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RELATIONSHIP BETWEEN MULTI-DIMENSIONAL RESOURCES AND FINANCIAL PERFORMANCE OF MUMIAS SUGAR COMPANY, KENYA

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Abstract:
Multidimensional resources consist of more than one feature/design which is considered complex or needs to be assessed from several points of view. It therefore encourages the management focus on value creation performance improvement of the organizations. Traditionally, governments have a number of times come to the aid of various organizations when they seem to hit the rock bottom. This however does not seem to be the solution to such organizations since most of them keep on nose-diving as much as the intervention is in place. Although much has been written on the various multidimensional resources, comparatively little is known about its effect on the financial performance of the sugar producing firms. It is therefore in this line that this study intended to establish whether multi-dimensional resources, affect the financial performance of the sugar producing firms and more so Mumias Sugar Company. The study was guided by the Resource-Dependence theory (RDT). The study adopted a mixed research design and targeted employees working in Mumias Sugar Company and farmers (former members of defunct Mumias Out growers Company (MOCO) in Mumias town. This included the Chief Executive Officer, the managing director, the departmental managers, the supervisors and the representatives of MOCO a total of 236 respondents. A sample of the study population was done. Questionnaires and were used as data collection instruments. To determine the validity of the questionnaire items, research experts were used to examine them, and their suggestions and comments used as a basis to modify the research items. Cronbach alpha coefficient was used as a reliability test. A value of above 0.7 confirmed the reliability of the research instruments. The data was analyzed using both inferential and descriptive statistics and were presented by use of tables and figures. It was established that (β= .103, p=0.003) there exist a significant relationship between multidimensional resources and financial performance of Mumias

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Sugar Company. The study recommend that the government before putting any direct injections in terms of finances to the sugar companies need to do a cost benefit analysis but more so an in-depth research on how such finance would be put to valuable use. The government should also review on the management of the Mumias Sugar Company and consider privatization of the sugar milling companies the stakeholders and more so the farmers do not feel that it is the right solution to the sugar crisis in the sugar belt areas.

JEL: L10; L20; L22; L23

Keywords: government intervention, multidimensional resources and financial performance

1. Introduction

According to Venttore et *al*. cited in Wikipedia, 2011, sugarcane refers to any six to 37 species of tall perennial grasses of the genus *Saccharum*. The crop is adaptable to the temperature of tropical regions, it has stout, jointed, fibrous stalks that are rich in sugar, and measure two to six meters tall. Sugar cane is an important industrial crop of tropical and subtropical regions and is cultivated on about 23.8 million hectares in more than 90 countries (FAO, 2010 cited in Wikipedia, 2011).

Globally, most governments intervene in commodities markets to achieve policy goals. These goals may be economic, such as export promotion, commodity sector protection, and price stabilization, or societal, such as hunger alleviation and equitable income distribution. Interventions in regulated futures markets can be either discretionary or automatic (often referred to as rules-based) and may be initiated by the exchange as a Self-Regulating Organization (SRO) or by the regulator charged with market oversight. Discretionary futures markets interventions usually involve limiting, suspending, or halting trading in a particular contract market. Governments also intervene in markets in ways that broadly affect the overall cash and futures markets. These interventions may include embargoes, price controls, quotas, duties, direct purchases of buffer stocks, and other price-impacting policy measures (Chisanga, 2014). Africa is not the world's largest sugar producer, but it embraces some of the world's best three production facilities. In 2004/5 Africa produced 8.2 metric tonnes of sugar, imported 6.6 metric tonnes and exported 3.8 metric tonnes. In comparison world production was 140.7 metric tonnes and world exports were 47.8m tonnes. While Africa is therefore a net importer, five African countries are consistently ranked amongst the lowest cost sugar producers in the world, after Brazil and on a par with Australia (Christiaensen, Demery, and Kuhl, 2011).

The Kenyan sugarcane industry is a major employer and contributor to the national economy. It is one of the most important crops alongside tea, coffee, horticulture and maize (KSB, 2010). The Kenyan government involvement in the sugar sector was influenced by the need to address sugar consumption needs of the country through self-

sufficiency in sugar production. Sugar production was introduced to reduce overdependence on sugar imports and save foreign exchange on sugar imports. It was also expected to accelerate development by improving the livelihoods in the rural areas through employment and wealth creation (Sserenkuma & Kimera, 2006 as sighted by Otieno, 2015).

The Kenya Sugar Directorate under the AFFA is the regulatory body of the Kenya Sugar Industry. It is responsible for regulating, developing and promoting the Kenya Sugar Industry. The Sugar Research Institute (RSI) under the Kenya Agricultural and Livestock Research Organization (KALRO) conducts research on sugar cultivation and production by developing appropriate and suitable technologies (Otieno 2015). Kenyans love sugar, which they use liberally in their tea: on average each Kenyan consumes 400 grams of sugar per week, much more than their Tanzanian neighbors who consume approximately 230 grams (Ogolla, 2012). However, Kenyan sugar industry is faced with a lot of challenges including low productivity, un-competitiveness, poor governance, corruption and weak policy and legal framework. This includes policies on direct government intervention. These challenges are manifested in the way decisions are made and implemented by key factors on matters of sugar importation, privatization of sugar mills, negotiations on COMESA and other international agreements affecting the sugar sector (Research & Policy Department, 2010).

2. Statement of the Problem

Sugarcane is one of the industrial crops of Kenya. The sugar industry in Kenya has made a major contribution to the development of the nation. Despite its key importance to the economy, it has continued to perform dismally leading to persistent deficits in production (KSB, 2011). The fact of the matter is that inefficiencies in management have made cost of producing and selling sugar in Kenya prohibitively high. This has made Kenyan sugar unable to compete with cheap sugar from more efficient producers in the Common Market for East and Southern Africa (COMESA) region and the rest of the world (Okwaro, 2015). According to World Bank Report (2013), Kenyan sugar industry remains under regional and global threat. The industry is also highly inefficient and only survives due to high tariff and non-tariff protection. The cost of producing sugar in Kenya is more than the average cost in the world.

Since the inception of the sugar industry in Kenya in 1920's it has not been able compete favorably both locally and internationally, the government has been coming up with intervention measures that seek to protect the ailing industry, but there are no much improvements, (Wanyande, 2013). Despite all sorts of interventions, the industry's performance keeps worsening. With the promise to improve its sugar industry, Kenya has enjoyed safeguards on sugar imports since the 2000. The government has requested for the safeguards eight times. The next two-year COMESA safeguards extension ends in February, 2019. Resources have been channeled into the sector running into billions of shillings, but the sector seems not in a position to rise above its challenges and complete

favorably regionally and globally. In the long run Kenya will remain a net importer of sugar and resources and time will have been wasted pursuing a futile course (Ogolla, Njau, Mwirigi, Muui, Korir, & Mwangi, 2016).

2.1 Research Objectives

1) To establish the relationship between multi-dimensional resources and financial performance of Mumias Sugar Company.

2.2 Research Hypotheses

The study sought to test the following hypothesis.

H_{01}: There is no significant relationship between multi-dimensional resources and the financial performance of Mumias Sugar Company.

2.3 Theoretical Review

The study was guided by resource-dependence theory developed by the American business theorist Jeffrey Pfeffer and the American organizational theorist Gerald R. Salancik in the year of 1978 at the Stanford University (Pfeffer & Salancik, 1978). The concept of the RDT was first published in their work: "The External Control of Organizations, A Resource Dependence Perspective" (1978). The purpose of the RDT is presenting a guide on how to design and manage organizations that are externally constrained (Pfeffer & Salancik, 1978). After twenty-five years of existence, a second version of the book was published, examining the legacy of the RDT as an influential work in current research and its relationship to other theories (Pfeffer & Salancik, 2003).

Resource dependence theory has implications regarding the optimal divisional structure of organizations, recruitment of board members and employees, production strategies, contract structure, external organizational links, and many other aspects of organizational strategy. RDT has been applied broadly across the research domain to explain how organizations reduce environmental interdependence and uncertainty (Steffen et al., 2011).

Resource-dependence theories argue that a board exists as a provider of resources to executives in order to help them achieve organizational goals (Hillman, Cannella, & Paetzold, 2010). Resource-dependence theories recommend interventions by the board while advocating for strong financial, human, and intangible supports to the executives. For example, board members who are professionals can use their expertise to train and mentor executives in a way that improves organizational performance. Board members can also tap into their networks of support to attract resources to the organization. Resource-dependence theories recommend that most of the decisions be made by executives with some approval of the board (Hillman, Withers, M. & Collins, 2009).

According to Nienhüser (2008), the central proposition of the RDT is that the actions of organizations are constrained by its organizational environment and the key to organizational survival is the ability to acquire and maintain resources. Davis & Cobb (2010) assert that, RDT describes why organizations use acquisitions to reduce their

dependency to others and increase their power Davis & Cobb, (2010). The RDT describes why organizations use acquisitions to reduce their dependency to others and increase their power (Davis & Cobb, 2010). An organization always tries to reduce dependency and uncertainty by obtaining critical resources from the organizational environment (Hillman et al., 2010).

There are several scholars supporting the usefulness of the RDT for studying organizational behaviour. However, some scholars criticize the RDT. Most of these criticisms focus on the issue that the basis, concept and the boundaries of the RDT are not as extensively tested as it should be. However, scholars noticed that it is difficult, almost impossible to test all the hypotheses stated by the RDT, Nienhüser (2008). Nevertheless, some literature empirically tested some of the RDT hypotheses and variables, and was able to extend or improve the theory (Casciaro & Piskorski, 2005).

3. Empirical Review

For the past few decades, research scholars have shown considerable interest in corporate environmental performance (CEP) and its impact on corporate financial performance (CFP), Christenson, & Sigelman (2015). Previous research has studied the constitution of CEP and examined its relationship with various constructs of financial performance of sugar industry, (Horváthová, 2012; Trumpp, Endrikat, Zopf, & Guenther, 2015).

Current initiatives promoting a 'circular economy' build upon preceding research into resource efficiency (Dixon-Fowler, Slater, Johnson, Ellstrand, & Romi, 2013), provides an imperative to reconsider the approach to resource recovery from financial performance. This should aim to resolve performance system inefficiencies and transform loss management practices into systems that manufacture profits and creates high value to the investors (Jo, & Na, 2012). There is a need both to remove structural barriers within the industry and reform existing policy and legislation, in order to empower interventions that transform currently unsustainable practices (Gregson et al., 2015).

Transformation requires a shift in thinking such that performance is conceptualized and operationalized on the basis of preserving the value of materials, components and products (MCPs) by retaining their functionality for as long as possible, as underpinned by the rationale of a circular economy (Ellen MacArthur Foundation, 2012).

A study by Velis, Purnel, Zwirner, Brown, Hahladakis, Millward and Williams, (2017), asserts that established assessment methods focusing on resource recovery from waste within the sugar industry context consider few or even a single domain/s of performance value, i.e. environmental, economic, social and technical domains. This partial approach often delivers misleading messages for policy and decision-makers. It fails to accurately represent systems complexity, and obscures impacts, trade-offs and problem shifting that resource recovery processes or systems intended to promote the sugar industry economy may cause, UNEP and ISWA, (2015), reviewed the existing suite

of environmental, economic, social and technical metrics that have been regularly observed and used in waste management and resource recovery systems' assessment studies, upstream and downstream of the point where waste is generated within the sugar industry producing a holistic sum of the environmental, economic, social and technical benefits and impacts across the system.

According to Velis et al. (2017), the way resource recovery systems are assessed and evaluated require simplicity, yet must retain a suitable minimum level of detail across all domains of value, which is pivotal for enabling sound decision-making processes. The decisions they argue determine the success or failure in the financial performance within the sugar industry across the world. Criteria for defining a suitable set of metrics for assessing resource recovery from waste in the sugar industry require them to be simple, transparent and easy to measure, and be both system and stakeholder specific. Future developments must focus on providing a framework for the selection of metrics that accurately describe (or at least reliably proxy for) benefits and impacts across all sugar firms of value, enabling effective and transparent analysis of resource recovery form waste in such sugar firms (Murray et al., 2015).

4. Research Methodology

4.1 Research Design

According to Sreevidya & Sunitha (2011) a research design is an outline for collection, measurement and analysis of data. It guides the entire research. The study used descriptive survey research design. It is suitable for description and measurement of phenomena at a point without manipulation. Descriptive research is undertaken to provide answers to questions of who, what, where, when and how (Sreevidya & Sunitha, 2011). According to Mugenda (2008), descriptive studies are easy and simple to conduct.

4.2 Target Population

The target population of this study consisted of 200 cane farmers and 36 employees of Mumias Sugar Company. This leads to a total of 236 respondents.

4.3 Sample and Sampling Technique

Yamane's (1967) formula was used to determine the sample size. For a 95% confidence level and e = 0.05, size of the sample was determined by the formula below.

$$\mathbf{n} = \frac{\mathbf{N}}{\mathbf{1+N(e^2)}}$$

In the above formula, n is the sample size, N is the accessible population size and e is the level of precision. Accordingly, the sample size is shown below.

$$\mathbf{n} = \frac{\mathbf{236}}{\mathbf{1+236(0.05^{2)}}} = \mathbf{148.4277 = 148}$$

Therefore, the sample size for the study was 148 respondents.

4.4 Research Instruments

The study used questionnaires in order to collect data. Questionnaires give respondent adequate time to give well thought out answers. Bias from the respondents and researcher is also eliminated (Orodho, 2009). This method collects a lot of information over a short period of time. The method is suitable when the information needed can be easily described in writing and there is limited time. Primary data was collected by use of self-administered semi structured questionnaires.

4.5 Data Processing and Analysis

Before the actual analysis is done, the data collected was cleaned, edited, coded and stored before being analyzed. Both descriptive and inferential statistics were used for data analysis. Descriptive statistical tools included frequency tables, percentages, means, variances and standard deviations. Inferential statistics included multiple regression analysis and Pearson Product Moment Correlation.

The following regression model was used:

$$Y = \alpha + \beta 1X1 + \varepsilon \quad \text{.....Equation 1}$$

In the above equation, Y is the dependent variable, α is the constant, the $\beta 1$ represent coefficient of independent variable X1 represent independent variable, and ε is the random error term.

5. Results and Discussion

The study results and discussion were presented using tables, charts and graphs. The analyzed data was arranged under themes that reflect the research objectives.

5.1 Correlation Analysis

The correlation analysis results of the relationship between multi-dimensional resources and financial performance of the Mumias Sugar Company, Kenya was presented in Table 1.

Table 1: Multi-Dimensional Resources

		Financial Performance
Multi-Dimensional Resources	Pearson Correlation	.764**
	Sig. (2-tailed)	.002

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

The findings of the study in Table 1, indicates that the effect of Multi-dimensional resources on the financial performance of Mumias Sugar Company was positive and statistically significant ($r = .764$; $p > 0.05$). This implies that multi-dimensional resources

positively and significantly influence financial performance of Mumias Sugar Company. These findings can be corroborated by those done by Murray et al., (2015). In his study, he says that developments must focus on providing a framework for the selection of metrics that accurately describe (or at least reliably proxy for) benefits and impacts across all sugar firms of value, enabling effective and transparent analysis of resource recovery form waste in such sugar firms.

5.2 Multiple Regression Analysis

The study established combined effect of multi-dimensional resources, social justice and price interventions on the financial performance of Mumias Sugar Company. The results of multiple regression analysis shown in Table 2.

Table 2: Multiple Regression Model Summary

R	R Square	Adjusted R Square	Std Error of the Estimate
.836[a]	.699	.592	.357

a. Predictors: (Constant), Multi-dimensional resources
b. Dependent Variable: Financial performance

From Table 2, R-Squared is used to evaluate the goodness of fit of a model. In regression, the R square coefficient of determination is a statistical measure of how well the regression line approximates the real data. It measures the proportion of the variation in dependent variable in this case financial performance, explained by independent variables. From the results on model summary R= 0.836, R- square = 0.699, adjusted R-square= 0.592, and the SE= 0.357. The coefficient of determination also called the R square is 0.699. This implies that the effect of the predictor variables multi-dimensional resources explains 69.9% ≃ 70% of the variations in financial performance of Mumias Sugar Company in Kenya. This implies that a 1 unit change in the multi-dimensional resources has a strong and a positive effect on financial performance of the sugar company. This study therefore assumes that the difference of 30.1% of the variations is as a result of other factors not included in this study.

5.3 Assessing the Fit of the Multiple Regression Model

Multiple regression analysis was conducted to test the influence among predictor variable on financial performance of Mumias Sugar Company. The three null hypotheses was tested using F statics. The test results are shown in Table 3.

Table 3: Overall Results of ANOVA

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	12.109	3	4.036	32.747	.001[a]
	Residual	17.008	138	0.123		
	Total	29.117	141			

a. Dependent Variable: Financial performance
b. Predictors: (Constant), Multi-dimensional resources

The findings of the study in Table 3 showed that there was a statistically significant relationship between the independent variables and the dependent variable (F= 32.747; p=0.01). This therefore indicates that the multiple regression model was a good fit for the data. It also indicates that multi-dimensional resources influence financial performance of the Mumias Sugar Company in Mumias, Kenya.

5.4 T-test of Individual Regression Coefficients

The t-test was conducted to determine whether the individual regression coefficient of the study was statistically significant. These results were presented in Table 4.

Table 4: Individual Regression Coefficients

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		β	Std. Error	βeta		
1	(Constant)	1.557	1.303		3.195	.013
	Multi-dimensional resources	.103	.057	.322	2.807	.003

a. Dependent Variable: Financial performance

From the study, Hypotheses one stated that;

H_{01}: There is no significant relationship between multi-dimensional resources and the financial performance of Mumias Sugar Company.

The results showed that multi-dimensional resources were positive and significant predictor of financial performance with ($\beta = 0.322$; $\varrho < 0.05$). The null hypothesis was therefore rejected. The study hence concluded that there was a significant relationship between multi-dimensional resources and the financial performance of Mumias Sugar Company. This study concurs to that study by Velis, Purnel, Zwirner, Brown, Hahladakis, Millward and Williams, (2017), asserts that established assessment methods focusing on resource recovery from waste within the sugar industry context consider few or even a single domain/s of performance value, i.e. environmental, economic, social and technical domains. This partial approach often delivers misleading messages for policy- and decision-makers.

However, this study does not agree with Ellen MacArthur Foundation, (2012); in a study that was done in U.K. in the year 2011. The report's findings indicated that transformation requires a shift in thinking such that performance is conceptualized and operationalized on the basis of preserving the value of materials, components and products (MCPs) by retaining their functionality for as long as possible, as underpinned by the rationale of a circular economy. The findings of this study showed that manufacturers and decision makers are inclined towards linear economy which is anchored on take, make, use and dispose with little or no regards to possibility of reducing, re-using or recycling the materials required for production. While Ellen MacArthur Foundation, (2012) is advocating for re-using of available resources as much as possible with strong emphasis on the need to protect and conserve the primary sources of current raw material for the benefit of future generations. This is the direction to be

taken by all manufacturers and policy-makers; a deviation from resource dependency to resource conservation and re-usage.

6. Conclusions

From the findings of the study, it was concluded that multi-dimensional resources were a predictor for financial performance. The study also concluded that streamlining the company functions with Multi-dimensional Resources like labour, capital and raw materials has helped to cut costs and eliminate unnecessary costs thereby improving the financial performance of the sugar company. Multi-dimensional resources are also seen to enable the farmers capitalize on their produce in terms of expanding their capital and enhancing labor efficiency which in turn leads to better production as a result of inputting the right raw materials.

6.1 Recommendations

Based on the results, findings and conclusions, the study recommended that the management of Mumias Sugar Company should stop taking for granted the direct government intervention more so in terms of financial injections. From the farmers' words, the management has failed in proper utilization of such interventions and in most cases such funds have only ended up in a few personal pockets. It is therefore a recommendation that a forensic audit be carried out to find out what ails the once giant sugar firm. The management should also be keen to the woes of the farmers when it has to with the financial performance of the company which would leads to stable liquidity and sustainability.

With regard to theories, the study showed that there was a significant relationship between multi-dimensional resources and the financial performance of Mumias Sugar Company in Kenya. The study found that the primary objective of the Resource Dependence Theory is presenting a guide on how to design and manage organizations that are externally constrained (Pfeffer & Salancik, 1978). This is in line with multi-dimensional resources on the ground that it is a criterion of looking into the best possible ways of utilizing the various resources in the organization to maximize its capacity and create efficiency and effectiveness.

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