

SUPPLY CHAIN RISKS MITIGATION STRATEGIES ADOPTED BY MANUFACTURING FIRMS IN KENYA: A CASE OF COCA COLA COMPANY (K)

Mohamed Konse Siba

Masters Student, Jomo Kenyatta University of Agriculture and Technology, Kenya

Dr. Jane Omwenga

Lecturer, Jomo Kenyatta University of Agriculture and Technology, Kenya

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ABSTRACT

The aim of the study was to investigate the supply chain risks mitigation strategies adopted by manufacturing firms where the context of focus will be Coca Cola Company in Kenya. The specific objectives of the study were: To establish the effects of capacity addition strategy, channel flexibility strategy, inventory addition strategy and supply chain responsiveness strategy on mitigation of supply chain risks in Coca Cola Company. The study applied a descriptive research design. The target population was 83 top managers, their deputies and lower level management staffs at the Coca Cola Company. Descriptive statistical tools such as SPSS and MS Excel helped the researcher to describe the data. The study found that the Company faces supply chain risks in the current business environment. It has adopted capacity addition strategy in the mitigation of supply

chain risks, channel flexibility strategy, inventory addition strategy and supply chain responsiveness strategy. Paying more attention to risk and to managing that risk is critical as new technologies, regulatory requirements, consumer demands, and potential disruptions combine to make the petroleum industry supply chain risk management increasingly complex. The stakeholders in the supply chain view supply chain management as a strategic activity, rather than just mere operational activity. The company needs to plan to invest in good communication infrastructure to avoid any failure in inventory management. There is need for the Company to create a department for supplier selection and evaluation.

Key Words: *Capacity addition, channel flexibility, inventory addition, supply chain responsiveness, supply chain risk mitigation*

INTRODUCTION

Businesses today are faced by the challenge of falling demand and unpredictable global supply costs which will expose these and other built in supply chain vulnerabilities. One of the most significant paradigm shifts of modern business management is that individual businesses no longer compete as solely autonomous entities, but rather within supply chains. In this emerging competitive environment, the ultimate success of the business will depend on management's ability to integrate the company's intricate network of business relationships. Large companies like Coca Cola have increasingly turned to global markets for their supplies. According to Norman & Lindroth (2004), the competitiveness of a supply chain is determined by many different factors and a resource based view of the firm, with attention to networks, knowledge management and environment.

The globalization of supply chains has forced companies to look for better and more inter-linked systems between Supply Chain Management (SCM) competencies, multiple SCM strategies and

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the implementation processes and SCM capabilities to coordinate the flow of materials into and out of the company as opposed to the fragmented systems, which have characterized many organizations. Supply chains have expanded rapidly over the decades, with the aim to increase productivity, lower costs and fulfil demands in emerging markets. The increasing complexity in a supply chain hinders visibility and consequently reduces one's control over the process. Supply chains have grown more global and interconnected; as a result they have increased their exposure to shocks and increased the frequency of disruptions. According to Chopra & Sodhi (2004) most SCM-related risks stem from either uncertainties or an inability to co-ordinate several activities and partners.

The key supply chain management challenges for life sciences supply chains include supply chain visibility, increasing customer demands, risk management, globalization and cost containment. According to Hendricks and Singhal (2011), disruptions in the supply chain at global level devastate corporate performance. Modern supply chains are dynamic and interconnected networks that are gradually lengthening and globe-spanning (Christopher & Peck, 2008). The expansion and the internationalization of the supply chains translate them from the simply linear structures into an endless and complex system susceptible to disruption.

Polat and Arditi (2005) found that managers from developing economies often employ a Just-In-Case (JIC) approach to purchasing and keeping extra inventory to offset supply chain uncertainties (and prevent quantitative disturbances). Naude & Badenhorst-Weiss (2011) carried a study on supply chain management problems at South African automotive component manufacturers. The study established that the problems that automotive component manufacturers (ACMs) experience in automotive supply chains is an important contemporary issue. According to the study, supply chain problems may cause inefficiencies that impact on the competitiveness of ACMs. The study was exploratory in nature, and consisted mainly of a survey among ACMs in South Africa. It was found that of the 75 identified problems; the most significant problems were internal process problems, followed by customer related problems. The most significant problems lie in the demand management area in the supply chain.

Mensah, Diyuoh & Oppong (2014) in their assessment of supply chain management practices and its effects on the performance of Kasapreko Company Limited in Ghana indicated that The aim of every SCM is to minimize system-wide costs while satisfying customer service level requirements. Indeed, it is a customer oriented process for integrating business planning and balancing supply and demand across the entire value chain system. The study used a sample size of two-hundred (200) out of the numerous customers of KCL was administered with questionnaires in the Greater Accra Region of Ghana. Using descriptive analysis with the aid of SPSS to quantify the relationship between the application of supply chain management practice and the performance of KCL the study found that KCL is applying supply chain management

practice to its business activities. The study also indicated that supply chain management practice has significantly influence KCL business performance and was evidence in the sales performance of KCL over the years (2004-2010).

The Coca-Cola Company is the world's largest beverage company. Along with Coca-Cola, recognized as the world's best-known brand, The Coca-Cola Company markets four of the world's top five soft drink brands, including diet Coke, Fanta and Sprite, and a wide range of other beverages, including diet and light soft drinks, waters, juices and juice drinks, teas, coffees and sports drinks. In Kenya, the Carbonated Soft Drink (CSD) industry consists of three players. These are Coca Cola, Softa and Milly food Processors. Of the three players Coca Cola is the market leader with over 96% of the market share (CABI Report April, 2002). There are six Coca Cola bottling plants in Kenya namely Coast Bottlers, Nairobi Bottlers, Mount Kenya Bottlers, Rift Valley Bottlers, Equator Bottlers and Kisii Bottlers.

Nairobi Bottlers is owned by Sabco group of companies while the rest having ICDC and Centum Investments as the major shareholders. The Coca Cola plants produce a wide range of beverages including Coca Cola, Coke Light, Sprite, Fanta, Stoney, Dasani, Krest and Sweppes. Due to the liberalization of the economy, it is now much easier to import products into the country. This implies that there are a lot of imparted CSD in the market such as Pepsi, Mirinda, Seven-Up Virgin Cola and a host of other health drinks such as Red Bull, Shark and Dark Dog (Nyangara, 2011). These have triggered the change in the strategies adopted by Coca Cola. Coca Cola in Kenya has six bottling Plants namely; Nairobi, Coast, Rift Valley, Mt. Kenya Equator and Kisii Bottlers. The harsh economic conditions prevailing in Kenya have resulted into many companies facing serious reduction in their market share and eventually their profitability. This calls for companies to adopt supply chain risk mitigation strategies.

STATEMENT OF THE PROBLEM

In the current era of globalization, supply chain risk mitigation is important in organisations like Coca Cola to eliminate the possibility of the risk occurring, shift a risk or outcome to a third party, reducing the impact of a risk, reducing the probability of an event occurring and to establish contingency plans that reduce the impact after an event occurs (Yusuf, Gunasekaran, Adeleye & Sivayoganathan, 2004). Kangogo, Wario, Bowen, & Ragui (2013) conducted a study of supply chain disruption in the Kenya floriculture industry where the focus was on Equator and found that modern supply chains are dynamic and interconnected networks that are gradually lengthening and globe-spanning. Kimani (2013) conducted a study on supply chain management challenges in Kenya petroleum industry a case study of National Oil Corporation and found that challenges facing supply chain management in Kenya occur in one or more of the supply chain components; transportation, equipment, communication, suppliers, customers, labor and finance. Coca Cola Company in Kenya is an asset intensive industry with supply chain management

playing an integral role in the business function (Oganga, 2013). However, the Company uses the fixed/zone routing technique (trucks assigned to fixed geographic routes) to designate orders to the trucks. This causes imbalances in assigning deliveries to trucks. Dispatchers find it difficult to track the economic performance of the operations, due to lack of management reports that summarize the day's activities. Although a number of studies have been done on the concept and context of supply chain, none has been done within the context of Supply chain risk mitigation in the manufacturing firms in Kenya. To bridge this gap, this study focused on supply chain risks mitigation strategies adopted by manufacturing firms in Kenya with a specific reference to Coca Cola Company in Kenya.

OBJECTIVES OF THE STUDY

1. To establish the extent to which Coca Cola company has adopted capacity addition strategy in the mitigation of supply chain risks
2. To determine the role of channel flexibility strategy in mitigating the supply chain risks faced by the Coca Cola Company
3. To assess the effects of inventory addition strategy on mitigation of supply chain risks in the Coca Cola Company
4. To explore the influence of supply chain responsiveness strategy on mitigation of supply chain risks in the Coca Cola Company

LITERATURE REVIEW

Theory of Supply Chain Management

The connections and nodes in a Supply Chain achieve functions that contribute to the value of the goods transporting through the chain and thus its achievement. Any connection that does not carry out well reduces the overall effectiveness of the whole Supply Chain. The notion of Supply Chain management as used in many research is usually linked with the globalization of producing and the penchant for manufacturers to source their inputs planetary, which necessitates management of profitable ways of regulating worldwide flows of inputs or outputs. The principal focus of market competition in such situations is not only between goods, but between the Supply Chains delivering the goods.

As competition in international markets is progressively dependent upon the of arrival time of goods as well as their quality, coordination between suppliers and distributors has become an important characteristic of the Supply Chain. As the customer satisfaction is a crucial benchmark of the success of the Supply Chain, effective management of the linking processes is crucial (Trkman, Stemberger and Jaklic, 2005). Additionally, market uncertainty necessitates Supply Chains to be easily flexible to changes in the situation of trade. Such flexibility in supply requires effective Supply Chain Management.

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According to Grant, Lambert, Stock and Ellram (2006), Supply Chain management refers to corporate business processes integration from end users through suppliers that provide information, goods, and services that add value for customers. Supply chain can be summed up as a series of interconnected activities which are concerned with planning, coordinating and controlling materials, parts and finished products from supplier to customer (Lourenco, 2001). The key success of SCM will rely on the incorporation of the activities of the supply chain, meaning cooperation, information sharing and organization throughout the entire supply chain. The supply chain in the manufacturing industry is considered a complex one where there exists a linkage between upstream suppliers, downstream distributors, information capital and flow through the chain.

Contingency Theory

Contingency theory is a class of behavioral theory that claims that there is no best way to organize a corporation, to lead a company, or to make decisions. Instead, the optimal course of action is contingent (dependent) upon the internal and external situation. A contingent leader effectively applies their own style of leadership to the right situation. William Richard Scott describes contingency theory in the following manner: "The best way to organize depends on the nature of the environment to which the organization must relate". The work of other researchers including Paul Lawrence, Jay Lorsch, and James D. Thompson complements this statement. They are more interested in the impact of contingency factors on organizational structure. Their structural contingency theory was the dominant paradigm of organizational structural theories for most of the 1970s.

A major empirical test was furnished by Johannes M Pennings who examined the interaction between environmental uncertainty, organization structure and various aspects of performance. Pennings carried out an empirical study on a sample of retail brokerage offices in which aspects of their market environment such as competitiveness, change and munificence, versus organizational arrangements such as decision making templates, power distribution were juxtaposed for possible implications for performance. While structural attributes of offices strongly impacted performance, the evidence for "contingency" was less pronounced.

The Contingency Theory provides a foundation on which to prepare for and to minimize the magnitude of supply chain disruptions. The Contingency Theory is built on the premise that an outcome is a "fit" or result of the application of multiple factors. Van de Ven and Drazin (1985) argue that factors fit when internal and consistent patterns of a construct, such as organization, context, and structure, establish feasible structural alternatives. These are contingencies (which could also be called "emergency dependencies") to the organizational design of the construct. In applicable situations, the theory provides two separate bases for building a communications network for a relief effort during a supply chain disruption.

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The theory provides a basis for building a collaborative communications network. A mathematical algorithm can be used to predict and explain the amount of value that is added through the resulting organization of such a communication structure. Overall effectiveness for responding to such a disruption is predicated on various groups coming together to organize relief efforts. The degree of effectiveness for these efforts is bounded by the Nash equilibrium prediction that, at a minimum, all relief agencies will locally maximize their relief efforts. A successful supply chain integration effort is then posited to depend on long-, mid-, and short-term strategies and tactics that balance the differentiation of serial supply chain activities and the integrative effort applied. The appropriateness and effectiveness of risk mitigation strategies are contingent on the internal and external environments and that there is no one-size-fits-all strategy.

Pareto Analysis Theory (ABC Classification) of Inventory Management

ABC classification is a method of classifying inventory items according to the dollar value to a firm. Class A items though smaller volumes but tends to generate higher sales value followed by the class B items. The class C items are of a very large volume but generate a very small sales value. Class A items normally range from 5% to 20% of all inventory items and account for between 50% and 80% of sales value. The class B items normally range from 20% to 40% of all inventory items and account for 20% to 40% of sales value. The class C items normally constitute 50% to 70% of all inventory items and account for 5% to 25% sales value (Roach, 2005). Fitzsimmons,(2004) and Tanwari, (2000) reported that is the basis for material management processes and help to define how stock is managed and is an appropriate technique for classifying inventory items according to the importance of their contribution to the annual cost of the entire inventory system.

The classical economic order quantity (EOQ) model seeks to find the balance between ordering cost and carrying cost with a view of obtaining the most economic quantity to procure by the distributor (Onawumi, 2010). Roach (2005) explained that the EOQ formula has been used in both engineering and business disciplines. Engineers study the EOQ formula in engineering economics and industrial engineering courses. On the other hand, business disciplines study the EOQ in both operational and financial courses. In both disciplines, EOQ formulas have practical and specific applications in illustrating concepts of cost tradeoffs as well as specific application in inventory. Schwarz, Leroy (2008) reported the EOQ model considers the tradeoff between ordering cost and storage cost in choosing the quantity to use in replenishing item inventories. However, Muckstadt & Sapra (2010) noticed that it is often difficult to estimate the model accurately. The cost and demand values used in models are at best an approximation to their actual values. Thus, there is some contradict about the concept. There are many researchers that using the ABC analysis with EOQ to apply to their study.

Resource Base View Theory

Resource based view has its roots in the work of Penrose in the late 1950s but was introduced in the in the field of strategic management in the field of strategic management and became dominant framework in the 1990s. Resource Based View addresses why firms are different and how firms achieve and sustain competitive advantage. The RBV framework combines the internal (core competence) and external (industry structure) perspectives on strategy. Like the frameworks of core competence and capabilities, firms have very different collections of physical and intangible assets and capabilities, which RBV calls resources. As from the theory it is habitual to consider that those resources are in internal and external factors of the enterprises. The entrepreneur, by means of the strategy combines these factors establishing his distinctive competencies.

The investments in supply chain do not always provide an attractive return but are in many cases required to keep the refinery operating. How well suppliers harness these forces or respond to market demands may be assessed through the Resource-based View (RBV) of the firm. While the resource-based view is not empirically superior to others (for example, transaction cost, principal agent, network-based) in explaining SCM, it nonetheless presents itself as the most appropriate of existing theories of SCM for analyzing the capabilities—both manifest and latent—of firms and suppliers in managing knowledge; linking/interacting with other actors in the supply chain, and in responding to external pressures and mandates to be environmentally responsible.

EMPIRICAL REVIEW

Supply Chain Risks Mitigation Strategies

A supply chain is a network of organizations performing various processes and activities to produce value in the form of products and services for the end customer. According to Li, Ragu-Nathan, Ragu-Nathan and Rao (2006) the dual purpose of SCM is to improve the performance of an individual organization as well as that of the entire supply chain. Accordingly, to be fully effective in today's competitive environment, firms must expand their integrated behaviour to incorporate customers and suppliers. Thus SCM integrates both information flow and the flow of goods seamlessly between trading partners as an effective competitive weapon (Childhouse & Towill, 2003; Feldmann & Muller, 2003). The main reason and objective of SCM is to provide a strategic weapon to build up and enhance sustainable competitive advantage by cost reduction without compromising customer satisfaction (Mentzer et al., 2001).

Supply chain risk appraisal process can help to make strategic decisions and operational plans to reduce the quantity of supply chain defects (Zurich Insurance Company, 2010). The process of advancement in this regard is described in the way that, at first, organizations were trying to

produce the products with better quality and the least costs by standardization and improving their own internal processes in order to increase their competitive power. In the past, the dominant thinking was that the powerful engineering and designing and also harmonious and consistent production operations are the leading factor to access market demands and, as a result, to get more market share and, therefore, the organizations do their best to increase efficiency. In later years, with increasing of diversification in customer's expected patterns, the organizations were concerned with increasing elasticity in production lines and development of new products for customer's satisfaction.

By improving of production processes and using further engineering models, most of the industrial managers found that to continue their presence in the market, it's not enough to have improvement in internal processes and flexibility in companies abilities (Sharafati,2009). But parts and materials producers should produce the materials with the best quality and least costs and also products distributors must have a close relation with policies of market development of producers. By such a view point, the supply chain approaches and its management were born. Most of the companies take different actions like contracting to manufacture diversified productions to have cost advantage and market share. These actions may be efficient due to the stable conditions. But these actions by itself can effect on supply chain by different kinds of risks. The risks like unsecure economic cycles, customer's uncertain demands and human and natural events. So, in regard to more increasing of these actions, the need to study of different methods and strategies for supply chain risk management in the superior companies has also been put to agenda more than before (Sharafati, 2009).

Capacity Addition Strategy

Supply chain networks are considered as solutions for effectively meeting customer requirements such as low costs, high product variety, quality and shorter lead times. The success of a supply chain lies in good strategic and tactical planning and monitoring at the operational level. Strategic planning is long-term planning and usually involves selecting providers and distributors, location and capacity planning of manufacturing/servicing units, among others. In the context of supply chain design we usually consider two aspects in the selection of partners: the qualitative aspect and the quantitative aspect (Erven, 2007). The qualitative aspects are the primary selection criteria, such as the financial position of the partner, quality policy, previous history, adaptability towards change of product type or market situations.

The supplier has limited capacity, and retailers are privately informed of their optimal stocking levels. If retailer orders exceed available capacity, the supplier allocates capacity using a publicly known allocation mechanism, a mapping from retailer orders to capacity assignments. According to Govil and Proth (2002) in the face of continuing globalization and complexity of the international business environment it is vital that supply chain managers gain a lot more clarity

on the factors causing supply chain disruption. Supply chain disruption has caused the decline of many business enterprises, including the floriculture industry, and affected many livelihoods across the globe. In this regard, supply chain managers need to gain deep practical understanding on the dynamics of the root causes of such disruptions so as to be better placed to craft preventive and remediation strategies.

Shah (2009) indicates that supply chain uncertainty and disruption have not received enough attention in the contemporary supply chain literature. Conversely, manipulable mechanisms might precipitate an avalanche of orders, preventing the supplier from determining who truly needs the most stock. Some with high expected demand may receive too little and others with low expected demand may receive too much. In the end, the system serves all retailers poorly. For a given capacity level, they reduce the expected amount of idle capacity, increasing supplier profits. Since they reduce the probability of idle capacity, the supplier may build more capacity than she would under a truth-inducing mechanism, benefiting all players. Nagurney et al. (2002) presented a network equilibrium model and discussed qualitative properties of the model.

Channel Flexibility Strategy

Successful companies are the ones that break the risk spiral by restoring supply chain confidence throughout the chain. The benefits are much more than cost reduction, but also, as we argued earlier, the reduction of supply chain risks leads to increase in sales and market share, penetration to new markets, and speedy new product introduction. The key to improved supply chain visibility is shared information among supply chain members. Govil and Proth (2002) argues that traditionally companies have tended to subscribe to the view that ‘information is power’ and to interpret the phrase as meaning power is diminished if that information is shared. In fact in supply chains the reverse is true. If information between supply chain members is shared, its power increases significantly. This is because shared information reduces uncertainty and thus reduces the need for safety stock. As a result, the system becomes more responsive and, ultimately, could become demand driven rather than forecast driven.

Most supply chains do not have a great deal of control once the order is released. Hence, even if a supply chain manager has visibility of some part of the pipeline, he/she often could not make changes in a short time. For example, even if information is obtained on demand changes or on yield shortfalls, the supply chain manager may be helpless, since the suppliers may not be flexible enough to respond to late changes, or there are no expediting options available, or the production line is inflexible and production schedule changes are not feasible, etc. Semiconductor manufacturers are often faced with this problem of lack of control. In this industry, the long lead times required by foundries are such that, even if the manufacturer is made aware of sudden market demand changes, it takes a long time to respond so that the market opportunities are then missed (George, 2002).

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Six sigma tools such as control charts and Failure Modes and Effects Analysis (FMEA) can be very helpful in identifying the opportunities for reducing process variability in supply chains. However, these tools and methodologies are primarily of benefit within the business for the control of repetitive activities. In looking to improve control across the wider supply chain a more collaborative approach to control is required. The newly emerging field of Supply Chain Event Management (Stiles, 2002) holds some promise here. The idea behind Event Management is that partners in a supply chain collaborate to identify the critical nodes and links through which material flows across the network.

Inventory Addition Strategy

Supply chains and distribution channels today battle more on the basis of time and quality, having defect-free products to customers faster and more reliably than the competitor is no longer seen as a competitive advantage but just as a market place prerequisite. According to McLaren and Barling (2001) customers constantly demand that products are delivered quicker, on time, and with no defects. This is achieved with proper synchronization of efforts by connecting systems and processes to create synergy. Each of these demands better coordination with suppliers and distributors, and constitutes the linkage between SCM core competencies; strategy and SCM core capabilities, which are not easy to match. This combination creates a competitive edge within the system that cannot be copied by the competitor in the market place; hence becomes core capability of the firm.

The global orientation and increased performance-based competition, combined with rapidly changing technology and economic conditions, all contribute to market place uncertainty (Turban, 2008). This uncertainty requires greater flexibility on the part of the individual companies and distribution channels, which in turn, demands for more flexibility in channel relationships. According to Alade and Sharma (2004) supply chain involves the configuration, coordination, and improvement of sequentially related set of operations in establishments, integrates technology and human resource capacity for optimal management of operations to reduce inventory requirements and provide support to enterprises in pursuance of a competitive advantage in the marketplace. A coordinated SC integrates procurement, production, and distribution and links together suppliers, manufacturers, distributors, customers and carriers in a network system that allows for effective planning, information exchange, transaction execution, and performance reporting.

Throughout the supply chain, key operational metrics and status reports such as inventory, demand, forecasts, production and shipment plans, work in progress, yields, capacities, backlogs, etc., should be accessible easily by key members of the supply chain. Such information should be accurate and timely, rendering it useful for all parties for planning and re-planning purposes. Thus, it is important that the key indicators are tightly managed and that any updates are made as

timely as possible (Tomlin, 2006) Insurance policies to protect against disturbance risk which involves using either inventory or sourcing strategies. Many disturbances management strategies are in conflict with the organization traditional goals and processes, and vice-versa (Sheffi, 2006). Consider, for example, the trade-off between efficiency and redundant inventory. Building redundant inventory in the SC will function as a buffer to maintain continuous operations. According to Chopra et al., (2007) centralization increases dependency on a single facility, thus also increases the negative impact, in case a disturbance occurs at this facility. But also, the geographical diversification increases SC complexity making it harder for an organization to react to SC disturbance (Hendricks et al., 2008).

The interconnectedness of these disturbances makes decision-making for disturbance management difficult (Chopra et al., 2007) since they must balance the need of efficiency against the risks and expected costs of disturbances. One of the main functions of supply management is to ensure smooth and uninterrupted flows of goods and materials. Today, organisations operate in increasingly complex and uncertain environments with high risks of supply disruptions making supply management an increasingly complex task. The environmental pressures and risks require companies to constantly and consequently analyse and reduce these risks (Ellis et al., 2010).

Supply Chain Responsiveness

In an effort to manage their supply chain and reduce costs, companies are outsourcing their logistics functions. Outsourcing takes place when an organization transfers the ownership of a business process to a supplier reliant on the services of third-party logistics companies for managing their supply chains (Collins, 1999). Companies, however, took the outsourcing idea one step further and found that one way of outsourcing their logistics functions is to ally and collaborate with competitors. This form of collaboration is referred to as a systematic cooperative reciprocal barter (also called “swaps” or “exchanges”) of supplies, assets, market share, or even the entire business among competitors (Alperowicz, 2001; Sim, 2002).

Organisations need to consider the trade-off between efficiency and redundancy, by analysing the benefits and costs of building in some redundancy into the network it is often found that a small investment at this stage can result in a big return in terms of resilience. If existing supply chains are being used mapping tools such as Time Based Process Mapping can help in the identification of critical paths and bottlenecks in the supply pipeline. During the design phase the “Supply Base Strategy” needs to be considered. Supplier development programmes can contribute to risk mitigation, if single sourcing seems attractive working with that supplier to understand the impact of key risks can be appropriate.

Agility in the supply chain is dependent on sound supply chain design and also effective collaboration. It is founded on the need for high levels of transparency and the application of Time Compression techniques in all critical processes. Agility reduces uncertainty and enables the supply chain to be more demand driven rather than operations driven. Through high levels of transparency and increased velocity in information flows across the supply chain risk can also be reduced. To be resilient, with cost effective approaches, it is essential to have a disturbance management culture (Tsiakouri, 2008). Additionally, a better understanding and relationship with human resources can help avoid some disturbance sources, namely those that have basis on internal resources organization, for instance, strikes (Stecke and Kumar, 2006).

CONCEPTUAL FRAMEWORK

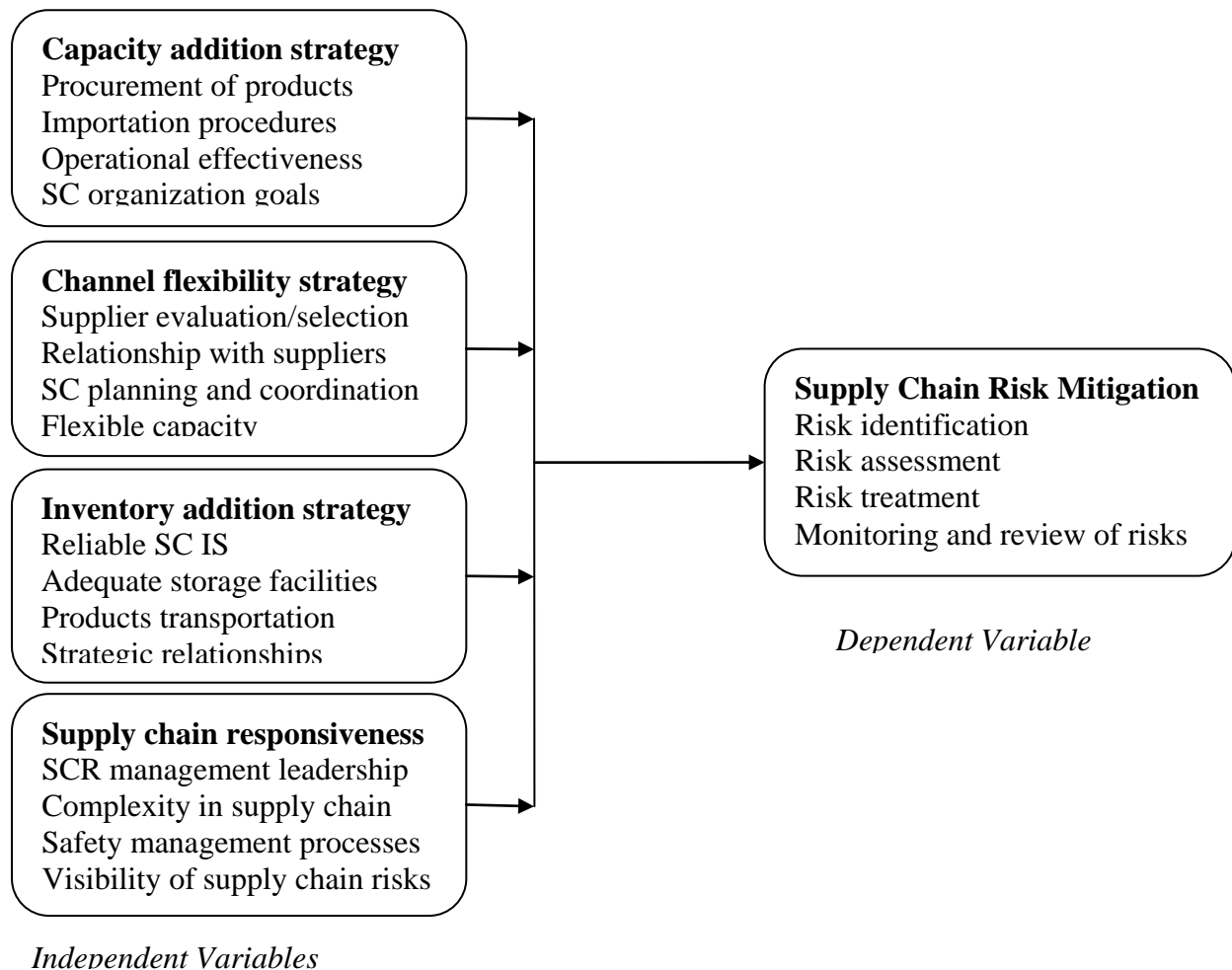


Figure 1: Conceptual Framework

RESEARCH METHODOLOGY

The study applied a descriptive research design as the researcher intends to describe a situation or a condition as it is and offers the opportunity for a logical structure of the inquiry into the problem of study. The target population of this study was the management staff drawn from the Coca Cola Bottling Plant in Nairobi Kenya. The study targeted a population of 83, which included the top managers, their deputies and lower level management staffs at the Coca Cola Bottling Plant in Nairobi. This research used primary data that was collected by use of questionnaire. The completed questionnaires were edited for completeness and consistency. The data was then coded to enable the responses to be grouped into various categories. Data collected was purely quantitative and it was analyzed by descriptive analysis. Quantitative techniques were used to the analyse data. The researcher made use of the statistical tools like SPSS to generate statistics like percentages, frequencies, means and standard deviations. The results from the analysis were presented in tables, graphs and charts. To achieve the objectives of the study, a multiple regression analysis was conducted. The data was broken down into the different aspects of supply chain risks mitigation strategies adopted by Coca Cola Company in Kenya. This offered a quantitative and qualitative description of the objectives of the study.

RESEARCH RESULTS

Supply Chain Risks Management Strategies

From the study, 56.9% of the respondents indicated that Company faces supply chain risks in the current business environment to a moderate extent, 29.4% of the respondents indicated to a great extent, 8.8% of the respondents indicated that Company faces supply chain risks in the current business environment to a little extent, while 4.9% of the respondents indicated that Company faces supply chain risks in the current business environment to a very great extent. These results imply that supply chain risks are experienced in the firm in its various areas of operations and therefore some strategies are required to mitigate these risks.

Majority of the respondents recapped that the firm focuses on identifying internal and external environments to a great extent as shown by a mean of 3.9549, continual monitoring and review of risks and their treatment to a great extent as shown by a mean of 3.6875 and risk identification and assessment to a great extent as shown by a mean of 3.3750 while Coca Cola Company focuses on risk treatment to a moderate extent as shown by a mean of 2.7500 in management supply chain risks. From the results, the Organization is trying to upgrade the techniques for measurement, monitoring and decreasing of operational risks.

Capacity Addition Strategy

Majority (39%) of the respondents stated that Coca Cola Company has adopted capacity addition strategy in the mitigation of supply chain risks to a great extent and 33% to a very great extent while 23% said that Coca Cola Company has adopted capacity addition strategy in the mitigation of supply chain risks to a moderate extent. According to 4.5% of the respondents, Coca Cola Company has adopted capacity addition strategy in the mitigation of supply chain risks to a little extent. These results concur with the findings by Govil and Proth (2002) that the growing complexity of supply chains, along with incentives to continually develop new products and reduce business costs, has created product safety and security challenges.

Majority of the respondents agreed that the organization has attained effectiveness in the overall procurement of products as shown by a mean score of 3.6828 and supply chain management is key to operational effectiveness in our company as shown by a mean score of 3.5428. On the other hand they remained neutral on that the organization has attained effective procedures in the importation of products as shown by a mean score of 3.3714, the organization goals are geared towards achievement of operational effectiveness as shown by a mean score of 3.2972 and highly qualified employees are key to having effective supply chain management as shown by a mean score of 3.1422. Accordingly, supply chain managers need to gain deep practical understanding on the dynamics of the root causes of such risks so as to be better placed to craft preventive and remediation strategies.

Channel Flexibility Strategy

From the study, 57% of the respondents indicated that channel flexibility strategy influences mitigation of supply chain risks faced by the Coca Cola Company to a moderate extent, 29% of the respondents indicated to a great extent, 8.8% of the respondents indicated that channel flexibility strategy influences mitigation of supply chain risks faced by the Coca Cola Company to a little extent, while 5% of them indicated to a very great extent. The results imply that in general there is a moderate influence of channel flexibility strategy in mitigation of supply chain risks faced by the Coca Cola Company.

According to the results, the respondents reiterated that better planning and coordination with suppliers, supplier evaluation and selection and supplier development programme affect mitigation the supply chain risks faced by the Coca Cola Company to great extents as shown by mean scores of 3.5528, 3.5428 and 3.5423 respectively while flexible capacity and strengthen and build trust with suppliers affect mitigation the supply chain risks faced by the Coca Cola Company to moderate extents as shown by mean scores of 3.3322 and 3.1000 respectively. The supply chain structures in firms demand better coordination with suppliers and distributors, and constitute the linkage between SCM core competencies, strategy and SCM core capabilities.

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Inventory Addition Strategy

Majority of the respondents (comprising 56.9% of the population) indicated that inventory addition strategy affects mitigation of supply chain risks in Coca Cola Company to a moderate extent, 29.4% of the respondents indicated that inventory addition strategy affects mitigation of supply chain risks in Coca Cola Company to a great extent, 8.8% of them indicated to a little extent, while 4.9% of the respondents indicated that inventory addition strategy affects mitigation of supply chain risks in Coca Cola Company to a very great extent. The study findings concur with those of Turban (2008) that this uncertainty in the inventory requires greater flexibility on the part of the individual companies and distribution channels, which in turn, demands for more flexibility in channel relationships.

Majority of the respondents agreed that long-term strategic relationships with other suppliers has positively affected transportation of coca cola products as shown by a mean score of 3.9007, the transportation infrastructure of the organization is adequate and reliable as shown by a mean score of 3.6250, management information system of the organization is reliable as shown by a mean score of 3.5976, the marketing infrastructure of the product is adequate and reliable as shown by a mean score of 3.5845 and long-term strategic relationships with other suppliers has positively affected storage as shown by a mean score of 3.5423, while they indicated neutrality on that the storage facilities of the organization are adequate as shown by a mean score of 3.2083. The geographical diversification increases SC complexity making it harder for an organization to react to SC disturbance.

Supply Chain Responsiveness

From the results, 60.8% of the respondents indicated that supply chain responsiveness strategy influences mitigation of supply chain risks in Coca Cola Company to a great extent, 21.6% of the respondents indicated that supply chain responsiveness strategy influences mitigation of supply chain risks in Coca Cola Company to a little extent, while 17.6% of the respondents indicated that supply chain responsiveness strategy influences mitigation of supply chain risks in Coca Cola Company to a moderate extent. This implies that supply chain responsiveness strategy has a significant influence on the mitigation of supply chain risks in Coca Cola Company.

According to the results, majority of the respondents agreed that supply chain complexity hinders visibility of supply chain risks in the industry as shown by mean scores of 3.6828, the increasing complexity in a supply as shown by mean scores of 3.5528, supply chain management processes in the firm are bad as shown by mean scores of 3.5428 and that the safety management processes in the company is good as shown by mean scores of 3.5423. In addition the respondents neither agreed nor disagreed with the statements that there is lack of computerized risk management system as shown by mean scores of 3.3322 and that there is lack of supply chain risk

management leadership teams in place as shown by mean scores of 3.1000. The response alternatives to a disturbance are more effective in eliminating bad supply chain management processes, poor supply chain risk management leadership, complexity in a supply, ineffective computerized risk management systems, poor safety management processes and supply chain complexity/visibility hindrances.

REGRESSION ANALYSIS

Table 1: Coefficient of determination

Model	Unstandardized Coefficients		Standardized Coefficients Beta	t	Sig.
	B	Std. Error			
1 (Constant)	1.112	1.223		0.917	0.367
Capacity addition strategy	0.210	0.104	0.157	1.081	.0198
Channel flexibility strategy	0.396	0.204	0.155	2.560	.0158
Inventory addition strategy	0.220	0.096	0.215	1.922	.0182
Supply chain responsiveness	0.260	0.056	0.453	1.967	.0167

As per the SPSS generated, the equation ($Y = \beta_0 + \beta_1X_1 + \beta_2X_2 + \beta_3X_3 + \beta_4X_4 + \epsilon$) becomes:

$$Y = 1.112 + 0.396X_1 + 0.210X_2 + 0.220 X_3 + 0.260 X_4$$

Taking all factors (capacity addition strategy, channel flexibility strategy, competitive strategy and supply chain responsiveness) constant at zero, supply chain risks mitigation strategies adopted by Coca Cola Company in Kenya will be 1.112. The data findings analyzed also shows that taking all other independent variables at zero, a unit increase in channel flexibility strategy will lead to a 0.396 increase in supply chain risks mitigation strategies adopted by Coca Cola Company; a unit increase in supply chain responsiveness will lead to a 0.260 increase in supply chain risks mitigation strategies adopted by Coca Cola Company, a unit increase in inventory addition strategy will lead to a 0.220 increase in supply chain risks mitigation strategies adopted by Coca Cola Company while a unit increase in capacity addition strategy will lead to a 0.210 increase in supply chain risks mitigation strategies adopted by Coca Cola Company.

These results infer that channel flexibility strategy contributes more to supply chain risks mitigation at Coca Cola Company, followed by supply chain responsiveness, then inventory addition strategy, while capacity addition strategy contributes the least to supply chain risks

mitigation at Coca Cola Company. At 5% level of significance and 95% level of confidence, capacity addition strategy had a 0.0198 level of significance, inventory addition strategy had a 0.0182 level of significance and supply chain responsiveness had a 0.0167 level of significance, while channel flexibility strategy had a 0.0158 level of significance hence the most significant strategy in mitigation of supply chain risks at Coca Cola Company.

CONCLUSIONS

The study concludes that the Company faces supply chain risks in the current business environment faces supply chain risks in the current business environment. Accordingly, the firm focuses on identifying internal and external environments to a great extent, continual monitoring and review of risks and their treatment, risk identification and assessment risk treatment in management supply chain risks. Mitigating supply chain risk is a critical component of a company's overall risk management strategy.

The study concludes that Coca Cola Company has adopted capacity addition strategy in the mitigation of supply chain risks. In this regard, the organization has attained effectiveness in the overall procurement of products and supply chain management is key to operational effectiveness in the Company, the organization has attained effective procedures in the importation of products, the organization goals are geared towards achievement of operational effectiveness and highly qualified employees are key to having effective supply chain management. Accordingly, the suppliers and the company have adopted an open book concept to continuously explore areas of product and cost improvement, thereby selling product at competitive prices as compared to their competitors.

The study concluded that channel flexibility strategy influences mitigation of supply chain risks faced by the Company. It was ascertained that better planning and coordination with suppliers, supplier evaluation, selection and supplier development programme, flexible capacity and strengthen and build trust with suppliers affect mitigation the supply chain risks faced by the Coca Cola Company. The company has ensured that its supply chain is able to provide the needed service required for satisfying its teeming customers who are the backbone of the company.

The study also concludes that inventory addition strategy affects mitigation of supply chain risks in Coca Cola Company. The various aspects of inventory addition strategy that are relevant in mitigation of supply chain risks in Coca Cola Company include that long-term strategic relationships with other suppliers has positively affected transportation of coca cola products, the transportation infrastructure of the organization is adequate and reliable, management information system of the organization is reliable, the marketing infrastructure of the product is

adequate and reliable, long-term strategic relationships with other suppliers has positively affected storage and that the storage facilities of the organization are moderately adequate.

The study also concludes that supply chain responsiveness strategy has a significant influence mitigation of supply chain risks in Coca Cola Company. The study deduced that supply chain complexity hinders visibility of supply chain risks in the industry, the increasing complexity in a supply, supply chain management processes in the firm are bad, the safety management processes in the company is good, there is lack of computerized risk management system and that there is lack of supply chain risk management leadership teams in place

RECOMMENDATIONS

Supply chain risk management can help an organization identify, quantify, and prioritize the risk inherent in its supply chains. Paying more attention to risk and to managing that risk is critical as new technologies, regulatory requirements, consumer demands, and potential disruptions combine to make the petroleum industry supply chain risk management increasingly complex. Supply chain/Risk managers therefore should continuously assess the types of risks to supply disruption in the manufacturing industry in general and Coca Cola Company in particular.

The stakeholders in the supply chain are advised to view supply chain management as a strategic activity, rather than just mere operational activity. Manufacturing firms like Coca Cola are recommended to engage in employment of appropriate professionals with the expertise requisite to manage the channel at every stage of the process. This is because professionals in SCM are expected to improve delivery dependency as the demand increases which also has positive influence on performance.

The company should have plans to invest in good communication infrastructure to avoid any failure in inventory management. This will also help in mitigating the inventory management risks. Similarly demand forecasting is should be done with the help of professionally qualified agencies so that the problems with volatile demand and declines in demand can be mitigated. The inventory addition strategy will help in creating long-term strategic relationships with other suppliers, as well as ensuring reliable inventory management information system of the organization, adequate and reliable and long-term strategic relationships with other suppliers and ensuring that the storage facilities of the organization are adequate for efficient mitigation of supply chain risks in Coca Cola Company.

To avoid problems at the supplier end, there is need for the Company to create a department for supplier selection and evaluation. The requirements of the Company should be conveyed earlier to the suppliers and steps taken to reduce the likelihood of a shortage in raw materials. The Company should in addition place high priority on building long term partnerships with suppliers

and seek to ensure that there is computerized risk management system and supply chain risk management leadership teams in place.

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