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Assessing the Factor that Determines Enterprise Risk Management: Special Emphasis on Tomato Production Value Chains in East Showa zone, Ethiopia

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Abstract: Enterprise Risk Management (ERM) deals with the broader risk management of an enterprise and then extracting every possible means by which an organization able to with stand those risks. The study aims at assessing the factor that determines enterprise risk management. The target population of this study were those actors in Tomato production value chains in East Showa zone, Ethiopia. It was cross-sectional survey design that was deployed to undergo the study. Also, stratified random sampling was deployed in selecting target respondents. Therefore, based on two hundred seventy three (273) respondents responded the questionnaire. Accordingly, the study found that maintaining a sound enterprise risk management is a function of setting a sound strategic planning, exercising participatory leadership and management style and rendering effective marketing services to firms' output.

Keywords: *Enterprise Risk management, strategic management, leadership style, marketing services, value chain, government support, agribusiness.*

1. Introduction

The crucial role of Enterprise Risk Management (ERM) is identifying a risk that a firm may encounter. It also undergoes a comparison of risk management system within business units or product lines, hence,ERM has a broader coverage in its function. That means, it deals with the broader risk management of an enterprise and then extracting every possible means by which an organization able to with stand those risks. At the time whereby business is good the impact of ERM is not as such pronounced rather when the business gets bottlenecks its role is highly magnified. Meaning, it is a panacea for managing those clumsy challenges that a business encounters. Always ERM is more of a discipline that let a firm to establish a reliable shield of rock in tackling potential risks that a firm encounters in a due process of business operations.

It is argued that innovation in agricultural sector demands organizational network, enterprises, and human force or value- chain actors that strive to enhance new organizational forms, new way of doing business especially bringing new process and new products. Hence, a network functions in line with organizational and policies that influences firms' performances. This in turn make the actors in the value chain access and share information about each other and reach the community at large easily (Mekonnen Teshome, 2015).

Accordingly, the agribusiness firms are subject to different risks that retard their productivity and survival. Therefore, maintaining a sound ERM demands participatory leadership style, setting a good strategic management and having a responsive local governments Hence, it is advisable to Ethiopia to reconsider social and economic development strategies that are aiming at smallholder producers and indigenous firms in the agricultural sector.

2. Statement of the problem

Nowadays both academicians and practitioners are dealing with a new paradigm shift in managing risk which is called enterprise risk management. It amalgamates all functional units including the traditional risk management departments along with the strategy and corporate governance of the company. Of course it is a new approach of tackling and monitoring over all potential risks of the firm and yet researchers are not exhaustively dealing with it. That is, it is a new phenomenon so that only few researches were published on international reputable journals. Thus, it is advisable to management scholars to conduct researches on ERM in order to address the gap in its application and fatten the world of literatures. Also, the study of enterprise risk management adds value to practitioners in such a way that they get input how to apply and make use of its premises and then possibly overcome its bottlenecks in order to make the organization's operations smooth sailing (Philip, et al., 2014).

As it is depicted by Embassy of Kingdom of the Netherlands in Ethiopia (EKN,2014) factors that were prioritized as a sever challenges to do business in Ethiopia include: leadership skills Knowledge of risk management, entrepreneurial skills and work ethics in national labour force. It is assessed that agri-business firms in Ethiopia faces risks such as: strategic factors, chain structure, regulatory factors changes in consumer factors and the like are those clumsy challenges that impede their productivity and profitability. Of course, Agriculture sector is subject to high fluctuations in production outcomes. That is, it is difficult to predict with certainty the level of output to be produced in a due production processes as there are both internal and internal factors that affect the system (World Bank, 2005).
Agricultural sectors in Ethiopia especially productions of horticulture encounters challenges that encompass access to capital, land related factors, marketing and weak business skill and the like which retards their performances (Samuel Gebreselassie 2012). To alleviate such value chain risks, it is advisable to look into new approach which is called ERM. ERM is a tool that commensurate with the strategic planning and then let the firm to take and analyze various directions that add value to the well-being of both a firm and its stake holders. Therefore, this study assesses the factor that determines Enterprise Risk Management.

Objective of the study

The main objective of the study is to assess the factor that determines enterprise risk management

3. Literature Review

What is Enterprise Risk Management?

Different scholars defined Enterprise risk management(ERM) in different terms. Despite this, the central theme of the definition given by those scholars revolve around on the same spot. Accordingly, Enterprise Risk Management is a science in which firms or organizations investigate , exploits finances, assess, control and monitor any possible risks from each corner of the business for the sake of enhancing the competitiveness responsiveness of the firm in meeting short- and long-term value to its stakeholders (Society of Actuaries,2005). This definition clearly reveals out that ERM is not simply minimizing the effect of risk rather forwards possible means to add value to the firm. In other words, ERM is a tool that commensurate with the strategic planning of a firm and then let the firm to take and analyze various directions that add value to the well being of both a firm and its stake holders.

Applying the philosophy of enterprise risk management in an organization is not as such simple. It is a complex system in its very nature. Even though it is a panacea for most organizational bottlenecks, it is not functional if a firm fails to install a sound information technology system. Because, it is sometimes difficult to quantify potential risks in a manual system. In additions to this, all enterprise risk management system is not uniform to all organizations rather it demands customizations in line with the nature of firms. Hence, such customization needs systematic way of analysis. Generally speaking, unless companies deal with the type of ERM that could able to fit their size, it is difficult for them to make use of the advantage of it (Kerstin, et al., 2014)

It is difficult to generalize that enterprise risk management is an error free system. Rather it is worth functioning to consider the error which is made due to human element. Also, sometimes the fault which is made by management in making use of the system may pose clumsy challenge in absolute assurance of the system. Hence, to tackle such limitations it is advisable to conjugate strategic planning along with enterprise risk management, raising the level of awareness of stakeholders, exercising participatory leadership style, cooperating with external bodies in order to make holistic risk management approach and establishing a learning organization. (Karen, 2010)

Enterprise risk management adds value for the users. Whenever all managers and employees engaged in the process of implementing the ERM practices, there would be a smooth sailing of the system in adding the value for users (Terzi and Posta, 2010). It is a misconception that the traditional risk management is responsible for the assessement and monitoring of all potential risks to a firm, rather when it is integrated along with the ERM that all departments work hand and glove to tackle and monitor the risks associated to the business at large.

Strategic Management

It is ERM that constitutes a crucial part of firm’s strategic management. Therefore, ERM enhances organizations’ performances as it makes all sections share the frame work of operations in a coordinated fashion to meet organizational objectives. Also, whenever enterprise risk management is integrated with decision – making structure of a firm, the following factors should be taken in to due consideration: the objectives of all departments should commensurate along with risk management, making risk management elements familiar with strategic planning and performance management and conjugating the process of risk monitoring and controlling at levels of the operational units in order to make efficient practices of ERM (City of Polokwane,2016).

As per Sax (2015) there is an association between firm’s strategic management and enterprise risk management. When a firm sets an appropriate strategic planning, it would be simple for it to assess all the internal and external environment which paves the atmosphere of clearly identifying new opportunities and threats. Here it is possible to infer that managing risk is not only the business of company’s risk department rather it is the business of all interacting units across the firm. In other words, there is an integrated risk identifying and monitoring culture by everyone as enterprise risk management is holistic in its nature.

The Concept of Leadership and Leadership Style

According to Mat (2008), leadership definitions keep evolving as scholars try to simplify the definition to enable people to understand the concept easily and to make it less complicated and more practical in daily business. For centuries leadership studies have been obsessed with leaders, and with identifying the characteristics required for effective leadership. Even though it is clearly stated that it is difficult to give leadership a single definition, people keep exploring this area of study. It shows that there is no stopping point for leadership study and it has become an essential element in social science.

It goes without saying that delegation of power to lower level management could make an organization establish an efficient risk management system. But to make an organization solid crystal in its risk management, there should be a participatory leadership style in line with introducing a charming remuneration system (Foss, Foss, & Klein, 2007) our knowledge of how the combination of a structured approach to ERM and a dispersed, trust-based and empowering participative leadership style affects risk performance seems limited, and the need for more research is highly warranted.

According some literatures, a company that exercises democratic leadership style could have high degree of implementing enterprise risk management practices. Therefore, in other words, decentralized decision- making which give rise for undergoing participatory leadership characteristics that help to build risk resistance organizations. Generally speaking, organizations can make the practices of ERM more functional whenever they set responsive strategic planning, participate employees in all walks of organizational activities in line with the afore mentioned facts(Sax, 2015).

Whenever firms exercise an appropriate leadership and management style there would be more possibility of practicing a sound enterprise risk management. As per some literatures, participatory leadership style would let employees to make their voice heard and then feel them more comfortable in discussing issues pertaining to organization. This would lead to identifying challenges and opportunities of the company which paves the atmosphere to identify potential risks. In additions to this, there would be an ample room to establish a sound ERM in the company. In the organization whereby participatory decision-making is exercised, it goes without saying that its risk performance is highly increased; furthermore, there would be a paved condition to manage long-term risks through identifying new opportunities and then minimizing new threats that may challenge the smooth sailing of the system. Generally speaking, when there is a participatory leadership style in a firm, there would be strong ERM system that gives a firm an impetus to deal with risks holistically (Pagach and Warr, 2011)

Emperical Study

Mohamad Isam (2014) conducts study on Syria's pistachio and wheat- cotton farms in order to investigate farmers' risk attitude , perception and management. Hence, by making use regression model, he found that supply of water to farms and ever increasing price of fuel are sever causal of risk. Also, the study illustrates socio- economic, educational, location and informational related factors, have relationships with risk management. Therefore, as the agricultural sector is more vulnerable with ever changing climatic conditions, it is better to deal with the new risk management approach. The role of strategic management can make differences in efficient management of potential risks. Also, the sector of agricultural is susceptible to different kinds of risks than other economic sectors. It bears risks such as: marketing risks, production risks, financial risks, personnel and technological risks and other organizational and related risks. Also, the sector is dynamic due to changes in physical conditions, market fluctuations, degradation of the environment that pose sever challenge to enhance productivity and so on. Hence, this calls for close monitoring of agricultural risks in order to pave the rural destinations more conducive for human beings and then enhancing nationwide economic development. Here, it is possible to infer that developing nations which are predominantly agrarian economy should deal with agricultural risks in order to boost their economy and keep nation's development absolutely on safe hand.

As per Alawattegama (2018) illustration in the study of the impact of ERM on firm's performances which was conducted on Sri Lankan financial sector found that it has nothing to do with firm's performances. This is paradoxical findings as compared to previous. Most findings reveal that ERM makes a difference on the performances of organizations. Accordingly the study did employ variables that could able to measure ERM which were specified by COSO(committee of sponsoring organization) of USA's tread way commission. Hence, the empirical findings found that none of those variables specified had significant impact up on firm's performances. Finally, the author recommends further research should be conducted by making use of a robust model. But in other study, Ahmed, et al.,(2016) findings on the study of impact of ERM on organization's performances on Nigerian financial institutions reveals that enterprise risk management success factors have significant impacts up on firm's financial and non- financial performances.

The empirical findings which is revealed out by Yang, et al., (2018) on the study of ERM's practices on firms' performance which is conducted in Pakistan by making use of SEM (structured equation modeling) illustrates that enterprise risk management has significant impact on firm's performances. It also enhances the competitive advantage of firms. However, to do so, it is mandatory for firm's leadership and respective managers to have financial knowledge. Simply, as per the findings, irrespective of the size of the firm, if ERM is practiced and managers had financial literacy there would be a room for firms to gain marketing advantages, profitability, efficiencies in each and every working units. This study was conducted on small and medium enterprises in an emerging market and therefore has an implication that ERM plays a decisive role on firm's performances wherever the business is conducted and whatever the size of a firm it might be in its very nature. Furthermore, some research also revealed out that there is high correlations between implementation of enterprise risk management functional managers, chief executive officers, company's board members and the size of the company. Hence, it is possible to conclude that company's management and leadership along the supporting staff play dominant role in actualization of enterprise risk management. This is in turn leads to efficiency of the firm as risks and other related challenges resolute at their earliest occurrence. Since ERM advocates holistic approach, surely the possibility of integrated effort in managing possible challenges is extremely high (Mark. et al., 2005)

4. Research Methodology

The target population of this study were those actors in Tomato production value chains in East Showa zone, Ethiopia. East Showa zone is a potential horticulture producing area for both export and local markets in Ethiopia. Hence, the unit of analysis includes actors in tomato production value chain such as: farmers, input dealers and marketing agency personnel found in East Showa zone. It was cross-sectional survey design that was deployed to undergo the study. The qualitative and quantitative data was collected through structured questionnaire and focus group discussions Therefore, three hundred eighty five Tomato production value chain actors were sampled and contacted. Also, stratified random sampling was deployed to determine target respondents. Accordingly, the actors in the value chain have been stratified as: farmers, tomato traders and agro – processors and then the sample size was determined through weighted proportional method from each strata. Therefore, the sample size determination was made on population-based survey that is relied largely on three factors (Kothary, 2004, p. 180). These include: the estimated percentage prevalence of the population of interest 5%; the desired level of confidence and the acceptable margin of error. For a survey design based on a simple random sample, the sample size required was calculated according to the following formula.

$$n= \frac{Z^2 \times p \times q}{e^2}$$

Where:

n = Adequate sample size within a given amount of confidence level
Z= table value of the confidence level from normal distribution
e = tolerable amount of error the researcher accepts
p = the probability of success (proportion of the study unit who may give adequate information)
q = the probability of failure

Since there is no prior figure concerning the proportion of success and failure, it is advisable to take 50-50 approach which is conservative. The researcher intends to pursue for 95% confidence level with 5% level of tolerance

$$n= \frac{(1.96)^2 \times 0.5 \times 0.5}{(0.05)^2}$$

$$n= \frac{0.9604}{0.0025}$$

$$n= 384.6 \approx 385$$

The total sample size of respondents = 385. Despite this, it is two hundred seventy three (273) respondents responded the questionnaire. Therefore, based on these respondents' responses that analysis of data and possible inferences were made.

In order to meet the objective that states determinant of enterprise risk management, multiple linear regression was computed. To apply this model, some preliminary assessments should be computed. Accordingly, as the study is survey, sufficiency of sample size and multicollinearity case were tested. According to Stevens (1996) recommendation for social science research, about 15 subjects per independent variable are required for a reliable result. Hence for four independent variables used in this study, the minimum required sample size should be 60 (15 x4). Tabachnick and Fidell (2001) again gave another alternative formula for calculating sample size required, taking into account the number of independent variables to be used: N > 50 + 8m (where m = number of independent variables). Therefore, for the four independent variables, a sample size could be atleast 82 (50 + 8x4). Hence, two hundred seventy three (273) response rate is above the requirement of the aforementioned method to compute multiple linear regression.

Variaance infilation factor (VIF) is the measure of the speed with which variances and covariances increase and it is the most commonly used method for detecting multicollinearity problem. There is no formal cutoff value to use with the VIF for determining the presence of multicollinearity but Neter, Wasserman and Kutner (1990) recommended, looking at the largest VIF value. A value greater than 10 is often used as an indication of potential multicollinearity problem. If VIF < 10, no multicollinearity problem, therefore, the study had no multicollinearity problem as VIF < 10, as shown in the regression table below

Multivariate regression analysis is appropriate for examining the simultaneous impact of many independent variables on the dependent variables. Therefore, to reveal out the factors that significantly affect enterprise risk management, multiple linear regression analysis is computed in the following fashion.

The multiple regression model relating all the variables can be given as follows

Enterprise Risk Management = **β0+ β1 STRATGYPLAN+β2 LEADERSHIP + β3 GVTSUPPORTY + β4 MKTING SERVICES + ε ------------------------------------ (1)**

Where

β_1 STRATGYPLAN = strategic plan

β_2 LEADERSHIP = leadership style

β_3 GVTSUPPORTY = government support

β_4 MKTING SERVICES= marketing services

Descriptions of study Area

In Ethiopia, over 2,399,566 tons of fruits and vegetables are produced in each year by private commercial farms and small holders in each year. Among those vegetables it is tomato which had a lion's share in production (Jemal, 2016). Tomato supports Ethiopian economy to a greater degree. Among those districts where tomato is produced in highest scale is Batu, Dugda and Bora districts found in East Showa administrative zone of state of Oromia, Ethiopia. These districts are preferable for the productions of horticulture due to availability of water and conducive temperature. More than 47% farmers engaged in the production of tomato and the output per a smallholder farmer is nearly 24 tones per each season and only from Dugda district and Bora districts there would be 387,567 tons per year. The Batu district's production capacity is beyond the aforementioned tones. The production of tomato is getting high in those districts due to the supply of water at the adjacent lakes and availability of more than 5000 narrow wells dug for the sake of irrigations. In additions, the temperature is absolutely conducive for tomato production throughout the year (Emana, et al., 2017)

5. Result

Nowadays the numbers of agri- business firms are getting increase from time – to time. The amount of investment in this sector is growing at alarming rate. The numbers of mechanized farms and level of infrastructure are also getting developed on timely basis. Hence, following these emerging trends, the risk associated with the agricultural sector also emerging. It goes without saying that due attention is not given for agricultural related risk. A typical example as to how agricultural sectors are riskier is to look into the volatility of agricultural income due to changes in physical weather. Therefore, such emerging trends call for the new way of managing risks (Ruud, et al.,n.d.). The following regression tables reveal out the factor that determines enterprise risk management.

Table(1): Correlation

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.531[a]	.282	.271	.29569

a. Predictors: (Constant), MKT1, STR1, GVT1, LEAD1

b. Dependent Variable: ERM

The four independent variables were significantly correlated as a whole with the correlation coefficient R= .531. Also the above table illustrates coefficient of determination R2 = .282 which indicates that 28.2% of the variation in enterprise risk management for the sample of 273 can be explained by the changes in the four independent variables together while 71.8% remains unexplained.

Table(2): ANOVAb

Model		Sum of Squares	Df	Mean Square	F	Sig.
1	Regression	9.181	4	2.295	26.252	.000[a]
	Residual	23.432	268	.087		
	Total	32.613	272			

a. Predictors: (Constant), MKT1, STR1, GVT1, LEAD1

b. Dependent Variable: ERM

The above table indicates the summary of Analysis of Variance and F-statistics, that indicates the value of F = 26.252 is significant at P = 0.000 level of significance. The value of F is large enough to conclude that the set of independent variables as a whole are contributing to the variance of enterprise risk management and therefore, the model represents actual practice of the business operators under study.

Table(3): Multiple Regression

Model		Unstandardized Coefficients		Standardized Coefficients	T	Sig.	
		B	Std. Error	Beta			VIF
1	(Constant)	.599	.163		3.665	.000	
	STR1	.148	.045	.220	3.326	.001	1.637
	LEAD1	.195	.045	.287	4.295	.000	1.666
	GVT1	-.051	.047	-.058	-1.082	.280	1.088
	MKT1	.226	.054	.226	4.226	.000	1.066

a. Dependent Variable: ERM

The regression result reveals the contribution of each independent variable. Accordingly, in order to find out the factor that determines Enterprise Risk Management the regression analysis depicts the following results. Accordingly, Strategic planning (STR1), Leadership and management(LEAD1) and marketing services (MKT1) affect enterprise risk management positively and significantly, whereas, government support is not significant.

- Hence, it is possible to conclude that the more firms undergo a sound strategic planning the more they maintain a sound enterprise risk management.
- Whenever firms exercise participatory leadership and management style there would be more possibility of practicing a sound enterprise risk management
- Also the more marketing services are rendered to firms output, the possibility of implementing enterprise risk management is high.

6. Discussions

The study reveals out that Strategic planning (STR1), Leadership and management(LEAD1) and marketing services (MKT1) affect enterprise risk management positively and significantly. Therefore, maintaining a sound enterprise risk management by firms' demands: good strategic planning, leadership and management and reliable marketing services. The finding of this study is consistent with other literatures too. It is argued that strategic management helps firms to carryout decisions in order to tackle the severity of risk. It is a means to maintain an efficient enterprise risk management in one's organization. In additions to this, democratic leadership style make a firm to establish an effective ERM system too. Successful and effective way of managing risk is a function of: decentralized decision- making, maintaining participatory leadership style, setting viable strategic planning and raising the level of awareness of employees and other stakeholders (Sax, 2015).

Enterprise risk management enhances the process of achieving strategic goals through identifying, monitoring and controlling potential risks across the firm. Simply, it is a unifying frame work for members of one's organization through an advocating that managing risk is the business of all than dealing with some personalities only(Terzi and Posta, 2010). Organizations could achieve their objectives whenever they set a sound strategic planning that could able to unify all the departments and working units as a whole. Enhancing or leveraging firm's performance and maintenance of competitive advantages is possible whenever there is an innovative and updated strategic performance management approaches being practiced in a firm (Rastislav and Silvia, 2015). In additions, the reason why enterprise risk management enhances firms' performance is due to the fact that it advocates team approach of doing businesses across the organizations. When everyone is in a position to fulfill his/ her obligations in a unified and coordinated fashion, the overall performance of the firm would be leveraged. In other words, when a firm establishes a network risk management committees across each department, it would get a room to monitor potential threats. This in turn, leads to enhancing the capacity of the firm (Yinka, et al., 2018).

Elsaed et al., (2011) illustrated that the rationale behind dealing with enterprise risk management is due to the reason that it makes organizations to have enhanced corporate governances, a sound managerial system, a means to raise employees' level of awareness, better cost management techniques, and higher efficiencies as the system of performance management is absolutely effective. Therefore, it is possible to argue that ERM helps firms to maintain efficient way of resource utilization which in turn leads to maintain the competitive advantage.

7. Conclusion

As per Ibrahim and Esa (2017) illustration on the study of effect of ERM on organizational performances with special emphasis on Malaysian real estate developers reveals out that the implementation of Enterprise risk management enhances all firms' performances as a whole irrespective financial and non- financial aspect. Of course the financial side of the business could make more senses. Also, the study found out that ERM should be supported by knowledge based decision support system in order to undergo a smooth sailing of operations across the firm, which in turn makes excellent performances in each and every unit of operations.

Generally speaking, it is possible to conclude that maintaining a sound enterprise risk management is a function of setting a sound strategic planning, exercising participatory leadership and management style and rendering effective marketing services to firms' output. In the organization whereby participatory decision-making is exercised, it goes without saying that its risk performance is highly increased; furthermore, there would be a paved condition to manage long-term risks through identifying new opportunities and then minimizing new threats that may challenge the smooth sailing of the system. In additions, when there is a participatory leadership style in a firm, there would be strong ERM system that gives a firm an impetus to deal with risks holistically.

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