Risk Management Practices and Operational Performance of Plastic Manufacturing Companies in Ghana

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Abstract:- Risk management as a managerial act is gaining grounds in the Ghanaian manufacturing sector. This can be associated with the fact that, effective risk mitigation enhances effective resource allocation, prevents wastage and reduces operational cost. Risk management also calls for proper people management and profit maximization.The study sort to identify various risk management practices within the Ghanaian plastic manufacturing industry to establish its relationship and effect on operational performance.

The study adopted a quantitative approach, random sampling approach was used for the study, this is the most common and basic form of probability sampling, where units or elements are chosen randomly from an identified population with all elements having an equal opportunity to be selected. The findings of the study indicated that, there exists no correlation between RMP and OP. The study also expressed that, RMP is a weak predictor of OP.

Considering issues associated with Risk management practices and Operational performance, the study recommended key strategies such as risk insight, proper risk reporting, diagnostics, risk strategy and prioritization for effective management and performance maximization.

Keywords:- Risk Management, Practices, Operational Performance and Manufacturing Companies.

I. INTRODUCTION

As inferred from Nocco and Stulz, (2006), risk management has taken hold on new varieties of multiple risks and risk measures over the last ten years. According to Liu, (2012), risk has become an influential factor in the realization of the goals of Enterprises; hence, how to deal and understand its nature has become the priority of organizations. Bedford and Cook, (2001), exhibit risk in two main types: harm (peril) and ambiguity (measured by the likelihood of occurrence). Ambiguity is central to everyday life, this is because we are unable to predict future conditions. In contemporary times, there has been an awareness of ambiguity in state and individual businesses, extremely given the backdrop of piquing financial breakdown of major corporate and banking societies, together with notable catastrophes, such as the current financial crisis faced by the Ghanaian Banking Sector (Taleb, 2007).

Risks present diverging opinions between organizations, because every organization is unique, likewisethe Ghanaian Plastic Manufactory Industry (Gould and Joyce, 2002). In contrast, many organizations have not realized the importance of incorporating risk practices as part of their routine (Smith *et al.,* 2006). Risk Management Practice has become a very crucial tool for attaining organizational objectives (Eccles *et al.,* 2001). In recent years, Ghana has realized importance of risks management practice, which is why the practice has been established in some Institutions both private and public. Risk management is *"the process of understanding and managing the risks that the entity is inevitably subject to, in attempt to achieve its corporate objective" (*CIMA, 2005).

II. REVIEW OF RELATED LITERATURE

A. *Risk Management*
As fundamental component in our contemporary times, are changes of trend with which organizations review and mitigate risks as (Lai *et al.,* 2010). According to Gordon *et al.,* (2009), Managing risk is fundamental to contemporary global environment. Risk management can be termed as act by which an organization identifies, analyses threats, and accepts or mitigates those threats (Stanton, 2012).

An organization defines its own risk management strategy Alftan *et al.,* (2008). This strategy serves as a guide for controlling major risks faced by organization. Usually risk management is based on cost and benefit approach. Most common risk management practices are as follows:
- Risk reduction,
- Risk transfer,
- Risk avoidance,
- Risk acceptance,

B. *The Risk Management Process*
The risk management process itself should be iterative. It consists of the following steps:
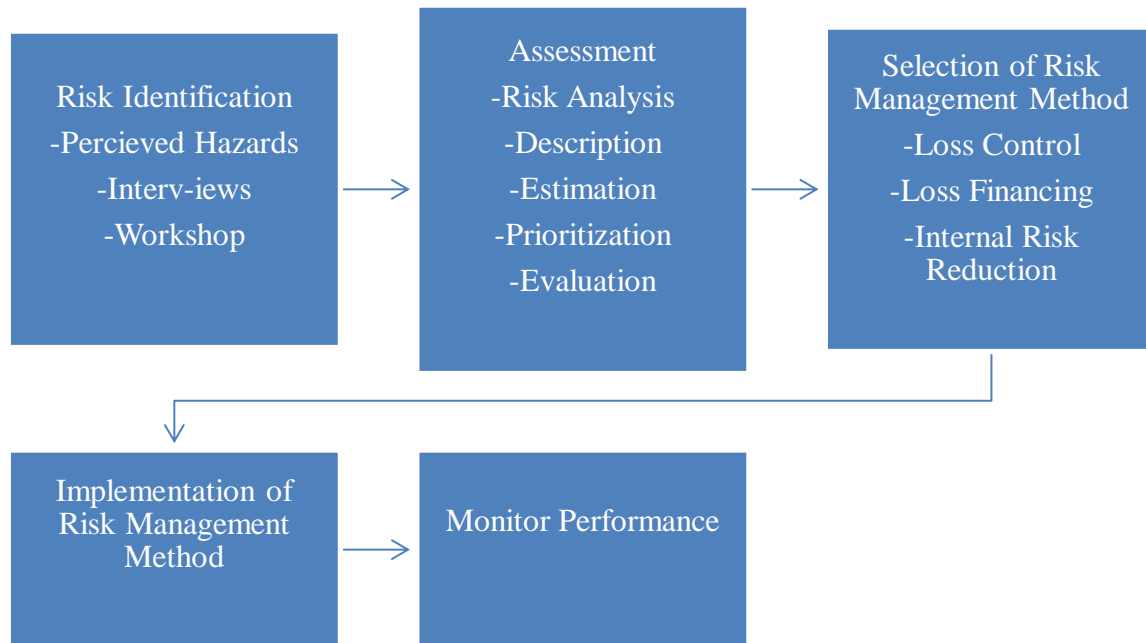
Fig. 1 : Steps within the Risk Management Process

Source: (Harrington and Niehaus, 2004)

C. Risk Identification

This face identifies internal and external events which imping organizational objectives, as well as possible risk or opportunity. This entails total environmental scanning, where value creation opportunities are channeled back to management's strategy or objective-setting process (COSO, 2004). Top management should not focus on risks that result in organizational failure. All activities of an organization expose some amount of risk.

D. Techniques for risk identification

A number of techniques can be adopted for risk identification. Most common methods are interviews, questionnaires and workshops.

- *Interviews*-This method can be used to gather information regarding an area of possible risks within an organization.
- *Workshops*- Workshops can also be organized to derive information on risks. This involves the invitation of resource persons to the organization to discuss issue on risks. The assistance of the Resource person's helps identified various risks associated with operation of the organization.

E. Risk Assessment, Prioritization and Evaluation

The risk assessment stage involves the determination of risk probability of risk occurrence and impact. According to Funston, (2003), risk impact and probability of occurrence can be weighed. Risk impact and risk probability are two significant elements to be considered but are sometime seen as insufficient elements. The researcher further discussed that, estimates of probability are only useful for risks that have already occurred, this considers historic factors. Risk prioritization uses a risk matrix that maps risk probability and risk impact, where its group results as high, low or

medium risks (Page and Spira, 2004). A well designed table enhances easy description and evaluation of risks and ensuring a comprehensive risk identification, description and assessment. An effective risk evaluation and prioritization, enterprise-wide risk register is developed to ensure a consistent application and understanding of ERM throughout the organization (Fraser and Henry, 2007).

F. Risk Management Practices

Alftan *et al.,* (2008), made an assertion that, an organization defines its own risk management strategy, which serves as guide for controlling major risks in organization, based on cost and benefit approach. Below are discussions on common risk management practices;

- *Risk Acceptance*- It aims at dealing with the actual risk by tracing risk from it source and coming up with prerequisite interventions to mitigate them in order to boost operational performance (BRC, 2007). This strategy can also be considered as the "reactive action strategy" in that, the organization response to risk after it has taken place by endeavoring to mitigate its impact (Thun and Hoenig, 2011). Risk response activities such as product withdrawal from the market can inhibit performance. This factor is regarded as a key downside to this practice (Zhao *et al.,*2009 and Heerde *et al.,*2007). Heerde *et al.,* (2007), advance by saying that for effective acceptance practices there must be checklists which will spell out managerial and organizational actions to mitigate risk. This practice also calls for proper risk instigation and assessment in order to avoid future occurrences (Dawar and Pillutla, 2000).
- *Risk Avoidance*- avoidance as an approach entails the act of taking precautions against loss. Exposures

to losses are totally eliminated by not engaging in risky ventures at all. With this strategy, the organization forgoes all benefits to be derived from risky ventures (Harrington and Niehaus, 2004). The motivation factor for this approach is basically to prevent risk to help improve operational activities (Lewis, 2003). Zsidisin and Smith, (2005), suggested that for effective risk avoidance, there is the need for supplier valuation, through approaches such as supplier identification, strategy inspection and risk evaluation. This approach can be termed as the Preventive Action approach, where the organization aims at risk avoidance and reduction for unforeseen eventualities. Lewis, (2003), reveals for total avoidance there is the need for "before the event" and "after the event" risk assessment and evaluation. Hence, the proactive means of control and dealing with risk (Blome and Schoenherr, 2011).

- *Risk Reduction* - this is a strategic risk management practice where by fervent actions are put in place to reduce risk to the barest minimum. With this approach, the organization aims at reducing activities which poses much risk. This can be done by limiting the production of risky products and services and rather focusing on less risky product lines. For effective risk reduction, organizations need to invest into information and technologies in order shorten long production process, increase quality, safety and also give value. Investment in information can be done through market research and frequent product research which may encourage modification (Harrington and Niehaus, 2004).

- *Risk Sharing* - this form of risk management practice often exists between organizations and their customers or suppliers. Where organizations establish and maintain a long lasting relationship with their clients by providing them with value for money (Camuffo *et al.,* 2007). Zsidisin and Ellram, (2003), also argued that this strategy may sometimes call for strategic alliance between an organization and its supplier to enhance development and quality performance. Organizations do this in order to obtain their desired standard and also share risk resulting from supplier operations. Risk sharing in this scenario does not only cover losses resulting from the alliance but also potential benefits (Harland *et al.,* 2003). Furthermore, a program outline is drawn which spells out and serves as a means of consent to the activities of an organization and its suppliers (Zsidisin and Smith, 2005). That notwithstanding, the outlined program enables effective monitoring and coordination of organizational process leading to safety and product quality by improving operational performance (Marucheck *et al.,* 2011 and Madhusudan, 2005).

- *Risk Transfer* - this form of practice allows the organization to shift or transfer potential risk or the negative consequence to another party (Yang *et al.,* 2009). Balachandran and Radhakrishnan, (2005), made the assertion that, the negative consequence then becomes the undesirable losses to be faced by

the organization. This practice can be referred to as the Risk allocation approach, where by risk is shifted by the use of insurance contracts and derivatives (Camuffo *et al.,* 2007). Camuffo *et al.,* (2007), further argued that risk shifting serves as a means of diversifying risk in a more relational context. The purpose of balancing risk managerially is building an effective strategy (Hallikas *et al.,* 2004). With risk transfer, possible losses are taken care of by undertaking insurance cover.

III. OPERATIONAL PERFORMANCE

Operational performance measures productivity, product and service quality and innovation. These measures are derived through objective measure and subjective estimation. Often than not, most these performance indicators can be quantified, e.g. total number of customer complaints and the number of new products developed over a given period (Cathrine, 2015). Combs *et al.,* (2005), operational performance as a measure is made up of different components which serves as an antecedent for financial performance. Subramani, (2004), argued that operational performance as an assessment measure is made up some tactical objective characteristics which make operational performance and tactical performance inseparable.

Moreover, considering operational performance from the service point of view, important performance factors may include quality, reliability and speed. With speed and reliability being the main focus for accuracy (Kumar and Maull, 2011). As espoused by Slack *et al.,* (2007), the purposed for operational performance objective is geared towards meeting customer requirement which embodies speed, dependability, flexibility, quality, cost and innovation.

A. Operational Performance Indicators
This section presents literature on the list of operational performance indicators established above by Slack *et al.,* (2007) and Combs *et al.,* (2005).

- *Speed* - speed is the aptness to deliver goods and services to customers within fastest possible time as well as meeting customer expectation and quality. This indicator calls for timely decision making information sharing and frequent movement of materials during operations (Batista, 2009). Speed is also concerned with the duration or length of the delivery cycle of an organization, where the cycle begins with time at which the customer places an order to the time at which the final delivery is done (Mattias, 2007).

- *Dependability* - dependability can also be considered as delivery reliability. This indicator is vital to operational performance because it looks at the ability deliver on schedule and also serves a means for building a long last relationship with customers (Mattias, 2007). Reliability can be fostered through effective communication, training, proper programming of activities and processes, motivation and transparency. Delivery is a component of dependability when

measuring performance and also a curtail element for effective operations and maintaining competitive advantage in an industry (Wee *et al.,* 2010).

- *Flexibility*- as an operational performance indicator, what makes flexibility unique from all other indicators is the fact that it assesses potential rather than actual performance (Mattias, 2007), as a result, this term has been adopted in other managerial and functional areas such as health care, finance and human resource. Though different disciplines, organizations are able to achieve their aims (Chanopas *et al.,* 2006). As inferred from Schoenherr and Swink, (2012) and Krajewski *et al.,* (2005), flexibility can be regarded as a strategic capability tool, which makes room for meeting customer requirement (Flynn *et al.,* 2010). Furthermore, flexibility can be attained through frequent operational development for product and service modification and introduction of new products to meet customer needs and also be in line with competition.

- *Product Quality* - literature considers quality as a key determinant for assessing operational performance (Prajogo *et al.,*2012; Wong *et al.,* 2011b; Flynn *et al.,*2010). Quality combines principles of excellence service, and practices, with the goal of increasing productivity. Vanichchinchai and Igel, (2011), suggested that derive excellence, there must be frequent modification right from the supplier's point through to production in order to meet customer requirement. For firms to have better quality then there is also the need for product research, error-free product, effective communication, training, proper technology and competitor benchmarking. Quality can be considered as a vital element of operational performance. This is because it combines both internal and external operational activities to attain a synergy.

- *Innovations*- the primary aim of operational activity is to meet customer requirement as well as outwit competitors, this ideology requires innovation. To achieve this cause, firms must improve processes, improve product or service features, frequent market research and also develop new products. For a firm to be innovative, then it must consider market research and product innovation as key. This is because to beat competition requires frequent development, innovation and the ability to attain a shorter product development time (Lawson *et al.,* 2008).

- *Operational Efficiency*- the concept of efficiency focus on creation of goods and services, which looks at how inputs are turn into outputs by adopting the right production approach. The purpose of operational efficiency in manufacturing, and production activities is to help measure how organizations utilize available resources (inputs) for the creation of finished goods (output). This also considers the use of appropriate raw materials in order to derive the right output for customers and also give them value for money. Efficiency also looks at how the organization scales its operational activities, how it expands and better its capability and capacity over a period and also makes room for benchmarking and competitor analysis

(Hackman, 2008). Operational Efficiency can be termed as the rate of inputs to the rate of an output as derived by an organization. This act embodies waste minimization along the chain of production with the aim of maximizing profit (Olarewaju, 2016).

- *Managerial Capability*- can be termed as the ability with manager establish, combine and align organizational resources and capabilities in order to obtain a predetermined objective (Adner and Helfat, 2003). Managerial capability is a critical technique which helps assess a firm's performance in changing environment (Sirmon and Hitt, 2009). For this reason, Managers adopt appropriate measures to meet preferred choice to enhance loyalty. Adner and Helfat, (2003), argued that, capability have three main features. The features are;

  - *Managerial human capital*- this embodies human skills (skilled and unskilled), knowledge and experience developed through professional educational training. Skills and knowledge development is vital for growth and a unique identifier for industrial specialization (Kor, 2003).

  - *Managerial social capital*- this form of capital, encompasses formal and informal managerial networks, and relations which helps obtains needed resources and information, that informs organizations in decision making processes.

  - *Managerial cognition*- this feature looks at how organizational beliefs, systems impact on individual skills, knowledge and professional experiences. This factor helps develop both managerial internal interactions and external relationships (Adner and Helfat, 2003).

- *Cost*- is the total value of resources used for production of goods and services. Inferring from Krause *et al.,* (2007), the researcher revealed that cost performance comprises; production, productivity, capacity usage and inventory reduction. Krause *et al.,* (2007), further argued that cost is an essential element for gaining competitive advantage. Customers are always often attracted to low price goods and service; therefore, firms must endeavor to reduce production cost. This can be achieved by establishing good supplier relation, excellent contract negotiation, using the right technology and being innovative oriented.

IV. RELATIONSHIP BETWEEN RISK MANAGEMENT PRACTICES AND OPERATIONAL PERFORMANCE

World researchers assume that key functions of risk management are to minimize the cost operation that comes with operations, and encourage competitive advantage as well as outstanding organizational performance (Krause and Tse, 2016). However, existing literature claim that, there's relationship that exit between RM and Operational performance. The relationship is attributed to number of internal factors (Khan and Ali, 2017and Wang, *et al.,* 2010). Lawrence *et al.,* (2009), supported the claim that no general model to spell the specific factors which may cause the

relationship between RM practices and operational performance. Below are some factors that may result in a relationship according to literature:

- **Shareholder Value**- Woon *et al.,* (2011), posited that, effective adaptation and implementation of risk management practices enhance shareholder value. These assertions are due to the fact that, organizations enjoy relatively low cost of capital through risk mitigation and precautions which leads to an excellent performance.

- **Industry Volatility**- Risk management can be used to derive volatility in industry, quality and effectiveness of an organization, operational and financial performance level of firms (Standard and Poor, 2006 and Acharyya, 2007). Risk practice serves relevant measure for measuring operational performance, thus, it helps manage both operational level and other related risk such as strategic, market, etc. which help in the maximization of value (Lechner and Gatzert, 2018).

- **Gaining Reputation**- As inferred from Onafalujo and Eke, (2011), in a study undertaken with regards to insurance companies in Nigeria, it is evident that RMP is a catalyst gaining, increasing reputation, financial and strategic operational performance. Khan *et al.,* (2016), contended that the purpose of RM practices is helping organizations minimize the various cost in connection with both their operational and non-operational endeavors.

- **Competitive Advantage**- Organizations within the same industry are faced with intense competition, due to the fact that they use the same available resources in their production activities to serve the same or similar target market. As a result, the Casualty Actuarial Society, (2003), suggested that in order to access the level of competitiveness RM should be adopted and applied. This makes RM a core element for organizational competitiveness.

- **Organizational Complexity**- Hoyt and Liebenberg, (2009), also suggested that, RM practices and operational performance relationship is attributed to complex nature of organizations. This is because complexities mostly affect managerial control systems. In the similar vein, Pagach and Warr, (2011) and Gordon et al., (2009), also advised it is prudent and essential for organizations with complex activities to implement RM.

V. EFFECT OF RISK MANAGEMENT PRACTICES ON OPERATIONAL PERFORMANCE

It can also be emphasized that risk management as a subject matter is of interest to both academia and corporate bodies. The rate of increase in demand and supply has led a rise in most operational activities. This require organizations to increase output, extend production and product lines in order to meet consumer demand, in this light, organizations are rather espoused to all kind of risk in their operational activities (Jordan and Bak, 2016).

- **Helps Manage Uncertainties**- It is also evident that this situation can be attributed to the factors such as inadequate information, economic crisis etc. Where these factor have both positive and negative influence on operational activities as well as their outcome (Tanveer *et al.,* 2017). Nonetheless, risk is a key element in operations; this is as a result of the fact that organizations are faced with uncertainties. Where these uncertain nature does not always present organizations with a negative effect but also serve as an opportunity for growth and expansion where necessary.

- **Shareholder Value**- as management implementation tool, RMP ensure effective Operational performance of organization portfolio by mitigating risk and maximizing performance (Rehman *et al.,* 2015). Meulbroek, (2002), argued that risk management has developed beyond the reduction of risk to rather combine a number of risks which would increase operational performance and enhance shareholder value.

- **Better Understanding of Risk**- Eckles *et al.,* (2014), posits that RM is of relevance to organizations, regulators together with growth of global economics. RM practices present managers with a better understanding of risk and also helps improve all kinds risk along the chain of operation (Lin and Zhou, 2011). According to Hoffmann *et al.,* (2013), the adaptation and implementation of RM practices and processes is deemed core to the improvement of operational performance.

- **Effective Resource Allocation**- Operational risk is of relevance to organizations since this is where most events take place. These events are one which impacts on the organization's capability and resources for production. This event does not only affect production, it also affects quality, distribution and the overall operational performance of the organization (Das and Lashkari, 2015). Talking of operational performance, reputation cannot be ignored. This is because effective coordination of operational activities leads to quality in terms of output which is a plus to organization that practice RM (Cebenoyan and Straha, 2004).

- **Regulations and Compliance**- Risk management practices in some organizations are for regulatory or compliance purposes while with others, it serves as a means of identifying various forms of uncertainties associated with both the external environment and the operational strategy of an organization (Mikes *et al.,* 2013 and Power *et al.,* 2013).

A. Current State and Size of the Ghanaian Plastics Manufacturing Industry

According to the Ghana Plastic Manufacturers Association (GPMA), in reference to the 2014 statistics, it is evident that the plastic market has attained a drastic growth rate of 72% from its initial growth rate of 28% in 2010. The sector of the industry forms 95% of the entire plastic industry, which has a membership of 110 registered manufacturers who are predominantly Indians. The Ghanaian plastics packaging market is divided into the following:

- **High Density Polyethylene (HDPE)** - this category has to with the production and distribution of bleach and shampoo bottles which are mostly imported from China and also represents an estimated 2% of the total market share of the industry.
- **Polystyrene (PP)** - this class of manufacturers are also concerned with the production of egg cartons, protective packaging for electronic materials. This class of manufacturers forms 10% of the total market share.
- **Polyethylene Terephthalate (PET)** - this sector is made up of producers of water processing packages as well as packages for herbal medicine. This sector has an estimated growth rate of 35%.
- **Low Density Polyethylene (LDPE)** - this sector comprises of the main players of the industry who controls an estimated market share of 50%. The sector embodies production of flexible lighter plastics which is also considered as the largest group for plastic packaging in Ghana. Which is made up of carrier bags, cling films, bin liners *etc*.

These types of synthetic polymers can all be recycled for reuse, recycling is a key factor in plastic production in Ghana. Recycling can be termed as the act reproducing already used plastic product into new products for new purposes. Plastic manufacturers in Ghana adopts both mechanical and chemical approaches of recycling by which already used plastic materials are converted into monomers for further production activities (Oever *et al.,* 2017).

VI. METHODOLOGY

Population of the study encompassed both management and employees of the selected case organizations. The population of this study was however, limited to the two main players of the Ghanaian plastic manufacturing industry within the Greater Accra Region. A random sampling approach was adopted for the study, this is the most common and basic form of probability sampling, where units or elements are chosen randomly from an identified population with all elements having an equal opportunity to be selected. Singh and Masuku, (2014), contended that, random sampling presents excellent boundaries of estimation when compared to that of purposive sampling. To undertake this study a sample size of 79 was drawn from the selected case organizations to represent the target population and also help achieve the aim of the study (Horn, 2010). The researcher identified 487 workers for company A to achieve the required sample size, this was calculated as:

Sample size = (Z-score)2 × Std. Dev × (1-Std Dev) ÷ (margin of error)2

Where the Z-score was read using the confidence interval, using a confidence interval of 95% then the Z-score = 1.96 from the Z-score table. With Std. Dev being the standard deviation, since the questionnaires have not actually been administered; the safe decision is to 0.5.

Finally, since the study wants 95% of its target population to be selected, then, the margin of error is 100-85 = 15% = 0.5.

N0= (1.962) × 0.5 × (1-0.5) ÷ (0.15)2 = n0= 43

A. For a population size of 487, sample size = n0÷ 1+ (n0-1) ÷ N

Sample size = 43 ÷ 1+ (43-1) ÷ 487

Therefore, sample size = 40

B. The researcher identified 400 workers for company B to achieve the required sample size, this was calculated as:
Sample size = (Z-score)2 × Std. Dev × (1-Std Dev) ÷ (margin of error)2

Where the Z-score was read using the confidence interval, using a confidence interval of 95% then the Z-score = 1.96 from the Z-score table. With Std. Dev being the standard deviation, since the questionnaires have not actually been administered; the safe decision is to 0.5. Finally, since the study wants 95% of its target population to be selected, then, the margin of error is 100-85 = 15% = 0.5.

N0= (1.962) × 0.5 × (1-0.5) ÷ (0.15)2 = n0 = 43

For a population size of 400, sample size = n0÷ 1+ (n0-1) ÷ N

Sample size = 43÷ 1 + (43 -1) ÷ 400

Therefore, sample size = 39.

The study relied on 79 respondents for the study, with 40 representing respondents from case company A and 39 respondents for case company B.

VII. RESULTS AND CONCLUSIONS

As espoused from literature, the study recognized five types risk management practices (risk avoidance, risk acceptance, risk reduction, risk sharing and risk transfer) within the plastic manufacturing industry which is considered paramount for effective risk management. Where each practice was critically examined to identify its relationship and effect on operational performance.

A. Correlation between RMP and OP (COMBINING BOTH COMPANIES)

With respect to the table below, risk avoidance, risk acceptance and risk sharing were represented as 0.084, 0.038 and 0.025 respectively, but considering the rule of correlation which is measured between -1 and 1, it can be said that these values reflects a weak positive correlation between RMP and OP. While, risk reduction and risk transfer were also represented as -0.041 and -0.054, it is also evident that these values also reflect a weak negative correlation. Considering a range of -1 to 1, with 0.5 being the intersect, it is evident that RMP and OP has no significant correlation.

	Pearson Correlation	Sig. (2-tailed)	Decision
Risk avoidance	.084	.461	Accept
Risk acceptance	.038	.740	Accept
Risk reduction	-.041	.717	Accept
Risk sharing	.025	.826	Accept
Risk transfer	-.054	.638	Accept

Table 1 : Correlation between RMP and OP (COMBINING BOTH COMPANIES)

*Correlation is significant at the 0.05 level (2-tailed)

The table above displays test conducted by combining the responses obtained from both case organizations to help establish the perception of respondents on the relationship between RMP on OP. With respect to the Null Hypothesis (H0): there exists no correlation between RMP and OP. From the five RMP factors displayed on the table below, it is evident that indeed there exists no correlation between RMP and OP.

VIII. EFFECT OF RISK MANAGEMENT PRACTICES ON OPERATIONAL PERFORMANCE

A. CASE COMPANY A

Multiple R			Std. Error of the Estimate
	R Square	Adjusted R Square	
.477	.228	.114	.65868

Table 2 : Summary of Regression Model

Dependent variable: OP

Predictors: (Constant), Risk transfer, Risk reduction, Risk avoidance, Risk acceptance, and Risk sharing.

R Square, thus, coefficient of determination, Adjusted R^2, is the degree at which dependent variables are affected by the Independent variables. As shown in Table above, 0.114 (11.4%) of the variation in OP is caused by the RMP predictors, while, 88.6% of the variation in OP can be associated to other factors.

• Hypothesis Testing

The table below shows that the F statistic is not significant at 0. 103, which can be interpreted as, RMP is a weak predictor of OP.

	Sum of Squares	df.	Mean Square	F	Sig.
Regression	4.349	5	.870	2.005	.103
Residual	14.751	34	.434		
Total	19.100	39			

Table 3 : ANOVA

Dependent variable: OP

Predictors: (Constant), Risk transfer, Risk reduction, Risk avoidance, Risk acceptance and Risk sharing

• Effect of RMP on OP

Using the linear regression model in Table below, the effect between RMP and OP was established by comparing the significant value of each RMP indicator to a P-value of 0.05.

Risk avoidance had significant value of 0.034, which is < than 0.05, hence, the Null hypothesis was rejected, and was concluded that, at a 95% confidence interval, there exist significant effect between RMP (risk avoidance) and OP. However, the other indicators; risk acceptance, risk reduction, risk sharing, and risk transfer were held by following significant values 0.528, 0.896, 0.531 and 0.070, which are all > than 0.05. Hence, the Null hypothesis is accepted, and concluded that, at confidence interval of 95%, risk management practices has no significant effect on Operational performance.

From same linear regression model in Table below, risk avoidance has a beta value of 0.395, which means that all other things being equal, unit increase in the independent variable (RMP) by this value will lead to an increase in the Independent variable (OP). From the same table, risk acceptance was represented by a beta value of –0.132, which can be interpreted as all other things being equal, a unit decrease in the independent variable by this value will cause a decrease in the dependent variable. Risk reduction, risk sharing and risk transfer were also held by the following beta values; 0.030, 0.370 and .0370 respectively. These values show that all other things being equally unit increase in the Independent variable by these values will result into unit increase in the dependent variable.

	Non-standardized Coefficients		Standardized Coefficients		
Model	B	Std. Error	Beta	T	Sig
(Constant)	2.812	.823		3.417	.002
Risk avoidance	.435	.197	.395	2.207	.034
Risk acceptance	-.109	.171	-.132	-.638	.528
Risk reduction	.025	.188	.030	.132	.896
Risk sharing	.286	.185	.370	1.548	.131

Table 4 : Linear Regression Model for RMP and OP

Risk transfer   -.321   .172   .370   -1.873   .070

Dependent Variable: Performance.

B. CASE COMPANY B

Multiple R	R Square	Adjusted R Square	Std. Error of the Estimate
.361	.130	-.005	.95373

Table 5 : Summary of Regression Model

Predictors: (Constant), risk transfer, risk avoidance, risk sharing, risk acceptance, risk reduction

R Square, thus, the coefficient of determination, Adjusted R^2, is the degree at which the dependent variables are affected by the Independent variables. As shown in the Table, -0.005 (-0.5%) of the variation in OP is caused by the RMP predictors.

- Hypothesis Testing
  The table below shows that; the F statistic is not significant at 0. 457, hence, it evident that RMP is weak predictor of OP.

	Sum of Squares	df	Mean Square	F	Sig.
Regression	4.366	5	.873	.960	.457
Residual	29.107	32	.910		
Total	33.474	37			

Table 6 : ANOVA

a. Dependent Variable: Operational Performance
b. Predictors: (constant), risk transfer, risk avoidance, risk sharing, risk acceptance, and risk reduction.

➤ Effect of RMP on OP

Using the linear regression model from the table below, the effect of RMP on OP was established by comparing the significant value of each RMP indicator to a P-value of 0.05.

From the table, all the RMP indicators thus; risk avoidance, risk acceptance, risk reduction, risk sharing and risk transfer were held by the following significant values 0.917, 0.220, 0.081, 0.383and 0.950, which are all > than 0.05. Hence, Null hypothesis is accepted, and concluded that, at confidence interval of 95 %, RMP has no significant effect on OP.

From the same linear regression model in Table 4.19, risk avoidance, and risk reduction were held by the beta values -0.105 and -0.536, which was interpreted as all other things being equal, unit decrease in the Independent variable (RMP) by the values of these indicators will lead to decrease in the Independent variable (OP). While risk acceptance, risk sharing and risk transfer were also held by the following beta values; 0.307, 0.153 and 0.015 respectively. These values show that all other things being equally unit increase in Independent variable by these values will result into an increase in the dependent variable.

	Nonstandardized Coefficients		Standardized Coefficients		
	B	Std. Error	Beta	T	Sig.
(Constant)	4.191	1.335		3.140	.004
Risk avoidance	-.028	.263	-.018	-.105	.917
Risk acceptance	.263	.210	.307	1.251	.220
Risk reduction	-.482	.267	-.536	-1.804	.081
Risk reduction	.017	.020	.153	.884	.383
Risk transfer	.014	.226	.015	.063	.950

Table 7 : Linear Regression Model for RMP and OP

Dependent Variable: Performance

C. COMBINATION OF CASE COMPANY 'A' AND 'B'

Multiple R	R Square	Adjusted R Square	Std. Error of the Estimate
.154	.024	-.044	.90309

Table 8 : Summary of Regression Model

Predictors: (Constant), risk transfer, risk sharing, risk avoidance, risk acceptance, risk reduction

R Square, being, the coefficient of determination, Adjusted R2, is the degree at which dependent variables are affected by the independent variables. As shown in Table above, -0.044 (-0.4.5%) of the variation in OP is caused by the RMP predictors.

- Hypothesis Testing

The Table below shows that the F statistic is not significant at 0. 880, hence, it is evident that RMP is a weak predictor of OP.

	Sum of Squares	df	Mean Square	F	Sig.
Regression	1.432	5	.286	.351	.880
Residual	58.722	72	.816		
Total	60.154	77			

Table 9 : ANOVA

Dependent Variable: Performance

Predictors: (Constant), risk transfer, risk sharing, risk avoidance, risk acceptance, risk reduction.

➢ Effect of RMP on OP

With reference to the linear regression model from the Table below, the effect RMP on OP was established by comparing the significant value of each RMP indicator to a P-value of 0.05. From the table, all the RMP indicators thus, risk avoidance, risk acceptance, risk reduction, risk sharing and risk transfer were held by the following significant values 0.413, 0.433, 0.583, 0.755and 0.504, which are all > than 0.05. Hence, the Null hypothesis is accepted with the

conclusion that at a confidence interval of 95%, RMP has no significant effect on OP.

From the same linear regression model in Table 4.23, risk reduction and risk transfer were held by the beta values -0.096 and -0.100, which was interpreted as all other things being equal, a unit decrease in the independent variable (RMP) by the values of these indicators will lead to a decrease in the Independent variable (OP). These Risk avoidance, Risk acceptance and Risk sharing were also held by the following beta values; 0.107, 0.128 and 0.038 respectively. These values shows that all other things being equally a unit increase in the independent variable by these values will result into an increase in the dependent variable.

	Nonstandardized Coefficients			Standardized Coefficients		
	B	Std. Error		Beta	T	Sig.
(Constant)	3.420	.831			4.116	.000
risk avoidance	.143	.173		.101	.823	.413
risk acceptance	.115	.146		.128	.789	.433
risk reduction	-.089	.161		-.096	-.551	.583
risk sharing	.006	.018		.038	.313	.755
risk transfer	-.099	.147		-.100	-.671	.504

Table 10 : Linear Regression Model for RMP and OP

Dependent Variable: performance.

IX. RECOMMENDATIONS

Considering issues associated with Risk management practices on Operational performance, it prudent that cursory steps are put in place to help mitigate them. Below are the proposed strategies:

- **Risk Insight**- can be termed as means of giving stakeholders better understanding of the various forms of risks associated with an organization's day to day activities. Organizations attempt to identify the various forms of risks they are faced with either once or twice a year but without proper understanding of these risks then they cannot be managed effectively.

- **Proper Risk Reporting**- requires that organizations have proper mechanisms for recording and keeping events as and when they occur, this approach can be enforced with the help of risk registers. Where these registers are kept at all levels of the organization for recoding possible risk. This will help spell out the various risk faced by organizations, enhance easy and faster reviews for action.

- **Diagnostics**- is a critical element, this enables organizations to identify and discovery the root cause of every risk named in the risk register. The process of diagnosing risk will help organizations to device effect strategies in address possible gaps.

- **Risk Prioritization-**allows for risk identification of possible risk and classification potential impact. At this point, the organization is able to group risk according to the magnitude of their impact, outline action plans to mitigate and control the impact of these risk. For effective prioritization organizations must undertake prioritization using a bottom up approach. The bottom up approach looks out for decentralization among business units, where units are required to do their own reporting and classification of risk. Furthermore, risk prioritization must also go beyond identification and classification to the level where organizations are prepared to take necessary actions to curb possible. To achieve this, there is also the need for organizations to develop a risk appetite.

- **Risk Strategy** - spells out the various approaches or plans outlined by an organization to help curb possible risk. This strategy helps the organization to know which risk mitigating, and the possible remedies available at a time. The risk strategy provides the organization with a well-structured and coherent approach for identification, assessment, management and risk control. This strategy requires time on time update and review of possible with reference to new development and implementation of actions.

X. CONCLUSION

Per the findings of the study, it is evident that RMP is a weak predictor of OP. This outcome supports the results of previous studies which confirmed that RMP does not have any impact on Operational performance (Izah and Ahmad, 2011; Quon *et al.,* 2012; Nyang'aya, 2012; Agustina and Niswah, 2016).

Izah and Ahmad (2011) argued further by saying, the insignificant relationship between RM and organization's value depicts, that there is inadequate knowledge on the benefits of RM practices.

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