International Journal of
Supply Chain and Logistics
(IJSCL)

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CARI Journals

International Journal of Supply Chain and Logistics

ISSN 2520-3983 (Online)

Vol. 8, Issue No.1, pp 33 - 56, 2024

www.carijournals.org

Does Packaging in Green Pay off? Role of Green Packaging on Firm Performance: Evidence from a Developing Economy

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Accepted: 12th Jan 2024 Received in Revised Form: 26th Jan 2024 Published: 10th Feb 2024

Abstract

Purpose: Greening supply chains has become important more than ever among business firms carving out competitive niches. With the ever increasing complexity in business operations characterised by demand for higher value, supply chain firms are increasingly turning to green practices to not only achieve better results but also be socially responsible. While this is so, Euro monitor International report, 2020 discloses that globally, the manufacturing sector experienced 4.6% drop in market share by 2021, partly orchestrated by environmental upheavals due to business practices. The study sought to examine whether adopting green packaging pays off by establishing effect of green packaging on firm performance in a developing economy, Kenya.

Methodology: The study achieved this through a mixed methods design on a population of 460 managers and 92 CEOs, interacted through a structured questionnaire and interview schedule. Standard linear regression in SPSS version 24 and thematic analysis were adopted. Results show that green packaging has significant positive effect on performance (R^2=.394, β=.628, p<.05), practically denoting that unit increase of packaging in green results to 0.628 units improvement in performance.

Findings: The results provide sufficient evidence that indeed, packaging in green pays off. Further, the paper ground theoretical puts by Hart (1995) that green packaging is a pivotal resource.

Unique contributor to theory, policy and practice: We provide interesting conclusions that green packaging pays off, advising managers and industry stakeholders to adopt policies of leveraging it. A research agenda is offered to further scholarly subsequent discussions.

Keywords: *Green Packaging, Firm Performance, Soft Drinks Manufacturing Firms, Supply Chain Management*

1.0 INTRODUCTION

1.1 Background to the study

Green Supply Chain Management (GSCM) has evolved in recent times as an important practice among supply chain firms. It can be regarded as the unification of environmental facet with the conventional supply chains. In the words of (Baki, 2018), GSCM practices encompasses intra and inter-firm management of the upstream and downstream supply chain through internal and external practices seeking to diminish the overall environmental impact of both the forward and reverse flows.

In advancing relevance of GSCM practices among business firms, many scholars and industry practitioners have evidenced that this is mainly from dwindling raw materials sources, soaring pollution and most significantly unsatisfactory organizational performances. Çankaya & Sezen (2019) infer that when empirical studies on GSCM practices are probed, it is apparent that there are over ten GSCM dimensions addressed by various authors. Evidently, GSCM practices are extremely wide-ranging thus the periphery of GSCM practices relies on the researcher's intent.

One important element in greening supply chains of business firms is Green Packaging. While it is closely related to the other elements of the value chain, nonetheless it has an unswerving effect on the environment and thus, an important element of GSCM. Green Packaging (GP) is the utilization of packaging practices bearing low negative environmental footprint. Maziriri (2020) contends that for a package to be considered green, it should adapt to the different needs of logistics and supply chains. It should be designed for the environment (reduce, reuse and recycle). In the same vein, a green package should have an eco-label.

To this end, practitioners and scholars keen on GP have invariably recorded opinions on what its key measures are. Many of them (Zailani *et al*., 2015; Owusu-Bio *et al*., 2016) agree that Eco-Design, Eco-Labeling and Packaging Integration with Logistics and Supply Chain Management are pivotal Green Packaging practices. The reviewed literature; (Sambu, 2016; Musalia, 2018; Kozik, 2020 & Maziriri, 2020), provides evidence of the paucity of studies in GP and specifically, in soft drinks manufacturing sector of a developing economy. It would be illusion to deduce that findings from developed countries apply in Africa. Thus, so as to prove or disprove the previous studies' findings, this genre of research affiliated to SDMFs in Africa is evidently behindhand. Hence, the current study examines whether packaging in green has a bearing on firm performance basing on a developing economy, Kenya.

The memoir of Soft Drink Manufacturing stems from 1931 when Kenya Ice and Aerated Water Factory were established in Kenya. The 1940s saw the local soft drink industry encompassed of a large number of small-scale producers (KAM, 2019). Soft Drinks in East Africa, (2020) confirms that Multinational Corporations (MNCs) augmented their importation endeavors after 1945; thereafter it was followed by Foreign Direct Investment (FDI) by some MNCs. Symptoms of this FDI was that a number of MNCs situated their production facilities in the country and foreign

firms took over local firms or initiated joint ventures or franchise arrangements with local firms. The Kenyan market structure has the characteristics of an oligopoly; few dominant market players. The major players in the Kenyan market include: Coca-Cola, Delmonte Kenya, Aquamist Limited, Kuguru Food Complex Limited, Keringet mineral water, Milly Fruit Processors Limited, Bidco Africa limited, Excel Chemicals, Suntory, Kevian Kenya Limited and Sky Foods Limited (Euromonitor International, 2021). According to Lars (2022), as of 2020, Coca-Cola had dominated the Market Share of soft drinks in Kenya, around 70%. Home grown SDMFs Kevian and Excel Chemicals accounted for 5% and 2% respectively of the Market Shares. Suntory and Delmonte followed at 1% each. The rest of the Soft Drink Manufacturing Firms shared the remaining 19% Market Share.

TAC (2021) confirmed that as an example of sustainable glass packaging, global brand Absolut Vodka uses over 1 million bottles annually, which use 40% of recycled raw materials hence reduction in GHGs and of energy consumption by 10%. Fueled by consumer concern and pressure from NGOs and underpinned by new legislation in the UK, global beverage giants are unified in their goal to make packaging recyclable by 2025. The Soft Drinks Industry Sustainability Index – Trends Report, 2020 show that Coca-Cola, Danone, Keurig Dr Pepper and PepsiCo commit to design and make 100% of packaging to be recyclable or reusable, compostable or biodegradable by 2025; Nestle aims to make 100% of packaging to be recyclable or reusable by 2025 and 84.5% of their total packaging was recyclable or reusable by 2021; The Drinks Industry Sustainability Index – Trends Report (2020) noted that as part of its commitment to eliminate plastic waste from sporting events, Lucozade Ribena Suntory teamed up with sustainable packaging start-up Notpla to produce an innovative packaging solution (edible sea-weed packaging that naturally bio-degrades in four to six weeks) called Oohos that will eliminate packaging and also drastically reduce the use of energy and water (The Drinks Industry Sustainability Index – Trends Report, 2020). All the above initiatives have proven to improve organizational performance.

Regionally, green packaging is not well-established and developing countries more often struggle with the implementation of new strategies, especially with sustainable activities (Govindan *et al*., 2020) due to limited resources, limited environmental regulations, governmental commitment towards environment, and public awareness and this can explain why many organizations in developing countries are still having a reactive approach towards the environment and of more concern, monitoring and control of pollution is not taken seriously (Abdellatif & Graham, 2019). Polluting industries are prevalent in lower and middle-income countries (LMICs) majority of them being in Africa, due in part to the globalization of trade and manufacturing industries along with low labour costs and the spread of Western lifestyles (Landrigan *et al*., 2018). At the same time, there are few resources to implement cleaner methods of production in most LMICs (Abdellatif &Graham, 2019). Additionally, reviewed literature has shown that the green concept is under researched in the manufacturing sectors of developing countries (Abdellatif & Graham, 2019; Tumpa *et al*., 2019; Uddin *et al*., 2019 and Ahmed, 2021), majority of which are in Africa (Ahmed, 2021). This is the case in spite of the fact that environmental protection is important for the

development of a nation's economy. Urgent action is therefore needed to achieve a change in the way manufacturing firms in the region manage the natural environment.

South Africa's case is however unique as Ojo *et al*. (2019) eludes that there are many examples of South African companies effectively 'greening' the supply chain and thus optimize organization's performance as per the annual Green Supply Chain Awards-a joint initiative between the Chartered Institute of Logistics and Transport South Africa (CILTSA), the Consumer Goods Council of South Africa (CGCSA) and Supply Chain Today magazine (Malingaka *et al*., 2020). The award winners show that South African supply chains are leading the way: from Rainbow Farms who converted incandescent lighting in 36 facilities to LE D systems, reducing electricity consumption by 117 000 kWh per month, to TFD Network Africa who launched 'Driving the Green Movement', a project that addresses energy efficiency, water management, waste management and carbon emission reduction. Baroword Logistics, Ellerine Holdings and Growthpoint Properties together used green building technologies to convert a disused foundry into a state-of-the-art warehouse for Green Distribution, earning a 'Highly Commended' mention. South African products also shine, with ECO_2Fleet (a web-based reporting service, developed by Standard Bank that measures the carbon footprint of a vehicle fleet to reduce costs) and to DHL (with their aerodynamic teardrop trailer that reduces wind resistance at speed) both winners in the 'Best Product' category (Ojo *et al*., 2019).

Environment management and planning in Kenya can be traced to the Rio Earth Summit of 1992, which helped a great deal in raising understanding about the link between environment and development (UNEP, 2019). Following the summit, Kenya initiated the National Environmental Action Plan (NEAP) process. This was completed in 1994. It recommended the need for a national policy and law on the natural environment (RoK, 2019). The policy process culminated into the Draft Sessional Paper No. 6 of 1999 entitled ―Environment and Development. The legislative process gave forth the Environment Management and Coordination Act (EMCA) No. 8 of 1999 as Kenya 's first framework of environmental law (RoK, 2019) for addressing environmental challenges such as environmentally-related diseases, water and air pollution, waste management, climate change just to mention but a few. Environmental considerations of development are contained within the social and economic pillars. Kenya is a member of the Convention of Biological Diversity (CBD), one of the outcomes of the United Nations Conference on Environment and Development held in Rio de Janeiro in 1992 (UNEP, 2019). Kenya has also been implementing other international development treaties like Agenda 21 and the MDGs that are inclined to environment protection and sustainable development.

In a bid to protect the environment, the Kenyan Government has also put in place a wide range of policy, institutional, regulatory and legislative frameworks to address the major causes of environmental degradation and negative impacts on ecosystems emanating from industrial and economic development programs. The National Environment Management Authority (NEMA), a regulatory body of the ministry of environment and mineral resources (MEMR), handles

environmental coordination in Kenya (RoK, 2020). The constitution of Kenya, 2010, hailed as a green constitution, embodies elaborate provisions on matters related to the management of the environment and the sustainable use of resources (Achoura, 2018). Article 69(2) of the constitution of Kenya, 2010, states that every Kenyan has a duty to cooperate with the authorities in the protection and conservation of the environment and ensuring ecologically sustainable development as well as use of resources. Chapter five of the constitution is entirely dedicated to land and the environment. Article 69(1) has obligated the government to ensure sustainable exploitation, utilization, management and conservation of the environment and natural resources. Articles 185 (2) and 186 (1) as well as article 187 (2) of the constitution have distributed functions for protecting the environment between the national government and the county governments (Achuora, 2018b). The Constitution of Kenya, 2010 envisioned a green economy where all the players in the economic development of the country are expected to undertake their economic activities in a manner that minimizes the impact on the natural environment (RoK, 2020). It established a framework of natural environment management throughout the entire supply chain- Green Supply Chain Management. This is in line with sustainable development objective of Vision 2030; Kenya road map for development (RoK, 2018).

Scholalry reviewed literature provides evidence of the paucity of similar studies ignoring soft drinks manufacturing firms in a developing economy (Zailani et al., 2015; Owusu-Bio et al., 2016; Sambu, 2016; Musalia, 2018; Kozik, 2020 & Maziriri, 2020). It would be ingenuous to deduce a priori that findings from developed countries apply in developing third world countries. Worth to note, bulk of the reviewed studies on Green Packaging (Zailani et al 2015; Maziriri, 2020; Owusu-Bio et al., 2016; Musalia, 2018) were single quantitative models, ignoring qualitative approaches. In addition, further reviewed works were qualitative reviews (Kozik, 2020) ignoring quantitative models. Information on green packaging as an antecedent of performance in soft drinks firms of developing nations birthed in qualitative quantitative field evidence is nonexistent. With this backdrop, current paper examined effect of Green Packaging on firm performance of soft drinks manufacturing firms in Kenya, immersing itself in the existing body of knowledge.

There are several other government agencies that play a role as they manage their sectors. These include: Ministry of public health and sanitation-environmental health including; Public Health, the working environment radiation control and management of hazardous wastes; Ministry of water development-through management of water resources utilization; Ministry of Local government-through management of urban environments by urban councils; Ministry of forestry and wild life-anti poaching and deforestation; and Ministry of Agriculture-Controls farming practices to prevent soil erosion in areas with sloppy land (RoK, 2020).

Although there is a growing body of literature supporting the view that “being green” pays off, Performance in soft drinks manufacturing firms has declined characterized by drop of production by 80.4 million litres in 2021, bucking a trend of increase since 2012, decrease in market growth

by 4.61% and in turn decrease in profitability, these attributed to the slumming economy, demand for sustainable products and increase in costs (Euromonitor International, 2020)

1.2 Objective of the study

The main objective of the study was to establish the effect of green packaging practices on performance of soft drinks manufacturing in a developing economy, Kenya

1.3 Hypothesis of the study

H_{01} Green packaging practices have no significant effect on performance of soft drinks manufacturing firms in Kenya

1.4 Conceptual framework

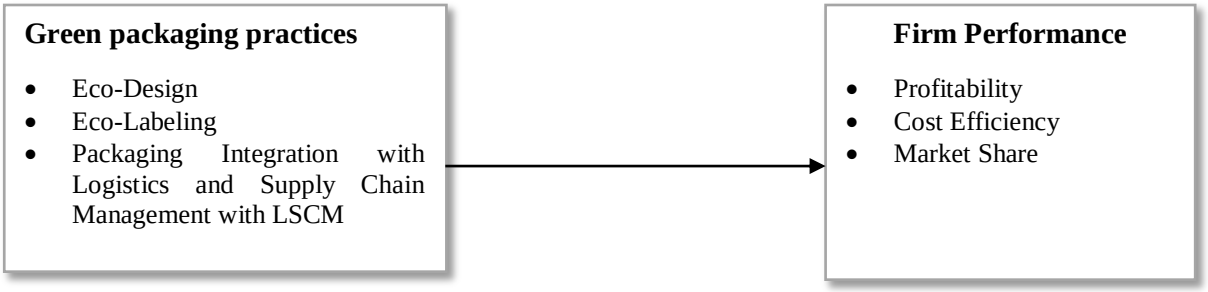

Figure 1: Conceptual framework of the effect of green packaging practices on performance of soft drinks manufacturing firms in Kenya. Source: (Adapted from Hart,1995)

The conceptual model of the study above shows an association between green packaging practices and firm performance which exhibits a cause and effect relationship. The independent variable is green packaging practices. Practices of green packaging in place (eco design, eco labelling, packaging integrations) may affect firm performance of soft drinks manufacturing firms. With this therefore, it is expected that performance of business firms in terms profitability, cost efficiency and market share may be achieved soft drinks firms. Therefore, the study is composed of two main variables; independent variable (eco design, eco labelling, packaging integrations) dependent variable (firm performance) as shown in the figure 1.1

2.0 LITERATURE REVIEW

2.1 Natural Resource-Based View theory

The Natural Resource-Based View (NRBV), advanced by Hart (1995), surfaced from the development of the Resource-Based View (RBV) theory (Cousins *et al*., 2019) which offers a theoretical framework that spells out how a firm can organize its valuable, unique and inimitable resources to attain a sustainable competitive advantage (Barney, 2018). Undoubtedly, it is the unique nature of a firm's strategic resources that cushions the firm from competition. Hart (1995), nevertheless, alleges that RBV theory lays more emphasis on internal resources ignoring the role of the natural environment. Apart from considering the available resources, firms should as well as consider in what way these resources "fit" with the external "natural" environment. It is this

"fit" that internal and external shortcomings can be bridged within RBV theory, and hence Hart (1995) proposes NRBV to enhance understanding of this fit between a firm and its natural environment.

The NRBV pinpoints that sustainable practices are resources that competitors cannot easily imitate or acquire because of institutional or capability constraints and hence may be considered "strategic resources" from an RBV perspective. NRBV asks for a focus on the natural environment, contending that firms are restrained not only by their internal resources, but also by the availability and cost of external environmental resources. NRBV identified three key inter-related environmental strategic capabilities; "pollution prevention" (minimizing environmental degradation through reducing inputs required, simplifying the process and reducing compliance and liability costs), "product stewardship" (expanding the scope of pollution prevention to include the entire value chain or "life cycle" of the firm's product systems. Through stakeholder engagement, the "voice of the environment" can be effectively integrated into the product redesign and development process) and "sustainable development" (producing in a way that can be maintained indefinitely into the future, as well as, focusing on economic and social concerns). These three "natural environment" strategies confirmed to be a source of competitive edge and performance improvement within the confines of RBV. Essentially, GSCM practices alongside with moderating role of Stakeholder Pressure are regarded essential in carrying out the three natural environment strategic capabilities; as these resources are valuable and non-substitutable, and the GSCM practices are specific to SDMFs due to their exclusive supply arrangement and finally these resources are difficult to replicate as they are skill-based and people-intensive.

The act of balancing among supply chain members to optimize the implementation of supply chain activities without harming the natural environment is a socially complex inimitable resource that can create a fortuity for sustained competitive advantage for the firm (Barney, 2020). All these specific types of GSCM practices (Green Purchasing, Green Packaging, Green Distribution and Environmentally-Oriented Reverse Logistics) translate into a firm's strategic resources that allow a more systematic examination of the relationship between environmental and financial performance by specifying the link between resources and capabilities and strategic outcomes. In particular, the NRBV's emphasis on the contingent nature of resources and capabilities has aided researchers in making specific links between environmental and financial performance. A review of the "pays to be green" literature concludes that the greatest potential for future research in this area lies in continuing to identify the contingencies that affect the environmental–financial performance relationship.

The NRBV approach focuses on the valuable resources of the organization, which in turn, impacts long-term survival. Green Packaging practice is a firm's unique causally ambiguous resource. This practice is people based and depends on tacit skills that are developed by involving employees in the pursuit of the environmental objective. The decentralized and tacit nature of this competence makes it hard to observe in practice and, hence, difficult to imitate quickly (Barney, 2018).

Consequently, the firm is afforded the opportunity for sustained competitive advantage through a unique causally ambiguous resource. Green procurement, Green Distribution and Environmentally-Oriented Reverse Logistics create socially complex resources since these activities depend upon a large network of people or teams engaged in coordinated action which few individuals, if any, have sufficient breadth of knowledge to execute. Stakeholders are an important resource to firm's performance given that their pressure unequivocally improves the effect of adopting GSCM practices on performance. In this regard, both GSCM practices and stakeholders are frugal resources that may be leveraged by a firm to alleviate outcomes. The NRBV theory expounds that firms may utilize their available resources (in this case GSCM practices and stakeholders) to improve their outcomes. The motive behind GSCM is to improve supply chain competitiveness while considering the availability and cost of external environmental resources in order to create value for firms through enhanced Cost Efficiency, Profitability and Market Share.

NRBV theory often used to explain more strategic motivations of GSCM adoption, such as why firms operating within the same context (market or industry) pursue different GSCM strategies despite experiencing similar institutional pressures. Maziriri (2020) used the theory in examining Green Packaging and Green Advertising as the precursor of competitive advantage in small and medium enterprises of South African economy. Utomo, Saudi & Sinaga (2018) used the theory in establishing the moderating role of organizational learning capability on the relationship between GSCM practices and sustainability performance of mining industry in Sierra Leone. According to the theory, environmental management in the supply chain can create competitive advantage to those practicing it. It highlights the whole concept of adopting this Effect of GSCM practices on the Performance of SDMFs in Kenya. NRBV theory anchored this study and formed the basis for moderating role of stakeholder pressure on the relationship between GSCM practices and performance of SDMFs. This study helped to fill this gap in the body of knowledge on NRBV theory and its implications for operations and manufacturing management.

2.2 Green Packaging and firm performance

Previous scholarly works on green packaging in diverse environments is not seldom. For instance, Zailani, Shaharudin, Govindasamy, Ismail & Mahdzar (2015) advanced a study on eco-efficiency practices of the sustainable packaging and its effect towards sustainable supply chain performance of manufacturing firms in Penang, Malaysia". The study was grounded on the underlying principles of Resource-based View (RBV) theory. The Malaysia department of environment reported that manufacturing firms were the highest contributors of environmental concerns such as land, water and air pollution other than deprivation of public resources. The writers adopted a cross sectional survey research design on a target population of 700 companies. Census survey sampling was used in this study. 700 questionnaires were mailed to Participants, out of which 109 were returned, giving a response rate of 15%. The study findings revealed eco efficiency practices have a significant positive relationship with sustainable packaging. On the other hand, sustainable packaging strongly influenced supply chain performance of organizations

Kozik (2020) from a Poland perspective, carried out a study on sustainable packaging as a tool for global sustainable development, recording that while there is increased attention in many areas of human activities, recent focus has come to environmental, ecological and social concerns. Managers and policy makers in many multinational enterprises are faced with increasing pressure from owners and other stakeholders to consider strategies aimed at reducing negative impacts of these concerns. One such important strategy is sustainable packaging more so by the manufacturing firms which carry out packaging as a practice. Kozik (2020) characterizes sustainable packaging as a practice whose impacts are felt by virtually all the paradigms of sustainability, that is; society, economy and the environment. Even the competitiveness of an economy today rests on sustainable packaging (Kozik, 2020). This is necessitated by the unrestricted movement of goods across borders and their vast diversifications across borders. Thus, as globalization ensues, organizations must start thinking of packaging sustainably.

In Africa, Maziriri (2020) undertook a study in South Africa on Green Packaging and Green Advertising as the precursors of competitive advantage and organization performance in small and medium enterprises of the South African economy. The study targeted heads of departments of the Small and Medium Enterprises (SMEs) and the natural resource-based view theory provided a theoretical underpinning of the connection between green marketing practices, i.e. Green Packaging, competitive advantage and organization performance. The researcher considers that Green Packaging is itemized as a practice which presents an opportunity of maintaining the environmental pursuits of firms as well as the green product attributes of buyers and sellers. There is no doubt that Green Packaging leads to increased manageability of items. Furthermore, it is affirmed that Green Packing implies that containers used to ferry materials do not affect the current generations but at the same time do not jeopardize the future regenerations. Maziriri (2020) concludes that there is no doubt Green Packaging will enable a firm to obtain competitive scales.

A study investigated the impact of sustainable packaging practices on performance of the pharmaceutical industry in Ghana (Owusu-Bio, Muntaka & Bonsu, 2016). The writers acknowledge that from the fact that there is a developing apprehension to organizations to consider green issues, there is an increasing need for researchers to advance studies in the field with a view to providing information and informing policy makers. Data was obtained from a sample size of 36 participants in Ghana's 4 locally-based manufacturers, 6 distributors, 16 retailers, and 5 health facilities found in the Ashanti Region. Results from the study stated that stakeholders in the firms adhered to environmental standards set by the regulatory authorities as well as standards set for sustainable product packaging in Purchasing practices. It was further noted that there was little coordination and cooperation between manufacturers and downstream supply chain members. Owusu-Bio *et al*. (2016) thus advised stakeholders in Ghana to forge a harmonious take in driving the sustainable packaging agenda.

From Kenya, Gikonyo, Ngugi & Nyang'au (2022) sought to find out the Influence of Green Packaging on Performance of Building and Construction Manufacturing Firms. Anchored on

institutional theory, this comes as the call for embracing sustainable development goals across all sectors is on the rise, and most companies are stepping in to embrace sustainable practices as a way of minimizing costs, ensuring customer satisfaction, and conserving the environment. In these presenting realities, Green Packaging is not an exception. The concept of environmental protection from any given angle is a hot global take, and stakeholders today have come of age to note that effective adoption of environmental techniques as well as GSCM practices such as Green Packaging remains imperative for firm performance. The study used a cross sectional research design on a target population of 900 managers working for 54 building and construction manufacturing firms in Kenya (as quoted by KAM, 2020). Primary data was collected using a structured questionnaire that was administered on a sample size of 270 heads of departments. Descriptive and inferential statistics were used to analyze data. The results of the study showed that Green Packaging is a key determinant of firm performance in building and construction manufacturing firms.

Musalia (2018) further looked at sustainable packaging practices and supply chain performance of the Kenya Medical Supplies Agency (KEMSA). The specific objectives of the study were: to determine the sustainable packing practices of KEMSA, to find out how selection of packing materials affect performance of KEMSA. A case study design was selected on a target population of 222 participants drawn from the Purchasing, Warehousing, Transport and Distribution department. Results of the firm revealed that KEMSA as an organization has not integrated the concept of sustainable packaging in its endeavors. Notwithstanding, if KEMSA were to adopt this scheme, it would benefit heavily ranging from reduced operational cost, attainment of competitive scales, harmonization of parties in the supply chain, and achieving a strategic fit between the supply chain department and the organization in wholesome. This is from the sheer fact that performance of the Supply Chain function would greatly improve. The study advises managers and policy makers in KEMSA and pharmaceuticals to consider adopting Green Packaging practices with a view to improving their performance (Musalia, 2018).

Scholalry reviewed literature provides evidence of the paucity of similar studies ignoring soft drinks manufacturing firms in a developing economy (Zailani et al., 2015; Owusu-Bio et al., 2016; Sambu, 2016; Musalia, 2018; Kozik, 2020 & Maziriri, 2020). It would be ingenuous to deduce a priori that findings from developed countries apply in developing third world countries. Worth to note, bulk of the reviewed studies on Green Packaging (Zailani et al 2015; Maziriri, 2020; Owusu-Bio et al., 2016; Gikonyo et al., 2022; Musalia, 2018) were single quantitative models, ignoring qualitative approaches. In addition, further reviewed works were qualitative reviews (Kozik, 2020) ignoring quantitative models. Information on green packaging as an antecedent of performance in soft drinks firms of developing nations birthed in qualitative quantitative field evidence is nonexistent. With this backdrop, current paper examined effect of Green Packaging on firm performance of soft drinks manufacturing firms in Kenya, immersing itself in the existing body of knowledge.

3.0 METHODOLOGY AND DESIGN

Methodology can be regarded as the overall approach to a model study. We base our discussions of demystifying whether packaging in green pays off in a developing economy in the pragmatists belief. The belief focuses on the practical consequences of social reality. It appreciates the use of multiple methods, different world views, assumptions, and forms of data collection and analysis that meet the researcher's objective and allows for both scientific objective rigor and contextual inter-relational exploration (Creswell & Creswell, 2018). Given that the current study adopted mixed data collection methods (interviews & questionnaire) in which the data was collected sequentially and adopted different methods of analysis (regression and thematic analysis), pragmatism was a desirable philosophy. Previous works have employed the same paradigm (Jia, 2022; Omai, 2019) and drawn meaningful conclusions, further showing evidence of adopting the philosophy.

The study adopted a mixed methods survey design. Fraenkel &Wallen (2009), reasons that mixed methods design is best suited where the research uses both quantitative and qualitative data to understand a research problem. In line with Creswell & Creswell (2018), the design helps to determine the influence of the moderating variable on the relationship between the independent variable and the dependent variable. Several related studies have employed the same research design (Altaf *et al*., 2010), and deduced meaningful conclusion, hence justification of the design for the current study. We conducted the model study in Soft Drink Manufacturing Firms in Kenya. These firms are located in various counties in Kenya which include Kiambu (7 SDMFs), Kisii (1 SDMF), Kisumu (1 SDMF), Machakos (4 SDMFs), Mombasa (8 SDMFs), Nairobi (65 SDMFs), Nakuru (2 SDMFs), Nyeri (2 SDMFs) and Uasin Gishu (2 SDMFs) counties.

The population of interest consisted of all Chief Executive officers and senior managers attached to the following five departments, namely Supply Chain, Safety and Environment, Production, Finance and Marketing of each Soft Drink Manufacturing Firm registered under the Kenyan Association of Manufacturers (KAM). As of September 2022, there were 92 SDMFs registered under KAM, from which 5 senior managers in the departments were selected for filling the questionnaire and 1 CEO for interviewing from each firm were drawn, making a population of 460 managers and 92 CEOs.

Within the population of 92 CEO's, interviews were conducted until saturation of discursive patterns was achieved and additional data could not lead to any new emergent themes. 20 participants formed the sample size as determined by saturation and as supported by Guest *et al*., 2020 and Saunders *et al*., 2018 who maintained that the experience of most qualitative researchers conducting an interview-based study with a fairly specific research question is that little new information is generated after interviewing 20 people or so belonging to one analytically relevant participant 'category'. Previous scholalrly works (Namey *et al*., 2016; Hagaman & Wutich, 2017 and Hennink *et al*., 2019) are foundational in qualitative sample size estimation and give the same

opinion. Guest *et al*. (2020) define saturation as the "point in data collection and analysis when new incoming data produces little or no new information to address the research question".

In broad terms, saturation is used in qualitative research as a criterion for discontinuing data collection and analysis. Given the sample size and the guidelines for achieving data saturation, saturation was attained. Additionally, it was needless to pilot the qualitative sample as Miles and Huberman (2010) stipulate that for qualitative studies, interviews are progressive in nature and the latter interviews are better than the former. Thus, the analysis of initial interviews assisted in improving the subsequent interviews. A pilot study on 9 soft drinks manufacturing firms, forming 10% and who did not take part in the final study was stratified and randomly selected to take part in pre-testing of the research instrument. According to Connelly (2008), a pilot study should be 10-20% of the sample projected for the larger parent study in order to draw logical conclusions.

To determine the effect of Green Packaging (independent variable) on performance of SDMFs (dependent variable), the study adopted standard linear regression analysis. This was modelled in the form as follows;

$$Y_i = \beta_0 + \beta_2 X_{2_i} + \varepsilon_i \quad \text{.....(3.10)}$$

Y_i Performance of SDMFs

β_0 The constant due to scale differences in measuring Firm Performance, it is the value of Y when the X_2 is 0.

X_2 Is the mean subscales of the independent variable, Green Packaging

The linear regression model established the effect of Green Packaging on performance bearing mean subscales of Green Packaging (Packaging Integration with Logistics and Supply Chain Management, Eco Labelling and Eco-Design) and the mean subscales of firm performance in the soft drinks manufacturing firms.

4.0 RESULTS AND DISCUSSIONS

4.1 Response Return rate for quantitative results

The researcher distributed a total of 415 questionnaires to senior managers from five departments (Supply Chain, Safety and Environment, Production, Finance and Marketing), per firm, from each of the 83 SDMFs. The findings on the response rate are presented in Table 4.1.

Table 1: Response Rate of Senior Managers

Particulars	Respondents' responses		None-Responses	Questionnaire Distributed
	Responsive Responses	None-Responsive Responses		
Frequencies	344	30	41	415
Percentages	82.9%	8.2%	9.9%	100%

Source: (Field Survey Data, 2023)

Table 4.1 illustrates the response rate in this study. Out of the total number of 415 questionnaires that were distributed to the senior managers, 374 (91.1%) questionnaires were returned. However, 30 (8.2%) were partly filled thus giving partial information while 41(9.9%) were not returned at all. This represented 82.9% responsive response rate for the study. Saunders, Lewis & Thornhill (2007) suggest that a 30-40% responsive response rate is considered adequate. Sekaran (2003) and Mugenda (2003) indicates that a response rate of 30% and greater than 50% respectively is adequate while Hager *et al*. (2003) also recommend 50% response rate as adequate. Therefore, the 82.9% response rate was considered adequate for further analysis.

4.2 Green Packaging in firm industrial practice

Participants in soft drinks manufacturing firms were asked to indicate the extent to which their firm's practiced the elements of Green Packaging practices based on a five point Likert scale, where [1] Not at all at a scale of 1.0 [2] Small extent at a scale of 2.0 [3] Moderate extent at a scale of 3.0 [4] Great extent at a scale of 4.0 [5] Greater extent at a scale of 5.0. Findings are recorded and presented in Table 4.2.

Table 2: Descriptive statistics results on Green Packaging

Sub-variable measure	Frequency and percentage distribution of Responses					∑fi
	1	2	3	4	5	
Eco-Design	71(20.6)	200(58.1)	18(5.2)	11(3.2)	44(12.8)	344
Design for use of raw materials (selection of low-impact materials, non-hazardous materials, non-exhaustible materials, low energy content materials, recycled materials and recyclable materials)						
Design for manufacture (optimization of production techniques, alternative production techniques, fewer production processes, low/clean energy consumption, low generation of waste and few/clean production consumables)	74(21.5)	196(57)	16(4.7)	13(3.8)	45(13.1)	344
Design for distribution (less/clean packaging, optimized weight and volume of product and package, efficient transportation and transport mode)	44(12.8)	226(65.7)	17(4.9)	25(7.3)	32(9.3)	344
Design for product use (reduction of the environmental impact in the user stage, low energy consumption, clean energy source, few consumables needed during use, clean consumables during use and no energy/auxiliary material use)	63(18.3)	230(66.9)	35(10.2)	10(2.9)	6(1.7)	344
Design for end of life (optimization of end-of-life system, Life-Cycle Assessment on environmental compatibility of packaging materials, reuse of product; remanufacturing, recycling of materials and clean incineration like depolymerization of PET waste)	63(18.3)	229(66.6)	16(4.7)	6(1.7)	30(8.7)	344
Eco-Labeling						
Adopted Eco-Labeling to describe the information of a product about the environmental impact associated with its use	13(3.8)	275(79.9)	30(8.7)	10(2.9)	16(4.7)	344
Eco-Labeling criteria considers the general overall life cycle of a product	11(3.2)	275(79.9)	14(4.1)	5(1.5)	39(11.3)	344
Considers Eco-Labeling to be a valuable tool for purposes of communicating its' products qualities as well as the firm's concern for the environment	6(1.7)	5(1.5)	6(1.7)	4(1.2)	323(93.9)	344
Adopted Eco-Labeling to represent a tool to governments, manufacturers and consumers to address environmental problems associated with the firm's products	7(2)	6(1.7)	9(2.6)	308(89.5)	14(4.1)	344
Supports the idea of private Eco-Labeling schemes existence for Soft Drink Manufacturing Firms worldwide	12(3.5)	3(0.9)	297(86.3)	4(1.2)	28(8.1)	344
Packaging Integration with Logistics and Supply Chain Management						
Internally collaborates and coordinates in packaging design among all affected departments	36(10.5)	156(45.3)	124(36)	14(4.1)	14(4.1)	344
Integrates packaging and product design	104(30.2)	100(29.1)	126(36.6)	7(2)	7(2)	344
Collaborates with packaging suppliers during the design process to ensure integration of green issues	36(10.5)	173(50.3)	122(35.5)	7(2)	6(1.7)	344
Collaborates with other Soft Drink Manufacturing Firms (even with the competition) to make joint packaging	284(82.6)	6(1.7)	11(3.2)	31(9)	12(3.5)	344
Collaborates with retailers on packaging design and used packaging collection	12(3.5)	137(39.8)	110(32)	43(12.5)	42(12.2)	344

Source: (Field Survey Data, 2023)

The results from the Table 4.2 on Eco-Design clearly indicates that design for use of raw materials (selection of low-impact materials, non-hazardous materials, non-exhaustible materials, low energy content materials, recycled materials and recyclable materials) is practiced to a small extent as indicated by majority, 200(58.1%) of the respondents. Majority, 196(57.0%) of the respondents also indicated that the design for manufacture (optimization of production techniques, alternative

production techniques, fewer production processes, low/clean energy consumption, low generation of waste and few/clean production consumables) is practiced to a small extent. This clearly shows that SDMFs take little account on the design for manufacture. From the findings, it emerged that design for distribution (less/clean packaging, optimized weight and volume of product and package, efficient transportation and transport mode) is practiced to small extent as indicated by majority 226(65.7%) of the respondents. The findings reveal that design for product use (reduction of the environmental impact in the user stage, low energy consumption, clean energy source, few consumables needed during use, clean consumables during use and no energy/auxiliary material use) is practiced to a small extent proved by majority of the respondents, 230(66.9%). Furthermore, the findings evidently indicate that to a small extent the design for end of life (optimization of end-of-life system, Life-Cycle Assessment on environmental compatibility of packaging materials, reuse of product; remanufacturing, recycling of materials and clean incineration e.g. De-polymerization of PET waste) is practiced. This is by 229(66.6%) respondents, thus it can be concluded therefore that Eco-Design is practiced at a moderate extent by the firms.

A scan through descriptive results on Eco-Labeling indicates that firms to a small extent adopt Eco-Labeling to describe the information of a product about the environmental impact associated with its use. This is shown by the majority, 275(79.9%) of the respondents. Firms also practiced Eco-labeling criteria which considers the general overall life cycle of a product to a small extent supported by majority, 275(79.9%) of the respondents. The findings also indicate that to a very great extent, firms considered Eco-Labeling to be a valuable tool for purposes of communicating its' products qualities as well as the firm's concern for the environment evidenced by the majority, 323(93.9%) of the respondents. The firms also practiced adopting Eco-Labeling to represent a tool to governments, manufacturers and consumers to address environmental problems associated with the firm's products to a great extent as reported by 308(89.5%), majority of the respondents. Furthermore, from the findings, firms practiced supporting the idea of private Eco-Labeling schemes existence for Soft Drink Manufacturing Firms worldwide to a moderate extent as indicated by 297(86.3%) of the respondents. It can be concluded therefore that SDMFs seldom practiced Eco-Labeling.

Results on Packaging Integration with Logistics and Supply Chain Managements emerged that firms practiced to a small extent internal collaboration and coordination in packaging design among all affected departments as indicated by 156(45.3%) respondents. Majority of the respondents, 126(36.6) reported that firms practiced integrating packaging and product design to a moderate extent whereas 173(50.3%) firms practiced collaboration with packaging suppliers during the design process to ensure integration of green issues to a small extent. Collaboration with other Soft Drink Manufacturing Firms (even with the competition) to make joint packaging, has not been practiced by the firms as shown by the majority, 284(82.6%) of the respondents. The findings also indicate clearly that collaboration with retailers on packaging design and used packaging collection has been done to a small extent, evident by majority, 137(39.8%) of

respondents. These findings thus imply that firms practiced Packaging Integration with Logistics and Supply Chain Management at a small extent.

4.3 Effect of Green Packaging on performance in soft drinks manufacturing firms in Kenya

In order to establish whether green packaging pays off in firm performance by examining its effect, we first established the correlation between green packaging and firm performance in order to ascertain whether the predictor construct is associated with the outcome construct. To achieve this, Pearson' Product moment correlation (r) model was adopted. The correlation coefficient measures correlation between variables by the r - value, where an r - value = 0 signifies lack of correlation with a value further away from 0 (towards -1 or +1) signifies stronger correlation. LeeRodgers & Nicewander (1988) show that a coefficient correlation above 0.9 indicated presence of high correlation among variables. The adapted model is represented below;

$$\mathbf{r} = \frac{\mathbf{n}(\sum \mathbf{xy}) - (\sum \mathbf{x})(\sum \mathbf{y})}{\sqrt{[\mathbf{n}\sum \mathbf{x^2} - (\sum \mathbf{x})^2][\mathbf{n}\sum \mathbf{y^2} - (\sum \mathbf{y})^2]}}$$

Source: (Adopted from Chen *et al*., 2003; Chen & Popovich, 2002)

Where;

r = the Pearson Coefficient of correlation

n= number of pairs of the stock

$\sum xy$ = sum of products of the paired stocks

$\sum x$ = sum of the x scores

$\sum y$= sum of the y scores

$\sum x^2$ = sum of the squared x scores

$\sum y^2$ = sum of the squared y scores

The findings on the correlation between each of the elements of Green Packaging and performance are presented as shown in Table 4.16.

Table 3: Correlation between Green Packaging and Profitability Performance

		Profitability performance	Eco-Design (ED)	Eco Labelling (EL)	Packaging Integration with LSCM
Firm performance	Pearson Correlation	1	.313**	.546**	.406**
	Sig. (2-tailed)		.000	.000	.000
	N	344	344	344	344
Eco-Design (ED)	Pearson Correlation	.313**	1	.367**	.289**
	Sig. (2-tailed)	.000		.000	.000
	N	344	344	344	344
Eco Labelling (EL)	Pearson Correlation	.546**	.367**	1	.206**
	Sig. (2-tailed)	.000	.000		.000
	N	344	344	344	344
Packaging Integration with LSCM	Pearson Correlation	.406**	.289**	.206**	1
	Sig. (2-tailed)	.000	.000	.000	
	N	344	344	344	344

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

Source: (Field Survey Data, 2023)

The results of the correlation analysis above indicate a moderate positive significant correlation between Eco-Labeling and performance (r=.546, p<.05) as well as Packaging Integration with Logistics and Supply Cain Management and performance (r=.406, p<.05) but a weak relationship between Eco-Design and performance (r=.313, p<.05). This means that firm performance is associated with Eco-Labeling and Packaging Integration with Logistics and Supply Cain Management but less associated with Eco-Design, it can however be inferred that performance is

positively associated with Green Packaging in SDMFs in Kenya. In lieu of this, the higher the green packaging, the higher the performance in soft drinks manufacturing firms.

A standard multiple regression analysis was carried out involving mean subscales of Green Packaging and the mean subscales of firm performance. This was done in order to test the formulated hypothesis: *H_{02}: Green Packaging has no significant effect on performance of Soft Drink Manufacturing Firms in Kenya*. This was modelled as follows;

$Y_i = \beta_0 + \beta_2 X_{2_i} + \varepsilon_i$.....(4.1)

Table 4: Model results on Effect of Green Packaging on Performance

Model Summary[b]

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Change Statistics				
					R Square Change	F Change	df1	df2	Sig. F Change
1	.628[a]	.394	.392	.41524	.394	165.401	1	342	.000

a. Predictors: (Constant), Green Packaging

b. Dependent Variable: mean performance

Coefficients[a]

Model		Unstandardized Coefficients		Standardized Coefficients	T	Sig.
		B	Std. Error	Beta		
1	(Constant)	2.182	.098		22.234	.000
	Green Packaging	.517	.040	.628	12.861	.000

a. Dependent Variable: mean performance

Source: (Field Survey Data, 2023)

The findings in Table 4.23, indicates that Green Packaging accounts for 39.4% variance in performance, R Square=.394, which was significant, $F(1, 342)=165.401$, $p<.05$. The findings also show that Green Packaging has a positive and significant effect on performance ($\beta=.628$, $p<.05$). This is a strongly significant effect indicating a strong magnitude of change in performance by

0.628 units as a result of a one-unit improvement in Green Packaging. These results were further illustrated as shown in equation 4.2.

$Y=2.182+0.517X_{green\_packaging}$ ……………………………………………………………………..(4.2)

The coefficient of the constant term implies that even without including Green Packaging in the model, there would be a significant performance by 2.182 units. However, including Green Packaging improves performance by 0.51.

The results of the paper that Green Packaging has a significant positive effect ($\beta=.628$, $p<.05$) and accounts for 39.4% variance in performance ($R^2=.394$) provides sufficient evidence that indeed, packaging in green pays off by the fact that firms will reap more rewards of improved results. These establishments agree with other empirical evidence. For example, Zailani *et al*. (2015) in the lens of Resource-Based View (RBV) theory studied effect of sustainable packaging on supply chain performance of manufacturing firm in Penang, Malaysia. Targeting 700 managers through a cross sectional survey, their results revealed that sustainable packaging strongly influenced supply chain performance of firms.

In a South African case, Maziriri (2020) study on Green Packaging and Green Advertising as the precursors of competitive advantage and organization performance in South African small and medium enterprises findings resonate with the current study findings.

Additionally, Sambu (2016) gives discussions that utilize precincts of institutional and Resource Based View theories to advance arguments that Green Packaging remain imperative for firm performance. Guided by a null hypothesis: H_{01}: Green Packaging has no significant effect on business performance of manufacturing firms in the Nairobi County of Kenya, Sambu uses a primary quantitative paradigm on a target population of 133 managers working for 47 manufacturing firms to show that indeed, Green Packing has a significant positive effect on business performance.

4.4 Response rate for qualitative results

To increase the response rate, all the 92 CEOs were invited to take part in the interview through an invitation letter. Only 48(52%) CEOs responded to the invitation letter and confirmed their availability to take part in the interview. Participants' interview begun immediately after completion of quantitative data collection and concluded when data saturation occurred. A total of 20 CEOs had been interviewed at that point in time. The interview sessions varied in length, but on average, each interview session lasted 45 minutes. Ethical requirement to preserve the anonymity of the Participants was followed hence, each respondent was assigned pseudonyms and for the remainder of this study will be referred to as participant 1 to 20 (P1-P20).

4.5 Green Packaging and Performance

The objective of the study was to establish the effect of Green Packaging on performance of SDMFs. To do this, Green Packaging practices generated from a data structure was used to explain

their effect on performance of SDMFs as explained below. Looking at the planet element, SDMFs focused on Green Packaging. Some participants were not shy to reveal that SDMFs have been labelled as key offenders in the war on plastic and perpetuation of seemingly unsustainable packaging. This analysis suggests that SDMFs implemented Eco-Design, Eco-Labeling and Packaging Integration with Logistics and Supply Chain Management with Logistics and Supply Chain Management as the Green Packaging practices.

To answer the first question on how SDMFs embraces Packaging Eco-Design, majority of participants talked of their ambitious strategies to drive a circular economy for their packaging to support a debris-free environment through Eco-Design. P3 and P11 summarized what most participants had to say:

"*Our team works closely with packaging experts and sustainability consultants to develop eco-friendly packaging solutions that focus on using recyclable materials, reducing the amount of packaging material used, and optimizing the design for efficient transportation and storage. By implementing Eco-Design practices, we aim to minimize waste, conserve resources, and reduce our carbon footprint*." (P3)

"*We have moved away from colored PET bottles to clear PET bottles that are highly recyclable*". (P11)

When responding to the question on how has your firm developed eco-labels that considers the firm's products' lifecycle and environmental product impact, this analysis suggests that SDMFs took steps to implement eco-labeling throughout their product portfolio. Firstly, they conducted thorough assessments of their products and packaging materials to identify their environmental impact. Based on these assessments, SDMFs developed eco-labeling criteria that considered factors such as recyclability, biodegradability, and carbon footprint. SDMFs' products that meet these criteria were labeled with prominent eco-labels, allowing consumers to make informed choices. Secondly, SDMFs collaborated with recognized eco-labeling organizations to ensure the credibility and legitimacy of their labeling efforts. They regularly engaged in third-party audits to verify compliance and uphold transparency. All the Participants attested that they used Type II Eco-Labels which are self-declared environmental claims made by manufacturers without independent third-party certification. The eco-labels included Eco-Label Kenya, Forest Stewardship Council Certification, and Recycling symbol, Carbon Footprint Labels, Fair Trade Certification and Green Dot Symbol. This finding is summarized by P3 and P4 who said:

"*Our approach to eco-labeling involves a comprehensive assessment of our products' life cycle. We have established rigorous criteria based on sustainability standards and best practices and products that meet these criteria are awarded with prominent eco-labels. We are proud to showcase these labels on our packaging, providing consumers with clear information on the environmental impact of our products. Our eco-labeling efforts reflect our ongoing dedication to reducing our environmental footprint and fostering a greener future*". (P3)

"*A big percentage of our consumers are millennials and generation Z (13-32 years) whose major trait is commitment to eco-consumerism and practice environmental conscious shopping through eco-labels. The recycling symbols on our packaging drives sustainable consumption by attracting environmental conscious consumers hence expand our Market Share*". (P4)

Participants explained how they recognized the importance of integration of packaging with Logistics and Supply Chain Management as a key aspect of their green supply chain strategy. SDMFs implemented several initiatives to optimize packaging and reduce waste throughout their operations. Firstly, SDMFs redesigned their packaging to be more lightweight and used environmentally friendly materials. This not only reduced their carbon footprint but also lowered transportation costs and improved logistics efficiency. Secondly, SDMFs implemented robust packaging management systems that allowed them to track and monitor packaging materials throughout the supply chain. This enabled them to optimize inventory levels, minimize packaging waste, and facilitate recycling or reuse. Lastly, SDMFs collaborated closely with logistics partners to streamline packaging processes and implement innovative solutions, such as returnable packaging systems. By integrating packaging with logistics and supply chain management, SDMFs were able to achieve significant environmental benefits while enhancing operational efficiency.

"*Firstly, we have adopted a holistic approach to packaging design, considering factors such as material sourcing, packaging size, and recyclability leading to reduce packaging waste and lower our environmental footprint. Secondly, we have implemented effective inventory management systems to ensure optimal packaging levels and minimize excess inventory. Furthermore, we actively collaborate with our logistics partners to streamline packaging processes, implement returnable packaging solutions, and promote packaging reuse or recycling. By integrating packaging with logistics and supply chain management, we have not only reduced costs but also made significant strides in minimizing our environmental impact*". (P7)

"*Our beverages go through a destination journey that involves manufacturers, distributors, retailers and ultimately consumers, we have thus ensured efficient unit loads in handling, storage and transportation of our soft drinks in the entire supply chain*". (P18)

Based on participants' responses, however much the war on plastic pollution and perpetuation of seemingly unsustainable packaging is still on, SDMFs have benefited from Green Packaging. Participants confirmed that they benefitted from cost reduction by using light weight PET bottles that offered better utilization of space, less loading time, less raw material usage, waste management, speedier deliveries that add up to savings and a reduction in emission. By minimizing costs in terms of reduced packaging material expenses and maximizing resource utilization, SDMFs improved Cost Efficiency and profitability. Eco-friendly packaging attracted environmentally conscious consumers hence expanding Market Share of SDMFs. This finding resonates with those of Maziriri (2020) and Gikonyo, Ngugi & Nyang'au (2022). In regards to GSCM literature (Nyariaro, 2017; Demartini *et al*., 2018; Lodorfos *et al*., 2018 and Bor, 2021) a

common suggestion is that SDMFs should consider implementing more innovative versions of Green Packaging which bring the benefits to the company business itself making participants' responses a valid parameter to be used by SDMFs.

5.0 CONLUSSION

Paper sought to establish the effect of green packaging on performance of soft drinks manufacturing firms in Kenya in a bid to unravel whether packaging in green pays off. In a standard linear regression pitting mean elements of GP and mean elements of firm performance, model quantitative and qualitative results have shown that GP has a significant positive effect and on performance and therefore, pays off. Encumbrance in firm performance can therefore never be packaging in green, in fact, we provide quantitative field evidence backed up by qualitative industry practitioner insides that packaging in green indeed pays off. We conclude: GP has a significant positive effect on performance of soft drinks manufacturing firms. The study has provided interesting arguments that subsequent scholars may base their opinions for future discussions.

6.0 RECOMMENDATION AND FUTURE AGENDA

The paper digs in, on the ongoing discussion of environmental protection and adopting practices that aid in evading environmental pollution worldwide. We evidence, through a primary qualitative-quantitative approach that green packaging has significant positive effect on firm performance. From this, we mention the following for adoption: Firstly, stakeholders in manufacturing firms need to adopt policies meant to elevate green packaging such as eco design, eco labelling packaging integrations with logistics as these are pivotal in giving higher results. Secondly, in the growing global concerns in climate change and environmental management, study recommends that world leaders need to ratify establishment of supply chain units in multinational enterprises akin to promoting green supply chain management practices, such as green packaging.

For future research direction, we suggest that:

1. Given the current paper focused on green packaging in manufacturing firms, specifically soft drinks manufacturing firms in a developing economy, Kenya, future research lens may leverage green packaging in other industry economies, such as retail chain firms in India.

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