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EFFECT OF GREEN PACKAGING ON BUSINESS PERFORMANCE IN THE MANUFACTURING IN NAIROBI COUNTY, KENYA

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Abstract

The main purpose of the study is to determine effect of green packaging on firm performance in manufacturing in Nairobi County, Kenya. The study was informed by institutional theory and the resource-based theory. The study adopted the explanatory research design. A census of 133 firm managers working for 47 firms in Nairobi County. Data was gathered from respondents using questionnaires as data collection instruments. Cronbach alpha was used to measure the internal reliability of the structured questionnaire. Data was analyzed using descriptive statistics which included means and standard deviations, also multiple regression models were used to analyze data in order to determine the hypotheses for the study. Data was presented using tables. The results indicated that green packaging is key determinants of business performance in the manufacturing in Kenya. Thus firm managers should package their products in recyclable materials.

Keywords: Green Packaging, Firm Performance, Manufacturing Sector, Green Supply Chain, Shared Product Responsibility (SPR),

INTRODUCTION

High competition has driven organizations to consider the ultimate outcome of their practices in terms of organizational performance (Dentchev, 2004), from which green supply chain practices (GSCPs) are not exempt. Today's business managers have realized the importance of the effective implementation of environmental strategies and green supply chain practices as a

critical factor for firm performance (Masoumik *et al.,* 2014). Morgan Polls (2006) showed that majority of consumers are environmental conscious about the environment. Previous studies also suggest that consumers who are willing to purchase green products are, in general, conscious about the environmental problem, concerned about the environment and believe that it is important to be environmentally friendly (Laroche *et al.,* 2001).

Green packaging which is the explicit phenomena in most instances has to do with suitable packaging that reduces environmental damage. Green packaging show the reflection of environmental concerns in monetary terms which are intrinsic and transferable to the customer. Green communication fosters a positive image and conveys a business firm's concern towards the environment and the public (Ottman, 1998).

Packaging provides benefits for companies as well as for consumers. For instance the surface of packaging serves as a communication platform for all kinds of information. This includes information such as product ingredients, price, usage data and other information that is relevant for consumers. Besides it serves marketing strategies as an instrument to increase appeal of items to consumer resulting in less stock going unsold. Packaging does also control the size and quantity of a product. (cf. referenceforbusiness.com, 2010) This is beneficial for companies in order to control inventory and manage the logistics of their product assortment. Moreover it improves the efficiency of product distribution and might therefore result in higher profit margins for companies

Retailers sell millions of products a year and nearly every one of them is packaged. Packaging of a product offers opportunities for improving the environmental performance of the tangible product without altering the core product (Peattie, 2005). Andrew Marthinusen, executive director of the Packaging Council of SA, points out "Green-packaging is not happening on a large scale in SA" (Witepski, 2007, p.28).

The private sector failed to create solutions which took into consideration the full environmental cost of packaging (Bailey, 1999). It is the entire life cycle of the package that needs to be considered: source, print, assemble, pack, preserve, ship, display, purchase, use and recycle/dispose. Sustainable packaging design considers the full life cycle of the package, recognizes the principle of shared product responsibility (SPR) and consequently seeks to minimize the total packaging system cost through efficient and safe package life cycle design. Organisation for economic cooperation and development (OECD) defines SPR as a voluntary system that ensures responsibility for the environmental effects throughout a product's life cycle by all those involved in the life cycle, from suppliers, manufacturers, retailers and consumers (Organisation for economic cooperation and development report; 1997).

Previous studies found that people engage in environmental behavior as a result of their desire to solve environmental problem, to become role models and a belief that they can help to preserve the environment (McCarty and Shrum,2001). Although these studies provide some insights into what motivates consumers to engage in green behaviors, it could not confirm that these motivations actually lead to consumers' green behaviors (e.g., recycling behavior) and in particular to green product purchasing behavior. Furthermore, most of these studies depend on self-reported data. These concerns raise questions regarding consumers' actual green behaviors, since consumers may only claim to be green as a result of social acceptance and peers pressure (Kalafatis *et al*., 2009).

Green packaging strategies become more complex and involve greater levels of relationship investment (Simpson and Samson, 2010). Within Green packaging practices, recoverable product environments, and the design of these products and materials, have become an increasingly important segment of the overall push in industry towards environmentally conscious manufacturing and logistics for increased competitive advantage.

The Kenyan manufacturing sector, including food, beverages and tobacco, remains the largest component of the manufacturing industry. In terms of structure, economic contributions, and performance within the manufacturing sector, this sector is the most important and largest comprising of over 1,200 businesses, encompassing everything from small family organizations to large multinational companies. According to the Kenya National Bureau of Statistics (KNBS) 2009 Statistical Abstract, in 2008, the sector contracted by 3.9 percent from 2007, but still generated over a third (33.4 per cent) of the total manufacturing production, and provided 89,319 jobs. High production and ingredient costs were partially blamed for this contraction. In 2009, the sector grew by 2.1 percent.

Organizations engage in environmental behavior as a result of their desire to solve environmental problem, to become role models and a belief that they can help to preserve the environment. However, consumers' indications of positive attitude towards environmental issues do not necessarily lead to actual environmentally friendly purchasing behavior (Laroche *et al*., 2002). Majority of consumers do not purchase products based on the environmental concern alone and they will not trade-off other product attributes for a better environment (Yam-Tang and Chan, 1998). However, even though green packaging is a recent "hot" topic, it is still a relatively young field of academic research (Jayaraman, Klassen & Linton, 2007). This has several implications. First of all, no common agreement has been reached among researchers about the definition of green supply chain management and secondly industry standards have not been determined (Sarkis & Zhu, 2004; Manget, Münnich & Roche, 2009). Examples are known where companies take advantage of this by making unsubstantiated claims about their

environmental performance, making consumers skeptical about green products (Manget *et. al,* 2009).

In additions, Very few firms in the manufacturing in Kenya are perceived as "green". It is assumed that environmental consciousness among these firms is low and there is little empirical evidence to suggest that the environmental values and attitudes are congruent with the consuming public's actions towards green products. In addition, most studies have focused on the general environmental behavior instead of specifically on consumers' purchasing behavior towards green products. Therefore, gaps exist in the literature with regards to understanding consumers' purchasing behavior towards green products.

H_{o1}: *Green packaging has no significant effect on firm performance*

RELATED LITERATURE

The packaging trade literature indicated that there were interdependencies between retailers, manufacturers and their suppliers regarding packaging modifications, even though there was little evidence of a common methodology towards packaging policy between all sectors of the packaging supply chain. According to Labatt (1997), there were instances where it was their combined effort to develop modifications that resulted in an overall reduction in the amount of packaging used. A reduction of packaging material is positive for the environment, as well as the supply chain due to and the reduction in transportation and storage cost (Schvaneveldt, 2003).

There are a number of ways in which packaging can be reduced without compromising the primary performance of the packaging as well as reducing the total cost i.e. sell in larger unit sizes, sell refills, reduce the thickness of the packaging material, switch the packaging to a material of which less is needed, and/or use efficient design formats (Peattie, 2005). However, according to Witepski (2007 p.30) "product is still packaged with too much packaging and designers should try to minimize the amount of surplus material".

The INCPEN report findings on the popular presented image of packaging which often failed to recognize the contribution that packaging makes to modern lifestyle and exaggerated packaging environmental impact. Attention is usually focused on the waste generated by used sales packaging and more often ignores the fact that packaging protects far more resources than it uses, thereby reducing overall waste (INCPEN, 2003).

Packaging has important economic and social roles in modern society and delivers its own environmental benefits. In terms of waste and its disposal, packaging is but one small part of the total waste stream (INCPEN, 2003). For products that require large amounts of packaging, Shrivastava notes that green-packaging is a source of competitive advantage

(1995). As such, designers of products and packaging have a huge responsibility to ensure that their designs have a sustainable impact on the environment and furthermore that they advise the customers be it manufacturers, or brand managers of their alternative packaging option (Witepski, 2007).

An independent research study in 1997 found that consumers hold contradictory attitudes to packaging: they want and enjoy the benefits of convenience, hygiene and safety, but they also perceive packaging as wasteful (INCPEN, 2003). Labatt (1997, p.115) supported these findings when he states “Manufacturer’s and retailers alike are sensitive to consumer acceptance of changed products and packaging and are aware of goods must meet

A similar argument applies to eco-packaging design which is typified by reusable and recyclable packaging, waste minimization by means of reduced packaging and reduction or elimination of hazardous material in packaging (Buyukozkan and Cifci, 2012). Similarly, regulatory practices typically involve the reduction or elimination of hazardous materials in products and packaging as well as the adoption of recycling, reuse and environmentally-friendly disposable packaging. (Xie and Breen, 2012)

THEORETICAL FRAMEWORK

Institutional theory contends that actions taken by firms are driven by the external pressures they face (Scott, 1994). More specifically, according to the institutional theory, firms adopt these initiatives in order to gain legitimacy or acceptance within society. Different forms of isomorphic pressures have been identified – namely coercive, normative and mimetic pressures – which lead to the adoption of similar practices across firms (DiMaggio and Powell, 1983). While Jennings and Zandbergen (1995) were among the first to explain the adoption of practices within the environmental context, several scholars have subsequently investigated the positive impact of these institutional pressures on green procurement (Sarkis *et al.,* 2010; Zhu *et al.,* 2008; Zhu and Sarkis, 2007).

The resource-based view of the firm emphasizes that valuable, rare, imperfectly imitable, and non-substitutable resources result in competitive advantage (Barney, 2001).These resources can consist of assets, capabilities, organizational processes, information, etc. and are classified into tangible and intangible resources. The NRBV extends the resource-based view by highlighting that the environment might be a constraining factor impacting sustainable competitive advantage and accordingly suggest that firms, which manage the environmental link better than others, might generate more sustainable competitive advantage (Hart, 1995).

RESEARCH METHODOLOGY

The study adopted the explanatory research design. According to Orodho (2003), explanatory research design analyses the cause-effect relationship between two or more variables. The target population under the study was 133 firm managers working for 47 manufacturing firms in the Nairobi County, Kenya, (KMA, 2013). The study conducted a census on target 113 managers of 47 manufacturing firms in Nairobi County.

The research was based on the collection of primary and secondary data**.** Primary data was gathered from respondents using the questionnaires as data collection instruments. However, secondary data was used to depict pertinent issues which might exist before the study is conducted; it was used as a basis to confirm and contrast further findings of the study. Secondary data was collected from journals, conference reviews, books and magazine articles. This study deployed the use of questionnaire as a data collection technique.

Cronbach alpha is a measure for degree to which the items reflect the same underlying construct and therefore scales internal consistency (Grecory, 1999). Values ranging between $\alpha \geq 0.9$ usually indicate excellent reliability, $0.7 \leq \alpha < 0.9$ is good and values ranging between $0.6 \leq \alpha < 0.7$ is acceptable. Therefore, 0.7 is deemed to be the acceptability level. (Hair *et al.* ,1995). From the findings in table the reliability for the factors were 0.920 and 0.774 with green packaging scale showing high level of internal consistency compared to the other three factors, 0.920 with higher coefficients for Cronbach's alpha on standardized items.

Table 1: Reliability analysis

	Cronbach's Alpha	Cronbach's Alpha Based on Standardized Items	N of Items
Green Packaging	0.920	0.923	3
Firm Performance	0.774	0.788	14

Measurement of Variables

Dependent Variable

Performance was measured based on an interval scale (non-categorical variable) (Sekaran, 2005) from 1 (very low) to 5 (very high). A summed score of the 13 items in the questions was the basis of measurement for performance, the main elements of which included sales-based performance (nine items: the level of sales revenue, profitability, return on investments, return on assets, manufacturing productivity, product added value content, added value per employee, sales growth and market share for product) and organisational-based performance (four items:

the emphasis on efficient organizational internal processes, customer satisfaction, employee development and job satisfaction) (Wang & Lo, 2003; Neely, 2005; Falshaw *et al*., 2006; Ainuddin *et al*., 2007).

Independent Variable

Green Packaging

Green packaging was measured using 8 items which include; selecting suppliers by environmental criteria., to provide environmental impacts of the product content, products that are supplied must have green attributes, to provide information about their environmental aspects, take environment friendly actions, and to establish their own.. Julie G. Terrell (2012).

Multiple regression model was used to analyze data in order to determine the hypotheses for the study. Collected data was checked for possible violations of regression assumptions with the help of SPSS software tool. Descriptive analysis was also used to classify, analyze and interpreted to establish green products and firm performance. Correlation design was also used to assess the degree/strength of relationship that exists between the Independent variable and the dependent variable.

ANALYSIS AND RESULTS

The background characteristics showed more males employed in general than females and accounted for at-least 73% of the employees while over 38% of the employees were aged between 34-41 years with over 58% of the employees having worked in the firm for 1 to 5 years. Finally significant levels of high education levels were noted with over 70% of the employees having attained between a certificate and degree level of education.

Descriptive Statistics for Green Packaging

The responses with regard to green packaging were also assessed and presented in table 2. The findings showed that majority of the firms substitute their unfriendly packaging materials with friendly materials, mean = 3.83, S.D = 0.811 and package most of their products in recyclable materials, mean = 3.80. S.D = 1.071while there was also a significant level of the firms urging their suppliers to take back packaging which in this case is the packaging that is not friendly, mean = 3.65, S.D = 0.958. Overall, the firms were shown to adhere to green packaging, mean = 3.7593. S.D =0.89.

Table 2: Green Packaging

	N	Mean	Std. Deviation	Skewness	Kurtosis
We urge suppliers to take back packaging	126	3.65	0.958	-0.857	-0.449
We package most of products in recycle materials	126	3.80	1.073	-0.738	-0.711
We substitute our unfriendly packaging materials with friendly materials	126	3.83	0.811	-1.316	1.329
GREEN PACKAGING	**126**	**3.759**	**0.89605**	**-0.917**	**-0.163**

Based on the findings above on green packaging, majority of the firms have integrated strategies that are aimed at closing the loop that is defined within GSCM especially in relation to the supplier, manufacturer and the customer as well as the reverse logistics as put forward by Zhu and Sarkis, (2010) as well as Srivastava (2007) who defined GSCM as integrating environmental thinking into supply chain management, including product design, material sourcing and selection, manufacturing process, delivery of the final product to the consumers as well as end-of-life management of the product after its useful. So, the level of integration of green packaging was seen as not just stopping at the manufacturer and supplier level but is also determined by the integration of the GSCM practices within the whole supply chain system that includes the customer. Thus, the level of communication and corporation between the manufacturer, supplier and consumer is critical to close the GSCM loop.

Descriptive Statistics for Firm Performance

Based on the factors that relate to green packaging and how they were assessed, the level of firm performance was also assessed and the findings were summarized and presented in table 3. The findings revealed increased firm performance on average, mean = 3.4371 especially that there is growth in profits in relation to the firms expectations, mean 3.87, a high level of customer loyalty, mean = 3.73, growth in sales in relation to the firms expectations, mean= 3.67, increase in perception of customer satisfaction, mean = 3.66 and growth in sales in relation to the firms' competitors. In addition to this, due to the influence of green packaging and the efforts that the firms had put in place to conform to green packaging, the firms also realized increased performance in terms of creation of positive reputation, market size in new markets and improved efficiency. However, still lacking performance was shown in profit levels as compared to competitors, market size in relation to competitors, ability to develop new products, number of employees, level of new customers and growth in capital from operations.

Table 3: Firm Performance

	N	Mean	Std. Deviation	Skewness	Kurtosis
Growth in sales in relation to your expectations	126	3.67	0.681	-1.629	1.423
Growth in sales in relation to your competitors	126	3.60	0.801	-1.531	0.348
Growth in profits in relation to your expectations	126	3.87	0.726	-1.582	2.703
Growth in profit level in relation to your Competitors	126	2.75	1.226	-0.348	-1.488
Increase in number of employees	126	3.05	1.270	-0.233	-1.235
Increased market size in new markets in relation to your	126	3.59	0.860	-0.467	-0.448
Increased market size in new markets in relation to your competitors	126	3.04	0.862	-0.077	-1.656
Growth in capital from operations	126	3.33	0.987	0.016	-1.108
Improvement in efficiency	126	3.53	0.985	-0.523	-0.937
Successful creation of positive reputation	126	3.59	1.195	-0.353	-1.446
Increase in perception of customer satisfaction	126	3.66	1.125	-1.277	0.668
High level of customer loyalty	126	3.73	0.950	-0.912	-0.186
High level of new customers	126	3.29	0.962	-0.603	-1.662
High ability to develop new products	126	3.07	1.266	-0.737	-1.285
Firm Performance	**126**	**3.437**	**0.51244**	**-1.642**	**1.715**

From the above findings, the level of the firm's performance was shown to have improved in many aspects although some areas were shown to have weaknesses. The findings are in line with the importance of integrating environmental management practices into the whole supply chain management system which lead to greener supply chain, maintain competitive advantage and increase in business profit and market share objectives.

Factor Analysis

Sampling adequacy was tested using the Kaiser- Meyer- Olkin Measure (KMO measure) of sampling adequacy for each of the four factors. The KMO statistic can be calculated for individual and multiple variables and represents the ratio of the squared correlation between variables to the squared partial correlation between variables. The KMO statistic varies between 0 and 1. A value of 0 indicates that the sum of partial correlations is large relative to the sum of correlations, indicating diffusion in the pattern of correlations while a value close to 1 indicates that patterns of correlations are relatively compact and so factor analysis should yield distinct and reliable factors.

From the findings in table 4, there was clear evidence that the sample size of the respective factors was adequate with a KMO statistic of 0.687 for green packaging which is greater than 0.5 for a sample to be considered adequate (Kaiser, 1971).In addition, the findings on Bartlett's test of sphericity showed that there was no significant correlation among the factors tested to warrant exclusion of some; $\chi^2 = 1148.279$, df = 28, $p < 0.0001$ for green packaging and firm performance respectively all rotated and through this gaps were identified in terms of lower than the rest loadings on specific factors.

Table 3: Factor Analysis

	Green packaging
We Urging suppliers to take back packaging	0.988
We package most of products in recycle materials	0.974
We substitute our unfriendly packaging materials with friendly materials	0.994

Table 4: Extraction Method: Principal Component Analysis

KMO and Bartlett's Test	
Kaiser-Meyer-Olkin Measure of Sampling Adequacy.	0.687
Bartlett's Test of Sphericity (Approx. Chi-Square)	1148.279
Df	28
Sig.	0.000

Correlation Analysis

The study also assessed the nature of the relationship between the independent factor (green packaging) and the dependent factor (firm performance) and the findings were summarized and presented in table 5. From the findings the relationship between green packaging and firm performance, r =0.566, p <0.0001 which indicated that there was 56.6% chance of increased firm performance with a unit increase in green packaging.

Table 5: Correlations

		Firm Performance
Green packaging	Pearson Correlation	0.566**
	Sig. (2-tailed)	0.0000

** Correlation is significant at the 0.01 level (2-tailed).

Regression Analysis (Hypothesis Testing)

A regression model was developed in order to explain that effect of the independent factor on the firm performance and the findings were summarized and presented in table 6. From the

findings in table 6, the independent factors had an overall coefficient of determination value of 0.411 which indicates an overall strong and positive relationship which implies that the model contributes more variation to the dependent factor as compared to the error factor.

The findings also showed that although the effect of green packaging on firm performance was significant and positive, $\beta_3 = 0.095$, $p = 0.011$, it accounted for the least effect on firm performance. Green packaging was found to have the least amount of effect in relation to firm performance, the effect was found to be positive and significant and thus, the null hypothesis stating that green packaging has no significant effect on firm performance was rejected and concluded that green packaging has a significant effect on firm performance and accounts for approximately over 2.6 times increase in firm performance. This conclusion is supported by the work of Labatt (1997), which said there were instances where it was their combined effort to develop modifications that resulted in an overall reduction in the amount of packaging used. A reduction of packaging material is positive for the environment, as well as the supply chain due to the reduction in transportation and storage cost and thus business flourishing.

Table 6: Regression Analysis

	Unstandardized Coefficients		**Standardized Coefficients**		
	B	**Std. Error**	**Beta**	**t**	**Sig.**
(Constant)	1.489	0.146		10.194	0.000
Green packaging	0.095	0.037	0.181	2.577	0.011
R Square	0.611				
Adjusted R Square	0.601				
F	63.89				
Sig.	.000b				
Dependent Variable: Firm Performance					

CONCLUSION AND RECOMMENDATIONS

Based on the study findings the study concluded that green packaging has a positive and significant effect on firm performance in manufacturing industry. On the other hand, although it has been shown in general that the firms do have active policies on green packaging, gaps in the implementation of the policies was shown in terms of majority of the firms failing to bring together suppliers in the same industry to share their know-how and problems, therefore resulting in failure to realize the full benefits of green packaging. The study recommends that firms should include their suppliers and share their know-how and problems so that they can

enjoy the full benefits of green packaging. The study further recommends that firms be encouraged to practice green packaging since it has a positive significant effect on firm performance.

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