AFRREV IJAH
An International Journal of Arts and Humanities
Bahir Dar, Ethiopia
Vol. 1 (1), February, 2012:14-29
ISSN: 2225-8590

Implications of Risk Management Practices on Financial Performance of Sugar Manufacturing Firms in Kenya

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Abstract

This study focuses on the implications of risk management practices on financial performance of sugar firms in Kenya. The respondents were functional heads of the companies under the survey. We used exploratory design using survey research methodology that included structured

questionnaires and interviews. Pearson correlation coefficients (r)was used to determine the interplay of risk management practices and performance of Sugar manufacturing firms. The empirical results of the study indicated that variation in risk management practices within firms is significant, arising from ANOVA tests at 95% level of confidence. Further, the study indicates a more than average positive relationship between risk management practices and performance (r =0.67). Cronbach's Alpha measured at 0.82 was considered adequate for measuring internal consistency reliability of measures of concepts. The study recommends adoption of integrative risk management perspective that considers the pursuit of upside potential alongside countering of downside losses in order to minimize the negative impact of risk on returns. The implication is that risk management is an integral part of the decision-making process and effective risk management can proactively help in overcoming the possibilities of the business failures. This paper is therefore informative in terms of the imperativeness for public policy adjustment and firm-level competencies required for better operation of sugar factories in Kenya. This would translate into creating viable sugar sector to support current plans to eradicate poverty as part of the goals for vision 2030"

Key Words: Risk Management Practices, Sugar Manufacturing Firms, Financial Performance

Introduction

The sugar industry in Kenya operates in the present-day volatile environment facing a large number of risks such as political risk, credit risk, liquidity risk, foreign exchange risk, market risk and interest rate risk, among others – risks which may threaten the sugar industry's survival and success. Discussions on the impact of risk management on performance of business firms have also figured prominently at global level. Some of the empirical studies worth mentioning are: Hussein *et al* (2007); Basle (2007); Klimczak (2007); Henri and Peter (2006); Fraser, Madura and Weigand (2002); Flannery (2002) and; Gudbrand *et al* (2003) among others. In all these studies the scholars rightly identify a risk as the possibility of an event or activity impacting adversely on an organisation, preventing it from achieving organisational outcomes. Pandey (2005) points out risk as the variability that is likely to occur in the future returns from the investment. Risk management comprises the activities and actions taken to ensure that an organisation is conscious of the risks it faces, makes informed decisions in managing these risks, and identifies and harnesses potential opportunities. Managing risk well requires careful

consideration of the key concepts of minimising loss, maximising opportunity and preparing for uncertainty (Australia government, 2008).

It is widely accepted that most people are risk averse and that risk and return are related. Some studies however, point out that managers may not necessarily believe that risk and return are positively related (Shapira, 2000; Brenner and Shapira, 1983). According to Sharpe (1964) one of the major tenets of portfolio analysis is that risk and return are positively correlated. However, others such as Bowman (1980) show that there may be a negative correlation between accounting measures of risk and return. The study on risk management thus helps to clear such contradictions. The bottom line argument in all these discussions is that risk management (RM) increases the value of the firm as long as the hedging benefits outweigh the costs. Besides this, the firms can adopt a structured approach to managing risk and develop a culture of positive risk management framework to achieve improved accountability; improved stakeholder relationships and confidence; the development of a learning culture; improved financial management and performance; better resource allocation; improved compliance outcomes; and reduction in the potential for litigation (Australia government, 2008).

This paper is structured as follows: Introduction is offered in section one. Section two presents the focus of the study where the researcher defines the intensity of the problem under study. Section three captures the conceptual framework. Section four throws light on the research methodology adopted by the study and; in section five, we discuss the results of the study. In the final section, we present the conclusions of the study.

The Focus of the Study

Risk management undertaken at firm level is currently a topic of considerable interest and has evolved into a well recognized management discipline and is now considered a key governance and management tool within the public and private sectors. While taking measured and informed risks is an important element of any company's strategy, increased liberalization and globalization of the world economy, adverse changes in macroeconomic variables and increased competition has led to high risk exposure to business firms. Whereas risk management is considered to be a key governance and management tool, there is little information from previous empirical studies that link risk management practices with performance of sugar manufacturing firms in Kenya. Some recent studies conducted by Okumu (2004) on reflections in the management of finance in the sugar industry in Kenya;

Siringi and Obange (2009) on "implications of cogeneration policy on performance of sugar manufacturing firms", Kegode, et al. (2003) on "The Challenges and way forward for the Sugar Sub-sector in Kenya", and; Wanyande (2001) entitled "Towards Effective Policy Framework: A case of Kenyan Sugar Industry" concentrate outside the current problem of study but give some clue on poor performance of the sugar sub-sector. In their studies, the scholars categorically indicate that firms in the sugar industry continue to register minimal growth partly due to improper management decisions made under an uncertain investment environment.

It is reported that the sugar industry has largely grown under a protected environment with a view of making it strong and reliant. But, the prolonged protection however, hampered technological up-gradation, export orientation and integration with the rest of the world, as evidenced from the low levels of production and meager exports. Besides, the study conducted by Transparency International (TI) and Sugar Campaign for Change (Sucam) in September, 2009 reveals that the sugar firms are heavily indebted to farmers, Kenya Sugar Board (KSB) and other creditors to the tune of Kshs. 50.175 billion as at June 2007. This means the sugar firms have been exposed to severe cash flow and liquidity problems. The sugar industry faces collapse due to lack of accountability. Meanwhile, it must be noted the sugar sub-sector is heavily taxed in terms of Value Added Tax (VAT), CESS and Sugar Development Levy with the result that gains accruing to farmers and Millers are heavily eroded. According to CGD Bills Digest (2005) report the sugar subsector is identified with low level of technology, high cost of production, operational, low market price, and competition from cheap legally imported sugar under Common Market for Eastern and South African States (COMESA) protocol and political interference as part of problems bedeviling the industry. The continuous liberalization of the Kenyan economy since early 1990s has highlighted the problems of the industry. A task force appointed by ministry of agriculture in 2003 to look into the problems of the industry cited poor management, inefficiency, low productivity, distortions in the sugar market, inadequate credit facilities and persistent droughts and fires (Institute of Economic Affairs' Public Forum, 2004).

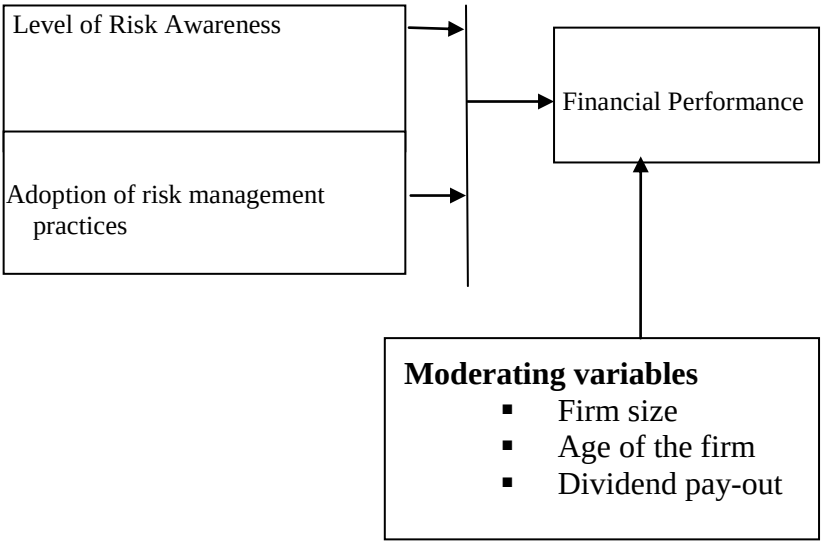
The purpose of this study is an attempt to link risk management practices adopted by sugar manufacturing firms in Kenya to financial performance. The study is designed to address the following research objectives: (i) establish risk management practices adopted by sugar manufacturing firms in Kenya, (ii) determine whether or not differences in risk management

practices adopted among and within sugar firms are significant, and; (iii) analyse the causal relationship between risk management practices and financial performance at firm level. The study takes an integrative perspective in the analysis of perception and response of managers to risk, taking into consideration most of the critical risks to which firms are exposed to. This study is significant for a variety of reasons. Firstly, the sugar sub-sector directly and indirectly supports at least 6 million Kenyans representing about 16% of the entire Kenyan population and contributes about 1.8% per annum to Kenya's GDP and saves the country in excess of US$ 250 million (Kshs. 20 billion) in foreign exchange every year (KSB Quarterly Bulletin, 2007). Secondly, the study on the sugar sub-sector shades light on understanding of how risk management practices adopted by sugar manufacturing firms impacts on performance of the entire industry. Thirdly, the systematic analysis of risk management-performance causation is a positive move towards formulation of policy directions for sustained development in the Sugar industry. Finally, the theory built by the study may contribute to the existing knowledge on risk management and also enhance managerial risk-return trade-off decisions

Conceptual framework

Risk management is a cornerstone of prudent management practice in sugar industry in Kenya. Sugar manufacturing firms that develop a positive risk culture, supported by suitable frameworks and processes, promote an understanding of accepting appropriate risks as part of their every day decision-making processes.Ultimately the firm seeks to achieve optimum risk reward trade-off. These objectives are implemented through a clearly structured risk management framework. The risk management framework determines consistent and understandable risk management tools for identification, measurement, response planning, monitoring and control of key risks to which a firm is exposed. The extent to which a sugar firm engages in risk management activities is however contingent on a number of firm characteristics. These firm characteristics are the moderating variables as indicated on figure 1.

Figure 1: Risk management- performance causation



In determining the quantity of risk to assume, the cost of managing the risk is weighted against perceived benefits. Risk management involves making trade-offs and thus decisions are continuously made over which risk to reduce and which to increase and by what means (Independent variables). If the cost of using corporate risk management is less than the perceived benefits, then risk management is a shareholder-value enhancing activity that is reflected in improved financial performance (Dependent variable). This is in line with Sharpe's (1964) theory of portfolio analysis that postulates that risk and return are positively correlated.

Methodology

Research Design

This study adopts an exploratory research design that sought to investigate the interplay of risk management practices and financial performance of the sugar manufacturing firms in Kenya. An exploratory research is suitable when one has to find out what is happening, to seek new insights, to investigate little understood phenomenon, to assess phenomenon in new light

and when the level of theory development is relatively low (Saunders et al., 2000).Given the above rationale the researcher opted for this research design.

Study Site

This study was conducted on sugar sub-sector that comprises of 8 white sugar manufacturing firms. The annual production capacity of these firms is between 550,000 to 600,000 tonnes. The sugar mills are predominantly spread across Western parts of Kenya stretching through Nyanza and Western provinces. The firms are: Chemelil, Mumias, Nzoia, South Nyanza Sugar Company, Muhoroni, West Kenya, Soin and Kibos. Three of the sugar firms namely: West Kenya, Soin and; Kibos are privately owned while the rest are government owned enterprises. The Ministry of Agriculture has the overall responsibility over sugar industry development in Kenya. The industry is regulated and controlled by the Kenya Sugar Board (KSB). The industry has been liberalized from early 1990s and the government of Kenya is on a high gear to privatize this industry.

Population and Sampling Procedures

Given the small number of firms in the Sugar industry in Kenya, which of course did not warrant sampling to be undertaken, a census study was conducted to capture all the eight sugar manufacturing firms operational in Kenya.

The study focused on 8 registered and operating white millers in Kenya as at January 2009 which has a population of 392 functional heads including the directors of the 9 departments in each company. To take account of representation of all functional areas of the departments, proportional random sampling was done to obtain a sample size of 86 respondents. It must be noted that this approach is consistent with the practice of surveying key informants knowledgeable about organizational matters by virtue of their positions. This is considered by many researchers as an impersonal method preferably to be used where questions demand a considered rather than immediate answer (John and Weitz, 1988). The sample was obtained using coefficient of variation. Nassiuma, (2000) asserts that in most surveys or experiments, a coefficient of variation in the range of $21\% \leq C \leq 30\%$ and a standard error in the range $2\% \leq e \leq 5\%$ is usually acceptable. We therefore used a coefficient variation of 21% and a standard error of 2%.The lower limit for coefficient of variation and standard error were selected so as to ensure low variability in the sample and minimize the degree or error.

Nassiuma, (2000) gives the following relation for determining sample size. $n = NC^2 / C^2 + (N-1)e^2$

Where n = Sample size, N = Population, C = Coefficient of variation and e = Standard error. Thus $n = 86$

Data Type and Collection Instruments

Both primary and secondary data were used in the study. The primary data was gathered using mail questionnaires. This instrument was designed in such away to capture information relating to firm profile, risks and risk management practices adopted by individual sugar firms; the performance trend of sugar firms for the period under study from the functional heads of the firms under the survey. Meanwhile, secondary data relating to the statistics on production trend of sugar, production capacity of individual sugar firms, age of the firms and general statistics of the Sugar Industry in Kenya were acquired from annual reports of all sugar firms under consideration, Kenya Sugar Board, Ministry of Agriculture-Kenya, Central Bureau of Statistics and SECUM. Unlike most of the previous studies which have used stock returns as proxy for corporate performance, we used accounting measure of performance- Return on equity (ROE) to provide further insights into their relationships. We realize that in an efficient market, this measure may infact be correlated with stock price performance. However using this measure as opposed to stock prices may help in circumstances that the market may not be so efficient (Pandey, 2004).

To ensure validity of the instruments, the questionnaires were reviewed by research experts in the Department of Business and Economics, Maseno University. In order to ensure reliability of the questionnaires, the researcher conducted a pilot study. Before collecting the necessary data, the research instrument was pilot tested with a small representative sample. The pre-test of the instrument was necessary to find out if the tool could collect the necessary data. The results of the pilot were subjected to a reliability test using the Cronbach α model to explore the internal consistency of the questionnaire, based on the average inter-item correlation.

A coefficient of 0.82 was obtained. It is a reliability coefficient that indicates how well the items measuring a concept are positively correlated to one another. This was acceptable because it was above the 0.70 threshold recommended by Sekaran (2003). According to Sekaran, reliabilities less

than 0.60 are considered to be poor, those in the 0.70 ranges are acceptable and the closer the reliability gets to 1.0, the better.

Data Interpretation and Analysis

The researchers conducted initial data analysis using simple descriptive statistical measures such as proportions, percentages, frequencies, mean, standard deviation and variance to give glimpse of the general trend. However, correlation analysis was used to determine the nature of the relationship between risk management variables at a generally accepted conventional significant level of P=0.05 (Sekaran, 2003). A 2-way ANOVA test was also done to determine whether there is any significant difference in risk management practices among firms and within firms.

The Relative Importance Index (RII) for risks and firm risk management indices (RMI) were computed based on the model specified under:

$$Rmi=\sum_{i=1}^{n}\{WiXi/\sum Xi\}$$

Where: Wi= Weight assigned to i^{th} response = 1, 2, 3, 4, 5 …n, Xi= Frequency of the response, i = Response category index =1, 2, 3, 4, 5…n

It must be noted that the model allows prioritization of risks and risk management activities for managerial decision-making purposes (Mu, 2008). The Risk Management index in this study is a weighted mean response by each firm on the extent of application of a particular risk management practice over the entire period of study. Finally, the results were presented in tables and graphical form.

Results and discussion

Risk management perception

Majority of the functional managers 97.43% agree with a mean between 6.00 and 7.00 that effective risk management can improve organizational performance and hence increase firm value. This implies that companies are convinced about the benefits of risk management.

However, they disagree with the view that risk management should be a preserve of the strategic level of management (mean = 2.250)

The relative importance index for each risk was computed based on their probability and impact. The specific combinations of probability and impact

led to a risk being rated as "high", "moderate", or "low" importance. According to risk rating, the most significant risks were process disruptions (mean = 4.222) and sudden Changes in commodity prices (mean=4.3333). 50% of the risks were rated as moderate (3≤ mean <4). The risks with a mean of less than 3 were considered low. Among the risks responded by the companies, the operational risk is the

most important category of risk identified by the respondents, according to large chunk of respondents. This is a warning signal because the respondents were from different functional areas and the inability to perceive risks, which are relatively critical to a given organization, indicates sub-optimality thinking on their part.

Extent of adoption of risk management practices

Table I: The extent of Risk Management Practices

	N	Range	Min.	Max.	Mean	SD	*Var.*
Risk Management Policy	86	3.00	2.00	5.00	3.75	1.04	1.07
Innovation	85	2.00	2.00	4.00	3.50	.76	.57
Contingency plan	84	1.00	3.00	4.00	3.38	.52	.27
Standards and certification	86	2.00	3.00	5.00	4.13	.83	.70
Diversification	86	2.00	3.00	5.00	3.75	.71	.50
Financial Derivatives	86	2.00	1.00	3.00	2.38	.92	.84
Financial statement analysis	86	4.00	1.00	5.00	4.13	1.36	1.84
Insurance	86	2.00	3.00	5.00	4.38	.92	.84
Strategic Planning	86	2.00	3.00	5.00	4.00	.53	.29
Valid N (list wise)	86						

Source: *Survey data, (2008)*

The sugar industry in Kenya operates in the present-day volatile environment facing a large number of risks such as credit risk, liquidity risk, foreign exchange risk, market risk and interest rate risk, among others – risks which may threaten the sugar industry's survival and success. In order to combat

these menace, sugar manufacturing firm have adopted some measures of risk management practices. In the study, while addressing objective two with regard to risk management (RM) practices adopted by the Sugar manufacturing firms in Kenya, we made an attempt to work out the descriptive statistics on the extent of risk management practices adopted by the eight sugar manufacturing firms under study. It is clear from table I therefore, that the risk management practices mainly adopted by sugar firms in Kenya are insurance (mean=4.38), financial statement analysis (mean=4.13), standardization and certification (mean=4.13) and strategic planning (mean=4.00). The study also reveals that majority of the firms hardly make use of financial derivatives (mean=2.38) in their risk management activities. Only one firm reported the use of forward rate agreement as an important tool to hedge against foreign exchange movements. Financial derivatives are mainly used to hedge against interest rate and foreign exchange rate fluctuations. Since forex and interest rate risk were rated low, it explains the low frequency of application of financial derivatives by firms. Another reason can be attributed to lack of well developed derivative market in Kenya. Whereas dwelling on risk management practices, the study noted with concern over the moderate use of risk management policy, innovation, diversification and contingency planning as risk management tools with a mean in the range of $3.5 \leq$ mean ≤ 3.75. The extent of innovation was measured by the percentage of research and development expenditure over the total operational costs whereas the number of co-products and the proportion of assets invested outside the industry by each firm determined the extent of diversification. A few of the firms surveyed are currently engaged in co-generation through optimum utilization of bagasse and steam with an objective of getting surplus to the national grid. Other co-products reported include bagasse charcoal, producer gas, bagasse concrete, filter mud fertilizer, molasses products and alcohol, among others.

Significance of differences in risk management practices

The third objective in the study was to determine whether or not differences in risk management practices adopted among and within sugar firms was significant. The output in ANOVA given in table 2 compares the calculated *f*-ratios with their corresponding table values (*f*-critical) at 5% level of significance ($F_{0.05}$). The ratio was used to judge whether the difference in risk management practices among and within firms was significant.

Table II: ANOVA Two- Factor without Replication

Source of variation	SS	*df*	MS	*F*	P-value	*f* crit.
Rows	35.48	7	5.07	21.13	8.03E-11	2.29
Columns	1.44	5	0.29	1.20	0.33	2.49
Error	8.40	35	0.24			
Total	45.31	47				

Source: *Survey data, 2008*

The rows relate to inter-firm comparison whereas the columns relate to comparison within firms. This comparison was against the extent of risk management for each predictor variable. An analysis of the rows show that the calculated value of *f*=21.13 is higher than its table value (*f*=2.29). This implies that there is a significant difference among firms concerning their risk management practices.

The analysis of the variation within columns however shows that there is no significant difference within firms since the *f*-ratio (1.20) is less than the calculated value (*f* critical = 2.49). It can therefore be concluded that the difference in performance among firms is largely due to differences in inter-firm risk management practices.

Risk management – performance relationship

Table IV: Firm Characteristics and risk Management-Performance Relationship

Correlations

	RM Index	**Age of the firm**	**DPO**	**Size**	**ROE**
RM Index	1				
Age of firm	.79*	1			
	.033	.			
DPO	.78*	.67	1		
	.041	.10	.		
Size	.62	.32	.11	1	
	.14	.49	.81	.	
ROE	.67	.86*	.85*	-.05	1
	.10	.01	.02	.91	.

*** Correlation is significant at the 0.05 level (2-tailed), N=7**

The fourth objective of the study was to determine the relationship between RM and financial performance of firms under the survey.

The correlation analysis and discussion on the relationship between risk management indices and performance indicators has been done in table IV. The Pearson correlation coefficients were generated at a significant level of 5 percent (2-tailed). The output indicates a strong positive relationship between firm characteristics and the extent of risk management as scaled by the Risk Management indices.

The variables with positive coefficient indicate that risk management capabilities increases with increase in magnitude of these variables and vice versa. The age of the firm and dividend payout were found to have strong effect on the extent of application of risk management practices in corporate management since they were statistically significant at 5% level. The strongest relationship was observed between risk management and age of the firm (r = 0.79*). The significance of this relationship is that firms acquire Risk Management capabilities and skills over time. Another factor noted to have significant impact on risk management initiatives of a firm is its policy on dividend as measured by Dividend Pay-Out (r=0.77*). Firms with a regular dividend policy prefer stable cash flows and therefore engage more in risk management activities so as to meet the dividend needs of the shareholders. The size of the firm, however, had logical and explainable sign but was not statistically significant (r =0.62). This study ultimately finds a positive correlation between risk management and financial performance scaled by Return on Equity (r =0.67)

Conclusion and recommendation

The first objective of this study was to determine the level of awareness of functional heads concerning risks critical to their organizations. Among the risks responded by the companies, the operational risk was the most important category of risk identified by the respondents, according to large chunk of respondents. Operational exposures as those related to internal conditions and processes in the organization although they may be affected by market-related phenomena and environmental hazards.

The second objective of this study was to identify the Risk Management practices adopted by the Sugar manufacturing firms in Kenya. The extent to which firms engage in risk management activities was found to be contingent

to a number of factors. These factors include age of the firm (r=0.79), Dividend Pay-Out (r=0.77) and firm size (r=0.62). The preliminary survey established that most firms did not have a formal risk management structure. However, an attempt was made to determine whether risk management methods could be embedded in general management best practices though not explicitly recognized as risk management. The risk management practice most frequently adopted is the use of insurance contracts. Others include financial statement analysis, standardization and certification and incorporation of risk concerns into strategic plans. The interpretation of this response is that there is an effort by firms to identify risks by way of financial statement analyses and most firms prefer risk transfer strategy. It also shows that firms are keen on mitigating harmful effects of external event risks and operational risks rather than economic and strategic risks. Most firms hardly make use of financial derivatives in their risk management activities. The respondents indicated moderate use of use of innovation and diversification in their risk management practices. Other moderately used tools are risk management policy and contingency plans. While there was adequate information presented with respect to usage of these risk management tools, there wasn't specific enough data presented in the statements to isolate the realized benefit from these instruments.

The third objective of the study was to determine whether or not differences in risk management practices adopted among and within sugar firms was significant. A 2-way ANOVA test identified significant difference in RM among firms f (21.13) > f_{Critical} (2.29). Thus the disparity in performance of firms is partly due to differences in Risk Management capabilities among sugar manufacturing firms.

The fourth objective was to determine the relationship between Risk Management and financial performance of sugar firms. Pearson correlation coefficients were generated at a significant level of P=0.05 (2-tailed). The study found a positive association between Risk Management and Return on Equity (r=0.67) to be influenced by age and dividend policy adopted by the firm. This study thus recommends the adoption of integrated risk perspective in the management of risks. Integration of risk management in corporate governance would benefit firms in the following ways: (i) enable firms to re-direct capital to activities with the best risk-reward trade off (ii) reduce variability in pre-tax earnings thus lower the firms' expected tax liability (iii) increase the firm's value as long as the hedging benefits exceed costs (iv) reduction of financial distress costs (v) enhance debt capacity and eventually

benefit from valuable tax shields (vi) make investments even in the wake of high cost of external financing through generation of internal finances.

Limitations and suggestions for future research

Limitations to this study include its generalisability to other manufacturing firms since this study mainly focused only on the sugar sub-sector. Further still, the absence of Return on Assets as one of the accounting measures of performance is yet another limitation stemming from the fact that it was extremely difficult to obtain reliable data on the firm asset values since only one firm is listed and has its financial results published. Further research is recommended on areas not covered by this study for example, the impact of ownership characteristics and leverage on Risk Management-Performance relationship, the impact of firm-specific investment in closer stakeholder relationships and the impact of industrial effects. However the discussion and empirical findings in this study forms a modest contribution for the understanding of risk management activities of the sugar industry in Kenya.

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