Reassessing the Impact of Risk Management Capabilities on Firm Value: A Stakeholders Perspective

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Abstract

This study aims to analyze the impact of firm's risk management capabilities on firm performance and cost. Using panel data technique, a sample of 301 non-financial firms was analyzed for the time period on five years starting from 2011 to 2015. We assert that effective risk capabilities have positive impact on all stakeholders. The effective risk management capabilities guarantee more resilience to exogenous and endogenous risks. Our findings will have a significant impact on existing literature, by extending the existing knowledge of firm's risk management capabilities into the domain of diverse stakeholders and resources adjustment.

Keywords: *Risk Management, Firm Cost, Operational Cost, Production Cost, Dynamic Capabilities*

1. Introduction

In the past several decades, the fast changing competitive landscape and intense competition have increased business risks (Henisz & Zelner, 2015). Further, organizations are also in constant quest to create value for their shareholders. Therefore, they get indulge in risky market exposures, which can bring future opportunities and profits. But, those profitable opportunities can also lead to huge losses (Bromiley, McShane, Nair, & Rustambekov, 2015). To avoid those uncertainties firms take help from risk management techniques and financial tools (D. Teece, Peteraf, & Leih, 2016). Although financial tools like derivatives and securitization facilitate to the management of risks, but they also carry their inherent risks (Hain, 2011). Further, financial markets themselves are becoming complex in pricing, isolating and shouldering the risk (Hardy & Maguire, 2016). The recent financial scandals and crisis vividly illustrate the complex nature of business operations and misuse of risk management tools (Benoit, Colliard,

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Hurlin, & Pérignon, 2017; Berry & Phillips, 1998). Therefore, timely management of such uncertainties and associated costs have become imperative for the success of business and value creation. Although, different risks can be attributed to the losses of the firms, but the most important is the inability of the firms to take holistic approach towards risk exposures (Schiller & Prpich, 2014).

In academic research the conventional risk management is primarily associated with the elimination of downside risk associated with economic uncertainties (Torben Juul Andersen, 2008; Hutter & Power, 2005; Miller & Leiblein, 1996; Millo & MacKenzie, 2009). Similarly, process malfunction, technological disruption, compliance issues and men made irregularities are covered in the domain of operational risk (Power, 2005; Scott & Walsham, 2005). Moreover, the strategic risks like innovation, flexible structure, strategic renewal and responsive environment are considered as core tools to overcome strategic uncertainties and volatilities (Torben Juul Andersen, 2008; da Silva Etges & Cortimiglia, 2017; Miller & Bromiley, 1990). But how the firms will incorporate these tools and techniques in to practice, is still a mystery (Aven & Renn, 2009). Even if these risk management capabilities are adopted by the firm, how it is conceived to empirical research, is another challenge. Further, the dearth of empirical studies, especially in emerging economies to take holistic view of the risk management, increases the difficulty in developing the appropriate measures and tools to ascertain the firm's risk management capabilities (da Silva Etges & Cortimiglia, 2017). Therefore, we adopted the concept of total risk management by Torben Juul Andersen (2008) and effective risk management by Torben Juul Andersen and Roggi (2012),which we find as a more integrative and holistic approach toward risk management. This deliberative mode of risk management sufficiently bolsters the ability of a firm to manage operational, economic and strategic risk for better organizational performance (Torben Juul Andersen & Roggi, 2012; Kallenberg, 2007). The firms equipped with effective Risk Management Capabilities (RMC) will be better prepared to control endogenous and exogenous risks and hence minimize their operational inefficiencies and cost of doing business (Song, Newburry, Kumaraswamy, Park, & Zhao, 2019). Subsequently this will lead to decrease in earnings volatility and increase profitability.

In today competitive world, we cannot under estimate the importance of firm's cost at the time of risk management (Moser & Martin, 2012; Reider, 2008). The presence of higher firm's risk will trigger disruptive and unstable future cash flow (Fama & French, 1993). Which will further increase the uncertainty in minds of the stakeholders (Luo & Bhattacharya, 2009; Renn, 2015). Therefore growing risks and its associated cost related repercussions have further increased the importance of firm's cost structure, and its impact on firm's ability to manage its risks (Chen, Di, Jiang, & Li, 2017). It is also argued that different stakeholders can play significant role in the success of business and managing market uncertainties (Crilly & Sloan, 2012; Freeman, 2010). These diverse stakeholders will also compel firms to prudently manage risks (E. Cantor, Blackhurst, Pan, & Crum, 2014). Therefore, we introduced production and operational cost of the firm, as proxy to represent all those major stakeholders (Miller & Chen,

2003). Both these proxies will help us to empirically investigate the theoretical rationale that stakeholder are important for managing market uncertainties and value creation (Edwards, Ram, & Smith, 2008; Mitchell, Agle, & Wood, 1997).

The remaining of the paper is organized as follow. In subsequent section 2 we develop the theoretical rational and their association on the concept of dynamic capabilities, risk management and firm cost. In section 3 we explained the sample, data, variables and models of the study. Results and discussion are reported in section 4. Finally, in section 5 we presented the summary of the findings and some future research directions.

2. Theory Building

2.1. Risk Management Capabilities

A value of firm is the present value of its future cash flows less bankruptcy costs (Stulz, 2003). Hence, the value of the firm can either be improved by increasing the future cash flows or reducing cost or by insuring both. To achieve those objectives, a firm has to adopt its core capabilities to continuously changing market uncertainties (Porter, 1989). Such as, sales are aligned with market needs and requirements. Firm's costs are curtailed by adopting state of the art tools and techniques. These dynamic capabilities represent the firm's responsiveness to endogenous and exogenous risks. In the words of D. J. Teece, Pisano, and Shuen (1997) the dynamic capability is "the firm's ability to integrate, build, and reconfigure internal and external competences to address rapidly changing environment". These capabilities are embedded in the organization culture and composition of hierarchies and procedures. It will also ensure the responsiveness and adaptability of a firm to capitalize on market opportunities and swift strategic manoeuvring in case of changing alignments of the industry (D. J. Teece, 2007). Though, there are multiple risks that are exogenous to the firm and associated with socioeconomic condition of a country. For example, technological transformation, initiation of new markets and products, competitor's strategic manoeuvring, recession, taxes etc are some of the strategic risk that are beyond managerial controls (Miller, 1992). Those risks are hard to predict and quantify, because of complex and interdependent market structure and operations (Bettis & Hitt, 1995; Loch, DeMeyer, & Pich, 2011). Therefore the resilience of the firm to confront those strategic risks should stem from firms-specific capabilities (Helfat et al., 2009; D. J. Teece et al., 1997; Zollo & Winter, 2002). These dynamic risk management capabilities can be leveraged during changing geopolitical and economic conditions (Edwards et al., 2008). Moreover, these will also improve the chances of value creation, by capitalizing on market opportunities.

2.2. Firm Costs

The management of firm cost is not new to the academic research (Burt & Doyle, 1993). Different strands of academic research have highlighted and emphasized the importance of cost management (Coad & Cullen, 2006). According to some authors the firm cost is more important than the sales. For example, Reider (2004) argue that, the increase in sales can improve the net profit margin, which may or may not add value to the firm.

But, companies cost management can add "dollar for dollar" contribution. Therefore, the effective cost management and control has more value adding potential then increased sale (Reider, 2008). But despite its pivotal role in business operation the very nature of the firm's cost is still a debatable issue. Traditionally, firm's cost was brought into academic research in the context of sales. At the time it was assumed that, there is a proportionate variation in firm's cost and sales (Cooper & Kaplan, 1992). However, contrary to this strand of research, Anderson, Banker, Huang, and Janakiraman (2007) proposed an alternative argument and confirmed the "Sticky" behaviour of the firm cost. The notion of sticky behaviour was built on association of firm cost and sales. For example if we expect an increase of 20% in the firm's future activities (e.g. sales), it may result a subsequent increase of 10% in firm's cost. But the same decrease of 20% in firm activity may result a decrease of 6% in the cost of the firm. This behaviour is the consequence of managerial indifference to cost reduction in organizational down-turn and to face replacement costs as increased future activity. Alternatively, bear the cost of unutilized resources with hope of positive future prospects (Subramaniam & Watson, 2016). That complex nature of firm cost further increase its importance in organizational success. To further understand the importance of cost we further divided firm's cost into two very important components i.e. production cost and operation cost. Both these costs incorporate the relationships of some major stakeholders (Miller & Chen, 2003).

2.2.1 Production Cost

The production cost is also termed as business expense, which is the cost of doing business or manufacturing cost. In the field of accounting and finance it is often indicated by cost of goods sold. It incorporates direct cost such purchase of goods, raw materials and indirect costs related to warehousing, facilities, equipment, and labour (Hugos, 2018; Reider, 2008). The firms with the capabilities to manage those costs and associated risks will show better performance (Kaplan, 1983). At the same time, it also highlights the relationship of some key stakeholders with the firm. For example the COGS are associated with internal and external costs based on contractual agreement with different stakeholders (Jones, 1995). Such as the cost of raw material and labour cost, signifies the importance of suppliers and internal work force (Freeman, 2010). Similarly, the costs of sending finished goods to dealers and distributors are also of important nature. If the firm is maintaining better terms with these diverse stakeholders, it will help the firm to better manage its risks (Crilly & Sloan, 2012; Freeman, 2010). Such as, firms can get concessionary terms in economic downturn form various stakeholders (Wang, Barney, & Reuer, 2003). These concessionary contractual terms can be in shape of lower raw material cost, extended credit facilities and lower dealers and suppliers commissions (Miller & Chen, 2003). Furthermore, a firm with better risk management capabilities will be in a position to control those costs, as it will clearly foresee and capitalize on market opportunities, potential demands and sales. Therefore those concessionary terms due to effective risk management capabilities will significantly improve the chances of value creation.

2.2.2 Operational Cost

The operational cost such as Selling, General and Administrative Expenses incorporates all non-production expenses. It represents one of the most important and significant overhead cost of business, which is directly related to revenues generation (Cooper & Kaplan, 1988). Firm operational cost consolidates the expenses related to some of the most important stakeholders of the firm. Such as employees remuneration and other expenses such as sales and marketing expense, rent, insurance, utilities, supplies, and expenses related to head office (Liu, Liu, & Reid, 2017). The nature of these costs is very tricky. In most cases, a firm's financial manager will generally try to overcome those costs. But some of such costs can be very detrimental to the success of the businesses. For example sales and marketing expenses is directly associated with increase in revenue. So the money spent in terms of commissions to sales person and advertising campaign will add significantly to revenue generation (Cooper & Kaplan, 1988). Similarly, high salaries to managers and executives are also associated with employee's competence, satisfaction and motivation (Edwards et al., 2008). Moreover the administrative expenses related to acquiring state of the art processes and technologies can significantly improve the risk management function of the organization (Hammer, 2015). Therefore, the increase in expenditure on key stakeholder will give more resilience to a firm to overcome its endogenous and exogenous risks.

2.3. Theoretical Framework

A firm's ability of strategic responsiveness requires efficient resource mobilization to ensure smooth implementation of managerial decisions (Torben J Andersen, Denrell, & Bettis, 2007). According to D. J. Teece (2007) different organizational layers, procedures, production and distribution mechanisms, communication channels, corporate values, perks and privileges play a significant role in development and nurturing these response capabilities. Therefore, the effective risk management capabilities of firm will ensure the firm's responsiveness to changing market dynamics, in such a way that, value for shareholder can be derived by reducing fluctuation in firm's earning and reduction in bankruptcy costs (Torben Juul Andersen, 2008). The effective risk management capabilities at organizational level will also bring multiple opportunities for organizational growth and stability. For example, by controlling earning volatilities, a firm can reduce it bankruptcy risk, which will also enable them an access to low cost external finances (Minton & Schrand, 1999; Smithson & Simkins, 2005). Similarly, the lower bankruptcy cost will also reduce the transaction cost associated with different stakeholders (Miller & Chen, 2003; Wang et al., 2003). The associated cash flow stability will improve firm's liquidity condition, and firms will not require high level of liquid assets or liquidity buffers. Thus these funds can be used for future investments (Froot, Scharfstein, & Stein, 1993; Nocco & Stulz, 2006). Therefore, we expect that firm with better risk management capabilities will be better placed to manage its endogenous and exogenous risks and thus lead to superior performance. Hence, our first hypothesis of the study is as follow.

> ***H1:** There is significant and positive relationship between RMC and firm performance.*

In the context of discussion in previous section, a firm's cost structure assumes a very key role in organizational efficiency, especially at the time of market uncertainty (Abeberese, 2017; Coad & Cullen, 2006; Stolbov & Shchepelev, 2019). So it is vividly possible that increase in firm cost will decrease the firm performance. Hence we presume that;

> ***H2:** The increase in production cost will negatively affect the firm performance.*

> ***H3:** The increase in operational cost will negatively affect firm performance.*

The trade-off between firms cost and performance is an enduring postulate (Anderson et al., 2007; Banker, Huang, & Natarajan, 2011; Baumgarten, Bonenkamp, & Homburg, 2010), but very little attention is given to the association between firm's cost and risk management capabilities. So the real question is whether, a firm with effective risk management capabilities can control the negative impact of increasing cost on firm performance. Because, the firms capable of predicting and overcoming its endogenous and exogenous risks will also exhibit the characteristics to control their production and operational inefficiencies (Song et al., 2019). Subsequently it will also lead to decrease in earnings volatility and increase profitability Therefore, there is possibility of moderating effect of the firm's risk management capabilities of on relationship between firm's costs and performance.

> ***H2a:** The effective RMC of the firm will negatively moderate the relationship between production costs and firm performance.*

> ***H3a:** The effective RMC of the firm will negatively moderate the relationship between operational costs and firm performance.*

There is general agreement among researchers that risk management add value to the firm corporate standing (Bromiley et al., 2015; Kallenberg, 2007; Smithson & Simkins, 2005). But it is also argued that too much risk management will increase the firm's cost (Amaya, Gauthier, & Léautier, 2015; Berghöfer & Lucey, 2014; Stulz, 2003). Similarly firm cost and cost efficiency has become an important intrigue to establish products competiveness (Kolus, Wells, & Neumann, 2018). Therefore, it will be interesting to establish a direct relationship between firm cost and risk management capabilities. To explore this paradox, we assert that if the firm has the ability to control or manage its endogenous and exogenous risks, it will be in a better position to overcome its production and operational costs.

> ***H4:** There is significant and negative relationship between RMC and production cost.*

> ***H5:** There is significant and negative relationship between RMC and Operational cost.*

The firms which are continuously showing higher performance will be in better position to manage its risk profile by utilizing its available resources (Miller & Chen, 2003). Moreover, the firms showing steady performance will be in a better position to demand concessional terms form different stakeholders (E. Cantor et al., 2014; Maiga, Nilsson, & Ax, 2015; Wood Donna, 1995). Therefore, we expect a positive moderating effect of firm performance on the relationship between risk management capabilities and firm's costs. Hence, we hypothesized that;

H4a: *The firm performance positively moderates the relationship between* RMC *and production cost.*

H5a: *Firm performance positively moderates the relationship between RMC and firm's operational cost.*
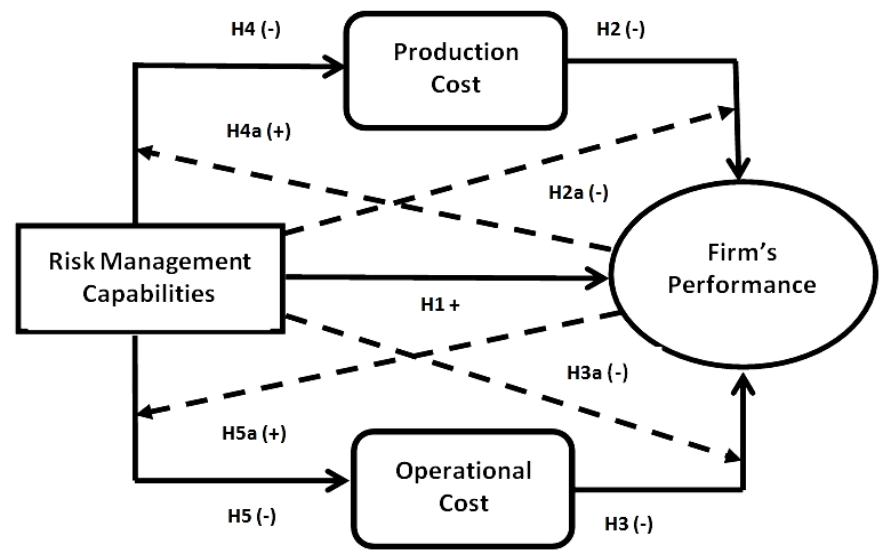
Figure 1: Schematic Diagram

3. Methodology

This study deals with a basic question to find the impact of RMC on firm value. This section elaborates different parts of methodology i.e. sample of the study, data, variables and empirical models.

3.1. Sample and Data Source

The empirical study is based on non-financial firms listed on Pakistan Stock Exchange (PSX) for the period of five year starting from 2011 to 2015. The data is obtained from financial statements of the non-financial firms across all industries listed on Pakistan Stock Exchange. We begin our analysis with all listed firms on PSX, which are 480 in

total. We excluded services sector and financial institution form our sample. There were several reasons for its exclusion. First, firms in those sectors don't report data on production cost (i.e cost of goods sold). Second, the risk dynamics of financial institution to be more specific are completely different then manufacturing firms (Maiga et al., 2015). Third, the accounting, reporting and regulatory framework of these firms are also different (Chang, Hall, & Paz, 2015; Tang, 2016). Further, we also excluded all those firms whose data were not reported for sample period. Final analyses were conducted on 301 non-financial firms.

Table 1: Classification of Firms in to Sector

S.No	Sector	No of Firms	S.No	Sector	No of Firms
1	Textile	119	7	Cement	19
2	Sugar	29	8	Motor Vehicles Sector	17
3	Food	12	9	Fuel & Energy	15
4	Chemical	39	10	Refined Petroleum	8
5	Manufacturing	23	11	Paper & Paperboard	6
6	Mineral Products	7	12	Electricity	7
Total Number of Sampled Firms					**301**

3.2. Variables

The detail explanation of each variable used in study is provided in Table 2. However main independent variable i.e risk management capabilities need further explanation. The RMC of the firms is calculated as coefficient of variation of sales divided by the coefficient of variation of firm performance, both calculated over consecutive five year periods (Torben Juul Andersen & Roggi, 2012). The firm performance is measured by return on assets of the firm. According to Torben Juul Andersen (2008) the coefficient of variation in sales point towards the effect of various exogenous risks and coefficient of variation in firm performance signify the ability of the firms to response to those risks. To avoid any industry effects and related trend we scaled the RMC of the firm by dividing on their respective industry averages. Firm size and firm's financial leverage are our control variables.

Table 2: Description of Variables

Variable	Notation	Type	Formula/Proxy	Used in Previous Research
Firm Performance	ROA	DV/ MV	$ROA = \dfrac{\text{Net Income}}{\text{Average Assets}}$	(Torben Juul Andersen, 2008; Deephouse & Wiseman, 2000; Miller & Leiblein, 1996)

Risk Management Capabilities	RMC	IV	$RMC = \dfrac{CV \text{ of } Sales}{CV \ Firm \ Perf^3}$	(Torben Juul Andersen, 2008; Torben Juul Andersen & Roggi, 2012)
Firm's Costs	Production Cost (P_Cost)	MV/DV	$P\_Cost = \dfrac{COGS}{Sales}$	(Miller & Chen, 2003)
	Operational Cost (O_Cost)	MV/DV	$O\_Cost = \dfrac{SG \& A \ Exp}{Sales}$	
Firm Size	F_Size	CV	$F\_Size = NL \ (Total \ Sales)$	(Aldrich, 1999; Pagach & Warr, 2011; Sharfman, Wolf, Chase, & Tansik, 1988)
Financial Leverage	F_Lev	CV	$F\_Lev = \dfrac{Long \ Term \ Debt}{Total \ Equity}$	(Catanach & Brody, 1993; Saunders, Strock, & Travlos, 1990)

3.3. Empirical models

Using panel data, we used different fixed effect panel regression test to analyze the relationship between of risk management capabilities with firm performance and firm costs. The panel data modelling is considered more useful as it allows more variability, efficiency, degree of freedom as compared to cross-sectional and time-series (Baltagi, 2008).

To empirically investigate the above developed hypotheses, following are the econometric models[4].

$$ROA_{it} = \alpha_0 + \beta_1 RMC_{it} + + \beta_2 F\_Size_{it} + \beta_3 F\_Lev_{it} + \varepsilon_{it} \quad \text{(I)}$$

$$ROA_{it} = \alpha_0 + \beta_1 RMC_{it} + \beta_2 P\_Cost_{it} + \beta_3 RMC_{it} * P\_Cost_{it} +$$

$$\beta_4 F\_Size_{it} + \beta_5 F\_Lev_{it+} \varepsilon_{it} \quad \text{(II)}$$

$$ROA_{it} = \alpha_0 + \beta_1 RMC_{it} + \beta_2 O\_Cost_{it} + \beta_3 RMC_{it} * O\_Cost_{it} +$$

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[3] ... $Firm \ Performance = \dfrac{NetProfit}{TotalAssets}$

[4] ... For H1= Model I; H2 & H2a = Model II; H3 & H3a = Model III; H4 = Model IV; H4a = Model V; H5 = Model VI; H5a = Model VII.

$$\beta_4 F\_Size_{it} + \beta_5 F\_Lev_{it} + \varepsilon_{it} \tag{III}$$

$$P\_Cost_{it\ =}\ \alpha_0 + \beta_1 RMC_{it} + \beta_2 ROAt_{it} + \beta_3 F\_Lev_{it} + \beta_4 F\_Size_{it} + \varepsilon_i \tag{IV}$$

$$P\_Cost_{it\ =}\ \alpha_0 + \beta_1 RMC_{it} + \beta_2 ROAt_{it} + \beta_3 RMC*ROA_{it} +$$
$$\beta_4 F\_Lev_{it} + \beta_5 F\_Size_{it} + \varepsilon_{it} \tag{V}$$

$$O\_Cost_{it\ =}\ \alpha_0 + \beta_1 RMC_{it} + \beta_2 ROAt_{it} + \beta_3 F\_Lev_{it} + \beta_4 F\_Size_{it} + \varepsilon_{it} \tag{VI}$$

$$O\_Cost_{it\ =}\ \alpha_0 + \beta_1 RMC_{it} + \beta_2 ROAt_{it} + \beta_3 RMC*ROA_{it} +$$
$$\beta_4 F\_Lev_{it} + \beta_5 F\_Size_{it} + \varepsilon_{it} \tag{VII}$$

4. Results and Discussion

Descriptive statistics and correlation analysis are reported in Table 3. The firm performance is positively correlated with the RMC and firms size. The financial leverage, operational and production costs are negatively correlated with the performance of the firm.

Table 3: Descriptive Statistics and Correlation (N=301)

	Mean	Min	Max	S.D.	1	2	3	4	5	6
ROA	0.970	-9.816	11.75	2.826	1					
RMC	0.915	0.008	1.833	0.924	0.036*	1				
FL	0.951	-11.15	14.43	1.984	-0.108**	0.045*	1			
FS	1.000	0.523	1.269	0.093	0.159**	-0.003	0.084**	1		
OC	0.547	0.002	14.24	1.086	-0.143**	0.036	-0.089**	-0.123	1	
PC	0.824	0.150	10.00	0.448	-0.243**	0.010	-0.070	-0.223**	0.288**	1

* $P < 0.10$; ** $P < 0.05$; *** $P < 0.001$

The result of firm performance as a dependent variable is reported in Table 4. In Model I the regression coefficient of RMC with firm performance is positive and significant. Hence we accept HI. Which signify that, the firms which have the ability to control and manage endogenous and exogenous risks will lead to better organizational performance. In Model II the coefficient of production cost is negative and statistically significant. Therefore, we accept H2, which shows that with increasing production cost firms performance will get negatively affected. However, the regression coefficient of interaction term P_Cost*RMC positively and significantly moderate the relationship between RMC and firm performance. Therefore the result show partial support to H2a, as the direction of relationship is opposite to our established theory. This result shows that, firm's with effective risk management capabilities will increase the negative

impact of rising production cost on firm's performance. These finding are however, slightly contrary to the establish theory and practices. However, one possible explanation to the reported departure may be that in volatile conditions firms normally hold high level of inventories to overcome market uncertainties (Mackelprang, Habermann, & Swink, 2015). Similar findings were also reported by Gertler and Gilchrist (1994), who were of the view that manufacturing firms are oftenly manifested by larger quantity of fixed assets and inventories. Therefore, their cost structures are difficult to minimize in short term and show sticky behavior. In such cases, in order to hedge against uncertain market conditions, the firms will have little option but to increase production costs as a risk management strategy (Mackelprang et al., 2015). This type of behavior is very likely, especially when firms are expecting high inflationary trends in future.

Table 4: Regression Analysis – Firm Performance (N=301)

	ROA		
	Model I	**Model II**	**Model III**
C	7.391 *(2.610)*	9.172*(2.609)*	7.794*(2.588)*
RMC	0.199**(0.092)*	-0.093*(0.190)*	0.174*(0.098)*
P_Cost	-	-1.376***(0.290)*	-
P_Cost * RMC	-	0.318*(0.198)*	-
O_Cost	-	-	-0.472***(0.105)*
O_Cost * RMC	-	-	0.083*(0.070)*
F_Lev	-0.034*(0.047)*	-0.042*(0.047)*	-0.042*(0.047)*
F_Size	-6.571**(2.608)*	-7.182***(2.589)*	-6.725***(2.587)*
No of Observation	1505	1505	1505
Multiple R^2	0.597	0.606	0.605
Adjusted R^2	0.496	0.505	0.505
Durbin-Watson Stat	2.048	2.046	2.065
F- Significance	0.000	0.000	0.000

* P < 0.10; ****** P < 0.05; ******* P < 0.001

The parenthesis include (Standard Error)

In Model III, we accept H3 as the regression coefficient O_Cost is statistically significant and negative. Further, the interaction term of O_Cost*RMC positively moderate the association between RMC and performance. However the results are insignificant, so we reject H3a. The operational and production costs have negative and highly significant relationship with performance in Model II and Model III. This shows that firms which are efficient in cost management will perform better.

The regression analysis results for firm cost as dependent variable are presented in Table 5. The empirical result of Model IV shows negative and significant association of RMC with production cost of the firm. Therefore, we accept hypothesis H4. Those

results illustrates that, the firms which have better risk management capabilities will be in a better position to control its production related overhead costs. Similarly, the negative and significant coefficient of ROA shows that, the performance of the firm is also a key aspect of cost reduction in production activities. Firms which consistently perform well will have multiple resources to fall back upon and to improve its production related cost management. In Model V the interaction RMC*ROA shows a positive impact on the relationship of RMC and P_Cost. Thus we accept H4a. This show that the firms with ability to show superior performance will be in a better position to manage its risk profile and overcome production related expenses. This also confirm the notion that, firms with better risk RMC, coupled with continuous performance will get more concessional terms from production level stockholders.

Table 5: Regression Analysis – Firm's Costs (N=301)

	P_Cost		O_Cost	
	Model IV	**Model V**	**Model VI**	**Model VII**
C	1.624*(0.320)*	1.629*(0.320)*	1.247*(0.860)*	1.227 *(0.857)*
RMC	-0.019*(0.011)*	-0.025**(0.012)*	0.050*(0.030)*	0.076** *(0.031)*
ROA	-0.016***(0.003)*	-0.022*** *(0.005)*	-0.044*** *(0.009)*	-0.017 *(0.012)*
RMC*ROA		0.007*(0.004)*		-0.037*** *(0.012)*
F_Lev	-0.006*(0.006)*	-0.005*(0.006)*	-0.017*(0.016)*	-0.019 *(0.015)*
F_Size	-0.760**(0.319)*	-0.760**(0.320)*	-0.686*(0.859)*	-0.684 *(0.856)*
No of Observation	1505	1505	1505	1505
R-squared	0.762	0.762	0.706	0.709
Adj R-squared	0.702	0.702	0.632	0.635
Durbin-Watson Stat	2.069	2.075	2.023	2.052
F- Significance	0.000	0.000	0.000	0.000
* P < 0.10; ** P < 0.05; *** P < 0.001 *(Standard Error)*				

In Model VI the results of H5 are significant at 10% of significance level, but in opposite direction. Such as, the firm with better RMC will have higher operational cost. Operational cost is one of the most important and significant overhead cost of businesses, which is directly related to revenues generation. The operational cost consolidates some vital stakeholder costs. Such as employee's salaries, bonuses, sales and marketing expenses, rent, insurance, utilities, supplies, and expenses related to head office. According to Jones (1995) the more a firm spend on key stakeholders, the more

resilient it become to overcome its risks and uncertainties. Moreover, Subramaniam and Watson (2016) argue that most of the manufacturing firm's SG&A expenses show sticky behaviour, if there is certain increase in the revenue of the business. So the possible sticky behaviour may also be the reason of this positive association. However, this is a shade contrary to our expectations and theory, hence needs further research. The coefficient of ROA is highly significant and negative.

The interaction RMC*ROA in Model VII, shows a negative impact on the relationship of RMC and O_Cost. This shows that increase in operational cost due to risk management activities will decline in those firms which are showing positive performance. These results are intriguing, and support our earlier results of positive impact of RMC on operational cost in Model VI.

5. Conclusion

In this study we investigated two basic objectives of risk management i.e. whether or not, firms' risk management capabilities will improve the firms' performance and reduce cost. We found strong supporting evidence for both propositions. Therefore, we confirm that firms which have the ability to manage their endogenous and exogenous risks will exhibit better economic performance and will minimize its production related overhead costs. The moderating effects of RMC with cost variables and firm's performance are very thought provoking. These results signify some specific market dynamics. Such as, holding large quantity of inventories and expected future inflationary trends. However, detail empirical investigation of different heads of production cost will further elaborate this behaviour.

The performance of the firms is also a key ingredient for both cost reduction and implementation of risk management strategy. Therefore, the firms which are continuously showing positive performance will have multiple resources to resort to improve management of their production costs. The positive performances will also enable firms to get more concessional term form various production level stakeholders. We also found that, the firms with better risk management capabilities may also lead to higher operational costs. This finding is, however, of primary nature and necessitates deeper investigation. However, the negative moderating impact of firm performance on risk RMC and operations cost's relationship confirms that, the incremental performance of the firms will weaken the impact of rising operational cost with associated risk management abilities.

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