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## **The Moderating effect of Firm Size on the impact of Dynamic Capabilities on sustainable Performance of food manufacturing firms Kenya**

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**Abstract.** This study sought to investigate the effect of dynamic capabilities on the performance of selected manufacturing firms in Kenya. It also aimed at examining the moderating effect of firm size on the effect of dynamic capabilities on the performance of manufacturing firms. The study utilized both the descriptive and explanatory research design which was cross-sectional survey in nature. The study population comprised of all the 70 food manufacturing listed in the Kenya Association of Manufacturer's directory. Self-administered questionnaires were used to collect primary data from 190 respondents. Multiple regression analysis was used to establish the nature and magnitude of the relationships between the independent and dependent variables. The findings indicate that there is a significant positive relationship between dynamic capabilities and performance of food manufacturing firms in Kenya. Firm size was found not to have significant relationship with firm and does not moderate the relationship between dynamic capabilities and performance. The findings supported the theoretical foundation of the dynamic capabilities theory that a firm performance and sustainable competitive advantage depends on its ability to reacting rapidly and flexibly to changing market environments. The study recommends that policy makers should link performance of food manufacturing firms with national goals and in this regard, include acquisition of dynamic capabilities by food manufacturing firms in their policy interventions aimed at increasing food security.

**Keywords.** Dynamic capabilities, Sustainable firm performance, Firm size

### **1.0 Introduction and Background**

Following National lockdowns across the globe, businesses in Kenya are coping with lost revenue and disrupted supply chains as factory lockdowns and quarantine measures spread across the globe, restricting movement and commerce. Unemployment is growing, while policymakers are trying to implement fiscal and monetary measures to alleviate the financial burden on citizens and shore up economies under severe strain. Furthermore, there was widespread fear by Investors that the spread of the coronavirus will destroy economic growth and that government action may not be enough to stop the decline. The situation was made worse by crude oil price which had already been affected by a row between OPEC and Russia. Even before the COVID-19 pandemic, food manufacturing firms in Kenya were already experiencing constraints in their performance resulting in either stagnation or decline all together. Indeed poor Performance in some of these firms has attracted attention due to widespread discontent with frequent food shortages and growing public pressure to satisfy

demand for food. As a result, strategies were being sought to make manufacturing firms better performing and more competitive. Firm Performance is an important concept among business managers as well as scholars in business research. Concerns over firm performance are often motivated by the perception of threats to the durability of the firm. These concerns seem to be justified by the ever-growing competition for market and resources (Maltz, Shenar & Reilly 2003). Globally, firms are looking for strategies that will enable them cope with the dynamic global turbulence (Easterby-Smith & Prieto, 2008).

Performance of Food Manufacturing firms is important because of their potential contribution to food security in line with UN's Sustainable Development Agenda Goal 2, vision 2030 that of eliminating hunger. The search for how to respond to environmental turbulence has led several scholars and strategic managers to view Dynamic Capabilities as being central to strategy and firm Performance (Teece, 2017). According to Akintoye, (2008), researchers have filed conflicting findings about how Firm Size impacts firm performance and therefore the subject is open to further research. This study builds on Golan *et.al* (2003) that Firm Size indirectly influences firm Performance and proposed a model where Firm Size moderates the impact of Dynamic Capabilities on performance.

## **1.2 Sustainable performance**

Despite being common in academic literature the concept of firm performance is difficult to define because of its many meanings. Hubbard (2006) observes that firm performance does not have a universally accepted definition although it is a widely used variable in business research. Richard, Devinney, Yip and Johnson (2009), conceptualized the term in terms of the extent to which firms achieve their goals. Hult *et.al*, (2008) defined firm performance as the efficiency and effectiveness in utilization of resources as well as the accomplishment of firm goals through core strategies.

According to Barney (2001), the concept of firm performance is grounded on the idea that a firm is the interaction of productive resources for the purpose of creating value. Therefore, as long as the firm creates a value that meets or exceeds the value that its providers expect, resources will continue to be made available and the firm will continue to survive and prosper (Gavrea, Ilies & Stegorean, 2011). Pierre, Timothy, George, and Gerry (2009) observe that recent empirical researches have used Financial, Operational and Market-based Performance measures.

According to Richard, Devinney, Yip and Johnson (2009), financial measures focus on indicators such as sales revenue, share price and economic value added. Operational Performance focuses on extend to which an organization is efficient in producing the goods and services that customers really want at the lowest cost and effort as possible. Common measures of operational Performance include speed, dependability, flexibility, quality, and cost (Kaplan, & Norton, 2001).

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Market-based performance relates to the expectations of shareholders about the future of the firm. Price Earnings per Share, dividend yields, and stock repurchases are typical measures of market-based Performance. These measures developed in what was named the BSC framework (Kaplan, & Norton, 2001). The BSC performance measurement system developed by Kaplan and Norton is based on the stakeholder approach. The approach assesses organization performance against the expectations of a variety of stakeholder groups that have particular interests in the effects of the organization's activities (Hubbard 2009).

According to Kaplan (2010), the BSC framework added three other key perspectives to the traditional measures of Performance namely; relationship with its customers, key processes, learning and growth. Customer perspective is about how firms draw and strengthen relationships with their customers to differentiate themselves from their competitors. Common measures under this perspective include customer satisfaction, number of customers won and new product sales (Richard et al, 2009).

Internal process perspective is related to the firm's operational efficiency. Typical measures under this perspective include order conversion rate, unit cost reduction and lead time reduction. According to Al-mawali, Zainuddin and Ali (2010), innovation and learning perspective relates to development of capabilities needed for the future. Performance under this perspective is measured in terms of information systems capabilities, flow of new product ideas, employee motivation and empowerment.

### **1.3 Dynamic Capabilities**

According to Helfat *et al.*, (2007) dynamic capabilities are the capacity of an organization to create, extend or modify its resource base. Wang and Ahmed (2007) defined them as a firm's orientation to constantly integrate, reconfigure, renew, and recreate its resources capabilities and reconstruct its core capabilities in response to the changing environment to attain and sustain competitive advantage. Dynamic capabilities have also been seen as a learned and stable pattern of collective activity through which the organization systematically generates and modifies its operating routines in pursuit of improved effectiveness (Zolfo & Winter, 2002). Eisenhardt and Martin (2000) refers to dynamic capabilities as a set of identifiable processes such as product development, decision making and alliancing. Helfat *et al.* (2007) described them as processes or routines which may have become embedded in the firm over time and are employed to reconfigure the firm's resource base by deleting decaying resources or recombining old resources in new ways.

Ambrosini and Bowman (2009) state that the role of dynamic capabilities is to impact on the firm's extant resource base and transform it in such a way that a new bundle or configuration of resources is created so that the firm can sustain or enhance its performance. Dynamic capabilities can take on multiple roles in organizations, such as changing resource allocations, organizational processes, knowledge development and transfer and decision making (Easterby-

Smith & Prieto, 2008). Dynamic capability is the ability of the firm to recognize valuable external information and applying it to commercial ends (Chang & Kou, (2008). It is the managing of knowledge and purposely using it in the firm.

Winter (2003) argues that in order to compete successfully in their markets, firms need dynamic capabilities to help them to upgrade their ordinary capabilities, or to create new ones so as to sustain performance. Álvaro and Merino (2003) argue that dynamic capability is critical to firm evolution, survival, and firm Performance. Wang and Ahmed (2007), Teece, (2008) observe that absorptive capability, adaptive capability, and innovative capability are four main categories found across industries found marketing and managerial capabilities as other categories found across industries.

Scholars have portrayed Dynamic Capabilities as direct drivers, preconditions, moderators, or mediators of firm Performance (Arend and Bromiley, 2009). Thus, there is no consensus as to how the two are linked. Moreover, studies on how Dynamic Capabilities affect firm Performance of Food Manufacturing firms in Kenya are rare. Furthermore, the Dynamic Capabilities concept itself has not been exhaustively studied (Arend & Bromiley 2009). For instance, the interaction of Dynamic Capabilities and other organizational variables, such as Firm Size have not been fully investigated (Wang & Ahmed (2007).

Building on (Teece, 2014), that various categories of Dynamic Capabilities exist contingent on the type of industry, this study operationalized dynamic capability in terms of adaptive capability, marketing capability, alliancing capability and managerial capability. The four are relevant to Food Manufacturing firms and formed the components of the independent variable of the study.

#### **1.4 Firm Size**

Shaheen and Malik (2012) described firm size as the quantity, range of production capabilities and potential possessed by a firm. Mgeni and Nayak (2016) conceptualized firm, size simply as a reflection of how large an enterprise is in terms of infrastructure and employment. De and Nagaraj (2014) argue that firms seek to increase their performance by growing their size in terms of revenues, profits, number of employees, manufacturing capacity, geographic presence, market share in order to make profits for their owners. Lee and Giorgis (2004) observe that studies on the effect of firm size on firm performance have generated mixed results with some supporting a positive relationship and others opposing it.

According to Chi (2004), size is a significant predictor of firm performance with bigger firms being presumed to perform better than smaller ones. Usman and Zahid (2011) argues that large firms perform better than smaller firms in terms of ROA and ROE because they tend to have higher operational efficiency and market power. They have a higher ability to raise finance and take advantage of new markets than smaller firms and take advantage of economies of scale. According to Zahra and George (2012), argue because large firms have more access to financial resources, they are able to build dynamic capabilities which enable them to perform better than smaller firms.

It has however been observed by Sinthupundaja & Chiadamrong (2015) that when larger firms become too large, they may face inertia due to rigidity of management and routines, which can reduce their Performance. Furthermore, smaller firms can reconfigure their resources to respond to changes in the environment faster than larger firms because they are less constrained by rigidities of substantial amounts of sunk costs. (Akinyomi & Adebayo, 2013). Teece (2012) observes that firm dynamic capabilities determine how firms respond to changes in the

operating environment and that small firms can rely on their flexibility to offset some of the challenges associated with resource constraints and achieve high performance.

OECD (2017) observes that there are many indicators for firm size including, capital invested, volume of output, value of inputs, amount of power used, amount of raw materials consumed, productive capacity and number of wage earners employed. However, the most commonly used are the number of people the firm employs and its annual turnover. In this regard, firm size has been categorized as micro, small, medium, and large enterprises. According to GOK (2012) Micro enterprises employ fewer than 10 people and have a maximum turnover of Ksh 500,000; small enterprises employ 10 to 49 people and have a maximum annual turnover of Ksh 5,000,000; medium-sized enterprises employ 50 to 249 people and have a maximum annual turnover of Ksh 80,000,000 while Large enterprises employ 250 or more people and have an annual turnover exceeding Ksh 80,000,000. Dalbor, Kim, and Upneja, (2004) argued that natural log of total assets, number of owners, number of employees and market share are influential proxies for firm size. Market capitalization has also been used as a proxy for firm size by other scholars such as (Mirza & Shahid, 2008).

KIPPRA (2012), attributes poor Performance of Food Manufacturing firms in Kenya partly to challenges related to firm size. Furthermore, researchers have reported conflicting reports on how Firm Size impacts firm Performance hence the need for further research on the relationship between the two (Akintoye, 2008). In this regard, this study conceptualized a model which suggests that Firm Size moderates the impact of Dynamic Capabilities on the Performance of Food Manufacturing firms. The study operationalized firm size in terms of value of sales, size of market share, value of inputs used and size of workforce.

### **1.5 Food Manufacturing Firms in Kenya**

Performance of the manufacturing firms in terms of contribution to GDP has been declining from 11.8% in 2011 to 8.4 in 2017 (KAM, 2018). Indeed, production volumes have been contracting leading to an overall decline of 1.1 per cent in 2017 (KNBS, 2018). In terms of growth rate, performance has declined from 5.6% in 2013 to 0.2% in 2017. This decline has largely been attributed inferior performance of firms in the Food Manufacturing sector which declined by 10.8 per cent in 2017 (KNBS, 2018). The Food Manufacturing is the largest manufacturing sub sector in Kenya. It contributes 30% manufacturing GDP and 40% of all employees in the manufacturing sector (GOK, 2018). Kenya Association of Manufacturers has registered 70 Food Manufacturing firms operating in Nairobi City County of which 20 are large scale and 50 are medium scale firms as at June 2018.

Food manufacturing firms display distinctive characteristics ranging from family owned to publicly own. Some of the firms are foreign owned while others are locally owned. Flour mills represent 18% of the total number of Food Manufacturing firms. Processing of edible oils represents 18% while sugar and confectionery processing comprise 12%. The rest are bakeries and processors of vegetable, fruit, dairy, fish, and meat. (Promar Consulting, 2016). In terms of value addition, sugar and confectionery contribute 15%, edible oils 10% and flour products 9% total value created by Food Manufacturing firms.

GOK (2009) named several barriers to Performance of the sector; limited access to finance, absorption of technology, inadequate marketing infrastructure, vulnerability to weather shocks, human resources, and weak institutional framework. Low production, poor post-harvest handling and vulnerability to weather shocks are also said to be responsible for poor Performance on the supply side of the Food Manufacturing sector (KIPPRA, 2017). World Bank (2013) identified high labour costs, unstable power supply, poor infrastructure and inefficient logistics as additional challenges facing Kenyan Food Manufacturing firms.

The idea of increasing performance of food manufacturing firms has recently gained attention in Kenya due to widespread discontent with the frequent food shortages and growing public pressure on food manufacturing firms to satisfy demand for food (KIPPRA 2017). Furthermore, there is pressure on processing firms to introduce management strategies that will ensure increased performance and attainment of growth targets (KIPPRA, 2017). Increasing performance of food manufacturing firms is seen as a way of mitigating food insecurity, creating employment, and sustaining economic growth.

Increasing Performance of Food Manufacturing firms is seen as a contributor to creation of employment, sustaining economic growth and achieving the Big Four Agenda. Through its commitments on the UN Sustainability Goal 2, Vision 2030 and the Big Four agenda, the government has pledged to increase food production. However, the interventions are aimed at increasing primary production. Government policy papers related to the food value chain have not given attention to Dynamic Capabilities of Food Manufacturing firms (GOK, 2018).

### **1.6. Problem Statement**

Despite its importance to strategic management, research on the concept of firm performance suffers from gaps such as lack of consensus on its definition and selection of indicators. (Combs, Crook, & Shook, 2005). Because of lack of a universal definition, many studies have measured firm performance with a single indicator (mainly financial performance) thus represented the concept as unidimensional when it is clearly multidimensional, (Glick, Washburn, & Miller, 2005). Consequently, strategic management theory needs more studies so as to get a clearer conceptualization of firm performance and identify better indicators for use in measurement (Richard, Devinney, Yip, & Johnson, 2009).

Similarly, there is limited consensus as to how dynamic capabilities are linked to performance because the concept of Dynamic Capabilities itself has not been exhaustively studied. Thus, there are different perceptions on how dynamic capabilities influence firm performance (Akintoye, 2008). For instance, scholars have portrayed Dynamic Capabilities as direct drivers, preconditions, moderators, or mediators of firm Performance (Arend and Bromiley, 2009). There is therefore hence the need for further research to validate previous research on the relationship between dynamic capabilities and performance.

The interaction between Dynamic Capabilities and other organizational phenomenon such as Firm Size and Firm Competence to influence performance has not been fully investigated (Wang & Ahmed (2007). Thus, researchers have reported conflicting reports on how they both impact firm Performance. Among the studies reviewed for this study, none of them addressed the interaction between dynamic capabilities, firm competence and performance of Kenyan manufacturing firms.

Performance of manufacturing firms in terms of contribution to GDP has been declining from 11.8% in 2011 to 8.4 in 2017 (KAM, 2018). Indeed, production volumes have been contracting leading to an overall decline of 1.1 per cent in 2017 (KNBS, 2018). In terms of growth rate, performance has declined from 5.6% in 2013 to 0.2% in 2017. This decline has largely been attributed inferior performance of firms in the food manufacturing sector which declined by 10.8 per cent in 2017 (KNBS, 2018). Due to frequent shortages in the country, there has been increasing pressure on food manufacturing firms to increase performance and meet demand for food. Furthermore, globally, strategies are being sought to make firms better performing and more competitive (Easterby-Smith & Prieto, 2008). There is however limited number of studies on how the interaction of dynamic capabilities and performance of firms in this sector to inform initiatives to stimulate growth in firms in this sector.

Furthermore, most of empirical studies on the effect of Dynamic Capabilities on firm Performance were done in developed countries with different cultural and economic settings. This makes it difficult to generalize the results to a Kenyan setting. More empirical studies are therefore needed in developing countries to provide more academic rigor to the concept (Protogerou, Caloghirou & Lioukas 2012). According to (Arend & Bromiley, 2009) a large number of studies on Dynamic Capabilities relied on small samples. This may reflect a careful choice of firms that researchers believed would possess Dynamic Capabilities. This raises issues of, generality and reliability of results of results to other settings, companies, or countries. Moreover, most key empirical studies linking Dynamic Capabilities and Performance considered only financial Performance and did not consider non-financial Performance

### **1.7. Objectives of the Study**

The general objective of this study was to investigate the effect of Dynamic Capabilities on Performance of Food Manufacturing firms in Kenya. Specifically, the study sought to:

- (i) Assess the effect of dynamic Capabilities on Performance of Food Manufacturing firms in Kenya.
- (ii) Establish the moderating effect of Firm Size on the relationship between Dynamic Capabilities and Performance of Food Manufacturing firms in Kenya.

### **Significance of the Study**

This study is significant in several ways. First, the overall findings of the study helps in informing policy decisions on how to mitigate food security in the country through using Dynamic Capabilities to enhance Performance of Food Manufacturing firms. Secondly, the study provides managers of Food Manufacturing firms with more information on how Dynamic Capabilities interact among themselves and Firm Size to influence Performance and survival during the ongoing COVID-19 pandemic and after. Third, the findings of the study are useful in informing investment decisions of potential investors wishing to invest in Food Manufacturing ventures. Fourth, this study contributed to the existing body knowledge by showing how Dynamic Capabilities interact with other organizational variables such as Firm size to impact Performance.

### **1.8 Research Hypotheses**

The study tested the following hypotheses:

- H<sub>01</sub>:** Dynamic Capabilities have no significant effect on Performance of Food Manufacturing firms in Kenya.
- H<sub>06</sub>:** Firm Size has no moderating effect on the relationship between Dynamic Capabilities on Performance of Food Manufacturing firms in Kenya.

## **2.0 Literature Review**

### **2.1 Theoretical Review**

This review gives a theoretical approach to the relationship between Dynamic Capabilities and Performance as mediated by Firm Competence and moderated by Firm Size. This study was informed by the Dynamic Capabilities theory as the main theory. This theory was complemented by the theory of optimal firm size, the Upper Echelons Theory, the Competence-Based Theory, the Balanced Score Card theory and the RBV theory. The review lays the theoretical foundation for the study.

### **2.1.1 The Theory of Optimal Firm Size**

The theory of optimal firm size was postulated by EAG Robinson in 1931. The theory posits that there is an optimum size at which a firm can operate at a scale at which, with the existing technology and organizing ability, has the lowest average cost per unit of output. Robinson (1931) identified the optimum size of the firm as the size at which the firm is fully enjoying all the internal economies of scale and the internal diseconomies of scale have not yet started accruing. The theory further posits that all firms seek to grow in size until they reach the minimum efficient scale (MES) point of production beyond which further growth is either technically impossible or unprofitable. According to Almeida and Wolfenson (2003) the optimal size for each firm depends on its organizational capital, and in the case of entrepreneurial firms, the abilities of the entrepreneur.

According to scholars like Kor, Mahoney & Michael (2007), firms exist to make a return on the investment of shareholders. In this regard, firms want to grow towards the level of production where there is a maximum difference between total revenue and total cost. The optimum firm size theory postulates that firm size is strongly dependent on a number of considerations including market structure level of competition and technological innovations. The view held by Penrose (2008) is that firm size is a signal of resource capacity and capability. Thus, the larger the firm, the more organizational resources it has a better equipped it is to achieve organizational goals. In this regard, small firms must aspire to grow into large firms so that their shareholders can get higher returns. Olawale (2017) observes that ideally, firms seek to grow bigger in terms of revenues, profits, workforce, geographic presence, market share, or asset accumulation.

The theory of optimum firm size is not without critics. For instance, recalling previous work on the growth of the firm (Penrose 2008) argues that the growth of a firm is dependent not on market conditions or cost considerations but by managerial capability to utilize firm resources. She posits that there is no optimum firm size in the long term and that firm growth, diversification, and innovation is driven by existence of unused and underutilized resources. Similarly, Shaheen and Malik, (2012) observe that the boundaries of firm growth potential can be determined by factors such entrepreneurial skill, availability of finance, managerial capability.

Olawale (2017) observes that in conditions of imperfect competition, a firm's ability to grow may be driven its innovative capability to develop unique products and markets rather than by cost considerations. The theory of optimum firm size contributes to strategic management by offering an analytical concept for evaluating firm size under given conditions of technology and market structure. The theory of optimal firm size was used, to inform the moderating variable.

### **2.1.2 The Upper Echelons Theory**

Hambrick and Mason (1984), were the first proponents of the theory. According to this theory, managerial background characteristics predict strategic choices and performance levels. According to Hambrick (2007), the dominant principle of the theory is that the managers' interpretations of the situations they face is motivated by their experiences, values, and personalities. This in turn affects the decisions they make. The theory posits that the performance of a firm depends on the characteristics of its managers such as age, functional background, and educational experiences (Sadeghinejad, 2013). According to Carpenter & Fredrickson (2001), leadership of a complex organization is a shared activity and the collective cognitions, capabilities, and interactions of the entire top management team (TMT). In this vein, organizational outcomes depend at least in part, on TMT composition. They argue that by

examining the individual characteristics of members of the TMT, insights into the manner by which individual interpretations of situational factors impact the decisions made by these employees can be gained as they relate to decision making and organizational performance (Adner & Helfat, 2003).

Tripsas and Gavetti (2000) highlight that senior managers determine the way Dynamic Capabilities are deployed. In this regard, what managers perceive of their environment is critical in understanding how organizations deploy dynamic capabilities. Because managers perceive the environment differently, firms may have similar characteristics but deploy Dynamic Capabilities differently (Ambrosini, Bowman & Collier, 2009). The upper echelons theory has often been combined with social psychological theories to shed light on the role of individual psychological factors and team processes on executive decision-making (Carpenter & Fredrickson 2001).

Upper echelons theory can assist in predicting organizational outcomes or in selecting and developing upper level executives. The theory is also relevant in determining strategies for exploiting organizational managerial capabilities and predicting competitor moves and countermoves (Tripsas & Gavetti (2000)). The main criticism of the theory is that it relies heavily on observable characteristics of top management and not much on unobservable characteristics such as ethical behavior (Oppong, 2014). This study used the upper echelons theory to inform the independent variable.

### **Resource Based View (RBV)**

The RBV was suggested by Wernerfelt (1984) and popularized by Barney (1991) using insights provided by Penrose (1959). According to Ireland, Michael, Hitt and Sirmon (2003), it is drawn from at least four theoretical sources; the study of distinctive competencies, Ricardian economics, Penrosian economics and the study of the anti-trust implications of economics. In RBV firms are conceived as bundles of resources (Wang & Martin 2007). According to Peteraf and Barney (2003) the key determinants of firm Performance are the tangible and intangible assets resources owned by the firm.

The RBV presents a connection between internal resources, strategy, and the performance of the organization (Torrington, 2005). RBV was a shift from earlier suggestions that superior performance comes from managing factors that are external to the firm (Peteraf & Barney 2003). In essence the underlying presumption of theory is that it is the resources and competencies inherent in the firm rather than in the environment which determine firm performance (Wang & Martin 2007). According to Peteraf and Bergen (2003), a central premise of the resource-based view is that firms compete on the basis of their resources and capabilities. According to Helfat and Peteraf (2003), a firm's resources at a given time could be defined as those (tangible and intangible) assets which are tied semi permanently to the firm. **Tangible** resources can easily be bought in the market so they confer little advantage to the companies in the long run because rivals can soon acquire the identical assets. Makadok (2003) argued that unlike physical resources, intangible resources such as brand reputation are built over a long time and are something that other companies cannot buy from the market. He argues that intangible resources usually stay within a company and are the main source of sustainable performance. Barney (1991) argued that firm's tangible and intangible resources must be valuable, rare, imperfectly imitable, and non-substitutable (VRIN) to be a source of superior performance. The theory emphasizes that value creation and superior performance of a firm is affected by combination of the competitive strategy and its resource base (Eisenhardt & Martin, 2000).

The theory contributes to strategic management by explaining how a firm can increase performance by acquiring and utilizing VRIN resources (Alvarez, & Barney, 2000). One weakness of RBV is that it is static and therefore does not explain how to sustain performance in a dynamic market (Kraaijenbrink, Spender, & Groen, (2010). Teece (2010) explained that the RBV was not able to provide explanations as to how some successful firms demonstrated timely responsiveness and rapid and flexible product innovation along with the management capability to effectively coordinate and redeploy internal and external competences.

Teece (2010) further argued that it is essential to consider the changing nature of the external environment and hence the role of strategic management, which is principally about adapting, integrating, and reconfiguring internal and external organizational skills, resources and functional competencies toward the changing environment. Proponents of the RBV have also been criticized for poorly defining the core constructs of the theory Foss and Knudsen, (2003). RBV scholars have been criticized for failing to agree on the definition of key variables and constructs, leading to inconsistent presentations of theory (Bromley 2005). This study used the RBV to inform the independent variables.

#### **2.1.4 Dynamic Capabilities Theory**

According to Ambrosini and Bowman (2009), Terence's (1990) working paper is probably the first contribution developing the notion of dynamic capabilities. Dynamic Capabilities theory itself was developed by (Teece & Pisano 1994). Teece, Pisano and Shuen (1997, 2007) saw competitive advantage in turbulent environments as a function of dynamic capabilities rather than competitive positioning or industry conflict. They used the term "dynamic" to reflect the capacity to renew competences so as to achieve congruence with the changing environment.

According to Pisano (2014), this theory evolved from the evolutionary theory of the firm. The theory enhances the RBV (Teece, Pisano & Shuen, 1997; Teece 2017; Zahra *et.al.*, 2006). According to this theory, firms achieve sustainable competitive advantage by reacting rapidly and flexibly to changing market environments (Teece 2017). Dynamic Capabilities theory explains long-run firm survival by showing how firms can manage competitive threats by redeploying their resources (Teece, 2010).

In this theory, firm Performance depends on distinct processes shaped by asset positions and the evolution path(s) the firm has adopted or inherited (Teece et al, 1997, Pisano, 2016). The theory suggests that Performance a firm during periods of rapid change depends on its ability to sharpen its technological, organizational, and managerial processes (Teece, 2017). Firms use Dynamic Capabilities to reconfigure their resources as markets emerge, collide, mutate, or cease (Teece, Pisano & Shuen, 1997).

According to Teece (2018) the price system is inefficient in allocation of a firm's resources. Therefore, managers give directives to deploy in value-enhancing ways. Because managers make decisions under uncertainty, they do not create once-and-for-all solutions but continually reconfigure firm resources and competences as needed (Zara *et.al.* 2006). Teece (2006) cast dynamic capabilities against Porter's five forces, and points out that in the latter, sustainable advantage comes from hiding behind market structures, erecting entry barriers or building them if they did not exist. In the dynamic capabilities framework, market structure does not matter. Teece (2012) argues that in this framework, sustainable performance comes from shapening internal processes, structures and procedures to generate innovations, be they technological or organizational. He further argued that the dynamic capabilities framework recognizes analytical functions which must be performed at the enterprise level to sustain success. Danneels (2002) suggested two levels of dynamic capabilities. The first order capabilities are the firm's extant resource base, the resources that allow the firm to directly earn a living. The second order

capabilities refer to dynamic capabilities that enable the creation of new capabilities. Winter (2003) argued that dynamic capability hierarchy begins with operating capabilities or zero-level capabilities which allow firms to earn a living in the present. The first order capabilities are that allow for a change in zero-order capabilities to occur. Higher-order capabilities are the outcome of organizational learning which result in creating or modifying a firm's dynamic capabilities. Ambrosini and Bowman (2009) identify second order which they define as renewing dynamic capabilities these second level dynamic capabilities are developed and embedded within the firm as they progress through time via the accumulation of experience and specific investments. (Zollo & Winter, 2002). Ambrosini, Bowman and Collier (2009) recognize another category; regenerative dynamic capabilities which allow the firm to move away from previous practices towards new dynamic capabilities. Regenerative dynamic capabilities like any other dynamic capabilities come in many forms, for example, they might involve restructuring, learning, or leveraging. The key difference is that whereas renewing capabilities operate directly on the resource base while regenerative capabilities impact on the renewing or incremental dynamic capabilities.

According to Ambrosini and Bowman (2009), one of the criticisms of the dynamic capabilities concept is that they are difficult to measure empirically as are the underlying operational processes as well as the relationship between dynamic capabilities and firm performance. It is also difficult to measure the routines and processes that are often idiosyncratic to firms or part of resource bundles. The Theory contributes to strategic management by explaining how firms can sustain performance using dynamic capabilities. This study used the Dynamic Capabilities Theory to inform the independent variable.

## **2.2 Empirical Review**

Wei and Lau (2010) investigated the role of High-performance work systems (HPWS) and performance of Chinese firms. A sample of 600 firms were randomly selected from all firms registered with the local governments, representing the industries in each city or province. Respondents were identified using stratified sampling technique. Data was collected using structured questionnaires and a surveys face-to-face interviews with senior managers of the selected firms. The data was analyzed using linear regression technique. Empirical results showed that firm-level adaptive capability partially mediates the relationship between HR-fit and innovation and fully mediates the relationship between HR-fit and ROA. The study also found that location moderated the relationship between adaptive capability and performance. The main limitation of the study was that it did not consider non-financial performance of the firms under study. The main contribution of this study was that presented a model that helped to explain one of the mechanisms underlying the linkage between HPWS and performance by looking at firm level capabilities.

Busatto, Grace, Hansen & Santos (2014) examined relationship between strategic orientation and adaptive capabilities and as drivers for firm Performance. The data was collected using a structured questionnaire administered on 106 randomly selected employees drawn from a maritime company in Brazil. The results of multiple regression analysis showed that the effect of adaptive capabilities on firm performance is influenced by strategic orientation of entrepreneurs. The study provided an additional understanding of how adaptive capability drives performance. The main limitation of the study was that it was done on only one case company and may therefore suffer inability to be generalized among other companies operating in different industries.

Eshima and Anderson (2016) studied the relationship between firm growth, adaptive capability, and Performance. Data was collected from a sample 600 respondents randomly drawn from a

population 11,248 senior executives of Korean SME'S and another sample of 134 respondents drawn from a population of 6000 firms in the United Kingdom. The data was analyzed using structural equation modelling. The study showed that increased adaptive capability leads to expansion of entrepreneurial activity. It further showed that during its growth, a firm acquires new resources and new knowledge on how to configure those resources which in turn leads to development of adaptive capabilities that enable it to uncover new opportunities for increasing performance. The study demonstrated that adaptive capabilities influence entrepreneurial action which in turn influence firm performance. The main limitation of the study was that although it used data from two locations that were different, it cannot be ruled that different results could have been obtained if the study involved other geographical locations.

Chrysochoidis, Dousios, and Tzokas (2016) investigated how adaptive capability alter the relationship between small firm competitive strategy and performance outcomes of small firms. Data was collected from a sample of 250 small firms randomly selected from a population of 748 firms in Greece using structured questionnaires. The questionnaires were administered on the CEOs of the selected firms and analyzed using Exploratory Structural Equation Modelling (ESEM) technique. The results of the analysis supported the notion that adaptive capability mediates the influence of competitive strategy on performance outcomes supporting the view held by (Danneels 2012). The study also showed that adaptive capabilities moderate the relationship between competitive strategy and firm performance. The main limitation of the study was that it used only financial/sales turnover-related performance indicators of performance leaving out non-financial indicators of performance. The study contributes to the ongoing debate on dynamic capabilities by highlighting the importance of adaptive capability on superior performance.

Ali, Sun and Ali (2017) investigated the effect of adaptive capability on the Performance of SMEs. Primary data was gathered using structured questionnaires administered on 210 SMEs in Pakistan. The study operationalized adaptive capability in terms of change management, horizon scanning and resilience. The study used partial least squares structural equation modeling (PLS-SEM) to test the model hypotheses. The results of data analysis showed a positive relationship between adaptive capability and firm Performance. The study also showed that adaptive capability mediates the relationship between managerial capability and firm performance. This study concluded that adaptive capability improves the Performance of SMEs. These results provide valuable information for managers on how adaptive capability impacts firm Performance.

Morgan, Vorhies and Mason (2009), conducted a study to examine the effect of marketing capabilities on firm Performance. The study collected primary data using questionnaires administered via a mail survey on 748 U.S. firms. Marketing capability was operationalized in terms of product development, pricing, channel management, marketing communications, selling, market planning, and marketing implementation while performance was operationalized in terms of profitability and market share. The study used structural equation modelling (SEM) technique to analyze the data. The findings indicated that market orientation and marketing capabilities are complementary assets that directly contribute to firm performance.

Afzal (2009) attempted to demonstrate the effect of marketing capabilities on corporate Performance. Data was collected on a sample of 89 firms in Pakistan using a questionnaire administered through mail survey. Performance was operationalized in terms of profitability, operational performance, sales and market share growth and customer satisfaction. Marketing capability was operationalized in terms of market research, pricing product development, promotion management and marketing management capabilities. Linear regression technique was used to analyze the data and test the hypothesis. The results of the study showed that there

is a significant relationship between marketing capabilities and firm Performance and that the relationship moderated by marketing practice. The study concluded that firms should tailor their marketing capability and strategy behavior to compliment the requirements of their business performance.

A study by Morgan, Slotegraaf and Vorhies (2009) set out to examine how market capabilities are linked to a firm's profit growth. The survey was conducted on publicly traded, U.S. companies in seven industries: computer hardware, computer software, electronic equipment, specialty retail, pharmaceuticals, consumer packaged goods, and business services. Primary data was collected from 507 targeted CEOs using a structured questionnaire. The study operationalized marketing capabilities in terms of market sensing, customer relations management and brand management. Profit growth was operationalized in terms of revenue growth and profit margin growth. Marketing capability was operationalized in terms of customer relations management, brand management and market sensing. The study used Seemingly Unrelated Regression (SUR) technique to test the hypothesis. The study found that while Customer Relationship Management, and brand management capabilities have a direct effect on revenue growth and profit margins market sensing capabilities have no direct effect on margin growth rate. The study concludes that market capabilities drive firm Performance. Another study by Azizi, Movahed and Khah (2009) investigated the relationship between marketing capability and three types of performance; overall, financial and non-financial performance. A structured questionnaire was administered on a sample of randomly selected 50 large, well-reputed companies involved in Iran's medical equipment industry to collect primary data. Multiple regression technique was used to analyses the data. The findings of the study showed that marketing capability has a positive and significant effect on overall, financial and non-financial performance. The study contributes to the knowledge on how dynamic capabilities affect firm performance. The main limitation of the study was that it did not consider the effect of regulatory environment in view of the fact that the pharmaceutical industry is highly regulated. It is possible that different findings would have emerged if the study was done among firms operating in a less regulated industry.

Vijande, Pérez, Gutiérrez, and Rodríguez (2012) conducted a study to analyze the organizational antecedents of marketing capabilities and their impact on business performance of SMEs in Spain. Questionnaires were sent to CEOs of 1900 firms listed in the Sistema de Análisis de Balances Ibéricos (SABI) database. The firms were purposely selected on the basis of their operating in industrial sectors characterized by intense innovation. The respondents were identified a priori as key informants because they were likely to be fully knowledgeable about their firms. The questionnaires were dispatched through mail but only 163 valid questionnaires were returned thus achieving a response rate of 8.75% Results of data analysis using multiple regression showed that marketing capabilities mediate the effect of customer satisfaction on firm Performance. The study observed that Marketing capabilities have a significant and positive effect on clients' satisfaction and loyalty, and this leads to better organizational performance. One limitation of the study was that it used subjective measures of financial Performance, due to reluctance of firms to supply empirical data on sales, market share and profits.

Rotharmel and Deeds (2006) investigated the effect of alliance capability on Performance of high-technology ventures. Secondary data was extracted from 325 global biotechnology firms listed in the 1997 Bioscan directory. Multiple regression technique was used to analyze the data. The results of the study showed that a firm's Performance is positively correlated to its alliance management capability. The study further observed that transaction costs increase as firms join more alliances, up to a point beyond which the costs outweigh the gains from additional

alliances. One of the limitations of the study was that it left out some measures of alliance management capability such as new partner identification capability, and capability to use knowledge that has been shared in alliances.

Schreiner, Kale, and Corsten (2009) investigated the effect of alliance capability on Performance of using survey and secondary data from German and Swiss software service providers. Out of the 1,710 questionnaires sent through mail, 250 were received. Data was analyzed using multiple regression analysis technique. The findings were that firms expand their performance by leveraging on knowledge transfer between partners in an alliance. This research contributed to the dynamic capability perspective by showing that firms can enhance their Performance through alliance management.

Phaprueke, Intakhan, and Nantana (2010) examined the effect of alliance capability on Performance. Alliance capability was operationalized in terms of business excellence and performance was operationalized in terms of firm growth. Data was collected using a questionnaire administered on a sample of 812 SMEs in Thailand. Data was analyzed using multiple regression technique. The study used Baron and Kenny (1986) model to test for mediation. The results showed that alliance capability mediates the relationship between knowledge transfer achieved through alliances and Performance. It also found that knowledge transfers in turn impacts Performance through innovation.

Ziggers and Tjemkes (2010) examined the relationship between alliance capability and Performance. The study used a mail survey to collect primary data. Structured questionnaires were sent to 248 Dutch alliance managers responsible for alliances in non-equity alliances in agribusiness and food industry. Only 84 questionnaires were returned thus translating to a response rate of 33.3 %. The data was analyzed using PLS technique. Empirical results indicated that the relation between alliance capability and alliance performance is mediated by both alliance management and relational quality. The findings suggest that firms deploying alliance capabilities gain more from alliances than those which do not.

Kaupilla (2013), investigated the effect of alliance management capability on Performance using the RBV framework. The study operationalized alliance management in terms of co-exploration and co-exploitation. Primary data was collected from a sample of 172 Finnish companies using a questionnaire and analyzed using multiple regression technique. The study found that alliance management capability mediates the relationship between co-exploration and firm performance. It also found that the relationship between alliance management capability and co-exploitation is U-shaped. The study posits that co-exploitation directly affects a firms' short-term financial Performance while long run firm growth is driven by co-exploration.

Acquaah (2007) examined the relationship between managerial capability and Performance. Managerial capability was operationalized in terms of social networking and firm-specific experience. Performance was operationalized in terms of ROA. Primary data was collected from senior executives of selected from 106 firms listed in the 2001 edition of the Ghana Business Directory using a questionnaire. The results of data analysis using multiple regression technique suggested that managerial social capital developed through social relationships enhance firm Performance. one limitation of the study was that it did not consider non-financial performance.

Bellner and MacLean (2015) set out to investigate how managers use managerial capabilities managers to create competitive advantage during periods of environmental change. The study took a multi-case study approach. Five firms were identified using a purposeful sampling technique. Questionnaires were sent to the CEOs of the selected through email. Data was analyzed using content analysis technique. The results show that the more successful managers

were those engaging in participative leadership and employ innovation-based capabilities during periods of external environmental change. These capabilities impact other Dynamic Capabilities toward achieving advantage. The study concluded that managerial capabilities are transformational and integral to entrepreneurial management and they generate superior performance. One main limitation of the study was the use of purposive sampling which is usually criticized as being prone to bias.

Kabongo and Boiral (2017) studied effect of managerial capability on Performance of eco-efficient firms. Primary data was collected from managers of 12 firms involved in processing of waste materials in Canada using questionnaires and interviews. The findings of multiple regression showed that Performance of eco efficient firms largely depends on application of managerial capabilities in coordination of competencies, innovation and technological development. It also depends on adjustments in human resource management, networking and marketing. This study contributed to existing literature on Dynamic Capabilities by offering additional insights on the role played by management capability in the success of firms.

Kwalanda, Mukanzi and Onyango (2017) assessed the impact of managerial capabilities on the firm Performance. Primary data was collected using questionnaires administered on randomly selected 108 employees of sugar companies operating in western Kenya. The results of data analysis using multiple regression showed that there is a significant correlation between relational capabilities and Performance of firms in the sugar industry in western Kenya. The study observed that cooperative relationships enable firms to acquire important resources, gain access to new markets, which in turn help them to improve performance.

Ahmad (2017) conducted a perception survey to investigate the effect of managerial capabilities on the Performance of 127 firms in Pakistan. Primary data was collected using a structured questionnaire. The study found that firms which invest in the development of managerial capabilities realize better Performance. It also found that small firms do not a framework for development of managerial capability and this negatively affects firm Performance. The study concluded that organizations that focus on development of managerial capabilities are more likely achieve high Performance and have competitive advantage.

Some of the studies like (Acquaah, 2007) and Ali, Sun & Ali 2017) were conducted among enterprises in one geographical setting and this limited its generalization to countries with a different cultural setting. One of the studies; Ensley and Pearce (2001) used a complex model, and this might have been the reason why the relationship between the study variables was not detectable. Kabongo and Boiral (2017) used a small sample and therefore it may not be possible to generalize the findings.

A study by Dogan (2013) evaluated the effect of Firm Size on profitability of Turkish firms during the period 2008-2011. Secondary data obtained on 200 companies was obtained from the Istanbul Stock Exchange and analyzed using a multiple regression model. ROA was used as the indicator for firm profitability. Firm Size was operationalized in terms of total sales, total assets, and number of employees. The results of data analysis showed that there is a positive correlation between Firm Size and firm profitability. The main limitation of this study was that it used only one (ROA) indicator of financial performance and therefore the results may not be reliably generalized to all indicators of firm performance.

Niresh and Velnampy (2014) conducted a study to investigate the effect of Firm Size on performance. Performance was operationalized in terms of ROA and Net Profit whereas Firm Size was operationalized in terms of total sales and total assets. Secondary data was collected from a sample of 15 companies listed in the Colombo Stock Exchange between 2008 and 2012. Data was analyzed using multiple regression. The results of the analysis showed that no relationship between exists between Firm Size and profitability of manufacturing firms. The

main limitation of the study was that it measured only financial performance and left out non-financial aspects of performance. The contribution of this study was that it brought out a new perspective which challenged previous studies which had found that Firm Size affects firm profitability.

Abbasi and Malik (2015) investigated the effect of Firm Size, firm growth, and firm performance. The study used secondary data collected on 50 non-financial firms listed in the Karachi Stock Exchange and analyzed using multiple regression. The results of data analysis showed that Firm Size mediates the effect of a firm growth on its performance. The study operationalized Firm Size in terms of sales volumes and firm growth in terms of growth in total assets while performance was operationalized in terms of ROA. Results of multiple regression analysis showed that the effect of firm growth on performance is moderated by Firm Size. The study also found the relationship between Firm Size and firm growth is not significant. A main limitation of the study was that it did not consider non-financial aspects of performance. The study contributes to strategic management by showing how Firm Size interacts with firm growth to influence firm performance.

Kuncová, Hedija and Fiala (2016) conducted a study to investigate the effect of Firm Size on firm economic performance. Secondary data extracted from the Czech Republic Business Register and analyzed using multiple regression. Economic performance was operationalized in terms of profitability ratio, labour productivity and operating ratio. Firm Size was operationalized in terms of total sales and total assets. The results of the analysis showed that larger firms achieve higher economic performance than smaller firms. A main limitation of the study was that it measured only economic performance. The study contributes to the understanding of how Firm Size contributes to business success.

A study by Luqman, (2017) investigated the effect of Firm Size on the Performance 12 non-financial Nigeria firms between 2005 and 2013. Firm Size was operationalized as total assets and total sales while Performance was operationalized in terms of ROE. The study used secondary data obtained from audited annual reports of the selected firms. Data was analyzed using a random effects regression model. The study found a negative correlation between total assets and a positive correlation between total sales and performance. The conclusion of the study was that Firm Size determines firm performance. One limitation of this study was that it used secondary data. This kind of data is subject to bias because data may not have been collected for research purposes and may have been tailored to serve only the purpose for which it was collected.

All the studies on firm size reviewed for this study used secondary data obtained from audit reports obtained from the national stock exchange. Secondary data is collected for purposes other than research and may have biases that address the purpose for which the data was collected earlier studies on the effect of Firm Size on firm performance offer inconclusive finding with some showing profound effect while others show no effect. Furthermore, none of the studies reviewed investigated how Firm Size mediates the correlation between Dynamic Capabilities and firm performance of Food Manufacturing firms

## **2.4 Conceptual Framework**

Based on the theoretical review and its objectives, the study developed a conceptual framework where Firm Size (the moderating Variable) is deemed to influence the effect of dynamic capabilities (the independent Variable) on performance (the dependent variable). The conceptual framework is captured in Fig 1 below.

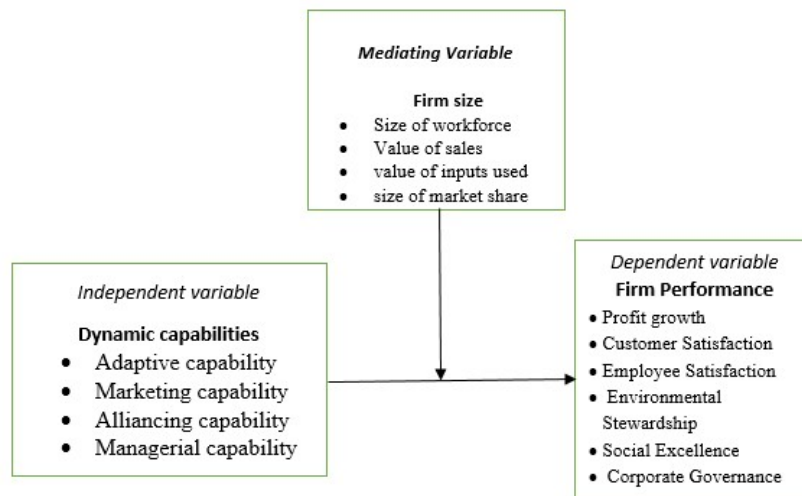


Fig 1 Conceptual Framework  
*Source: Author (2020)*

### 3.0 Methodology

#### 3.1 Research Philosophy

According to Saunders, Lewis & Thornhill (2009) business research comprises five main philosophies: positivism, critical realism, interpretivism, postmodernism and pragmatism. Positivism relates to the philosophical stance of the natural scientist and entails working with an observable social reality to produce law-like generalizations (Easterby-Smith, Thorpe & Jackson, 2008). It focuses on strict scientific empiricist method designed to yield pure data and facts free of human interpretation or bias. The positivist adopts the stance that the researcher will operate remotely from the social world and that evaluation of phenomena identified will be approached through objective methodologies (Stiles, 2003). Positivism derives a quantitative perspective which holds that there is an objective reality that can be expressed numerically with explanatory and predictive power (Neuman, 2006; Furrer, Thomas & Goussevkaia, 2008). Problem solving under this approach follows a pattern of formulating hypotheses in which assumptions of social reality are made and hypotheses tested often using quantitative techniques (Stile, 2003). This study was inclined to positivistic view in order to obtain an objective view of the relationship between dynamic capabilities, firm characteristics, firm competence and performance of selected food processing firms in Kenya

#### 3.2 Research Design

Research design seeks to provide confidence that the research findings captures reality and have high levels of validity and reliability. Ghauri and Gronhaug (2010) identified three of research designs including descriptive, exploratory and causal. Saunders (2011) states that a research design can take a cross sectional or longitudinal approach.

Descriptive research is used to obtain information concerning the current status of a phenomena and to describe "what exists" with respect to variables (Saunders 2011). Descriptive studies can yield rich data that lead to important recommendations in practice. Bryman and Bell describe descriptive research design as an organized empirical enquiry where the researcher does not have direct control of the independent variable since its manifestation has already taken place and this reduces the possibility of bias. This design has been chosen to help the researcher achieve the research objective by describing the data and characteristics of dynamic capabilities and performance of manufacturing firms.

Causal research design is used to measure what impact a specific change will have on existing norms and assumptions. This type of research is used to measure the impact a change in one variable will have on another variable. According to Sekaran and Bougie (2010) Causal effect occurs when variation in one phenomenon, an independent variable, leads to or results, on average, in variation in another phenomenon, the dependent variable. The explanatory research design looks for explanations on the nature of certain relationships and investigates the cause and effect relationship between variables (Saunders, 2009). This type of study design is associated with greater levels of internal validity due to systematic selection of subjects. This design was adopted to help the researcher understand how a change in dynamic capabilities impacts performance of manufacturing firms in Kenya.

Cross-sectional research studies provide a clear 'snapshot' of the outcome and the characteristics associated with it, at a specific point in time. They entail collecting data at and concerning one point in time (Creswell, 2003). They assist the researcher to establish whether significant associations among variables exist at one point in time depending on the resources available and the target population (Saunders, Lewis & Thornhill 2007). This design has been chosen because it is convenient and saves the researcher time and costs associated with longitudinal studies which involve taking multiple measures over an extended period.

According to Zikmund (2003) surveys provide a quick and accurate means of assessing information if properly conducted. Based on the purpose of the study and the philosophical orientation adopted, the study used a descriptive, causal and cross-sectional survey research design. This approach was chosen to achieve complementarity between the various paradigms and to discover what may not have been discovered if only one approach is used.

### 3.3 Empirical Model

To test for direct relationship between Dynamic Capabilities and performance was tested using simple regression analysis. Objectives one through four were addressed using model 3.1 below

$$Y = \beta_0 + \beta_1 DC + \varepsilon \dots\dots\dots (3:1)$$

Where:

Y= Performance (dependent Variable)

$\beta_i$  = Beta coefficients (i = 0, 1, 2, 3, 4)

DC= Dynamic Capability

$\varepsilon$  = Error term

To test the moderating effect of Firm Size on the relationship between Dynamic Capabilities and performance Dynamic Capabilities and the interactive term between Dynamic Capabilities and Firm Size were regressed on performance tested using the regression equation in model 2 as suggested by (Preacher & Hayes, 2004; Mackinnon & Fairchild, 2009; Hayes, 2009, Keppel & Zeddeck, 2000) as shown below.

$$Y = \beta_0 + \beta_1 DC + \beta_2 FS + \beta_3 DC * FS + \varepsilon \dots\dots\dots 3.2$$

Where:

DC = Composite index of Dynamic Capabilities

FS= Firm Size

$\beta_1$ = Coefficient for Composite Index of Dynamic Capabilities.

$\beta_2$ = Coefficient for Moderator that is, Firm Size

$\beta_3$ = Coefficient for Interaction of Composite Index of Dynamic Capabilities and Firm Size.

The coefficient  $\beta_3$  was used to indicate the effect of moderating variable that is, Firm Size on the relationship between Dynamic Capabilities and performance of food manufacturing firms. The study compared the p-value of  $\beta_3$  with significance value of 0.05 to reject or fail to reject the null hypothesis. If the p-value of  $\beta_3$  was higher than significance value of 0.05 the study

failed to reject null hypothesis and vice versa. Therefore, objective six and hypothesis H<sub>06</sub> was addressed by model 2.

### 3.4 Target Population

The target population for this study consists of 70 Food Manufacturing firms operating in Nairobi county Kenya and listed in the directory of manufacturers published by the Kenya Association of manufacturers as at June 2018 (Appendix 5). KAM draws its membership from firms involved in manufacturing or value addition. The unit of observation were key persons responsible for Finance, Human resources, corporate affairs, Marketing and Operations.

### 3.5 Sampling Procedure and sample Size

This study adopted the simplified method developed by Krejcie and Morgan (1970) for determination sample size for a finite population. According to Krejcie and Morgan (1970) the formulae of determining a sample size for a finite population is as follows;

$$\frac{s = X^2 NP(1-P)}{d^2 (N-1) + X^2 P(1-P)}$$

Where;

$s$  = sample size needed.

$X^2$  = confidence level desired (3.841).

$N$  = population size of population.

$P$  = the population proportion

$d$  = the degree of accuracy.

Using a table developed by Krejcie and Morgan (1970) it has been determined that a sample of 59 Firms would suffice for a population of 70. The 59 Firms were chosen using a ratio of 84% from each category to represent the entire population. The sample proportion has been computed as follows;

$$\text{Proportion} = \frac{\text{total sample size}}{\text{total population}}$$

$$59/70 = 84\%$$

The number of respondents per category was determined as shown in below:

**Table 1 Sample Frame**

	Large Scale	Medium scale	Total
Number of enterprises	20	50	<b>70</b>
Proportion	84%	84%	<b>84%</b>
Sample size	17	42	<b>59</b>
Key departments per enterprise	5	5	<b>5</b>
Number of respondents in sample	84	210	<b>294</b>

*Source: Author (2019)*

This sample size of 295 was considered adequate based on (Cooper & Schindler, 2008) proposition that a sample of at least 30 must exist for generalization to take place.

### 3.6 Data Collection

Primary data was collected on dynamic capabilities, Firm Competence, Firm Size and performance indicators using semi-structured questionnaire (Appendix 1). The instrument was adopted from strategic management studies that have studied similar variables with

modifications aimed at addressing the specific objectives. Closed-ended questions were constructed on a 5-point Likert Scale to provide structured responses to facilitate quantitative analysis, testing of hypotheses and drawing of conclusion. However, open-ended questions were used to enable respondents provide additional information that would not be captured in the closed-ended questions. This method was preferred because of the need to ensure reliability of responses from the respondents.

### **3.7 Validity of Research instrument**

Validity refers to how accurately the data collected captures what it is purported to measure (Sekaran, 2011). In this study, Content validity of the questionnaire items for the four research variables was verified through literature review and expert suggestions to confirm if theoretical dimensions emerge as conceptualized as recommended by (Mugenda & Mugenda 2003). The study was also informed by instruments developed by other related studies. To check for face validity, expert opinion was sought from supervisors and other faculty members (Creswell, 2003). The feedback from expert advice was used to review the questionnaire to ensure that it had face validity prior to conducting the study.

### **3.8 Reliability of the Research Questionnaire**

A pilot study was conducted to establish the extent to which the questionnaire would produce similar and consistent results under similar conditions. The pilot study was conducted among non-food manufacturing firms in Athi River sub county, Kenya to ensure that respondents would not participate in the main study. According to Cooper and Schindler (2003), while a minimum threshold of 0.70 is recommended for exploratory work, a Cronbach's Alpha value above 0.50 is regarded as an indicator of reliability. In this study, the threshold for Cronbach's Alpha of the research instruments was set at  $\alpha=0.6$  where variables with  $\alpha$  greater than 0.6 were considered to have internal consistency or reliable. In this study the overall Cronbach's Alpha as per pilot study was 0.613 indicating that the instrument was reliable.

## **4.0 Data Analysis and Findings**

### **4.1 Analysis of Response Rate**

Out of the 295 distributed, 190 were returned representing a response rate of 64.4%. According to Wimmer and Dominick (2006), a response rate of 21% - 70% is acceptable for self-administered questionnaires. The overall response rate of 64.4% was therefore considered to be satisfactory for the analysis and reporting. Unreturned questionnaires were attributed to factors such as busy schedules of the respondents since majority most of targeted respondents were senior managers in their respective firms

### **4.2 Descriptive Statistics**

The respondents were asked to respond to statements on each of the variables on a scale of 1-5. Where 1 = "not at all", "2 ="slight extent" 3= "moderate extent" 4 = "high extent" and 5 = "very high extent". Measures of central tendency specifically the mean and standard deviation were used to summarize the characteristics of the variables under study. A summary of the Descriptive statistics were as shown in Table I below.

**Table 2 Descriptive Statistics**

	N	Minimum	Maximum	Sum	Mean	Std. Deviation
Dynamic Capabilities	190	2.18	4.84	677.62	3.5664	.61331
Firm Size	190	2.31	5.10	671.80	3.5358	.57010
Firm Performance	189	1.93	5.10	671.54	3.5531	.65364
Valid N (listwise)	189					

*Source: Research Data 2020*

The descriptive statistics showed that, respondents to a moderate extent agreed that management of food processing firms had committed resources to the acquisition of dynamic capabilities. The results also showed that respondents agreed that management of firms in food processing firms consider workforce establishment as an important asset but did not consider their market share a source of their competitiveness. The descriptive statistics further show that on average, firms in the sector grew by 10-20% in the 3 years preceding 2020.

#### 4.3 Diagnostic tests

Prior to conducting linear regression, the study conducted diagnostic tests to test for compliance with the assumptions for linear regression, the study conducted tests for normality, linearity, heteroscedasticity and multicollinearity. The study also conducted test for sample adequacy

##### 4.3.1 Test for Normality

The study used the KS-SW to test for normality. The results of the Test are shown in Tables 2 below.

**Table 3 K-S and SW Tests**

	Kolmogorov-Smirnov <sup>a</sup>			Shapiro-Wilk		
	Statistic	c	df	Statistic	df	Sig.
Dynamic Capabilities	.068	189	.035	.982	189	.016
Firm Size	.069	189	.028	.990	189	.208
Firm Performance	.033	189	.200*	.995	189	.788

\*. This is a lower bound of the true significance.

a. Lilliefors Significance Correction

*Source: Research data: 2020*

The results were interpreted using the Shapiro Wilk statistics whereby if  $P > 0.025$  reject Null hypothesis that the data is normally distributed. The results showed that Dynamic capabilities had  $W = 0.982$ ,  $P = 0.16$ , firm size  $W = 0.990$ ,  $P = 0.208$ , Firm Performance  $W = 0.995$ ,  $P = 0.288$  which was, in all cases greater than 0.025 showing that there is enough evidence to show that the population is normally distributed

#### 4.3.2 Test for Linearity

The Study used Pearson's Correlation coefficient to test for Linearity. According to field (2009), if the  $r$  is close to -1 or +1, two variables are close to a perfect linear relationship. When the  $r$  is close to 0, there is little or no correlation. The study therefor used the criteria: if the  $r \neq 0$ . Fail to reject the null hypothesis that there is a linear relationship between the independent and the dependent variable. The results of Pearson's correlation analysis is shown in 4

Table 4. Pearson's Correlation Matrix

<b>Correlations</b>			
	Dynamic Capabilities	Firm Size	Firm Performance
Dynamic Capabilities	1	.864**	.664**
DC_FS	.864**	1	.538**
Firm Performance	.664**	.538**	1

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

Source: Research Data 2010

The results of the test showed that there is a positive linear relationship between the independent and dependent variables.

#### 4.3.3 Test for heteroscedasticity

Breusch-Pagan and Koenker test was used to test for Heteroskedasticity. In this test, the Null hypothesis: is that Heteroskedasticity is not present (homoskedasticity). Thus If p-value is less than 0.05, reject the null hypothesis that there is heteroscedasticity. The Results of the test are shown in Table 5 below

**Table 5 Breusch-Pagan and Koenker test statistics**

Test	Statistic	Sig
Breusch-Pagan	.492	.782
Koenker	.401	.818

Source: Research Data (2020)

Since  $P > 0.05$ , the study failed to reject the null hypothesis that Heteroskedasticity was no present in the data.

#### 4.3.4 Test for Multicollinearity

The study also conducted multicollinearity test to ensure that independent variables were not highly correlated. The study used Variance Inflation Factors (VIF) to test for multicollinearity. According to Field (2009), VIF values greater than 10 or Tolerance values below 0.1 indicate high levels of multicollinearity problem. This study therefore set a threshold of ( $VIF > 10$ ) and Tolerance value of ( $T < 0.1$ ) to interpret that there is no problem of multicollinearity. The results of the analysis are shown in Table 6

**Table 6 VIF and T Coefficients<sup>a</sup>**

Model		Collinearity Statistics	
		Tolerance	VIF
1	Firm Size	.950	1.053
	Dynamic Capabilities	.950	1.053

a. Dependent Variable: Firm Performance  
Source: Research data: 2020

The results showed that Firm size had VIF=1.053, T= 1.053 and Dynamic Capabilities VIF=1.053, T= 0.953 since all the variables had VIF<10 and T >0.1 the study concluded that there was no problem of multicollinearity.

#### 4.3.5 Test for Sample Adequacy

The study conducted Kaiser-Meyer-Olkin test for measuring sample adequacy in order to subject the data collected to inferential statistics According to Field (2009), data set is considered adequate for appropriate statistical analysis when the value of KMO statistic is greater than 0.65. The table 4.22 summarizes results of KMO test.

**Table 7 KMO and Bartlett's Test**

Kaiser-Meyer-Olkin test of Sampling Adequacy	0.877
Approx. Chi-Square	582.694
Bartlett's Test of Sphericity	df. 21
	Sig. 0.000

Source Research Data (2020)

Table 8 shows the KMO statistic for the sample used for the study was 0.877 which was higher than the threshold recommended by Field (2009), implying that the data set was adequate for inferential statistical analysis.

#### 4.4 Findings and discussions

The study investigated the extent to which the predictor variables explained variation in performance of food manufacturing firms. Additionally, the study established model significance by conducting ANOVA test to find out whether the model was suitable for further statistical analysis. This was done by computing F statistics and its corresponding P-values. The researcher used the criteria of comparing P-values of F statistics with significance value of 0.05. If P-value of F statistics was less than 0.05, the study concluded the model is significant and can be used for further statistical analyses and vice versa. This was followed by computation of coefficients of predictor variables.

##### 4.4.1 Test of Hypothesis One: $H_{01}$ Dynamic Capabilities have no significant effect on Performance

Firm performance was regressed on dynamic capabilities to test whether dynamic capabilities significantly accounted for the variability in firm performance of food manufacturing firms. The results of the analysis are summarized in Table 4.25.

**Table 8 Step 1 Effect of dynamic capabilities on Performance**

Model Summary						
	R	R Square	Adjusted R Square	Std. Error of the Estimate		
1	0.655 <sup>a</sup>	0.429	0.426	0.49226		
ANOVA <sup>a</sup>						
		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	34.167	1	34.167	141.000	0.000 <sup>b</sup>
	Residual	45.556	188	0.242		
	Total	79.724	189			
Coefficients <sup>a</sup>						
		Unstandardized		Standardized		
		B	Std. Error	Beta	t	Sig.
1	(Constant)	1.076	0.211		5.094	0.000
	Dynamic Capabilities	0.693	0.058	0.655	11.874	0.000

a. Dependent Variable: Firm Performance

Source: Research Data (2019)

The results show adjusted R-square =0.426 which implied that dynamic capabilities accounted for 42.6% of the variation in firm performance of food manufacturing firms in Kenya. The results for ANOVA F-statistics = 141.000, (P = 0.000) shows that the model was statistically significant. This means that dynamic capabilities are a significant predictor of performance of food manufacturing firms. The results for regression coefficient show that dynamic capabilities had  $\beta = 0.655$  and P-value=0.000 which is significant at  $P < 0.05$  and falls within the confidence interval. The Study therefore rejected the Null hypothesis that Dynamic Capabilities do not affect performance of food processing firms in Kenya.

Thus, the relationship between dynamic capabilities and performance can be estimated in the following equation;

$$Y = 1.076 + 0.655 DC + \varepsilon \dots\dots\dots(\text{Model 3.1})$$

The results show that there exists evidence that there is a significant relationship between dynamic capabilities and performance that can be moderated.

#### 4.4.2 Test of Hypothesis Two: $H_{02}$ : Firm Size has no moderating effect on the relationship between Dynamic Capabilities on Performance of Food Manufacturing firms in Kenya

To test this hypothesis, the study adopted the two-step multiple linear regression recommended by (Fairchild & Mackinnon 2009. Keppel & Zeddeck, 2000). The test involved investigating the relationship between the dependent and independent variables using the moderator as an explanatory variable and testing the same relationship with an interactive term between the moderator and the independent variable. The study set two alternative criteria for determining whether there was mediation effect on the relationship between the independent and dependent variable. First, if the change in coefficients is significant after introducing the interactive term, then size is a moderator. Three, if the change in  $R^2$  from model 1 to Model 2 is significant after introducing the interactive term, then Firm Size is a moderator.

In the first step, the model was fitted with dynamic capabilities and firm size as predictor variable. A summary of the model is shown in Tables 9

**Table 9 Dynamic capabilities predicting performance in presence of Firm Size**

<b>Model Summary</b>					
R	R square	Adj.R Square	Std. Error of the Estimate		
0.659 <sup>a</sup>	0.434	0.428	0.79756		
<b>ANOVA</b>					
	Sum of Squares	df	Mean Square	F	Sig.
Regression	90.858	2	45.429	71.418	0.000
Residual Total	118.314	186	0.636		
	209.172	188			
<b>Coefficients</b>					
	Unstandardized B	Std. Error	Standardized Beta	t	Sig.
(Constant)	-0.078	0.359		-0.217	0.828
Dynamic Capabilities	1.132	0.095	0.673	11.934	0.000
Firm SIZE	-0.108	0.058	-0.106	-1.878	0.062

a. Dependent Variable: Firm Performance, b Predictors: (Constant), Firm SIZE, Dynamic Capabilities  
Source Research (2009)

The model showed an R Square of 0.434 and adjusted  $R^2 = 0.428$  meaning that the model explained 42.8% of the variation in performance of food manufacturing firms in Kenya. The ANOVA results showed an  $F(2,188) = 71.418$ . P value=0.000. Since the P Value was significant at significant level of  $P=0.05$ , it was concluded that dynamic capabilities and firm size significantly predict the performance of food manufacturing firms. The regression results showed that dynamic capabilities had standardized Beta coefficient of  $\beta = 0.673$  with a significant p - value of 0.000. Firm Size had a negative Beta coefficient of ( $\beta=-0.106$ ) and a P-value of 0.062 which was not significant. This implied that a unit increase in dynamic capabilities with everything else held constant would increase performance by 0.673 units while a unit increase in firm size would contract performance by -0.106 units. However, the impact of firm Size on performance is not significant. The estimated model for step one was summarized as:

$$Y = -0.078 + 0.673DC - 0.106FS + \epsilon \dots \dots \dots \text{(Model 3.2)}$$

In the second step, firm Size (FS) was interacted with dynamic capabilities (DC) to create interaction variable (DC\*FS). The interactive variable was then introduced to the model as a moderator. The results of the interaction between DC, FS and the interactive variable DC\*FS are shown in Table 10.

**Table 10 Interaction between Dynamic Capabilities, Firm Size and the Interactive Variable**

<b>Model Summary</b>					
	R square	Adj.R Square	Std. Error of the Estimate		
0.659 <sup>a</sup>	0.434	0.425	0.79967		
<b>ANOVA</b>					
	Sum of Squares	df	Mean Square	F	Sig.
Regression	90.868	3	30.289	47.366	0.000 <sup>b</sup>
Residual	118.304	185	0.639		
Total	209.172	188			
<b>Coefficients</b>					
	Unstandardized		Standardized	t	Sig.
	B	Std. Error	Beta		
(Constant)	0.002	0.719		0.002	0.998
Dynamic Capabilities	1.072	0.473	0.638	2.269	0.024
Firm SIZE	-0.132	0.195	-0.129	-0.676	0.500
Interactive term	0.015	0.117	0.047	0.128	0.898

Dependent Variable: Firm Performance Predictors: (Constant), DC\*FS, Dynamic Capabilities Firm SIZE

*Source Research Data (2019)*

The results show that after introduction of the interactive term, the model had an adjusted R<sup>2</sup> of 0.425 meaning that it predicted 42.5% of the performance of food processing firms. The results show that the model had an F (3,189) = 47.366 with a significant P-value-0.000 since P<0.05, the study concluded that the model significantly predicted performance of food manufacturing firms. The results showed dynamic capabilities had (β=0.638, P=0.024,) Firm Size had (β= -0.129, P=0.500) interactive term had (β = 0.047, P=0.898). This showed that firm size and the interaction between dynamic capabilities and firm size did not significantly affect performance of food manufacturing firms. The model was then estimated as:

$$Y = -0.002 + 0.638DC - 0.129FS + 0.047DC * FS + \epsilon \dots \dots \dots \text{Model 3.3)}$$

A summary of results of the test for moderation is shown in Table 4.32

**Table 11 Summary of Results for Moderation.**

Parameter	Model		Change	Remarks
	1	2		
<b>R<sup>2</sup></b>	0.434	0.434	0.000	Fail to reject H <sub>06</sub> there is no evidence that firm size moderates the relationship between dynamic capabilities and performance
<b>Adjusted R<sup>2</sup></b>	0.428	0.425	0.003	
<b>βDC</b>	0.673	0.638	0.035	
<b>βFS</b>	-0.106	-0.129	-0.235	
<b>βDC* FS</b>		0.047	-0.047	
<b>F</b>	71.418	47.366	24.052	
<b>P-Value</b>	0	0		

*Source Research Data (2019)*

The results showed that the coefficients denoting the relationship between dynamic capabilities and performance of food processing firms changed by 0.035 from 0.673 in Model 1 to 0.638 in

model 2. Implying that the effect of dynamic capability on firm performance remained direct and significant regardless of the firm size. Furthermore, the  $R^2$  remained the same after introduction of the interactive term. The results also show that when firm size was treated as moderating variable (DC\*FS), it had a  $\beta$  -0.047, p-value = 0.898. Based on the results of the test, it was concluded that firm size has no moderating effect on the relationship between dynamic capabilities and performance of food processing firms in Kenya. The study therefore failed to reject  $H_{06}$ : that firm size has no moderating effect on the effect of dynamic capabilities on performance of food manufacturing firms in Kenya. These results are explained in terms of the conceptual nature of the variable, the optimal theory of the firm, the context of the study, the descriptive statistics and previous studies on the variable.) Conceptually, firms seek to increase their performance by growing their size in order to make profits for their owners (De & Nagaraj 2014). Bigger firms are presumed as performing better than small firms because they tend to have more operational efficiency and market power. Because they have more access to financial resources, bigger firms can build dynamic capabilities which enable them to perform better (Zahra & George, 2012) as they grow bigger however, they become less flexible than smaller firms and become incapable of responding to changes in the market because of sunk costs and inertia. This implies that small firms can perform better because they are more agile and can reconfigure themselves to adapt to change than larger firms.

Theoretically and in line with the theory of optimal firm size, all firms seek to grow until they reach the minimum efficient scale point of production beyond which further growth is either technically impossible or unprofitable. Olawale (2017) observes that in conditions of imperfect competition, a firm's ability to perform in terms of growth is driven not by the size or stock of resources but by its dynamic capability to develop unique products and markets. Similarly, Penrose (1959) argued that performance of firms is driven not by size in terms of stock of resources but by the knowledge base and capabilities of its managers. The findings of this study showed that it was dynamic capabilities and not size which drives the performance of food manufacturing firms.

Traditionally, in line with the law of proportionate effect, performance in terms of firm growth is unrelated to firm size, and large and small firms have equal probabilities of attaining a growth rate within any given period. Factors that affect growth may include managerial talent, innovation, changes in demand or taste, organizational structure and luck as well. The theory suggests that the relationship between firm size and performance in terms of profit might be non-linear. The relationship between firm size and profit rates may be positive over some firm size ranges and negative for others.

The results from descriptive statistics showed that size of workforce is not considered as an important asset in food manufacturing firms in Kenya. Similarly, the respondent firms did not consider market share as a major source of competitiveness. The level of sales turnover did not give them confidence to remain in the industry and the firms were not optimistic that they would remain in the industry. The study therefore concluded that firms did not consider size as a key driver of performance.

The results confirm the findings of (Yi & Tzu, 2005, Niresh & Velnampy, 2014, 2016) who concluded that size of the firm does not have any impact on the performance. The results contradict the findings of (Chi 2004 Lee, 2009: Becker et al 2010, Shubita & Alsawalhah. 2012 Ali, Mukulu, Kihoro, & Nzulwa, 2016)) who found a significant impact of firm size on performance.

First, the findings of this study show that dynamic capabilities have a direct and positive effect on organizational performance. Therefore, increasing dynamic capabilities can increase overall firm performance of food manufacturing firms. Theoretically, in line with the Dynamic

Capabilities theory, the study found that possession of dynamic capabilities enables food manufacturing firms in Kenya to systematically generate and modify their operating routines in pursuit of improved effectiveness. This study identified horizon scanning, change management, and resilience as three aspects of dynamic capabilities which firms use to modify their resource base so that the firms can sustain or enhance their performance.

## **5.0 Conclusions and Recommendations**

The study concludes that firms must build capabilities to scan the horizon for expected and unexpected changes in the environment through committing resources for research in not only marketing but also technologies and environmental changes which may at times seem unrelated to the business at present. Incessant gathering and analyzing of information will enable firms to detect present and future opportunities and threats. Hand in hand with horizon scanning firms must use the information gathered to redirect and redefine the use of resources, business processes accordingly. The study further concludes that for manufacturing firms to sustain performance, they should build dynamic capabilities continuously collect information about the market, altering goals, plans, structures, and systems using information gathered, and build ability to endure disruptions of whatever kind. This study also concluded that size does not matter. All firms must use dynamic capabilities to meet the expectations of their internal and external stakeholders.

### **5.1 Contribution of study to general body of knowledge**

This study contributes to the general body of knowledge on the relationship between firm size and performance by adding environmental, social excellence and corporate governance indicators of performance to the traditional financial indicators. Most of previous studies on the relationship between firm size and performance used only financial indicators. Furthermore, it adds to the discourse on the effect of size on the performance of food manufacturing firms by showing that firm size does not have a significant effect on performance. Moreover, the study contributes to the ongoing discourse on the relationship between dynamic capabilities and performance by empirically demonstrating that there is a direct and positive relationship between dynamic capabilities and performance.

### **5.2 Recommendations**

This study was not without limitations. The study was conducted among food manufacturing firms in Nairobi county Kenya. The results may not be generalizable to industries in other sectors of the economy such as the service industry. Furthermore, Nairobi County being the Kenyan capital, may have a unique operating environment and therefore the findings may have been different if it had been conducted in other counties or country with a different operating environment. The study therefore recommends that further research be conducted on the role of dynamic capabilities in other industries and counties.

The study further recommends that management of food manufacturing firms in Kenya shifts its paradigm on performance measurement to include non-financial indicators such as corporate governance, social excellence and environmental stewardship as attendance to the needs of stakeholders other than key stockholders in critical to long term survival. The study also recommends that building dynamic capabilities of firms in the food processing sector be included in state policy interventions geared towards buffering food security and increasing employment in the sector.

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