questionnaire has been sent to the managers of the manufacturing firms. The scale of equity ownership is chosen from Al-gharaibeh & Malkawi (2013), compliances, Risk management information systems, innovativeness, and firm performance. A total of 335 questionnaires were sent to the potential respondents, out of which 257 received as filled and 215 are found useful. Thus, the response rate is 64.1 percent. The SEM-PLS is used to analyze the data.

### 4. RESULTS

The SEM-PLS is one of the robust techniques of data analysis and comprises two components namely the outer model and the inner model. The outer model determines the individual item reliability, composite reliability, and discriminant validity. The outer model of the current study is shown in Figure 1.

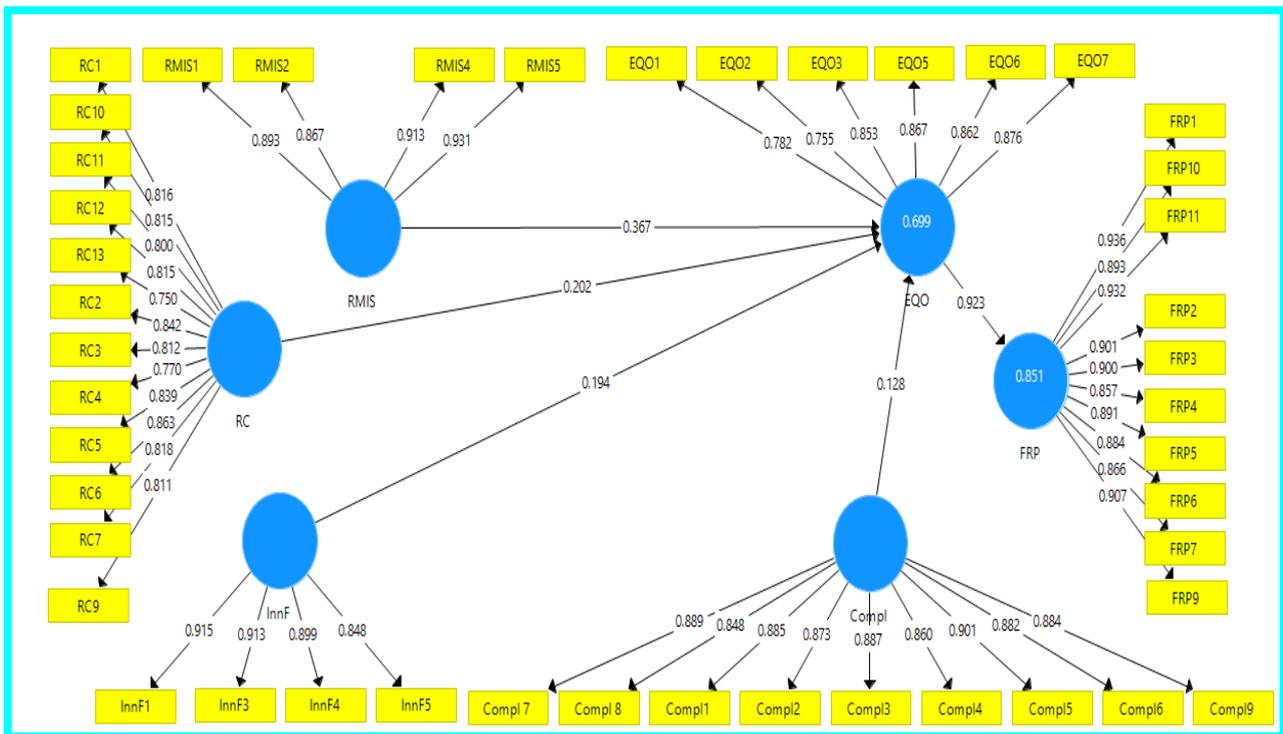


Figure 1: Outer Loading

The internal consistency of the item is shown in Table 1. The items with loading less than 0.7 are deleted from the analysis. The reliability of the model is shown in Table 2. The reliabilities of all the variables are above the threshold level.

**Table 1: Outer loading**

Variable	Compl	EQO	FRP	InnF	RC	RMIS
Compl 7	0.889					
Compl 8	0.848					
Compl1	0.885					
Compl2	0.873					
Compl3	0.887					
Compl4	0.860					
Compl5	0.901					
Compl6	0.882					
Compl9	0.884					
EQO1		0.782				
EQO2		0.755				
EQO3		0.853				
EQO5		0.867				
EQO6		0.862				
EQO7		0.876				
FRP1			0.936			
FRP10			0.893			
FRP11			0.932			
FRP2			0.901			
FRP3			0.900			
FRP4			0.857			
FRP5			0.891			
FRP6			0.884			
FRP7			0.866			
FRP9			0.907			
InnF1				0.915		
InnF3				0.913		
InnF4				0.899		
InnF5				0.848		
RC1					0.816	
RC10					0.815	
RC11					0.800	
RC12					0.815	
RC13					0.750	
RC2					0.842	
RC3					0.812	
RC4					0.770	
RC5					0.839	
RC6					0.863	
RC7					0.818	
RC9					0.811	
RMIS1						0.893
RMIS2						0.867
RMIS4						0.913
RMIS5						0.931

**Note:** RC = Risk Culture, InnF= Innovativeness of Organization, RMIS= Risk Management Information System, EQO = Board Equity Ownership, Compl = Compliance, FRP = Firm Performance.

**Table 2: Reliability**

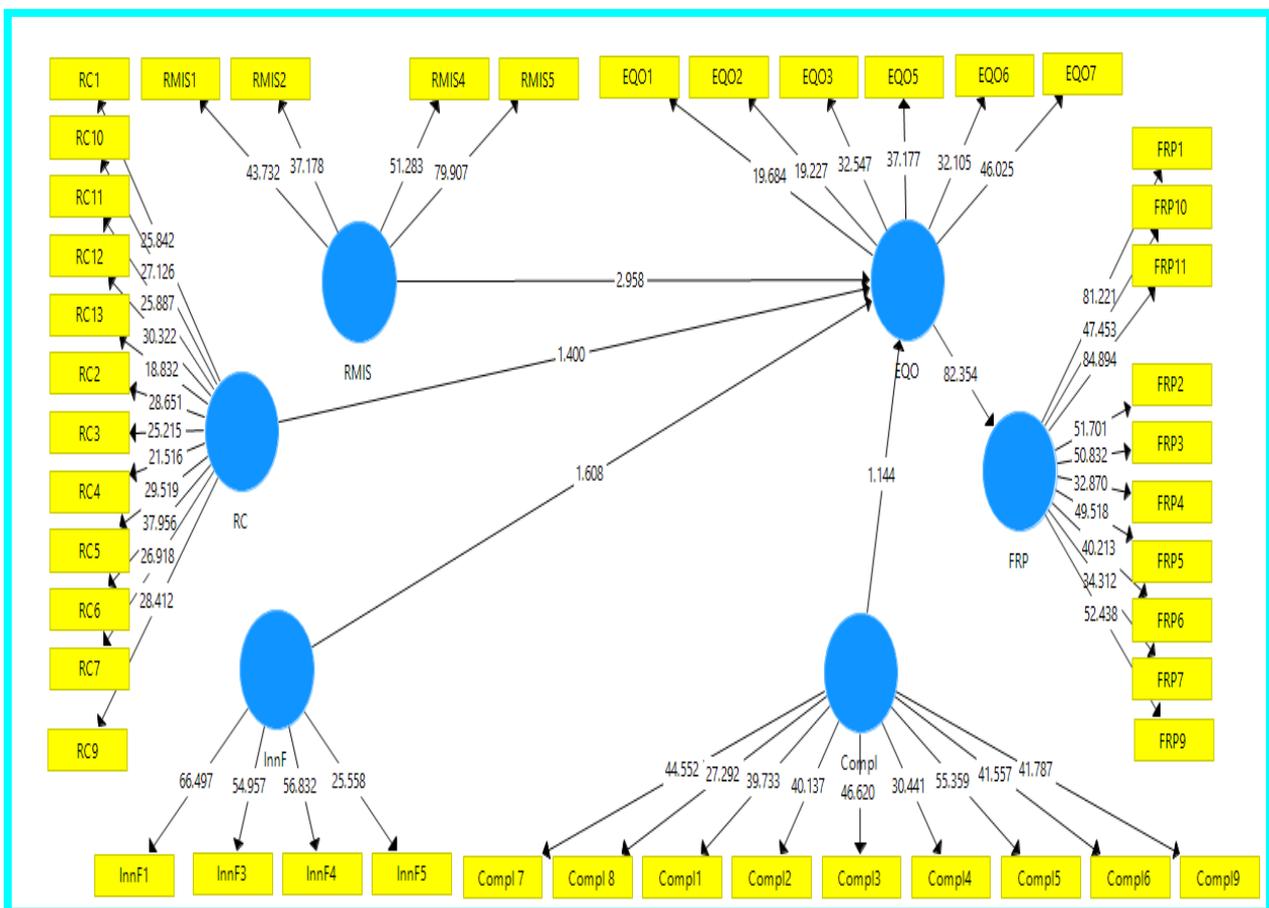
Variable	Cronbach's Alpha	rho_A	CR	(AVE)
Compl	0.963	0.964	0.968	0.772
EQO	0.911	0.913	0.932	0.695
FRP	0.973	0.974	0.976	0.805
InnF	0.916	0.923	0.941	0.799
RC	0.953	0.954	0.959	0.661
RMIS	0.923	0.925	0.945	0.812

The degree of success of measurement of the construct in comparison to the original construct is shown in Table 3.

**Table 3: Validity**

Variable	Compl	EQO	FRP	InnF	RC	RMIS
Compl	0.879					
EQO	0.695	0.884				
FRP	0.713	0.723	0.897			
InnF	0.686	0.783	0.705	0.894		
RC	0.703	0.807	0.770	0.858	0.893	
RMIS	0.684	0.806	0.724	0.872	0.880	0.901

The bootstrapping procedure is used to examine the direct and indirect relationship between and among the variables. The structural model is shown in Figure 2. The direct relationship between all the independent and dependent variables are shown in Table 4. Except, Compl → EQO, and Compl → FRP all direct hypothesis is accepted significantly at p<0.10.



**Figure 2: Inner model**

**Table 4: Direct relationship**

Relationship	Measure of the dependent variable (O)	Mean	SD	t-statistics	p-value
Compl → EQO	0.128	0.128	0.112	1.144	0.126
Compl → FRP	0.118	0.118	0.103	1.145	0.126
EQO → FRP	0.923	0.924	0.011	82.354	0.000
InnF → EQO	0.194	0.199	0.121	1.608	0.054
InnF → FRP	0.179	0.184	0.111	1.609	0.054
RC → EQO	0.202	0.210	0.144	1.400	0.081
RC → FRP	0.186	0.194	0.134	1.395	0.081
RMIS → EQO	0.367	0.356	0.124	2.958	0.002
RMIS → FRP	0.339	0.329	0.115	2.939	0.002

The indirect relationship between the independent variables, dependent variables, and mediation is shown in Table 5. Except for the Compl → EQO → FRP all hypothesis is accepted significantly at  $p < 0.100$ .

**Table 5: Mediation**

Mediation	Measure of the dependent variable (O)	Mean	SD	t-statistics	p-value
Compl → EQO → FRP	0.118	0.118	0.103	1.145	0.126
InnF → EQO → FRP	0.179	0.184	0.111	1.909	0.094
RC → EQO → FRP	0.186	0.194	0.134	2.395	0.081
RMIS → EQO → FRP	0.339	0.329	0.115	2.939	0.002

The R-Square value (Table 6) is above the threshold level. The Q-square value is above the threshold value of 0.00 (see Table 7). Based on the above-mentioned results, all the study hypotheses (direct or indirect) are accepted but H1, H6, and H10 (Table 8).

**Table 6: R-Square**

Variable	R Square
EQO	0.699
FRP	0.851

**Table 7: Q-square**

	SSO	SSE	Q <sup>2</sup> (=1-SSE/SSO)
Compl	1,953.000	1,953.000	
EQO	1,302.000	720.269	0.447
FRP	2,170.000	764.813	0.648
InnF	868.000	868.000	
RC	2,604.000	2,604.000	
RMIS	868.000	868.000	

**Table 8: Hypothesis Summary at statistically significant test result ( $P \leq 0.10$ )**

Hypothesis	Accepted	Rejected	Hypothesis	Accepted	Rejected
H1		√	H8	√	
H2	√		H9	√	
H3	√		H10		√
H4	√		H11	√	
H5	√		H12	√	
H6		√	H13	√	
H7	√				

## 5. CONCLUSION

This study investigates the relationship between enterprise risk management and the performance of the manufacturing firms. The results show that risk culture, innovativeness, and risk management information system are positively related to firm performance. It was believed by 48% out of 30 respondents that the firm's performance is improved by the support of top management and training. About 30% of the respondents believed that the performance of a firm improves by a risk management factor, i.e., technological capabilities. Moreover, board equity ownership moderates the relationship between enterprise risk management and firm performance. This study provided some important implications for theory, policymakers, investors and government and academia, and researchers. The current research finding is also useful for financial users around the world that give the investors' confidence to invest in esteemed organizations within a specific country.

## 6. AVAILABILITY OF DATA AND MATERIAL

Information can be made available by contacting the corresponding author.

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