

**RELATIONSHIP BETWEEN  
ENTREPRENEURIAL ORIENTATION  
AND PERFORMANCE OF SMALL AND  
MEDIUM ENTERPRISES IN THE AGRO-  
BASED MANUFACTURING SECTOR IN  
KENYA**

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**Relationship between Entrepreneurial Orientation and Performance  
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Sector in Kenya**

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of Philosophy in Entrepreneurship in the Jomo Kenyatta University  
of Agriculture and Technology**

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**DECLARATION**

This thesis is my original work and has not been presented for a degree in any other University.

Signature..... Date.....

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## **DEDICATION**

This work is dedicated to my family for their never ending support and encouragement. My mother, Priscilla Wanjiku. My husband, John Nyamu, my sons Mark Kang'ethe, and Victor Waithaka. Thank you for believing in me. I believe in you too. To my sons, may you reach greater academic heights than I have done.

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## **ACRONYMS AND ABBREVIATION**

<b>BDS</b>	Business Development Services
<b>EO</b>	Entrepreneurial orientation
<b>ICT</b>	Information Communication Technology
<b>RBT</b>	Resource Based Theory
<b>SMEs</b>	Small and Medium enterprises

## OPERATIONAL DEFINITION OF TERMS

**Entrepreneurial Orientation:** Refers to the process construct, which is concerned with the methods, practices, and decision-making styles used by the SMEs with a motivation to engage in entrepreneurial activities (Lumpkin & Dess, 2001).

**Entrepreneur:** Entrepreneur is an individual who creates something new with value, by devoting time and effort, in disregard of financial, psychic and social risks and receiving the rewards of monetary and personal satisfaction and independence. (Bwisa, 2011).

**Risk-taking:** Refers to the tendency to take bold actions such as venturing into unknown new markets and committing a large portion of resources to ventures with uncertain outcomes.(Wikluad & Shepherd, 2003).

**Innovativeness** Refers to willingness to try new ways which are different from the existing; the enthusiasm to adopt new ideas or new methods in business operation by SMEs. (Khandwalla, 2007).

**Proactiveness** Refers to an opportunity-seeking, forward looking perspective involving introducing new products or services ahead of the competition and acting in anticipation of future demand to create, change and shape the environment SMEs. (Lumpkin & Dess, 1996).

**Competitive aggressiveness:** Refers to a firm's propensity to directly and intensely challenge its competitors to achieve entry or improve position, that is, to outperform industry rivals in the market place (Kraus *et al.*, 2000) .

**Agro-based manufacturers:** Refers to the manufacturing forms that use agricultural products as a raw material to produce new products. (RoK, 2010)

**Small and Medium Enterprises:** According to World Bank project appraisal report (June 2004), a Small enterprise employs 10-49 between employees. Medium enterprises employ between 50- 149 employees.

## ABSTRACT

One way of assessing an entrepreneur's chances of success is by establishing the Entrepreneurial Orientation (EO) of an individual. EO refers to the strategy making processes that provides the basis for entrepreneurial decisions and actions. The study sought to establish the relationship between the entrepreneurial orientation and performance of Small and Medium Enterprises (SMEs) in the agro-based manufacturing sector in Kiambu County. To achieve the objectives, the proposed study used mixed research design. The target of the study included the 250 registered agro-based manufacturing SMEs in the food subsector in Kiambu County. Stratified random sampling techniques were used to draw a sample size of 69 enterprises. To collect the data, questionnaires with both closed ended and open ended questions were administered. The data collected was analyzed using Statistical Package for Social Science version 21 to generate descriptive statistics including percentages, frequency tables and mean scores. Correlation coefficient was used to determine the magnitude and direction of relationship between the five entrepreneurial orientation dimensions and the performance of the SMEs. A stepwise regression procedure was used to determine the nature of the relationships. The correlation coefficient between the Entrepreneurial orientation dimensions namely, autonomy, innovativeness, Proactiveness, risk taking and competitive aggressiveness and performance of SMEs was found be significant with Pearson correlation coefficient index as 0.652, 0.833, 0.704, 0.636, 0.512 respectively. This depicts strong positive correlation between each of the EO dimensions and performance of the SMEs. Further regression analysis revealed that autonomy explains the variation in performance by 42.5%, innovativeness by 69.4%, Proactiveness by 49.6%, risk taking by 40.5%, and competitive aggressiveness by 69.3%. The study recommends that entrepreneurs in the agro-based manufacturing sector should practice autonomy, be innovative, proactive, take risks and be competitively aggressive. This is because they improve the performance of the SMEs. The study recommends areas of further research among them, carrying out a longitudinal study in the same area as well as carrying out the study in a different geographical region.

## **CHAPTER ONE**

### **INTRODUCTION**

#### **1.1 Background to the study**

The Small and Medium Enterprise sector in Kenya is important to development of the economy. The sector is a source of income and employment. It expanded from employing 3.7 million people in 1999 to 5.1 million in 2002 (GOK, 2005). The role of SMEs in Kenya's development process is significant, particularly in the context of generating employment, wealth creation and income opportunities to thousands of people across the country. (Maragia, 2008).

Entrepreneurship is a major source of employment, economic growth, and innovation, promoting product and service quality, competition, and economic flexibility. It is also a mechanism by which many people enter the society's economic and social mainstream, aiding culture formation, population integration, and social mobility (Hisrich, Langan-Fox and Grant, 2007). Even in developed economies such as the United States of America and United Kingdom, SMEs make a great contribution to creation of wealth and generation of employment. A study by David ferrad, argues that SMEs offer a solution to the problem of employment generation and economic imbalances. (Aoulou & Fayole, 2005). Globally, SMEs account for 99% of business numbers and 40% - 50% of the Gross Domestic Product (GDP) (Baron & Harris, 2010).

To realize the potential benefits of entrepreneurship, it is imperative that a significant number of businesses that are established succeed. The success of a business is due to many factors, but the greatest determinant of a business's success is the entrepreneur him/herself. According to Bwisa, (2011) an entrepreneur is an individual who creates something new with value, by devoting time and effort, in disregard of financial, psychic and social risks and receiving the rewards of monetary and personal satisfaction and independence. However, a deeper understanding of the entrepreneur is needed for a sound judgment of whether the entrepreneur will carry

through the business successfully. One way of assessing an entrepreneur's chances of success is by establishing the entrepreneurial orientation of an individual. Entrepreneurial orientation refers to the strategy making processes that provide the basis for entrepreneurial decisions and actions (Wiklund & Shepherd, 2003).

Previous studies (Dess, Lumpkin & Covin, 2006) suggested that entrepreneurs with a high entrepreneurial orientation are more likely to perform better than those that lack such an orientation. Various studies that have been carried out on relationship between entrepreneurial orientation and performance, lead to conclusions that increase in entrepreneurial orientation, leads to improved performance, which suggests that correlation between entrepreneurial orientation and Performance is significant (Schillo 2011). Due their relatively limited resources and lack of capabilities, entrepreneurs especially those operating in SMEs have to possess entrepreneurial orientation to survive or even to outperform their competitors in markets. Entrepreneurs require taking self-directed actions, to be more innovative, proactive, aggressive, and risk-takers in order to take advantage of opportunities in the marketplace (Rauch, Wiklund, Frese, & Lumpkin, 2009)

According to Lumpkin and Dess (2001), the concept of entrepreneurial orientation consists of five dimensions: autonomy, innovativeness, risk taking, proactiveness, and competitive aggressiveness. Autonomy is defined as an independent action by an individual or a team aimed at bringing forth a business concept or a vision, and carrying it through to completion. Innovativeness refers to the willingness to undertake creativity and experimentation. Risk taking means a tendency to take bold actions, such as venturing into unknown new markets. Proactiveness is an opportunity-seeking and forward-looking perspective. The fifth dimension, competitive aggressiveness, reflects the intensity of the entrepreneurs' efforts to outperform the competitors' (Lumpkin & Dess, 2001).

High performing, entrepreneurial-oriented firms are successful in exploiting business opportunities. Before opportunities can be exploited, they must be recognized. According to Koning and Brown (2001), the entrepreneurial orientation is positively associated with opportunity alertness. Any firms which engage in an effective

combination of autonomy, innovativeness, risk taking, proactiveness, and competitive aggressiveness can be considered as entrepreneurial. This suggests that to become entrepreneurial, it is necessary for all five dimensions to co-exist (Chow, 2006).

The agro-based manufacturing sector in Kenya contribution to GDP is 10 per cent and has recorded a growth of 6.9 per cent in value addition (Kenya Institute of Policy and Research, 2010). The sector plays a vital role in boosting growth in agriculture by stimulating agro-processing activities. This is in line with the aspirations of Vision 2030 and in supporting the country's social development agenda through the creation of jobs, the generation of foreign exchange, and by attracting foreign direct investment (GOK, 2007) To meet those goals, the sector has to become more efficiently driven to be able to compete effectively both in the local and international market. Specifically the entrepreneurs in this sector have to continuously embrace innovation, be proactive and bold enough to venture into new frontiers.

Sub-Saharan Africa's share in world agricultural trade remains low. Exports of high value added agricultural or agro-based goods are still modest, but global demand of these products is highly dynamic and will continue to increase. Growth based on development of agro-based industries in Kenya is possible. Significant trade in fresh fruits and vegetables is a relatively new phenomenon linked to innovations in post-harvest systems and animal traceability in logistics and marketing. (Koffia, 2011).

Since Kenya's potential competitive advantage in manufacturing lies in agro-industrial exports, it is essential that every possible approach to aid the sector be put in place, in achieving growth through sustained performance. Entrepreneurial Orientation can be useful for developing new products and processes, increasing investments in situations of risk and uncertainty and entering markets ahead of competitors, thus having first mover advantage (Zainol & Ayadurai, 2011).

It is therefore paramount to establish the entrepreneurial orientation of the entrepreneurs that operate business with an intention to guide them in strategy making processes that can form the basis for entrepreneurial decisions and actions.

The rationale of carrying out the study is that many of Entrepreneurial Orientation - firm performance relationship studies have been conducted in developed countries. Their findings may not be applicable for firms in developing countries. Further, Thomas and Mueller (2000) argued that certain dimensions of Entrepreneurial Orientation may differ across countries while Nordqvist (2007) suggested that national culture may affect Entrepreneurial Orientation adoption. Among the studies conducted locally, none has focused on Entrepreneurial Orientation in agro-based manufacturing SMEs.

## **1.2 Statement of the Problem**

According to Sesssional paper No.2 of 2005, SMEs in Kenya have high collapse rate with most of the SMEs collapsing within 3 years of operation (Republic of Kenya, 2005). Despite the government's effort to promote the SMEs sector in Kenya, the sector falls below the levels required to meet challenges of increasing basis for competition (Gakure, Kithae & Munyao, 2012). Another research observes that a major reason for SMEs underperformance is due to SMEs inability to build necessary internal capacity to deal effectively with diverse and hostile business requirements. SMEs operate in complex and dynamic business environments characterized by perpetual changes due to globalization, hence require greater efficiency and effectiveness (Omar, Arokiasamy & Ismail, 2009).

Like other SMEs the Agro-based enterprises in Kenya, typically involves a relatively limited range of technologies that do not differ widely across product categories. In most cases the level of value added is relatively limited. The effect is dismal performance in terms of employment, earnings and low chances of survival beyond 3 years. Fatoki (2012) observes that although entrepreneurial orientation is almost always used to describe a situation occurring in large organizations, it is just as essential in smaller enterprises. This implies that there is a great interest in establishing how entrepreneurial orientation manifests in SMEs.

Further, globalization poses serious challenges to Kenya's SMEs. Based on their vulnerability SMEs fail to survive the severe competition, both from domestic and

international firms. On the other hand, globalization has also offered opportunities for SMEs to enter new foreign markets as proved by some SMEs operators, who have managed to source for markets overseas and bring forth innovative products thus improving their performance. It follows therefore that even with their relatively limited resources and lack of capabilities SMEs who take self-directed actions, to be more innovative, proactive, and aggressive and risk-takers in order to take advantage of opportunities in the marketplace, can enhance their performance. Machuki (2012) reports that firms in Kenya often experience severe external pressures arising from the need to satisfy customer and market demands, an argument which may be extended to SMEs since they operate in similar environments, hence the need to practice entrepreneurial orientation.

According to Casals (2011), globalization of the markets and increasing international competition have forced SMEs to search for new, innovative, flexible and imaginative ways to survive. SMEs need to consider continuously improving production costs, delivery schedules, manufacturing skills, supplier relationship and productivity in all practices. These self-directed actions are in essence entrepreneurial orientation.

It is clear therefore that SMEs who possess high entrepreneurial orientation are able to enhance performance and grow into large firms by their sheer capacities and outputs. According to Kihoro, Bwisa and Otieno (2012), manufacturing firms adopting entrepreneurial orientation realizes a positive increase in sale and profitability. However, there is no empirical evidence in the Kenya's context which relates entrepreneurial orientation and SMEs performance in the agro- based manufacturing sector. According to Maragia (2008), there is a pronounced lack of information gap about why many Kenyan entrepreneurs do not flourish in their micro and small endeavors. Available literature attributes this to lack of entrepreneurial skills, education and experience amongst entrepreneurs (Maragia, 2008).

In addition, while, entrepreneurial orientation dimensions are significant to performance they are influenced by contextual factors such the level of education of an individual (Osoro, 2012). A study by Gathenya, Bwisa and Kihoro (2011),

observed that although entrepreneurial orientation has an effect on small and medium enterprises in Kenya, other variables should be considered in future studies. Gathungu (2014), observes that there is little consensus on what constitutes suitable moderators in entrepreneurial orientation studies. This leaves a concern and demands scholarly attention to providing more conclusive evidence on the impact of moderating variables on the strength and direction of entrepreneurial orientation. The present study will include education level of the entrepreneur as the moderating variable which tempers with the relationship between entrepreneurial orientation and performance.

### **1.3 Objectives of the Study**

This section highlights the objectives of the study.

#### **1.3.1 General objectives**

The study investigated the relationship between entrepreneurial orientation and performance of SMEs in the agro-based manufacturing sector in Kiambu County in Kenya.

#### **1.3.2 Specific Objectives**

The specific objectives of the study are six and are as follows:

1. To analyze the relationship between autonomy of an entrepreneur and the performance of agro-based manufacturing SMEs in Kiambu County.
2. To assess the relationship between entrepreneurs' innovativeness and the performance of agro-based manufacturing SMEs in Kiambu County.
3. To assess the relationship between the entrepreneur's Proactiveness and the performance of agro-based manufacturing SMEs in Kiambu County
4. To examine the relationship between the risk taking behavior of an entrepreneur and the performance of agro-based manufacturing SMEs in Kiambu County.

5. To analyze the relationship between competitive aggressiveness of an entrepreneur and the performance of agro-based manufacturing SMEs in Kiambu County.
6. To evaluate the role of education level in moderating the relationship between entrepreneurial orientation and the performance of agro-based manufacturing SMEs in Kiambu County.

#### **1.4 Research Hypotheses**

The following six hypotheses were formulated to test the research questions.

**H<sub>01</sub>:** There is no significant relationship between autonomy and performance of agro-based SMEs in Kiambu County.

**H<sub>02</sub>:** There is no significant relationship between entrepreneur's innovativeness and performance of agro-based SMEs in Kiambu County.

**H<sub>04</sub>:** There is no significant relationship between entrepreneur's Proactiveness and performance of agro-based SMEs in Kiambu County.

**H<sub>05</sub>:** There is no significant relationship between competitive aggressiveness of an entrepreneur and performance of agro-based SMEs in Kiambu County.

**H<sub>06</sub>:** The education level of an entrepreneur does not significantly moderate the relationship between EO on performance of agro-based SMEs in Kiambu County.

#### **1.6 Justification of the Study**

SMEs play a critical role in economic growth. Specifically the agro-based manufacturing sector has a potential to spur growth both in the manufacturing and agricultural sector which employs the bulk of Kenyan population. Consequently, an endeavor to establish and relate the entrepreneurial orientation to the performance of SMEs in this sector will have a profound effect on the success of individual

entrepreneurs and the economy as whole. The study will benefit various groups of people in various ways.

### **1.6.1 Entrepreneurs**

The study will benefit individual entrepreneurs to bench mark on the ideal entrepreneurial orientation dimensions and thus help to improve on their entrepreneurial skills. While it is rare for individual to possess all the required entrepreneurial skills, a study on entrepreneurial orientation will help entrepreneurs to seek partners with complementary skills once they understand their weaknesses.

### **1.6.2 Agencies and Institutions**

The study will also benefit various agencies such as institutions of learning, government agencies and non-governmental organization that are involved in development of entrepreneurship programs to design programs and policies that guide potential entrepreneurs towards entrepreneurial orientation. The Study will also add to knowledge pool already existing in the field of entrepreneurial orientation with a specific focus in the area of agro-based manufacturing SMEs. It will also contribute to the theory of entrepreneurship by providing deeper knowledge of entrepreneurship and enterprises. This insight would in turn contribute to an opportunity to understand entrepreneurial theory within a dynamic context.

## **1.7 Scope of the Study**

The study investigated the role of entrepreneurial orientation on the performance of the SMEs in the agro-based manufacturing sector in Kiambu County. One of the goals of the economic pillar of Kenya vision 2030 is to move the economy up the value chain. This will be achieved through development of five SME parks in five of the 47 counties namely, Kiambu, Nairobi, Taita Taveta, Uasin Gishu and Kisumu County. This project will cut across counties (RoK, 2007). Kiambu County having been identified as one of the counties where SME parks will be developed is a strategic location for this study. The practice of entrepreneurial orientation will improve performance of SMEs in the County and greatly contribute to moving the

economy up the value chain. Kiambu County is also among five counties in Kenya whose population is 50% urban (RoK 2007). This implies that half of the population depends on food and food products produced and processed, providing a ready market for food manufacturers. The food manufacturing SMEs stand to greatly benefit from improved performance that can be brought about by practice of entrepreneurial orientation.

The entrepreneurial orientation constructs, will involve autonomy, proactiveness, risk taking propensity, competitive aggressiveness and innovativeness of the SMEs. This study will assume all other factors such as access to capital, training, and any other as constant, and relate improved performance to the practice of entrepreneurial orientation by the entrepreneurs. The performance of the SMEs will be determined by considering for a period of three years, the annual earnings of the business, the value of the business, as well the number of employees the business employs.

The study established on the SMEs introduction of new products or processes to show practice of innovation, introduction of new products and methods ahead of the competitors and initiation of changes in the market to show competitive aggressiveness of the SME. Proactiveness was assessed by establishing if the SME finds new markets to target and seeks to establish new partnerships. The SME committing resources to new projects showed the risk taking propensity of the entrepreneur. The freedom of employees to seek and pursue new opportunities as well as decide on methods and targets showed autonomy practice in the SME. The level of education of the entrepreneur was the moderating variable. The levels included primary level, secondary level, certificate level, diploma and degree.

### **1.8 Limitations of the Study**

The major limitation encountered was obtaining information from the owners of SMEs as most of them were not willing to disclose some information which they thought to be confidential. The researcher overcame this limitation by using the introduction letter from the University to assure them that information provided will be used for academic purposes only.

## **CHAPTER TWO**

### **LITERATURE REVIEW**

#### **2.1 Introduction**

The chapter presents a review of the literature related to the research problem. Past empirical studies on entrepreneurial orientation and performance of SMEs were reviewed and a critique done to establish the research gap. A theoretical framework was provided along with the conceptual framework to show the relationship between independent and dependent variables.

#### **2.2 Theoretical Framework**

The study was based on three theories namely; Colvin and Slevin Model, competency theory and Resource Based Theory. The three theories provide a conceptualization of entrepreneurial orientation constructs as the necessarily competencies required by entrepreneurs to enhance business.

##### **2.2.1 Colvin and Slevin Model**

The study used the Covin and Slevin orientation model of 1989. Covin and Slevin (1989) based the model on the earlier work of Khandwalla (1977) and Miller and Friesen (1982). In developing this measure, Covin and Slevin theorized that the three dimensions of entrepreneurial orientation-innovation, proactiveness and risk taking, acted together to "comprise a basic, strategic orientation" and should be aggregated together when conducting research in the field of entrepreneurship (Covin and Slevin. 1989).

The Covin and Slevin model has shown high levels of reliability and validity in numerous studies (Barringer & Bluedorn, 1999; Becherer & Maurer, 1997; Naman & Slevin, 1993). Consistent with previous research, Covin and Slevin measured entrepreneurial orientation as the composite total of the innovativeness, proactiveness, and risk-taking dimensions. However, Lumpkin and Dess (1996) has

argued for the independence of several dimensions of entrepreneurial orientation—including autonomy, innovativeness, risk taking, proactiveness, and competitive aggressiveness.

Lumpkin and Dess (1996) argued that any firms which engage in an effective combination of autonomy, innovativeness, risk taking, proactiveness, and competitive aggressiveness can be considered as entrepreneurial. As a multidimensional concept, the effect of each dimension of entrepreneurial orientation on firm performance can be observed independently (Lumpkin and Dess, 1996). Lumpkin and Dess (2001) suggested that the value of each dimension can vary independently and might not be the same at different stages of firm development.

Furthermore, it is beneficial to identify the unique contributions of each sub-dimension of entrepreneurial orientation such that firms could seek the best combination to improve firm performance (Kreiser *et al.*, 2002).

Studies conducted by some researchers (Rauch *et al.*, 2005, Coulthard, 2007, Hughes and Morgan, 2007) supported Lumpkin and Dess' argument. These studies implied that some dimensions of entrepreneurial orientation are responsible for improving firm performance, while other dimensions may have little or even no influence at all. This suggests that the effect of entrepreneurial orientation dimensions on firm performance varies, possibly depending on different industry and business environment.

In the context of the study, the SMEs in agro-based manufacturing sector are required to be innovative, aggressive, proactive and ready to take risk in order to survive. This is because SMEs in the agro-based manufacturing sector in Kenya are faced with fierce competition from imports. They are also under pressure to keep pace with the rapid technological advancement and observe stringent standard requirements in the global market. Consequently, the measure of the entrepreneurial orientation of the SMEs vis-à-vis the performance is critical in developing interventions to enhance their survival.

### **2.2.2. Competency Theory**

Competency theory by Boyatzis (1982) suggest that competency is a capacity that exists in a person that leads to behavior that meets the job demands within the parameters of organizational environment, and that, in turn brings about desired results. Competency is composed of knowledge, skills, abilities and other characteristics which underlie effective or successful job performance. These competency attributes are observable and measurable and distinguish between superior and other performers.

The business operation is considered to be very complex in a competitive business environment which is constantly changing with fast technological advancements. An entrepreneur is expected to interact with these environmental forces which require the entrepreneur be highly competent in different dimensions like intellectual, attitudinal, behavioral, technical, and managerial aspects. Entrepreneurs are therefore permanently challenged to deploy a set of competencies to succeed in their entrepreneurial endeavors.

Based on the competency theory entrepreneurial competencies are defined as underlying characteristics possessed by a person which result in new venture creation, survival, and, /or growth. These characteristics include generic and specific knowledge, motives, traits, self-images, social roles, and skills that may or may not be known to the person (Boyatzis, 1982). Some of these competencies are innate while others are acquired in the process of learning and training and development. The innate involves traits, attitudes, self image and social roles (Bartlett and Ghoshal, 1990) and the acquired competency involve components acquired at work or through theoretical or practical learning (skills, knowledge, and experience).

In the context of a small business enterprise, these competencies are the characteristics of the entrepreneur, who owns and actively manages the business. For the purpose of the present study, entrepreneurial competencies can be looked in terms of entrepreneurial orientation. Entrepreneurial orientation is based on the entrepreneurial style of the business owner/manager. The entrepreneurial style in turn

is a product of the entrepreneurial competences of the entrepreneur. When an entrepreneur has high entrepreneurial competencies they can create a new venture and ensure its survival and growth. Similarly, a high measure of entrepreneurial orientation corresponds to high performance thus insinuating high entrepreneurial competences.

### **2.2.3 Resource Based Theory**

The Resource Based Theory (RBT) by Barney (1991) stems from the principle that the source of organizational competitive advantage and thus performance depends on the unique resources and capabilities that a firm possesses. The theory first provides a logical explanation to the growth rate of the firm by clarifying the causal relationships among firm resources, production capability and performance. The theory concern is mainly on efficient and innovative use of resources. It claimed that bundles of productive resources controlled by firms could vary significantly by firm, that firms in this sense are fundamentally heterogeneous even if they are in the same industry (Barney and Clark, 2007). Such resources can be tangible or intangible, and represent the inputs into a firm's production process. RBT further, argues that knowledge is the most complex of an organization's resources. According to resource-based theory, the intellectual capital is a main source to improve enterprise growth. Therefore, intellectual capital is an important influence of business performance.

In the context of this study entrepreneurial orientation as a measure of entrepreneurial style can be considered as an intellectual capital of the SMEs. The RBT states that a company's competitive advantage is derived from the company's ability to assemble and exploit an appropriate combination of resources. Correspondingly, a business can combine high entrepreneurial orientation, with other resources to achieve high performance.

#### **2.2.4 Schumpeterian theory of Entrepreneurship**

In Schumpeter's theory, the dynamic entrepreneur is the person who innovates and makes new combinations in production (Schumpeter 1939). Innovation may be defined as a change in existing production system to be introduced by the entrepreneur with a view to make profits and reduce costs. The innovation is closely linked with Schumpeterian concept of development. Schumpeter defined development as a "Spontaneous and discontinuous change in the channels of flow, disturbance of equilibrium which forever alters and displaces the equilibrium state previously existing". (Schumpeter 1939). When changes take place in the economy, circular flow is disturbed and the development process starts.

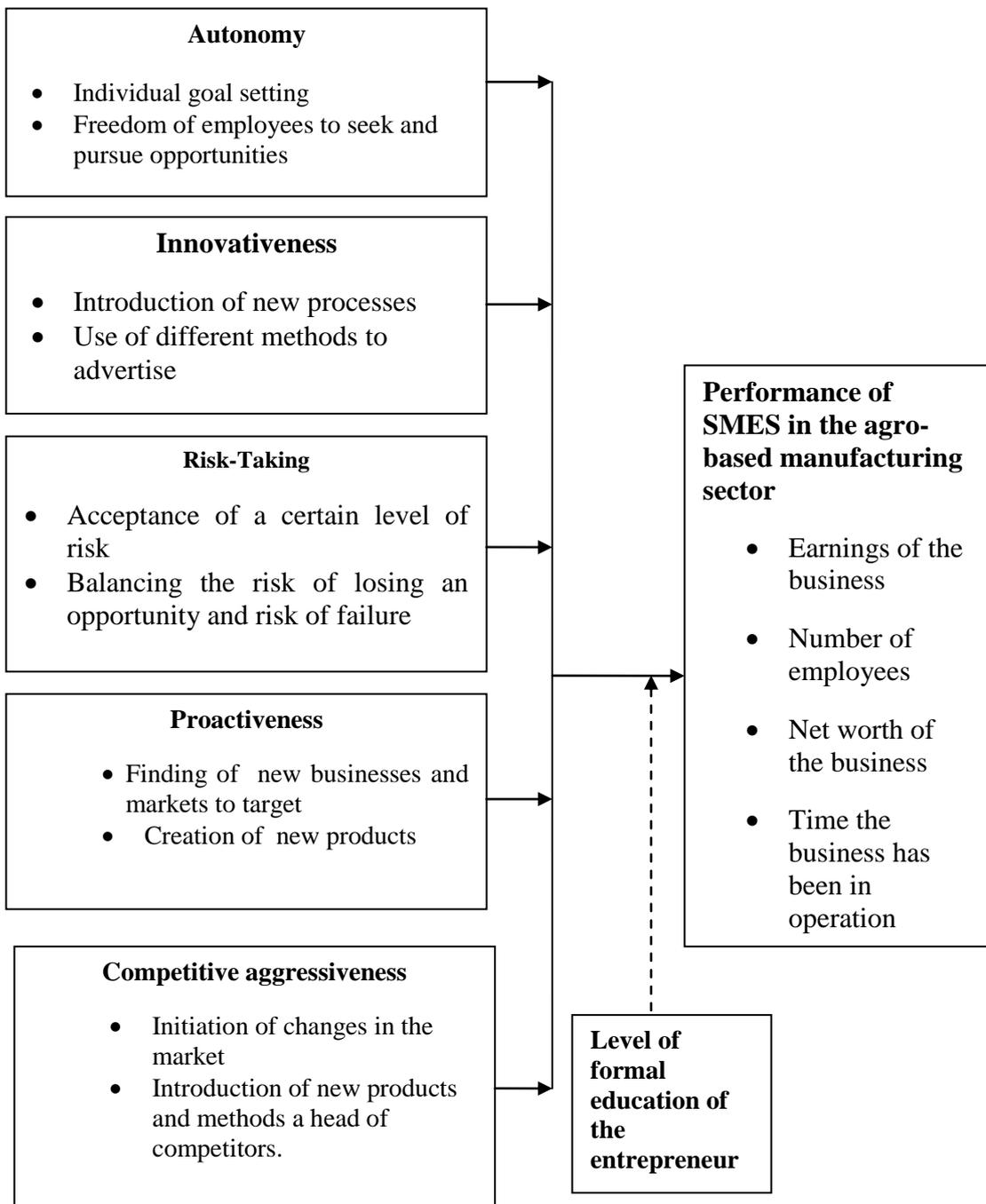
Schumpeter assumed that change is the basic element of dynamic process, and those changes come in the form of innovations. Any innovation may consist of: The introduction of a new product, the introduction of a new method of production, the opening up of a new market, the conquest of a new source of supply of raw materials or semi manufactured goods, or the carrying out of the new organisation of any industry like the creation of a monopoly. The new combinations of these factors are essential for the development process to start. It is to be energized by the development agents and such agents are innovators or entrepreneurs.

The entrepreneur is considered as the hero in the Schumpeterian development. Once the innovations become successful and profitable, other entrepreneurs follow it in "swarm like clusters". Innovations in one field may induce other innovations in related fields. Innovation is one of the dimensions of entrepreneurial dimension. If it is successful it will lead to the entrepreneur being both proactive and competitively aggressive to be able to successfully market the new products. The entrepreneur will have taken an amount of risk to invest in production of new product and would also have been autonomous by being self directed in pursuit of business opportunities. Profits arise due to dynamic changes resulting from an innovation. They continue to exist till the innovation becomes general thus; innovation leads to improved performance in SMEs.

### **2.3 Conceptual Framework**

Entrepreneurial orientation has often been operationalised in terms of three dimensions identified by Covin and Slevin (1989), namely innovativeness, risk-taking and Proactiveness, to characterize and test entrepreneurship. Later, Lumpkin and Dess (1996) identified two more dimensions, autonomy and competitive aggressiveness to conceptualize entrepreneurial orientation. This study proposes a framework that examines the relationship between each of the entrepreneurial orientation dimensions and performance of SMEs in the agro-based manufacturing sector as shown in Figure 2.1.

## Entrepreneurial Orientation



**Independent**

**Variable**

**Moderating**

**Variable**

**Dependent**

**Variable**

**Figure 2.1: Conceptual Framework**

### **2.3.1 Innovativeness**

Innovativeness of entrepreneurs is measured by the propensity by which they innovate in their business, their willingness to try new ways which are different from the existing; the enthusiasm to adopt new ideas or new methods to their business operation; and the eagerness to implement the innovation strategy in their business (Khandwalla, 2007).

Innovativeness reflects a firm's, tendency to engage in and support new ideas, novelty, experimentation and creative processes (Lumpkin & Dess, 1996) that may result in new products, services, or technological processes and which may take the organization to a new paradigm of success. Further, Bwisa, Kihoro and Patrick (2013) explains innovativeness as the propensity of a firm to innovate or develop new products that meet and / or exceed customers' expectations or the extent of unmet market needs as reflected in its uniqueness in comparison to similar products offered in the market. Giudici (2013) suggested that innovative practices be represented by the number of new products developed.

### **2.3.2 Risk- Taking**

Risk-taking refers to the tendency to take bold actions such as venturing into unknown new markets and committing a large portion of resources to ventures with uncertain outcomes. (Wikluad & Shepherd, 2003). Risk handling is the process in which potential risks to a business are identified, analyzed, mitigated and prevented, along with the process of balancing the cost of protecting the company against a risk versus the cost of exposure to that risk. The ideal way to cope with risk is to perceive risk at its inception, and taking risk under control right from its inception. Entrepreneurs, in actuality, tend to proactively deal with the risks. Risk-taking has strong relationship with performance of entrepreneurial firms. Research suggests that entrepreneurial firms exhibiting moderate levels of risk-taking would outperform in market as compared to firms exhibiting either very high or very low levels of risk taking ( Kreiser & Davis, 2010). However, process of forming a risk problem, results

of past risk-taking and the ability to perform under risky conditions affect the risk-taking ability of entrepreneur (Dimitratos *et al.*, 2004).

### **2.3.3 Proactiveness**

Proactiveness is an opportunity-seeking, forward-looking perspective involving introducing new products or services ahead of the competition and acting in anticipation of future demand to create, change and shape the environment (Lumpkin & Dess, 1996; Kreiser *et al.*, 2002). Proactiveness is manifested in: aggressive behavior directed at rival firms and the organizational pursuit of favorable business opportunities. It is simply the ability to take initiative, whenever the situation demands. Porter (1985) suggested that in certain situations, firms could utilize proactive behavior in order to increase their competitive position in relation to other firms. Proactiveness is concerned with first mover and other actions aimed at seeking to secure and protect market share and with a forward-looking perspective reflected in actions taken in anticipation of future demand (Lee & Peterson, 2001; Dimitratos *et al.*, 2004). It refers to processes aimed at anticipating and acting on future needs by seeking new opportunities which may or may not be related to the present line of operation, introduction of new products and brands ahead of competition, strategically eliminating operations which are in the mature or declining stages of life cycle (Green *et al.*, 2008; Starn & Elfring, 2008; Claire *et al.*, 2010; Kreiser & Davis, 2010). Thus, proactiveness pertains to a willingness to initiate change, to which competitors then respond.

### **2.3.4 Competitive aggressiveness**

Competitive aggressiveness refers to a firm's propensity to directly and intensely challenge its competitors to achieve entry or improve position, that is, to outperform industry rivals in the marketplace (Kraus *et al.*, 2005). It also reflects the willingness of a firm to be unconventional rather than rely on traditional methods of competing. This aspect is used to measure how entrepreneurial firms deal with threats, and it also refers to the firm responsiveness directed toward achieving competitive advantage (Lumpkin & Dess, 2001; Frese *et al.*, 2002; Grande *et al.*, 2011). It can be seen

when firms initiate changes by introducing new products or services ahead of the competition. The terms proactiveness and competitive aggressiveness are often used interchangeably but there is a difference between both terms. Proactiveness states how a firm relates to market opportunities in the process of creating demand, while competitive aggressiveness refers to how firms relate to competitors, that is, how firms respond to trends and demand that already exist in the marketplace (Lumpkin & Dess, 2001).

### **2.3.5 Autonomy**

Autonomy refers to the independent action of an individual or a team in bringing forth an idea or a vision and carrying it through to completion (Lumpkin and Dess, 1996). It also reflects the strong desire of a person to have freedom in the development of an idea and in its implementation (Lumpkin *et al.*, 2009). In general, it means the ability and will to be self-directed in the pursuit of opportunities. In an organizational context, it refers to freely taken action, irrespective of organizational constraints, for establishment and smooth running of a venture (Stevenson & Jarillo, 1990; Kraus *et al.*, 2005). Autonomy in firms may vary with the size of organization, management style, or ownership (Lumpkin & Dess, 1996). Autonomy offered by firms would motivate employees to work in a positive manner that could lead to higher firm performance. A study on different industries in Australia, by Coulthard (2007) argued that firms cannot function entrepreneurially without giving autonomy to their employees. His finding showed that autonomy is the most important factor for improving firm's performance across industries.

### **2.3.6 Performance of SMEs in the Agro-based manufacturing sector**

It is evident that agro- industrial industries play a fundamental role in the overall process of industrialization and economic development. Agro- industries present new opportunities for more secure and better paid employment. There are plentiful of opportunities and many benefits to be had by the growth of agro-industrial sector. Agro- related industries account for more than one-third of Gross Domestic Product in Indonesia, Chile, Brazil and Thailand. In sub Saharan countries, the sector

accounts for 50% Of the Gross Domestic Product (Raynolds & Wilkinson, 2007) This includes the entire food system including production of primary goods and commodities, marketing and retailing

Manufacturing in the agro-industrial sector in the developing countries such as Kenya, occupies a relevant place in the overall turnover. According to Raynolds and Wilkinson (2007), recent trends show that there has been a rapid increase of production in value adding via agri-business opportunities. Many high-value agri-food chains are characterised by increasing levels of female participation (Dolan and Sorby, 2003). In Kenya over 65% of workers in horticulture pack houses and farms are women. (Barrientos *et al.*). A dynamic agri-business sector linking farmers to consumers can be a major driver of growth in the agricultural sector. Experiences in Brazil, Chile, Kenya , Mexico and Taiwan, have demonstrated the potential of agro-based SMEs for employment generation, value adding, food security, poverty alleviation and improving the standard of living among the rural poor.( Raynolds & Wilkinson, 2007 )

## **2.4 Empirical Literature Review**

The section presents a review of the past studies on influence of risk taking, Proactiveness, autonomy, competitive aggressiveness and innovation on firm performance with an aim of critiquing and establishing a research gap.

### **2.4.1 Entrepreneurial Orientation and Firm's Performance**

The relationship between entrepreneurship and firm performance has received considerable attention where scholars have established a positive relationship between the level of entrepreneurial behaviors and organizational profitability and growth (Wiklund & Shepherd, 2003; Covin *et al.*, 2006; Ireland *et al.*, 2009; Soininen *et al.*, 2011). According to Ireland *et al.*, (2009) the level of entrepreneurial behaviors include the propensity to engage in relatively high level of risk-taking, innovative and proactive behaviors. However, the magnitude of this relationship seems to vary across studies. While some studies found that businesses that adopt a

strong entrepreneurial orientation perform better than firms that do not adopt an entrepreneurial orientation (Wiklund & Shepherd, 2003; Hult *et al.*, 2004; Kraus *et al.*, 2005; Kreiser & Davis, 2010), studies also report of lower correlations between entrepreneurial orientation and performance (Dimitratos *et al.*, 2004; William & Sinkula, 2009). Other set of studies failed to find a significant relationship between entrepreneurial orientation and performance (Tang & Keveos, 2004). Some studies have shown that the relationship between entrepreneurial orientation and performance is not that straightforward, (Bhuiyan *et al.*, 2005; Tang *et al.*, 2008), .which means that a high degree of entrepreneurial orientation is not always desirable in certain market. Thus there is a considerable variation in the reported relationships between entrepreneurial orientation and business performance.

The reasons for variation in results can be attributed to the interference of various elements of organizational and industrial environment. According to Venkatraman (2009) a number of models can be used to investigating the erratic entrepreneurial orientation- performance relationship which includes moderating effects, mediating effects, independent effects and interaction effects models. In the moderating-effects model, the form or strength of the entrepreneurial orientation-performance relationship varies with organizational structure. According to Covin and Slevin (1991) organizations can fall within a range of organizational structure which varies from typically decentralized and informal structures to mechanistic organizations which are highly centralized and formal. Various studies argue that entrepreneurial orientation needs to be associated with the low structural formalization and decentralization organization structures for better performance (Kreiser & Davis, 2010; Krause *et al.*, (2011).

The mediating-effects model considers integration of organizational activities to be the mediating variable. Effectively integrating activities and processes intervene in the relationship between entrepreneurial orientation and performance. Miller (2003) suggested that such integrating activities would include the extensive use of structural integration devices such as committees and task forces. According to Porter (1985) to integrate activities across business units within a corporation

requires horizontal organization which consists of horizontal structures, horizontal systems and horizontal human resource practices. In independent-effects models, entrepreneurial orientation and environmental generosity are depicted as having independent effects on the firm performance. Environmental generosity refers to the availability of resources and the amount of external opportunities that are present in a specific environmental setting and can also be considered as the profitability or growth rates of the industry in which a firm competes (Covin & Slevin, 1988). This relationship is consistent with the traditional industrial organization paradigm which suggests that the industry within which a firm competes has a critical impact on its performance (Porter, 1985). Lastly, in interaction-effects models, various elements of organizational and industrial environment are believed to interact with entrepreneurial orientation to influence firm performance (Naman & Slevin, 2003; Lumpkin & Dess, 1996). Wiklund (2009) indicated that increase in firms performance related to entrepreneurial orientation is sustainable over long periods of time, but this relationship may be contingent on the environmental context in which the firm operates.

#### **2.4.2 Agro-Based Manufacturing Sector in Kenya**

Small and Medium manufacturing enterprises in Kenya's manufacturing sector are defined as enterprises with fulltime employees not exceeding 100 or annual sales turnover not exceeding Ksh 150 million. The sector is mainly agro-based and characterized by relatively low value addition, employment, and capacity utilization and export volumes partly due to weak linkages to other sectors. The bulk of Kenya's agro based sector manufactures basic products such as food and beverages which requires low skills and capital. The manufacture of food products, especially in the context of a developing country, typically involves a relatively limited range of technologies that do not differ widely across product categories. In most cases the level of value added is relatively limited, such that raw materials account for a significant proportion of end-product prices.

There are various challenges that affect the performance of SMEs. Increased liberalization, new entrants to the market, increased standards requirements and

technological developments have posed challenges to SMEs (Thurik *et al.*). According to Ariss, Raghunathan, and Kunnather (2000) there have been observed technological advances both generally (most notably information and communication technologies) and, specific to the agro-industrial sector, in primary production (the application of biotechnology) and manufacturing sectors (new processing methods). These technological advances are serving to create new and unprecedented opportunities for agro-industrial enterprises in terms of product and process innovations. However they also raise the concern of agro-industrial enterprises being left behind if they are unable to gain access to these technologies in a timely and cost-effective manner (Elimuti & Kathawala, 1999)

Alongside technological changes, there is also a shift in domestic demand patterns in developing countries and a shift in consumption patterns in industrialized countries. Again these changes present potentially lucrative opportunities for developing country agro-industries, through higher value exports. Examples include year-round demand for fresh and semi-processed fruits and vegetables for which developing countries have an agro-climatic advantage, and chilled and frozen fish and fishery products. However, consumers in such markets are demanding greater assurances over food safety and quality, which require investments in more advanced systems of control through the supply chain.

While the highlighted challenges limit the performance of SMEs, firms that are more innovative, proactive, aggressive and take risks are likely to take advantage of opportunities in the marketplace (Zahra & Garvis, 2000). Previous studies (Knight, 2000, Dess *et al.*, 1997) suggested that under the changing circumstances both in the local and international market SMEs with an entrepreneurial orientation are more likely to perform better than those that lack such an orientation. According to Knight (2000) with relatively limited resources and Lack of capabilities, SMEs have to possess entrepreneurial orientation to survive or even to outperform their competitors. This will enable SMEs to move up the value chain and adopt new technologies, particularly information and communication technology (ICT) and respond adequately to the market needs. According to Ngirigacha and

Bwisa (2013) SMEs need to be more proactive in responsiveness to new customer's needs and wants. This will enable them to remain competitive in the market and always relevant.

### **2.4.3 Innovation**

A study by Zerenler, (2008) in the Turkish automotive supplier industry looked into the influence of innovativeness upon the SMEs performance. The main conclusion from this study was that SMEs growth had significantly positive relationships with innovation performance. Another study by Wu *et al.*, (2008), attempted to explore the mediating effect of innovation on SMEs growth in Taiwanese manufacture and non-manufacture industries. The study found that effects of innovation exist at significant levels, suggesting a perfect mediating effect of innovation on growth.

Abouzar Zangouinezhad, Asghar Moshabaki, (2009) carried a study on the role of innovation in Iran the study found out that operational, organizational or managerial processes are significantly related in attaining innovation. Mohammad (2009) did a study on the effect of innovativeness on firm performance: an investigation of Iran state companies. The purpose of this paper was to analyze the role of innovativeness and its relationship with financial performance of Iran state companies during the period 2010-2012. The results of the research revealed that value added innovativeness and its components had a significant positive relationship with companies' profitability. Wang (2011) did a study on innovativeness and firm Performance. The main purpose of the study was to understand the innovativeness of the proxy variables on firm performance and the related expenses of the company's contribution to value creation.

Schumpeter and Knudsen (2002) considered entrepreneurship to be essentially a creative activity and entrepreneur as an innovator who carries out new combinations in the field of men, money, material, machine and management. According to him, entrepreneur is an economic man who tries to maximize his profits by making innovations in anyone of the following fields: new products, new production methods, new markets; or new forms of organization. The degree of an

entrepreneur's innovativeness will decide how far and how deep the innovation will go in business, in order to meet both the strategic goal formulated for the business and the requirements from the environment (Hult *et al.*, 2004).

Innovativeness represents a basic willingness to depart from existing technologies or practices and venture beyond the current state (Covin 2006). An innovative strategic posture can contribute to firm performance as it increases the chances that a firm will realize first mover advantage, stay ahead of their competitors, gain a competitive advantage and capitalize on emerging market opportunities that lead to improved financial results (Kreiser *et al.*, 2002; Hult *et al.*, 2004; Kreiser & Davis, 2010). Innovation is an important tool that provides opportunities to new inventions and building of new markets (Kuhn & Marisck, 2010).

In his book, *The theory of Economic Development*, Schumpeter (1912), identified the entrepreneur as an individual who introduces new combinations i.e innovations to the economy. He explains that innovations come in swarms i.e the initial innovator is followed by a bunch of imitations which results in economic boom and that periods of innovation and lack of innovation are the main causes of the business cycle.

While innovation was shown to have a positive relationship with performance of both SMEs and large businesses, it was considered in isolation from other dimensions of entrepreneurial orientation. Innovation by itself may not comprehensively explain performance since it is just one of the dimensions of entrepreneurial style. In that case this study will fill in this knowledge gap by looking into the influence of other entrepreneurial orientation dimensions on SMEs.

#### **2.4.4 Risk taking by SMEs**

A study by Naldi *et al.*, (2009) in Sweden looked into the influence of risk taking and performance of family and nonfamily firm. The study found out that though family business (largely SMEs ) do take risks as part of their entrepreneurial activities, they do it to a lesser extent than do nonfamily firms. The result of the study also indicated that the reason why family firms are less likely to take lower risk than other firms

was because of contextual reasons such as governance structure likelihood of losing ownership of the business. In fact the finding of the study suggests that risk taking have a negative effect on family business.

A similar study by Olson *et al.*, (2002) examined the impact of top management team risk taking propensity on firm performance in United Kingdom. The data was collected through a mailed survey questionnaire answered by the top executives of small to large firms. Performance was looked in terms of financial performance, innovation and stakeholders' performance. The study found out that firms with top management that are willing to take risk are able to achieve superior levels of both financial and non-financial performance.

Hughes and Morgan (2007) also evaluated risk taking based on perceptions towards the term risk taking and calculated risk, as well as based on a statement about exploration in business activities. Surprisingly, Hughes and Morgan (2007) found that risk taking had a negative impact on product performance and no impact on customer performance. The authors argue that the reason for this finding may be that because risk taking is normally costly due to competitor responses, it may lead to drift and wastage of resources as firms in their early stages do not have the coordination mechanisms in place to direct the risk taking behavior in the best possible way. They suggest that risk taking may be beneficial for more mature companies, but not beneficial at the embryonic stage.

#### **2.4.5 Proactiveness**

A study by Hughes and Morgan (2007) in United Kingdom among automotive firms measured proactiveness based on taking initiative, opportunity recognition, and initiating actions to which other organizations respond. They found that proactiveness has a positive impact on both customer performance and product performance. Based on their findings Hughes and Morgan (2007) suggested that proactiveness plays an important role in firms at their nascent stage because proactive behaviors are key in securing future performance. The study found that proactiveness helps firms in anticipating market changes and acting accordingly,

which allows the firms to have a strong position in shaping the competition in the market over time. This will in turn lead to improved performance (Hughes & Morgan, 2007).

In another study by Lumpkin and Dess (2001) the impact of proactiveness was investigated in firm performance in mono-product firms in USA. The study measured proactiveness based on the firm's tendency to lead rather than follow in the development of new procedures and technologies, the introduction of new products or services and about the tendency to act in anticipation of future changes and needs. Performance was operationalized through, sales growth, return on sales, and firm performance over the last three years compared to competitors. Lumpkin and Dess (2001) found that proactiveness had a positive impact on each of the performance measures. Furthermore, the authors found that the positive impact was stronger in early stage of a product, which suggests that proactiveness has an important role especially in the introduction and growth stage of a product. Lumpkin and Dess (2001) further found that the proactiveness vis-à-vis performance was strongest in a dynamic business environment, but that there was also a positive relationship in a hostile environment.

## **2.5 Critique of the existing literature relevant to the study**

It emerges from the literature review that entrepreneurial orientation is an important aspect as far as performance of an enterprise is concerned. However, the studies that have been done present a mixed results. On one hand, Wiklund and Shepherd (2003) established a positive relationship between the level of entrepreneurial behaviors and organizational profitability and growth, Hult *et al.*, (2004) observed that an innovative strategic posture can contribute to firm performance as it increases the chances that a firm will realize first mover advantage, stay ahead of their competitors, gain a competitive advantage and capitalize on emerging market opportunities that lead to improved financial results, Kraus *et al.*, (2005) argues that entrepreneurial orientation needs to be associated with the low structural formalization and decentralization organization structures for better performance. On the other hand Dimitratos *et al.*, (2004) failed to find a significant relationship between entrepreneurial orientation

and performance while William and Sinkula (2009) showed that the relationship between entrepreneurial orientation and performance is not that straightforward.

It follows therefore that studies on entrepreneurial orientation influence on firm performance have not yet established a concrete position on the role of entrepreneurial orientation as far as performance is concerned. Studies by Zerenler, (2008) Naldi *et al.*, (2009), Hughes and Morgan (2007) have looked into the influence of innovativeness, risk and proactiveness respectively on the performance of firms. Though each have shown a positive relationship with performance, an investigation of all the five entrepreneurial orientation constructs is important.

In the local context Kihoro, Bwisa and Otieno (2012) looked into the influence of entrepreneurial orientation on the performance of firms in East Africa Community. Similarly the study had shown a positive relationship between entrepreneurial orientation and performance. However, the East Africa community integration was used as an intervening variable. The study findings revealed that performance of Kenya's manufacturing firms operating under the East African regional integration are significantly influenced by entrepreneurial orientation in terms sales, profits and employment as measures of firm performance. The dependent variables of this study were: product innovation, process innovation, technology innovation, risk taking and competitive strategy. The study did not include the entrepreneurial construct of autonomy and Proactiveness. The study covered manufacturing firms moderated by the East African community integration. A study by Gathenya, Bwisa and Kihoro (2011) observed that although entrepreneurial orientation has an effect on SMEs in Kenya, other variables should be considered in future studies. The current study investigates how the education level of entrepreneurs moderates the influence of entrepreneurial orientation on performance of SMEs.

Matanda (2008) established that innovation has a positive and significant influence on the decision of small scale earthen ware manufacturer to access new markets. The study recommended that small scale earthen ware manufacturers should enhance their ability to recognize new market opportunities. This study looked into innovation on its own and how it influences access to new markets. The current study

investigated the relationship between five entrepreneurial orientation dimensions and performance of SMEs.

A study by Okeyo (2012), established that non-existence of entrepreneurial orientation is one of the factors that lead to failure of several start-ups and SMEs. It also revealed that entrepreneurial orientation exhibits a positive association with business development services and business development services can be used to increase entrepreneurial orientation. This study was carried out in general manufacturing SMEs in Nairobi County. This study however used entrepreneurial orientation as the moderating variable and recommended other studies should be carried out in other parts of the country as well as focus on specific manufacturing sub-sectors. The current study focuses on the food manufacturing sub-sector in the agro-based manufacturing sector in Kiambu County.

Literature in entrepreneurial orientation, discusses a number of variables that potentially moderate entrepreneurial orientation - performance relationship (Gathungu, 2014). There is little consensus on what constitutes suitable moderators. Findings related to the influence of moderating variables on entrepreneurial orientation performance have been mixed. Prior research has found both significant positive (Zahra & Gavis, 2000) and negative (Rauch, 2009) relationships. This leaves a concern and demands scholarly attention to providing more conclusive evidence on the impact of moderating variables on the strength and direction of entrepreneurial orientation. The current study seeks to establish how the level of education of the entrepreneur moderates the influence of entrepreneurial orientation on performance of SMEs.

## **2.6 Research Gap**

The proposed study sought to establish the relationship between entrepreneurial orientation and performance of SMEs. Various studies on entrepreneurial orientation have been conducted in the developed countries as well as locally. Majority of the studies done on entrepreneurial orientation focus on only three dimensions of entrepreneurial orientation-only innovation, Proactiveness, and risk taking propensity

(Gathungu, 2014). This study will cover two additional dimensions that is, competitive aggressiveness and autonomy. Studies carried out locally have focused on general enterprises as well as enterprises in general manufacturing, earthenware manufacturers, and SMEs in the ICT sector. A study carried out by Otieno (2012) in Nairobi County, focused on general manufacturing firms operating under East African community regional integration. Another study carried out, focused on SMEs in the ICT sector (Osoro, 2012), which was carried out in Nairobi County as well. A study focusing on entrepreneurial orientation and access to new markets focused on small scale earthen ware manufacturers (Matanda, 2008) and was carried out in Kisumu County. A study by Okeyo (2014) focused on the impact of business development services on entrepreneurial orientation and performance of SMEs in Kenya, the study was carried out in Nairobi County. The study used entrepreneurial orientation as a moderator between business development services and performance of SMEs.

This study will focus on manufacturing SMEs in the agro-based sector. This is due to the critical role of agriculture which is the back bone of Kenya's economy and the potential of the sector to provide jobs as the sector grows and demand of the raw materials goes high. According to Ariss *et al.*, (2000), there have been observed technological advances specific to the agro-based sector in the application of biotechnology and new processing methods. These technological advances create new unprecedented opportunities for agro-based SMEs. This study will reveal the level of adoption of entrepreneurial orientation by the manufacturing SMEs whose adoption would greatly improve their performance.

The study will also use education as the moderating factor to establish how education level of entrepreneurs moderates the influence of entrepreneurial orientation on performance. A firm's ability to directly link itself to opportunities in the external environment positively moderates the relationship between entrepreneurial orientation and performance (Gathungu, 2014). The levels of education of entrepreneurs greatly determine their ability to link to opportunities through the people they interact with or events they participate in. This study will establish how

the education level of the entrepreneur moderates the entrepreneurial orientation. The study is unique due to its focus on the food manufacturing SMEs in the agro-based sector and education as the moderating variable and will add on knowledge of entrepreneurial orientation versus performance relationship in this sector.

## **2.7 Summary**

The study reviewed Colvin and Slevin Model, competency theory and Resource Based Theory. The three theories provide a conceptualization of entrepreneurial orientation constructs as the necessarily competencies required by entrepreneurs to enhance business performance. The Colvin and Slevin model provides the five constructs of entrepreneurial orientation which are autonomy, innovativeness, risk taking propensity, Proactiveness and competitive aggressiveness. The theory proposes that the higher the entrepreneurial orientation, the higher the performance. The competency theory suggests that certain capacity that exists in a person such as skills, abilities and knowledge which are measurable and observable distinguish between high and low performance of an enterprise. Such competencies include the five constructs of entrepreneurial orientation. The resource based theory suggests that an enterprise should harness its competencies to enhance performance. Such competencies include the intellectual capital which may include autonomy, innovativeness, risk taking propensity, proactiveness and competitive aggressiveness.

An empirical review on past studies included Kihoro, Bwisa and Otieno (2012) on the influence of entrepreneurial orientation on the performance of manufacturing SMEs, and the influence of entrepreneurial orientation on performance of SMEs in the ICT sector (Osoro, 2011). Other studies were Okeyo 2012, Zahra and Davis 2000, Rauch 2009. These studies demonstrated that entrepreneurial orientation has a significant and positive influence on performance of businesses.

The conceptual framework depicts the relationship between the dependent and independent variables. Based on the theories and literature review the independent variables are the five entrepreneurial orientation constructs while the dependent variable is performance. The five constructs influence the performance such that the higher the entrepreneurial orientation the higher the performance. Performance is measured in terms of earnings of the business, number of employees, the net worth of the business and the period of time the business has been in operation. However, education level of the entrepreneur moderates on this particular relationship.

## **CHAPTER THREE**

### **RESEARCH METHODOLOGY**

#### **3.1 Introduction**

This chapter describes the research design that was be used to conduct the study. It describes the type of research, population, sample, instruments, pilot testing and sampling techniques and data analysis that were used. The statistical measurements of the variables and the model are also explained.

#### **3.2 Research design**

Research design is a plan or a framework for guiding a study. The design connects the questions or objectives of the study to the data gathered. The study used a mixed research design. According to Elahi and Dehdashti (2011), the research is ideal when the research objectives include the following: Portraying the characteristics of a social or physical phenomenon and determining the frequency of occurrence; determining the degree to which the variables are associated and Making predictions regarding the occurrence of social or physical phenomena. The study intended to establish the relationship between the entrepreneurial orientation of the entrepreneurs in the agro-based manufacturing sector and performance thus the design was ideal.

Both qualitative and quantitative research approach were used. According to McMillan and Schumacher (1993) qualitative research is concerned with understanding the social phenomenon from the participants' perspective while quantitative research is an inquiry into an identified problem, based on testing a theory, measured with numbers, and analyzed using statistical techniques. Combining the two approaches provides a richer presentation of the reality, (Silverman, 2005). The study combined the two approaches to understand the relationship between entrepreneurial orientation and performance of businesses in the agro-based manufacturing sector.

### 3.3 Target population

The study population included the 250 registered agro-based manufacturing SMEs in the food sub-sector in Kiambu County. According to the Ministry of Industrialization 2012 database there are 250 registered agro-based enterprises in Kiambu County, where 160 are small enterprises in food based manufacturing, while 90 are medium enterprises.

Kiambu county is among the five identified counties for development of five SME parks alongside Nairobi, Taita Taveta, Uasin Gishu and Kisumu County. This is in line with Vision 2030 to move the economy up the value chain. The sector is highly competitive thus requiring the entrepreneurs to possess unique entrepreneurial characteristics such as innovativeness, proactiveness, risk taking propensity, autonomy and to have competitive aggressiveness.

### 3.4 Sampling Frame

The sampling frame according to Kothari (2004) consists of the list of elements that are in the population. The sampling frame for the study comprised of the 250 managers/owners of the SMEs in the agro-based manufacturing sector within the food sub-sector which are registered in Kiambu County. The managers/owners are well placed to elucidate on the entrepreneurial orientation since they are responsible for critical decision making of the enterprises.

### 3.5 Sample and Sampling Techniques

The sample size of the study will be determined using a formula provided in Kothari (2004)

$$n = \frac{Z^2 pq}{e^2} \dots\dots\dots \text{Equation 3.1}$$

$$n \text{ adjusted} = \frac{nN}{n + N} \dots\dots\dots \text{Equation 3.2}$$

Equation 3.1:

$n$  = sample size without considering the finite population

$Z$  = normal reduced variable at 0.05 level of significance which is 1.96

$P$  = population reliability; where  $p$  is 0.5 which is taken for all developing countries population

$q = (1-p) = 0.5$

$e$  = margin of error considered which is 10% for this study.

In Equation 2:

$n$  adjusted = The sample size of the finite population

$N$ : size of population

Using the formula,  $n = \frac{1.96^2 * 0.5 * 0.5}{0.1^2} = 96.04$

Therefore the sample size is

$$n_{adjusted} = \frac{96.04 * 250}{96.04 + 250} = 69.38$$

The Sample will be allocated to small and medium enterprises using the following formula as provided by Kothari (2004)

$$n(\text{Subsector}) = \frac{N(\text{subsector}) * n(\text{all subsector})}{N(\text{all subsectors})}$$

Where:  $n$  (subsector) is the sample size at subsector level.

$N$  (subsector): is the population of a subsector.

n (all sectors): is the sample size of the two (small and medium enterprises) sub sectors combined.

N(all Sectors): is the population of the two subsectors.

Using the formula the size for each subsector will be as follows;

$$n(\text{Small enterprises}) = \frac{160 * 69}{250} = 44$$

$$n(\text{Medium enterprises}) = \frac{90 * 69}{250} = 25$$

**Table 3.1: Distribution of the sample size**

<b>Sub-sectors</b>	<b>Population</b>	<b>Sample size</b>
Small enterprises	160	44
Medium enterprises	90	25
<b>Total</b>	<b>250</b>	<b>69</b>

### 3.5.1 Sampling Techniques

The sampling technique adopted by the study was stratified random sampling. Stratified sampling ensures that sub-groups in the population are adequately represented in the sample (Orodho, 2009). The study adopted the technique to ensure that both the small and medium manufacturers are represented in the sample. The population was subdivided into two strata based on whether the small or medium enterprises. The sample size was then proportionately allocated according to the population of each stratum. Random sampling was then be used to pick on individual participants within the strata.

### **3.6 Data collections Instruments**

Data collection is a means by which information is obtained from the selected subjects of an investigation (Cresswell 2002). Mugenda and Mugenda (2003) observe that the choice of a tool and instrument depends mainly on the attributes of the subject, research topic, data and expected results. In social sciences, the most commonly used instruments are: questionnaires, interview schedules, observational forms and standardized tests (Sauders, Lewis & Thornhill, 2007). Questionnaires were used to collect data for this study.

#### **3.6.1 Questionnaires**

Orodho (2009), points out that a questionnaire can be used to collect a huge amount of data in relatively shorter time. Mugenda and Mugenda (2003) define a questionnaire as a document that consists of a number of questions printed or typed in a definite order on a form or set of forms. In this study questionnaire was used correct data from the proprietor or the manager whichever is applicable. The questionnaire had both open ended and closed ended questions. The questionnaire had five scale likert questions which sought information on the entrepreneurial orientation of the proprietor. The respondents rated each item by stating the level of agreement of each statement ranging from strongly agrees to strongly disagree. The questionnaire was administered by the researcher with the help of research assistants.

### **3.7 Data Collection Procedure**

The data collection involved both primary and secondary data collection. The primary data was collected through a questionnaire and an interview. During data collection questionnaire was administered by the researcher at the enterprise premises to avoid inconveniencing the entrepreneur. This enabled collection of primary data on the five entrepreneurial orientation dimensions and education level.

### **3.8 Pilot testing**

To ascertain the validity and reliability of questionnaire, a pilot test was conducted. Kombo and Tromp (2009) and Kothari (2012) describe a pilot test as a replica and rehearsal of the main test. The purpose of pilot testing was to establish the accuracy and appropriateness of the research design and instrumentation (Cooper & Schindler, 2006). According to Saunders (2009), pilot testing refines the questionnaire so that respondents will not have problems in answering the questions. Ambiguity and sensitivity of the items and other issues related to data collection are noted and the tools and procedures revised and refined before the main study. The researcher conducted pilot study test to assess the clarity, complexity and the face validity of the measure. Revisions were made to improve the look and content of the final questionnaire in terms of readability, wording and arrangement.

A total of 15 were used in the pre-test and were drawn from the same population frame similar to those who will be included in the actual survey in terms of background characteristics and familiarity with the topic. For high precision pilot studies, 1% to 5% of the sample should constitute the pilot test size (Lancaster, Dodd & Williamson, 2010). The 15 that were used are 21% of the sample size of 69. The researcher decided to use 15 since if 5% was used it would mean only use of 3 questionnaires since the sample size was not large and which may not achieve the intended purpose

#### **3.8.1 Validity**

Validity refers to the degree with which a measurement procedure or a questionnaire measures the characteristic it is intended to measure (Lewis, 1999). There are three dimensions from which validity can be examined. These include, content, construct, and criterion validity (Orodho, 2009). In this study, during the questionnaire's construction, quality control and validity were ensured through: face validity, where the instrument was subjected to experts (supervisor) to check whether it measures what it is intended to measure; Content validity, where the instrument was designed according to the study variables and their respective indicators of measurement;

Construct validity, was maintained through restricting the questions to the conceptualizations of the variables and ensuring that the indicators of a particular variable fell within the same construct.

### **3.8.2 Reliability**

According to Joppe (2000) reliability is the extent to which results are consistent over time. Similarly Orodho (2009), states that reliability is concerned with the extent to which a measuring procedure produces similar results when repeated several times. Cronbach (1951) recommends Cronbach's alpha  $\alpha$ , of 0.7 to establish reliability. A cronbach reliability value of 0.60 is the minimum acceptable value according to Zikmund (2003). In this study a cronbach alpha value of 0.6 was an indicator of high reliability and was therefore accepted.

### **3.9 Data Processing and Analysis**

The data analysis included both descriptive and inferential statistics. The data collected on each construct of entrepreneurial orientation (Autonomy, innovativeness, risk taking, competitive aggressiveness and Proactiveness) was scored to determine the entrepreneurial orientation level at each point. Similarly performance of the business was measured at the same time. The relationship between entrepreneurial orientation and performance was shown after data analysis. The five dimensions of entrepreneurial orientation-innovativeness, risk taking, Proactiveness, and competitive aggressiveness were measured using a 5 scale likert-type, the scale ranged from strongly disagree (1) to strongly agree (5). A composite score for each measure was obtained by averaging the responses across the items used for the measure. Higher scores on a measure of a dimension reflect higher level of the dimension. Data was analyzed using statistical package for social science version 21. Cronbach coefficient alpha was used to check the goodness of the data leading to consistency and reliability of measures in the likert scale items. An alpha level of 0.70 or above is acceptable. (Cronbach, 1951).

The variable relationship in the regression analysis was tested using inferential statistics. The ordinary least square regression analysis was used to determine the relationship that the independent variables had with the dependent variable. To test the linear relationship between the various independent and the dependent variables of performance of the SMEs, Spearman's rho correlation was used. The designation  $r$  symbolizes the correlation coefficient which varies over a range of -1 to +1. The sign signifies the direction of the relationship. The coefficient is significant in situations where the significant level is at  $P < 0.001$ .

The hypothesis was tested from the regression model output where:

$H_{01}: \beta_i \neq 0$  ( $I = 1, 2, 3, \dots, 6$ ) versus  $H_{a1}: \beta_i = 0$

The regression output provides t values and corresponding p values. If P value  $< 0.001$  then  $H_{01}$  was rejected which implies that  $X_1$  has a significant relationship with Y.

The performance of the SMEs was measured by obtaining records on the net worth, quarterly earnings, number of the employees and the years the business had been operating. Other descriptive statistics included the type of the business, years of operation, business size, earnings and number of employees. These statistics enabled the researcher to establish whether the relationship between entrepreneurial orientation and performance varied according to size or type of business. Years of operation, business size, earnings and number of employees were also used to rate the performance of each individual businesses.

Content analysis was used to analyze the open ended questions in the questionnaire. Content analysis is any technique for making inferences by systematically and objectively identifying special characteristics of messages (Holsti, 1968). There are three major approaches to qualitative data analysis: interpretative approaches, social anthropological approaches and collaborative social research (miles & Huberman, 1994). Interpretative approaches provide a means for discovering practical understandings of meanings and actions. This was used to analyze the open ended

questions as well as the findings collected during the interviews conducted. Qualitative analysis helped to triangulate quantitative analysis results.

### 3.9.1 Statistical Measurement Models

This study adopted the multiple regression model. The model tries to predict the extent to which each of the five independent variables, and the moderating variable influence the firm's performance. The regression analysis helped the researcher to compare the relationship between each entrepreneurial orientation construct and performance. The entrepreneurial orientation (Autonomy, innovativeness, risk taking propensity, Proactiveness and competitive aggressiveness) as independent variable were regressed against the performance of the business which include; size of the business, earnings and number of employees. This will provide the magnitude and direction of relationship between each construct and business performance.

The proposed regression model of the study was as follows:

$$Y = \beta_0 + \beta_1 X_1 + \beta_2 X_2 + \beta_3 X_3 + \beta_4 X_4 + \beta_5 X_5 + \epsilon \dots\dots\dots \text{equation 3.3}$$

This equation shows the relationship between the ordinary predictors  $X_1$  to  $X_5$  which are the five entrepreneurial orientation dimensions and the business performance which is  $Y$ .

$$Y = \beta_0 + \beta_1 X_1 + \beta_2 X_2 + \beta_3 X_3 + \beta_4 X_4 + \beta_5 X_5 + \beta_z Z + \epsilon \dots\dots\dots \text{equation 3.4}$$

This equation shows the effect of the moderator  $Z$  which is the education level of the entrepreneur alongside the five entrepreneurial dimensions and how they affect performance of the business.

This equation shows the effect of the moderator  $Z$  which is the education level of the entrepreneur alongside the five entrepreneurial dimensions and how they affect performance of the business. The equations are shown in hierarchical regression in the order the model will be tested.

Where: Y is the performance of the SMEs

$\beta_0$  = Is a constant which represents the performance of SMEs when the independent variable under consideration (EO) are zero.

(i)  $X_1$  = The entrepreneurs Autonomy index

(ii)  $X_2$  = The entrepreneurs innovativeness index

(iii)  $X_3$  = The entrepreneurs Proactiveness index

(iv)  $X_4$  = The entrepreneurs risk taking propensity index

(v)  $X_5$  = The entrepreneurs competitive aggressiveness index

(vi) Z = The moderating variable which is the education level of the entrepreneur

$\beta_1, \beta_2, \beta_3, \beta_4,$  and  $\beta_5$  represent the coefficient of  $X_1, X_2, X_3, X_4,$  and  $X_5$

$\beta_Z$  = The coefficient of the moderating variable Z

$\beta_{1z}, \beta_{2z}, \beta_{3z}, \beta_{4z}$  and  $\beta_{5z}$  is the estimate of moderating effect Z on the relationship between the independent and the dependent variable.  $\epsilon$  represents the error term.

### **3.9.2 Operationalization of Variables**

Table 3.2 shows the operationalization of the independent and dependent variables. It presents the actual parameters that will be used to measure of all variables in the study.

**Table 3.2: Operationalization of the variables**

<b>Variables</b>	<b>Type</b>	<b>Operationalization</b>
Performance of SMEs	Dependent	<ul style="list-style-type: none"> <li>• Annual earnings</li> <li>• Value of the business</li> <li>• Number of employees</li> <li>• Number of years of operation</li> </ul>
Entrepreneurs Autonomy	Independent	<ul style="list-style-type: none"> <li>• Individual goal setting</li> <li>• Time management</li> <li>• Responsibility on outcomes from decision making</li> <li>• Freedom of employees to decide on methods and targets</li> <li>• Freedom of employees to seek and pursue opportunities</li> </ul>
Entrepreneurs Procativeness	Independent	Finding of new businesses and markets to target <ul style="list-style-type: none"> <li>• Creation of new products</li> <li>• Finding of non-product means of creating values to customers</li> <li>• Seeking new partnership</li> </ul>
Entrepreneurs Risk taking	Independent	<ul style="list-style-type: none"> <li>• Acceptance of a certain level of risk</li> <li>• Balancing the risk of losing an opportunity and risk of failure</li> <li>• Introduction of new products</li> </ul>
Entrepreneurs Innovation	Independent	<ul style="list-style-type: none"> <li>• Introduction of new processes</li> <li>• Use of different methods to advertise</li> </ul>
Entrepreneurs Competitiveness	Independent	<ul style="list-style-type: none"> <li>• Initiation of changes in the market</li> <li>• Undoing of the competitors position</li> <li>• Introduction of new products and methods a head of competitors.</li> </ul>
Entrepreneurs Education	Moderating	Level of formal education

## **CHAPTER FOUR**

### **RESULTS AND DISCUSSION**

#### **4.1 Introduction**

The objectives of the study were to establish the relationship between entrepreneurial orientation and performance of small and medium enterprises in the agro-based manufacturing sector in Kiambu County. The study focused on analyzing the relationship between autonomy and performance of the SME's, the relationship between innovativeness, risk taking, entrepreneur's Proactiveness and performance of the SMEs, as well as analyzing the relationship between competitive aggressiveness of the entrepreneur and the performance of the agro-based food manufacturing SME's in Kiambu County.

In this chapter the findings of the study are presented. The response rate is evaluated, as well as reliability and validity of the study constructs. The general background information of respondents and of the small and medium enterprises is presented. This is followed by descriptive analysis of the study variables, as well as results of statistical analysis to test the research hypotheses. Discussion of the results as well as the implications arising from the findings is presented.

#### **4.2 General characteristics of the study sample**

The study was carried out in SME's in the agro-based food manufacturing sector within Kiambu County in Kenya. Kiambu County is among five counties in the country, identified for development of SME parks in line with the economic pillar of Kenya Vision 2030 (RoK, 2007). The aim of the SME parks is to move the economy up the value chain.

The agro-based food manufacturing SME's surveyed carry out various activities such as Dairy processing, Fruit juices processing, Bakeries, Flour milling, Beverages( tea and coffee) processing, and those in other categories include activities such as roasting and packaging of nuts (pea-nuts, cashew nuts and macadamia nuts),

making potato crisps, processing and packaging of spices. They all carry out some form of food processing.

#### **4.2.1 Response rate**

According to Orodho (2003), response rate is the extent to which final data sets include all sampled members. It is the percentage of respondents who successfully responded to the survey carried out. Various response rates were observed in different recent studies in entrepreneurship focusing on SME's. Kimandu (2015) reported a response rate of 98% on a study on the relationship between government regulations and entrepreneurial orientation of small and medium enterprises in Kenya. Bunyasi (2015) reported a response rate of 93%, on a study to assess entrepreneurial factors influencing the growth of SME's in Thika district in Kenya. On this basis the researcher adjusted the number of questionnaires to be taken to the field. The response rate in the sector was taken to be 90%. The sample size was calculated and found to be 69. The questionnaires that were taken to the field were worked out as follows:  $(69 * 100 / 90) = 77$ .

The questionnaires distributed were 77. Of these, 50 were received back. This works out to  $(50/77 * 100) = 65\%$  but based on the sample size this works out to  $(50/69 * 100) = 72\%$ . According to Mugenda and Mugenda (2003), 50 % response rate is considered adequate, 60% is good, while, above 70% is considered excellent. Randal (1990), asserts that a response rate of 50% is adequate, while Rogers, Miller and Judge (2009), assert that a response of 50% is acceptable in descriptive social sciences. In the light of the above, the 72 % response rate obtained in this study is reasonable.

#### **4.2.2 Business Activities**

Table 4.1 below summarises the various business activities carried out by the agro-base manufacturing SMEs.

**Table 4 .1: Business Activites**

<b>Business Activity</b>	<b>Frequency</b>	<b>Percentage (%)</b>
Dairy processing	7	14
Fruit juice processing	7	14
Bakery	10	20
Flour Milling	8	16
Beverages	5	20
Any other	3	6
<b>Total</b>	<b>50</b>	<b>100</b>

The agro –based food manufacturing SME’s carried out various activities as shown in table 4.1. The respondents involved in dairy processing activities were 16%, those involved in fruit juice manufacturing were 14%, those who carried out flour milling activities were 16%, and those who processed beverages were 10 %, while those in other categories were 12%. Those in other categories included activities such as making and packaging of potato crisps, roasting of packaging of nuts among others, and amounted to 24%.

**Table 4. 2: Business Type and sales increase Cross Tabulation**

		volume of sales has increased in the last three years				<b>Total</b>
		disagree	neutral	agree	strongly agree	
business type	doiry	0	0	6	2	<b>8</b>
	processing					
	fruit juices	0	0	4	3	<b>7</b>
	Bakery	2	2	3	3	<b>10</b>
	flour milling	3	1	2	2	<b>8</b>
	Beverages	0	0	3	2	<b>5</b>
	any other	1	3	4	4	<b>12</b>
<b>Total</b>		<b>6</b>	<b>6</b>	<b>22</b>	<b>16</b>	<b>50</b>

( Chisquare =16.375, df=15)

The determined chi square is 16.375 at 15 degrees of freedom, the table value at 15 degrees of freedom when the level of significance is 0.05, the chi square is 25.00. Calculated value is less than the table value which implies there is no significant difference between the sample and the population. This implies that the sample is representative of the population.

#### **4.2.3 Business Ownership**

The ownership of the SMEs falls into three categories. Solely owned business is 58%, partnerships are 26 %, while family businesses are 16% of the sample studied as shown in Table 4.3.

**Table 4.3: Business Ownership**

<b>Business Ownership</b>	<b>Frequency</b>	<b>Percentage (%)</b>
Sole ownership	29	58
Partnership	13	26
Family Business	8	16
<b>Total</b>	<b>50</b>	<b>100</b>

The majority of the SMEs are solely owned. It is possible also that family businesses may either be solely owned or partnerships.

**Table 4.4: Business Ownership and sales increase Cross Tabulation**

		volume of sales has increased in the last three years				<b>Total</b>
		disagree	neutral	agree	strongly agree	
Ownership	sole ownership	4	5	11	9	<b>29</b>
	partnership	2	1	6	4	<b>13</b>
	Family business	0	0	5	3	<b>8</b>
<b>Total</b>		<b>6</b>	<b>6</b>	<b>22</b>	<b>16</b>	<b>50</b>

(Chi Square= 3.956, df =6)

The determined chi square is 3.956 at 6 degrees of freedom, the table value at 6 degrees of freedom when the level of significance is 0.05, the chi square is 12.59. Calculated value is less than the table value which implies there is no significant difference between the sample and the population. This implies that the sample is representative of the population.

#### **4.2.4 Period of operation**

As shown in Table 4.5 below, only 6% of the businesses have been in operation for 3 years and below. The businesses that have been in operation for 3-5 years are 32 %, while 52% of the businesses have been in operation for 8-10 years.

**Table 4.5: Period of Operation**

Period of operation in Years	Frequency	Percentage (%)
0-3	3	6
3-5	16	32
5-8	26	52
8-10	5	10
Total	50	100

It is observed that the highest number of SMEs have been in operation for a period of 5-8 years and this is 52%. It is also observed that only 10 % of the SMEs have been in operation for between 8-10 years.

**Table 4.6: Period of Operation and Increase in sales Cross Tabulation**

		volume of sales has increased in the last three years				Total
		disagree	neutral	agree	strongly agree	
operation period	0-3 years	0	0	0	3	3
	3-5 years	2	3	7	4	16
	5-8 years	4	2	11	9	26
	8-10 years	0	1	4	0	5
<b>Total</b>		<b>6</b>	<b>6</b>	<b>22</b>	<b>16</b>	<b>50</b>

(Chi square =3.956, df =9)

The determined chi square is 3.956 at 9 degrees of freedom, the table value at 9 degrees of freedom when level of significance is 0.05, the chi square is 17.54. Calculated value is less than the table value which implies there is no significant difference between the sample and the population. ,hence the sample is a true representation of the population.

#### 4.2.5 Number of Employees

The SMEs with 1-10 employees are 60%. Those with 11-20 employees are 32%, those with 21-30 employees are 6%, while those with 31-40 employees are 2% as shown in Table 4.7 below

**Table 4. 7: Number of Employees**

<b>Number of Employees</b>	<b>Frequency</b>	<b>Percentage (%)</b>
1-10	30	60
11-20	16	32
21-30	3	6
31-40	1	2

It is observed that the highest number of employees which is between 31-40 was in only one SME.

**Table 4. 8: Number of Employees and Increase in sales Cross Tabulation**

		volume of sales has increased in the last three years				<b>Total</b>
		disagree	neutral	agree	strongly agree	
number of employees	1-10	5	5	12	8	<b>30</b>
	11-20	1	1	7	7	<b>16</b>
	21-30	0	0	3	0	<b>3</b>
	31-40	0	0	0	1	<b>1</b>
Total		6	6	22	16	<b>50</b>

(Chi square =8.980, df =9)

The determined chi square is 8.980 at 9 degrees of freedom, the table value at 9 degrees of freedom when level of significance is 0.05, the chi square is 17.54. Calculated value is less than the table value which implies there is no significant difference between the sample and the population. This implies that the sample is a true representation of the sample.

#### **4.2.6 Level of Education of Entrepreneurs**

As shown in Table 4.9 below, 6% of the entrepreneurs have secondary school level of education, those with a certificate level are 22%, and those with diploma level of education are 42%, while those with a university degree are 30%.

**Table 4. 9: Level of Education of Entrepreneurs**

Level of Education	Frequency	Percentage
Secondary School	3	6
Certificate Level	11	22
Diploma Level	21	42
University Level	15	30
<b>Total</b>	<b>50</b>	<b>100</b>

The highest number of entrepreneurs are diploma holders which is 42%, followed by university graduates which is 30%

**Table 4. 10: Level of Education of Entrepreneurs and sales increase Cross tabulation**

		Volume of sales has increased in the last three years				Total
		Disagree	Neutral	Agree	Strongly Agree	
highest level of education	Secondary	0	0	0	3	3
	Certificate	0	2	4	5	11
	Diploma	5	2	9	5	21
	university degree	1	2	9	3	15
<b>Total</b>		<b>6</b>	<b>6</b>	<b>22</b>	<b>16</b>	<b>50</b>

(Chi square = 13.73 df = 9)

The determined chi square is 13.73 at 9 degrees of freedom, the table value at 9 degrees of freedom when level of significance is 0.05, the chi square is 17.54. Calculated value is less than the table value which implies there is no significant difference between the sample and the population. This implies that the sample is representative of the population.

### 4.3 Reliability Analysis

Reliability test examines the degree to which individual items used in the constructs are consistent with their measures, (Nunnally1978). Cronbach’s co-efficient alpha was employed to asses internal consistency. Reliability of 0.70 is normally accepted in basic research according to Bryman and Cramer (1997). A cronbach reliability value of 0.60 is the minimum acceptable value according to Zikmund (2003). When the reliability tests were done, the alpha co-efficients ranged between 0.65 and 0.85 as shown in Table 4.11 below.

**Table 4. 11: Reliability Co-efficient of the Study Variables**

<b>Entrepreneurial Orientation Practices</b>	<b>Number of Items</b>	<b>Reliability Cronbach’s Alpha</b>	<b>Comments</b>
Autonomy	9	0.723	Accepted
Innovativeness	9	0.811	Accepted
Proactiveness	8	0.812	Accepted
Risk Taking propensity	8	0.653	Accepted
Competitive Aggressiveness	10	0.850	Accepted

The items tested were rated as reliable and therefore acceptable for this study. Following the pilot test analysis, for reliability using the cronbach alpha, some items were dropped during the data analysis as indicated where the same applies. The questionnaire was revised in the sections which did not come out clearly to the respondents as observed in the pilot study. The reliability tests were aimed at getting the goodness of the data, which leads to credibility of the data being analyzed.

### 4.4 Descriptive and Qualitative Analysis of Study Variables

This section discusses the descriptive statistics of the study variables on the relationship between entrepreneurial orientation on performance of small and medium enterprises in the agro-based manufacturing sector in Kiambu County. The discussion is divided into parts comprising the independent variables, the dependent

variables and the moderating variable. Each of the variables is discussed individually. Reverse coding was done for one item in each of the likert scale questions for each of the five dimensions of EO. In autonomy item J, in innovativeness item I, in risk taking item H, in Proactiveness item I and in competitive aggressiveness item D. the items were negatively stated and hence the need for reverse coding.

#### **4.4.1 Relationship between Autonomy Performance of Agro-based Manufacturing SMEs**

**Objective 1:** To analyze the relationship between autonomy aspect of an entrepreneur, and the performance of agro-based manufacturing SMEs in Kiambu County. The study sought to analyze the relationship between autonomy of the entrepreneur and performance of the SMEs. Ten items which depicted the influence of autonomy on performance of SMEs were subjected to descriptive analysis through the use of percentages, mean and standard deviation. A five point likert scale, with ten survey statements, were used to evaluate practice of autonomy in the SMEs. The results of the findings are in Table 4.12 below.

**Table 4.12: Relationship between Autonomy and Performance of SMEs**

Opinion Statements	SD %	D%	N%	A%	SA%	M	SD
(a) Inclined to make own decisions about working methods	0	0	4	68	28	4.2	0.64
(b) Always set business goals	0	0	2	66	30	4.3	0.53
(c) Always regulate my time	0	0	4	68	28	4.2	0.52
(d) Responsible for results of all my decisions	0	2	10	56	32	4.2	0.69
(e) Employees have freedom to decide on their own working methods	14	34	28	20	4	2.7	1.08
(f) Employees have freedom to set their own targets	10	26	18	28	18	3.2	1.38
(g) Employees are allowed to seek new business opportunities.	12	32	30	22	4	2.7	1.06
(h) Employees are allowed to decide on business opportunities to be pursued	20	56	18	4	2	2.1	0.85
(i) Responsible for results of all decisions made	0	2	10	62	26	4.1	0.66
(j) Employees never have authority to make any decisions	14	28	22	28	8	2.88	1.21

*N=50, Cronbach alpha =0.723 with 9 items (item j dropped)*

*SD= Strongly Disagree, D= disagree, N=Neutral, SA strongly Agree,*

*SD=Standard deviation*

The findings of the opinion of the entrepreneurs show that 68% of the entrepreneurs agree that they are inclined to make their own decisions about their working methods. Another 66% agree that they always set their business goals. Those that agree that they always regulate their time are 68%. Another 62% agree that they are

responsible for results of all decisions that they make. From the findings of the study it is further noted that the mean of the responses of the statements used to measure autonomy range from 3.2 to 4.3, this shows that the majority of the respondents are in agreement with the statements used to measure autonomy.

It is noted that four items have a mean of 2.1 to 2.7; this items have to do with the amount of freedom given to employees. Similarly the standard deviation of six of the items ranges from 0.52 to 0.85. It can be deduced that the response on the items did not deviate much from the expected responses. However the standard deviation of the four items that relate on the amount of freedom given to employees in decision making, range between 1.06 and 1.38. This implies that the responses deviate from the expected. Entrepreneurs do not give much freedom to their employees on issues of decision making from the findings of this study.

#### **4.4.2 Relationship between Entrepreneur's Innovativeness and Performance of Agro-based Manufacturing SMEs**

**Objective 2:** To assess the relationship between the entrepreneurs's innovativeness and the performance of agro-based manufacturing SMEs in Kiambu County.

The study sought to find the relationship between the entrepreneur's innovativeness and the performance of the agro-based manufacturing SME's.

**Table 4.13: Relationship Between Innovativeness and Performance of SMEs**

<b>Opinion statements</b>	<b>SD%</b>	<b>D%</b>	<b>N%</b>	<b>A%</b>	<b>SA%</b>	<b>M</b>	<b>SD</b>
(a) Entrepreneur always looks out for new business opportunities.	14	28	22	28	8	4.2	0.57
(b) Entrepreneur always looks out for new markets to target	0	0	8	64	28	4.3	0.54
(c) Entrepreneur creates new products that provide value for all customers	0	0	22	52	26	4.0	0.70
(d) Entrepreneur reaches out to customers through social media	0	6	28	46	20	3.8	0.83
(e) Entrepreneur creates value for customers through partnerships.	0	14	16	56	14	3.7	0.89
(f) Entrepreneur regularly improves the existing products.	0	0	2	74	24	4.2	0.46
(g) Entrepreneur regularly improves production process	0	4	22	58	16	3.9	0.73
(h) Entrepreneur improves customer service through mobile money payment	2	6	6	66	20	4.0	0.83
(i) Entrepreneur remains in the same business and targets only existing markets	36	52	8	4	0	1.8	0.76
(j) Encourage development of employees ideas for the purposes of business improvement	0	3	18	7	0	3.7	0.80

*N=50, Cronbach alpha =0.811 with 9 item. (Item i dropped.)*

*SD= Strongly Disagree, D= Disagree, N= Neutral, A= Agree SA= Strongly Agree*

*SD= Standard Deviation*

From the findings, 64% of the entrepreneurs agree that they always look for new markets to target while 52% of the entrepreneurs agree that they create new products that provide value for their customers. Another 56% of the entrepreneurs agree that they create value for their customers through partnerships, 74% agree that they regularly improve their existing products. From the findings, 66% of the entrepreneurs improve customer service through mobile money payment. Of all the entrepreneurs, 98% do not remain in the same business and they do not target only

the existing markets. They are innovative in getting into different businesses as well as targeting new markets.

The mean of the responses used to measure the entrepreneur's innovativeness is between 3.5 and 4.2, as indicated in Table 4.13 this implies that the respondents agree with the statements on innovativeness. The standard deviation of all the items is within the range of 0.54 to 0.83. This implies there is no much variation in the opinions of the respondents as far as innovativeness is concerned.

#### **4.4.3 Relationship between the Entrepreneur's Risk taking Behavior and Performance of Agro-based Manufacturing SMEs**

**Objective 3:** To examine the relationship between the entrepreneurs's risk taking behavior and the performance of agro-based manufacturing SMEs in Kiambu County. From the findings in Table 4.14, on the influence of the entrepreneurs risk taking behavior, on performance of agro-based manufacturing SMEs 54% of the respondents agree to taking calculated risks, while 62% are willing to accept a certain level of risk in terms of losses Another 62% of the respondents agree that they never shy away from taking up an opportunity due to the risk of failure.

**Table 4.14 : Relationship between Entrepreneur’s Risk taking behavior and Performance of Agro- based Manufacturing SMEs**

<b>Opinion statements</b>	<b>SD%</b>	<b>D%</b>	<b>N%</b>	<b>A%</b>	<b>SA</b>	<b>M</b>	<b>SD</b>
(a) Always take calculated risk.	0	6	12	54	28	4.0	0.81
(b) Always Willing to accept a certain level of risk in terms of losses.	0	0	4	62	34	4.3	0.54
(c) Encourage employees to take risks without fear of punishment	16	36	16	22	10	2.7	1.26
(d) Never shy away from taking up an opportunity due the risk of failure.	0	4	18	62	16	3.9	0.71
(e) Always take calculated risk with new ideas.	0	6	18	48	28	4.0	0.84
(f) Strong tendency to commit huge resources for high risk projects.	12	22	28	26	12	3.0	1.21
(g) Aggressively exploit potential opportunities regardless of uncertainty.	8	20	28	28	16	3.24	1.19
(h) Never Ventures into risky projects.	16	62	4	10	8	2.32	1.11
(i) Always seek financial credit as a means of funding the business.	2	38	12	32	16	3.22	1.18
(j) Always tend to venture into businesses that no one else has ventured into.	2	12	44	36	6	3.32	0.84

*N=50, Cronbach alpha = 0.653 with 8 items. (Items c and h dropped).*

*SD= Strongly Disagree, D= Disagree, N= Neutral, A= Agree SA= Strongly Agree*

*SD= Standard Deviation*

The mean of the respondents is between 3.0 and 4.0 for 9 of the statements. The statement on employees being encouraged to take risks without fear of punishment is 2.7. It implies entrepreneurs do not entrust their employees to take risks, while they however take risks. The standard deviation ranges from 0.54 to 1.26, this implies there is no great variation from the opinions of the respondents.

The statement on allowing employees to take risks has the greatest variation of 1.26. The opinion of the entrepreneurs on whether employees should take risk without fear of punishment is quite varied. It implies while they can bear their own outcome from risk taking, they cannot do the same for their employees. Having invested in the business and knowing the cost implication of an unsuccessful risky decision, the entrepreneurs are hesitant to allow risk taking in decision making in the business.

#### **4.4.4 Relationship between Entrepreneur's Proactiveness and Performance of Agro-based Manufacturing SMEs**

**Objective 4:** To assess the relationship between entrepreneurs's Proactiveness, and the performance of agro-based manufacturing SMEs in Kiambu County.

From the findings in Table 4.15, the respondents agree that they always strive to enter new markets (96%). Another 80% agree to introducing new business processes so as to keep up with emerging technologies. Another 78% pursue different marketing strategies, such as use of social media. It is noted that 98% of the respondents always strive to improve product quality.

The mean of the responses from the statements ranges from 3.9 to 4.2, this implies that they are in agreement with the statements. The standard deviation lies between 0.54 and 0.90; therefore there is no great variation on the opinions of the respondents in the statements used to measure Proactiveness.

**Table 4.15: Relationship between Entrepreneur’s Proactiveness and Performance of Agro- based Manufacturing SMEs**

<b>Opinion statements</b>	<b>SD%</b>	<b>D%</b>	<b>N%</b>	<b>A%</b>	<b>SA</b>	<b>M</b>	<b>SD</b>
(a)Always strive to enter new markets	0	0	4	62	34	4.3	0.54
(b) Regularly introduce new products for emerging markets	0	8	14	54	24	3.9	0.84
( c) Introduce new production technology to improve efficiency	0	2	22	62	14	3.9	0.66
(d) Introduce new business processes to keep up with emerging technologies.	0	4	16	66	14	3.9	0.68
(e) Strive to seek opportunities for partnerships.	0	8	14	22	6	3.5	0.90
(f) Strive to lower cost to improve market share.	0	10	8	58	24	4.0	0.86
(g) Always strive to improve product quality.	0	0	2	58	40	4.4	0.53
(h) Always improve products to improve customers’ experiences	0	0	4	76	20	4.2	0.51
(i) Never seek new markets	56	38	4	0	2	1.54	0.80
(j) Pursue different marketing strategies such as use of social media	0	36	16	54	24	3.9	0.81

*N=50, Cronbach alpha =0.8 with 8 items. ( items f and I dropped).*

*SD= Strongly Disagree, D= Disagree, N= Neutral, A= Agree SA= Strongly Agree*

*SD= Standard Deviation*

#### **4.4.5 The relationship between Entrepreneur’s Competitive Aggressiveness and Performance of Agro-based Manufacturing SMEs**

**Objective 5:** To analyze the relationship between competitive aggressiveness of the entrepreneur and Performance of agro-based manufacturing SMEs in Kiambu County.

**Table 4.16: Relationship between Entrepreneur’s Competitive Aggressiveness and Performance of Agro- based Manufacturing SMEs**

<b>Opinion statements</b>	<b>SD%</b>	<b>D%</b>	<b>N%</b>	<b>A%</b>	<b>SA</b>	<b>M</b>	<b>SD</b>
(a) Often introduce new products ahead of the competitors.	0	16	20	42	22	3.7	0.99
(b) Try to introduce new products to beat existing competitors’ position.	0	2	12	52	34	4.2	0.72
(c) Change the production process to make them more efficient than the competitors.	0	4	14	56	26	4.0	0.75
(d) Never the first to introduce new products.	22	38	30	20	0	2.28	0.93
(e) Strive to lower costs to offer lower prices than the competitors.	0	14	18	38	30	3.8	1.02
(f) Seek to use emerging techniques to reach out to customers ahead of competitors.	0	2	24	38	36	4.08	0.83
(g) Ensure quality of products is better than that of the competitors.	0	0	8	50	42	4.3	0.63
(h) Strive to create partnership ahead of the competitors.	0	20	14	30	36	3.82	1.14
(i) Ensure competitors are reacting to my actions.	0	6	24	34	36	4.00	0.93

*N=50, Cronbach alpha = 0.850with 10items.*

*SD= Strongly Disagree, D= Disagree, N= Neutral, A= Agree SA= Strongly Agree*

*SD= Standard Deviation*

The fifth objective, sought to analyze the relationship between competitive aggressiveness of the entrepreneur and the performance of agro-based SMEs.

The respondents are in agreement that they often introduce new products ahead of the competitors (64%) as shown in Table 4.16. The respondents also agree that they

try to introduce new products to beat the existing competitor's position (86%). Another 66% of the respondents agree that they strive to create partnerships ahead of their competitors, while 92% agree that they ensure the quality of their products is better than that of their competitors.

It can be noted from the results that the mean of the items falls between 3.8 and 4.0, this implies that majority of the respondents agreed with the statements, implying that the items captured the element of competitive aggressiveness. The standard deviation falls between 0.66 and 1.02 implying there is no much variation in the responses of the entrepreneurs.

#### **4.5 Performance of Agro-based Manufacturing SMEs in Kiambu County**

The entrepreneurs were asked to indicate to what extent they agreed with various statements that would indicate the performance of their businesses. The statements asked about increase of sales in the business for the last three years, increase in the number of employees, opening of new branches, as well as increase in the assets of the business among others. The findings are summarised in Table 4.17 below. The volume of sales has increased in the last three years, 76% of the respondents are in agreement. Another 70% are in agreement that the number of employees has increased in the last three years, while 30% of the businesses have opened new branches in the last three years.

**Table 4.17: Performance of Agro- based Manufacturing SMEs**

<b>Opinion Statements</b>	<b>SD%</b>	<b>D%</b>	<b>N%</b>	<b>A%</b>	<b>SA%</b>	<b>M</b>	<b>SD</b>
(a) Volume of sales has increased in the last three years.	0	12	12	44	32	3.96	0.968
(b) Number of employees has increased in the last three years.	2	22	6	46	24	3.68	1.13
(c) New branches have been opened in the last three years	2	50	18	22	8	2.84	1.06
(d) Recurrent expenditure has increased in the last three years	0	4	24	42	30	3.98	0.845
(e) Customer Loyalty has increased in the last three years.	0	4	34	36	26	3.84	0.866
(f) Market share has increased in the last in the last three years.	0	12	32	36	20	3.64	0.942
(g) Profitability has increased in the last three years.	0	20	14	42	24	3.70	1.05
(h) Assets have increased in the last three years.	0	22	6	48	24	3.74	1.06
(i) Products have been diversified in the last three years.	0	10	10	66	14	3.84	0.792
(j) Cost of production has decreased in the last three years.	18	40	16	20	6	2.56	1.18

*N=50, Cronbach alpha = 0.889 with 9 items. (Item J dropped)*

*SD= Strongly Disagree, D= Disagree, N= Neutral, A= Agree SA= Strongly Agree*

*SD= Standard Deviation*

Seventy-two percent agreed that the recurrent expenditure in the business has increased, while 62% agree that customer loyalty has increased in the last three years. Another 72% agree that assets have increased in the last three years, while

80% have diversified their products over the same period. From the findings, it can further be noted that the mean of the statements used to measure performance ranges between 3.64 and 3.98, except for two items, with a mean of 2.84 and 2.56. This shows that majority of the respondents are in agreement with the statements used to measure performance. Similarly, the standard deviation of the items, ranges between, 0.792- to 1.18. It can be deduced that the responses to the items do not deviate much, from the expected responses.

#### **4.6 Construction of Study Variables**

The study variables were obtained by aggregating the likert scale items that met the threshold as per Cronbach alpha for each of the five entrepreneurial orientation dimensions namely: autonomy, innovativeness, proactiveness, risk taking propensity and competitive aggressiveness. The entrepreneurial orientation dimensions are the independent variables, while the performance of the SMEs is the dependent variable. The performance of the SMEs was obtained from aggregating likert scale items used to measure performance among them: increase in volume of sales for the last three years, increase in the number of employees, opening of new branches, increase in recurrent expenditure, and increase in profitability among others. The level of education of the entrepreneurs is the moderating variable. The level of education of the entrepreneurs was dichotomized into the categories of graduates and non graduates. Table 4.18 below summarises the construction of the study variables.

**Table 4.18: Construction of the Study Variables**

<b>Variables</b>	<b>Type</b>	<b>Items</b>	<b>Variable Construct</b>
Performance of SMEs	Dependent	<ul style="list-style-type: none"> <li>• Annual earnings</li> <li>• Value of the business</li> <li>• Number of employees</li> <li>• Number of years of operation</li> </ul>	Y
Entrepreneurs Autonomy	Independent	<ul style="list-style-type: none"> <li>• Individual goal setting</li> <li>• Time management</li> <li>• Responsibility on outcomes from decision making</li> <li>• Freedom of employees to decide on methods and targets</li> <li>• Freedom of employees to seek and pursue opportunities</li> </ul>	X <sub>1</sub>
Entrepreneurs Proactiveness	Independent	<ul style="list-style-type: none"> <li>• Finding of new businesses and markets to target</li> <li>• Creation of new products</li> <li>• Finding of non-product means of creating values to customers</li> <li>• Seeking new partnership</li> </ul>	X <sub>3</sub>
Entrepreneurs Risk taking	Independent	<ul style="list-style-type: none"> <li>• Acceptance of a certain level of risk</li> <li>• Balancing the risk of losing an opportunity and risk of failure</li> </ul>	X <sub>4</sub>
Entrepreneurs Innovation	Independent	<ul style="list-style-type: none"> <li>• Introduction of new products</li> <li>• Introduction of new processes</li> <li>• Use of different methods to advertise</li> </ul>	X <sub>2</sub>
Entrepreneurs Competitiveness	Independent	<ul style="list-style-type: none"> <li>• Initiation of changes in the market</li> <li>• Undoing of the competitors position</li> <li>• Introduction of new products and methods a head of competitors.</li> </ul>	X <sub>5</sub>
Entrepreneurs Education	Moderating	Level of formal education	Z

As shown in table 4.18 above, X<sub>1</sub> is the independent variable Autonomy, X<sub>2</sub> is the independent variable Innovativeness, X<sub>3</sub> is the independent variable Proactiveness, X<sub>4</sub> is the independent variable Risk taking propensity and X<sub>5</sub> is the independent variable Competitive aggressiveness. The dependent variable Y is the Performance of the agro-based manufacturing SMEs and the moderating variable Z is the level of education of the entrepreneurs.

#### 4.7 Conditional tests for multiple linear regression

Regression can only be accurately estimated if the basic assumptions of multiple linear regressions are observed Greene (2003). Therefore, various diagnostic tests which included normality tests and autocorrelation tests were conducted to ensure accuracy of the results.

##### 4.7.1 Normality Test

Tests of normality were used to determine if the data is well modelled and normally distributed (Gujarati, 2002). According to Ghasemin and zahediasi (2012) the variables are supposed to be roughly normally distributed especially if the results are to be generalized beyond the sample.

**Table 4.19: One-Sample Kolmogorov-Smirnov Test**

			X <sub>1</sub>	X <sub>2</sub>	X <sub>3</sub>	X <sub>4</sub>	X <sub>5</sub>	Y	Z
N			50	50	50	50	50	50	50
Norma l P a r a m e t e r s <sup>a,b</sup>	M e a n	Mean	3.454	3.70	3.54	3.62	3.64	3.60	3.88
		Std.	1.215	1.229	1.258	1.270	1.326	1.297	1.339
		Deviation							
M o s t E x t r e m e D i f f e r e n c e	A b s o l u t e P o s i t i v e N e g a t i v e	Absolute	.302	.308	.299	.328	.288	.313	.301
		Positive	.252	.265	.260	.258	.267	.259	.264
		Negative	-.302	-.308	-.299	-.328	-.288	-.313	-.301
Kolmogorov- Simonov		.302	.308	.299	.328	2.88	.313	.301	
Asymp. Sig. (2-tailed)		.000 <sup>c</sup>	.000 <sup>c</sup>	.000 <sup>c</sup>	.000 <sup>c</sup>	000 <sup>c</sup>	.000 <sup>c</sup>	.000 <sup>c</sup>	

a. Test distribution is Normal.

b. Calculated from data.

c. Lilliefors Significance Correction.

The study used Kolmogorov- Simonov normality test. In Kolmogorov- Simonov test, if the tests of normality will yield a figure of less than 0.05 it will mean that the data is not normally distributed. The Kolmogorov- Smirnov test is shown in Table 4.19, show values ranging from 0.299 to 0.328 which are all more than 0.05, which is an indication that all variables are approximately normally distributed with a p value of 0.000 which is less than the level of significance of 0.05.

#### 4.7.2 Auto correlation Test

Autocorrelation is correlation between the residue terms for any two observations; it is expected that the residue terms for any two observations should be independent (Field, 2005; Levine, Fustephan, Krehbiel & Berenson, 2004). Durbin-Watson test was used to test for the presence of autocorrelation between variables. Gujarati (2003) observed that Durbin-Watson statistic ranges from 0 to 4. A value near 0 indicates positive autocorrelation while a value close to 4 indicates negative autocorrelation. A value ranging from 1.5 to 2.5 indicates that there is no presence of statistically significant autocorrelation, thus it was applied in the study.

**Table 4.20: Measure of Autocorrelation - Durbin-Watson**

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Durbin-Watson
1	.676 <sup>a</sup>	.484	.507	.10929	1.511
2	.723 <sup>b</sup>	.388	.296	.36014	1.658

a. Predictors: (Constant), X5 X4, X3, X2, X1

b. Predictors: (Constant), X5\*Z, X4\*Z, X3\*Z, X2\*Z, X1\*Z

c. Dependent Variable: Y

Table 4.20 shows that the value for Durbin-Watson for model 1 (without moderating variable) was 1.511 and model 2 (with moderating variable) was

1.658 implying that the variables were not correlated in any statistically significant way and this ensured the independence of errors and enhanced accuracy of the regression models.

#### **4.7.3 Multi -Collinearity Test**

Multi-co linearity occurs in statistics where two or more predictor variables in a multiple regression model are highly correlated (Bickel, 2007). The Gauss-Markov assumption only requires that there be no perfect multi-co linearity and so long as there is no perfect multi-co linearity the model is identified. This means the model can estimate all the coefficients and that the coefficients will remain best linear unbiased estimates and that the standard errors will be correct and efficient (Runkle *et al.*, 2013). Variance Inflation Factor (VIF) was used to measure the problem of multi-co linearity in the multiple regression models. VIF statistic of a predictor in a model is the reciprocal of tolerance and it indicates how much larger the error variance for the unique effect of a predictor is.

Cohen and Cleveland (2013) defines Variance Inflation Factor (VIF) as an index of the amount that the variance of each regression coefficient is increased relative to a situation in which all of the predictor variables are uncorrelated and suggested a VIFs of 10 or more to be the rule of thumb for concluding VIF to be too large hence not suitable.

**Table 4.21: Multicollinearity Test for the Study Variables**

Independent Variables	Tolerance	VIF
Autonomy	0.767	2.153
Innovativeness	0.883	2.277
Proactiveness	0.751	1.275
Risk Taking	0.667	1.864
Competitive Aggressiveness	0.599	1.576

The results of tolerance and VIF are shown in Table 4.21 which shows that is no statistically significant multi-co linearity among the independent variables because no variable was observed to have VIF value of above 10 and no tolerance statistic was below 0.100 as suggested by Hamilton (2012).

#### **4.8 Inferential Statistics**

The researcher sought to establish the bivariate nature of the dependent and independent variables. Correlation analysis and multiple linear regressions were used. To evaluate the strength of the relationship, bivariate correlation was used. Multiple linear regressions were further used to establish the nature of the relationship. Inferential statistics were further used to test the null hypotheses for possible acceptance or rejection.

##### **4.8.1 Correlation Analysis between Study Variables**

Correlation coefficient index was determined using Pearson product correlation coefficient (r). The correlation coefficient index shows the magnitude and direction of relationship between the study variables. Correlation coefficient index has a range of negative one, through zero to positive one ( $-1 \leq r \leq +1$ ). According to Mugenda

(2008), a correlation coefficient of 0.3 is sufficient to conclude that there is a significant relationship.

#### **4.7.2 To analyze the relationship between autonomy of an entrepreneur and the performance of agro-based SMEs**

The correlation between autonomy and performance of the agro-based SMEs, was found to be significantly different from zero ( $r = 0.652$ ,  $P < 0.001$ ). This is shown in Table 4.22 below. The study concludes that there is a strong positive relationship between the performance of the SMEs and the autonomy. As the level of autonomy increases, so does the performance of the SMEs. This is in agreement with a study by Coulthard (2007). He argued that firms cannot function entrepreneurially without giving autonomy to their employees. His finding showed that autonomy is the most important factor for improving firm's performance across industries

**Table 4. 22: Correlation between Autonomy and SMEs Performance.**

		Performance	Autonomy
Performance	Pearson	1	.652**
	Correlation		
	Sig. (2-tailed)		.000
	N	50	50
Autonomy	Pearson	.652**	1
	Correlation		
	Sig. (2-tailed)	.000	
	N	50	50

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

#### **4.7.3 To assess the relationship between the entrepreneur's innovativeness and performance of agro-based manufacturing SMEs in Kiambu County.**

The analysis further reveals that there is a significant linear relationship between innovativeness and performance of the SMEs. The correlation Coefficient index is 0.833 at P value less than 0.001 ( $r = 0.833$ ,  $P < 0.001$ ). This is shown in Table 4.23 below.

**Table 4.23: Correlation Between Innovativeness and SMEs Performance.**

		Performance	Innovativeness
Performance	Pearson	1	.833**
	Correlation		
	Sig. (2-tailed)		.000
	N	50	50
Innovativeness	Pearson	.833**	1
	Correlation		
	Sig. (2-tailed)	.000	
	N	50	50

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

The study concludes that there is a strong positive relationship between autonomy and the performance of the agro-based manufacturing SMEs. As the level of autonomy increases, so does the performance of the SMEs. This is in agreement with a study by Mohammad (2009.) The study on the effect of innovativeness on firm performance: an investigation of Iran state companies revealed that value added innovativeness and its components had a significant positive relationship with companies' profitability.

#### **4.7.4 To assess the relationship between the entrepreneur's Proactiveness and the performance of agro-based manufacturing SMEs in Kiambu County**

The correlation between Proactiveness and performance of the SMEs was found to be significantly different from zero ( $r = 0.704$ ,  $P < 0.001$ ). This is shown in table 4.24 above

**Table 4.24: Correlation Between Proactiveness and SMEs Performance**

		Perfomance	Proactiveness
Perfomance	Pearson	1	.704**
	Correlation		
	Sig. (2-tailed)		.000
	N	50	50
Proactiveness	Pearson	.704**	1
	Correlation		
	Sig. (2-tailed)	.000	
	N	50	50

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

.As the level of Proactiveness increases, the performance of the SMEs also increases. The study concluded that there is a significant relationship between Proactiveness and the performance of the business. As the entrepreneur’s Proactiveness increases, the performance of the SMEs also increases. This is in agreement with a study by Hughes and Morgan (2007).The study found that proactiveness helps firms in anticipating market changes and acting accordingly, which allows the firms to have a strong position in shaping the competition in the market over time. This will in turn lead to improved performance.

#### **4.7.5 To examine the relationship between the risk taking behavior of an entrepreneur and the performance of agro-based manufacturing SMEs in Kiambu County.**

The correlation between risk taking behavior and performance of the SMEs was found to be significantly different from zero, ( $r = 0.636$ ,  $P < 0.001$ ). This is shown in Table 4.25 below. This is strong positive correlation and hence significant. The study concludes that there is a significant relationship between risk taking and performance of the SMEs.

**Table 4.25: Correlation Between Risk taking and SMEs Performance**

		Performance	Risk taking
Performance	Pearson	1	.636**
	Correlation		
	Sig. (2-tailed)		.000
	N	50	50
Risk taking	Pearson	.636**	1
	Correlation		
	Sig. (2-tailed)	.000	
	N	50	50

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

The more the risk taking activities increase the more the performance increases. The results also reveal that there is a significant relationship between risk taking and performance of the SME. This is in agreement with a study by Olson *et al.*, (2002). The study examined the impact of top management team risk taking propensity on firm performance in United Kingdom. Performance was looked in terms of financial performance, innovation and stakeholders' performance. The study found out that firms with top management that are willing to take risk are able to achieve superior levels of both financial and non-financial performance.

#### **4.7.6 To analyze the relationship between competitive aggressiveness of an entrepreneur and the performance of agro-based manufacturing SMEs in Kiambu County.**

The correlation between competitive aggressiveness and performance of the SMEs was found to be significantly different from zero, ( $r= 0.833$ ,  $P < 0.001$ ). This is shown in table 4.26 below. As the competitive aggressiveness increases, the performances of the SMEs increase. It is a strong positive relationship which implies that as the level of competitive aggressiveness increases, the performance of the SME also increases. The study concludes that there is a significant relationship between competitive aggressiveness and Performance of the SME.

**Table4.26: Correlation between Competitive Aggressiveness and SMEs Performance**

		Performance	Competitive aggressiveness
Performance	Pearson Correlation	1	.512**
	Sig. (2-tailed)		.000
	N	50	50
Competitive aggressiveness	Pearson Correlation	.512**	1
	Sig. (2-tailed)	.000	
	N	50	50

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

Sig. (2-tailed)	.000	.000	.000	.000	
N	50	50	50	50	50

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

#### 4.8 Regression Analysis

Regression analysis was done in order to measure the ability of the independent variable(s) to predict an outcome in the dependent variable whether there is a linear relationship between them. In order to test the hypotheses of the regression model that there is no significant relationship between performance of the SMEs in the agro-based manufacturing sector in Kiambu county, and the five entrepreneurial orientation constructs, Analysis of Variance (ANOVA) was used. According to Anderson, Sweeney and Williams (2002) Analysis of Variance can be used to test the relationship between independent variables and performance of the SMEs and to test the goodness of fit of the regression model, that is, how well the model fits the data.

Cooper and Schindler (2003) argued that regression analysis can also be used determine the strength of the relationship between the independent and dependent variables and to determine the combined effect of all the independent variables on

the dependent variable. The coefficient of determination ( $R^2$ ) was used to measure the change in dependent variable explained by the change in independent variable(s). F –test was carried out to evaluate the significance of the overall model and to define the relationship between the dependent variable and independent variables; t- test was used to test the significance of the individual independent variables to the dependent variable.

#### 4.8.1 Regression Analysis for Autonomy and Performance of SMEs

The regression analysis results for autonomy and performance of SMEs is shown in Tables 4.27, 4.28 and 4.29 below.

**Table 4.27: Model Summary for Regression of Autonomy against Performance**

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.652 <sup>a</sup>	.425	.413	.52691

a. Predictors: (Constant), Autonomy

The value  $R^2 = 0.425$ , as shown in table 4.25 above, implies that autonomy explains 42.5% of the variation in performance.

**Table 4.28: Anova table for regression of Autonomy against performance of SMEs**

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	9.839	1	9.839	35.441	.000 <sup>a</sup>
	Residual	13.326	48	.278		
	Total	23.166	49			

a. Predictors: (Constant), Autonomy

A simple regression model was fitted to the data and it was found to be significant ( $F(1, 48) = 35.44, p < 0.001$ ). This is shown in Table 4.26 above. The hypothesis  $H_0: \beta_1 = 0$  (There is no significant relationship between autonomy and performance of agro-based manufacturing SMEs in Kiambu County), is therefore rejected. This is because  $\beta_1 = 0.652$ , and it is positive as shown in Table 4.27 below.

**Table 4.29: Coefficients for regression of Autonomy against performance of SMEs**

Model		Unstandardized		Standardized		
		Coefficients		Coefficients		
		B	Std. Error	Beta	T	Sig.
1	(Constant)	3.578	.075		48.017	.000
	Autonomy	1.062	.178	.652	5.953	.000

a. Dependent Variable:

Performance

Autonomy has a positive influence on performance of the SMEs in the agro-based manufacturing sector in Kiambu County. The model equation generated for Autonomy and performance,  $Y = \beta_0 + \beta_1 X_1$ ; which implies that:

$$Y = 3.578 + 0.652 X_1 \dots \dots \dots \text{equation 4.1}$$

Since Y is performance of the SMEs and  $X_1$  is autonomy, this means that Performance =  $3.573 + 0.652 * \text{Autonomy}$ . It is further noted that, one unit increase in autonomy performance increases by 1.062 units. This is in agreement with a study by Coulthard (2007). He argued that firms cannot function entrepreneurially without giving autonomy to their employees. His finding showed that autonomy is the most important factor for improving firm's performance across industries

#### 4.8.2 Regression Analysis for Innovativeness and Performance of SMEs

The regression analysis results for innovativeness and performance of SMEs is shown in Tables 4.30, 4.31 and 4.32.

**Table 4.30: Model Summary for Regression of innovativeness against Performance of the SMEs.**

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.833 <sup>a</sup>	.694	.688	.38408

a. Predictors: (Constant), Innovativeness

The value  $R^2 = 0.694$ , as shown in table 4.30 implies that innovativeness explains 69.4% of the variation in performance of the SMEs. A simple regression model was fitted to the data and it was found to be significant ( $F(1, 48) = 109.041$ ,  $p < 0.001$ ). This is shown in table 4.31

**Table 4. 31: Anova table for regression of Innovativeness against performance of SMEs**

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	16.085	1	16.085	109.041	.000 <sup>a</sup>
	Residual	7.081	48	.148		
	Total	23.166	49			

a. Predictors: (Constant), innovativeness

b. Dependent Variable: Performance

The hypothesis  $H_0: \beta_2=0$  (There is no significant relationship between innovativeness and performance of agro- based manufacturing SMEs in Kiambu County), is therefore rejected. This is because  $\beta_2 =0.833$ , and it is positive. Innovativeness has a positive influence on Performance.

**Table 4. 32: Coefficients for regression of Innovativeness against performance of SMEs**

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	3.578	.054		65.873	.000
	Innovativeness	1.053	.101	.833	10.442	.000

a. Dependent Variable:

Performance

For one unit increase in innovativeness, performance increases by 1.053 units as shown in Table 4.32 .The model equation generated for innovativeness and performance,  $Y = \beta_0 + \beta_2 X_2$ , which implies that,:

$$Y = 3.578 + 0.833X_2 \dots\dots\dots \text{equation 4.2}$$

Since Y is performance of the SMEs and  $X_2$  is innovativeness, this means that  $\text{Performance} = 3.578 + 0.8338 * \text{innovativeness}$ . This is in agreement with a study by Mohammad (2009.) The study on the effect of innovativeness on firm performance: an investigation of Iran state companies, revealed that value added innovativeness and its components had a significant positive relationship with companies' profitability.

### 4.8.3 Regression Analysis for Proactiveness and Performance of SMEs

The regression analysis results for Proactiveness and performance of SMEs is shown in tables 4.33, 4.34, and 4.35 below.

**Table 4.33: Model Summary for Regression of Proactiveness against Performance of the SMEs.**

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.704 <sup>a</sup>	.496	.485	.49321

a. Predictors: (Constant), Proactiveness

The value  $R^2 = 0.496$ , as shown in table 4.33 implies that Proactiveness explains 49.6% of the variation in performance of the SMEs.

**Table 4.34: Anova table for regression of Proactiveness against performance of SMEs**

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	11.489	1	11.489	47.231	.000 <sup>a</sup>
	Residual	11.676	48	.243		
	Total	23.166	49			

a. Predictors:  
(Constant),Proactiveness

b. Dependent Variable:  
Performance

A simple regression model was fitted to the data and it was found to be significant ( $F(1, 48) = 47.23, p < 0.001$ ). This is shown in table 4.34. The hypothesis  $H_0: \beta_3 = 0$  (There is no significant relationship between Proactiveness and performance of agro-based manufacturing SMEs in Kiambu County), is therefore rejected. This is because  $\beta_3 = 0.496$ , and it is positive.

**Table 4.35: Coefficients for regression of Proactiveness against performance of SMEs**

Model	Unstandardized		Standardized	t	Sig.
	Coefficients		Coefficients		
	B	Std. Error	Beta		
1 (Constant)	3.578	.070		51.297	.000
Proactiveness	1.302	.189	.704	6.873	.000

a. Dependent Variable:  
Performance

The model equation generated for Proactiveness and performance,  $Y = \beta_0 + \beta_3 X_3$ , which implies that,:

$$Y = 3.578 + 0.704 X_3 \dots \dots \dots \text{equation 4.3}$$

Since Y is performance and  $X_3$  is Proactiveness, this means that Performance = 3.578 + 0.704\*Proactiveness. This is in agreement with a study by Hughes and Morgan (2007).The study found that proactiveness helps firms in anticipating market changes and acting accordingly, which allows the firms to have a strong position in shaping the competition in the market over time. This will in turn lead to improved performance.

#### **4.8.4 Regression Analysis for Risk Taking and Performance of SME**

The regression analysis results for risk taking and performance of SMEs is shown in table 4.36, 4.37 and 4.38 below

**Table 4.36: Model summary for regression of Risk Taking against Performance of SMEs**

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.636 <sup>a</sup>	.405	.392	.53595

(Constant), Risk Taking

The value  $R^2 = 0.405$ , as shown in table 4.36 which implies that Proactiveness explains 49.6% of the variation in performance of the SMEs. The adjusted r square is 39.2 %, which depicts that risk taking in exclusion of the constant variable explains performance of the SMEs by 39.2%. The remaining percent can be explained by other factors not in the model.

**Table 4.37: Anova table for regression of Risk Taking against performance of SMEs**

Model	Sum of Squares	df	Mean Square	F	Sig.
1 Regression	9.378	1	9.378	32.649	.000 <sup>a</sup>
Residual	13.788	48	.287		
Total	23.166	49			

a. Predictors:

(Constant), risk taking

b. Dependent Variable:

Performance

A simple regression model was fitted to the data and it was found to be significant ( $F(1, 48) = 32.69, p < 0.001$ ). This is shown in Table 4.37.

**Table 4.38: Coefficients for regression of Risk Taking against performance of SMEs**

Model		Unstandardized		Standardized	t	Sig.
		Coefficients		Coefficients		
		B	Std. Error	Beta		
1	(Constant)	3.569	.076		47.075	.000
	Risk taking	.915	.160	.636	5.714	.000

a. Dependent Variable:

Performance

The hypothesis H0<sub>4</sub>:  $\beta_4 = 0$  (There is no significant relationship between risk taking behavior of an entrepreneur and performance of agro-based SMEs in Kiambu County), is rejected. This is because  $\beta_4 = 0.636$ , and it is positive. Risk taking has a positive influence on performance. This is because  $\beta_4 = 0.636$ , and it is positive. Risk taking has a positive influence on performance. For one unit increase in risk taking, performance increases by 0.915 units, as shown in Table 4.38. The model equation generated for risk taking and performance,  $Y = \beta_0 + \beta_4 X_4 +$  which implies that:

$$Y = 3.569 + 0.636X_4 \dots \dots \dots \text{equation 4.4}$$

Since Y is performance and X<sub>4</sub> is risk taking this implies that Performance = 3.569 + 0.636\* risk taking. This is in agreement with a study by Olson *et al.*, (2002). The study examined the impact of top management team risk taking propensity on firm performance in United Kingdom. Performance was looked in terms of financial performance, innovation and stakeholders' performance. The study found out that firms with top management that are willing to take risk are able to achieve superior levels of both financial and non-financial performance.

#### 4.8.5 Regression Analysis for competitive aggressiveness and Performance of SMEs

The regression analysis results for Competitive aggressiveness and performance of SMEs is shown Tables 4.39, 4.40 and 4.41 below.

**Table 4.39: Model Summary for Regression of competitive aggressiveness against Performance of the SMEs.**

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.512 <sup>a</sup>	.494	.688	.38408

a. Predictors:

(Constant), Competitive aggressiveness

The value  $R^2 = 0.694$ , shown in table 4.37 implies that competitive aggressiveness explains 69.4% of the variation in Performance of the SMEs.

**Table 4.40: Anova table for regression of Competitive aggressiveness against performance of SMEs**

Model	Sum of Squares	df	Mean Square	F	Sig.	
1	Regression	16.085	1	16.085	109.041	.000 <sup>a</sup>
	Residual	7.081	48	.148		
	Total	23.166	49			

a. Predictors: (Constant), Competitive aggressiveness

b. Dependent Variable: Performance

A simple regression model was fitted to the data and it was found to be significant ( $F(1, 48) = 109.04, p < 0.001$ ). This is shown in Table 4.40.

**Table 4.41: Coefficients for regression of competitive aggressiveness against performance of SMEs**

Model	Unstandardized Coefficients		Standardized Coefficients	T	Sig.	
	B	Std. Error	Beta			
	1	(Constant)	3.578			.054
	Competitive aggressiveness	1.053	.101	.516	10.442	.000

a. Dependent Variable: Performance

The hypothesis  $H_{05}: \beta_5 = 0$  (There is no significant relationship between competitive aggressiveness and performance of agro- based manufacturing SMEs in Kiambu County), is rejected. This is because  $\beta_5 = 0.516$  and it is positive. Competitive aggressiveness has a significant relationship with performance of the SMEs. For one unit increase in competitive aggressiveness, performance increases by 1.053 units as shown in Table 4.41. The model equation generated for competitive aggressiveness and performance of the SMEs,  $Y = \beta_0 + \beta_5 X_5$ , which implies that:

$$Y = 3.578 + 0.516X_5 \dots \dots \dots \text{equation 4.5}$$

Since Y is performance and  $X_5$  is Competitive aggressiveness, this implies that Performance =  $3.578 + 0.516 * \text{competitive aggressiveness}$ .

#### 4.8. 6 Regression Summary for All Variables and Performance of SMEs

Multiple regression analysis was used to determine whether independent variables simultaneously affect the dependent variable.

**Table 4.42: Model Summary for Regression of all the variables**

Model	R	R square	Adjusted Square	R Error of the estimate
1	0.845 <sup>a</sup>	.715	.689	.38316

a. Predictors: (constant), Competitive aggressiveness, Autonomy, Risk taking, Innovativeness, Proactiveness.

That was done to determine whether autonomy, innovativeness, risk taking, competitive aggressiveness and Proactiveness simultaneously have a significant relationship with the performance of the SMEs. The value of  $R^2$  is 0.715, as shown in Table 4.42, implies that autonomy; risk taking, Proactiveness and competitive aggressiveness explain 71.5% of the variation in performance of SMEs. The adjusted R square is 0.689 which translates to 68.9%, implies that autonomy, risk taking, Proactiveness, and competitive aggressiveness in exclusion of the constant variable explained the change in SMEs performance by 68.9%. An R of 0.845 shows that there is a positive correlation between competitive aggressiveness, autonomy, risk taking and Proactiveness.

**Table 4.43: Anova table for regression of all the variables -Optimal**

**Model**

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	16.559	4	4.140	28.198	.000 <sup>a</sup>
	Residual	6.607	45	.147		
	Total	23.166	49			

a. Predictors: (Constant), Competitive aggressiveness, Autonomy, Risk taking, Proactiveness Innovativeness

b. Dependent Variable: Performance

A simple regression model was fitted to the data. The model was found to be significant ( $F(4, 45) = 28.198, p < 0.001$ ). This is shown in Table 4.43.

**Table 4.44: Coefficients for regression of all variables- Optimal Model**

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	3.578	.054		65.999	.000
	Autonomy	.243	.181	.149	1.341	.000
	innovativeness	.321	.162	.132	2.63	.000
	Risk taking	.028	.181	.020	4.156	.000
	Proactiveness	.211	.250	.114	3.843	.000
	Competitive aggressiveness	.834	.183	.660	4.551	.000

a. Dependent Variable: Performance

Further analysis shows that autonomy, innovativeness, risk taking, Proactiveness and competitive aggressiveness combined had a positive significant relationship with the performance of the SMEs. This is from the standardized beta values shown in table 4.44 Autonomy ( $\beta = 0.243, P < 0.000$ ), Innovativeness ( $\beta = 0.321, P < 0.000$ ),

Risk taking ( $\beta = 0.028$ ,  $P < 0.000$ ). Proactiveness ( $\beta = 0.211$ ,  $P < 0.000$ ). Competitive aggressiveness has  $\beta = 0.834$  and  $P < 0.000$ . The equation below summarises the relationship.

$$Y = 3.578 + 0.243X_1 + 0.321X_2 + 0.028 X_3 + 0.211X_4 + 0.834 X_5 \dots \text{equation 4.6}$$

Since Y is the performance of the SMEs,  $X_1$  is autonomy,  $X_2$  is innovativeness,  $X_3$  is risk taking,  $X_4$  Proactiveness and  $X_5$  is competitive aggressiveness, the relation can also be shown as:

$$\text{Performance} = 3.578 + 0.243 * \text{autonomy} + 0.321 * \text{Innovativeness} + 0.028 * \text{Risk taking} + 0.211 * \text{Proactiveness} + 0.834 * \text{competitive aggressiveness}$$

This is in agreement with studies that found that businesses that adopt a strong entrepreneurial orientation perform better than firms that do not adopt an entrepreneurial orientation (Wiklund & Shepherd, 2003; Hult *et al.*, 2004; Kraus *et al.*, 2005; Kreiser & Davis, 2010),

#### **4.8. 7 Results for Relationship between Moderating Variable on Performance of SMEs**

The highest level of education of the entrepreneurs was used as the moderating variable. The entrepreneurs were classified into two broad categories of Graduates and non- graduates. Scatter diagrams were drawn so as to give an indication of any relationship between the moderator and each of the independent variables

The proposed model had the following relationship between the independent, dependent and the moderating variable:

$$Y = \beta_0 + \beta_1 X_1 + \beta_2 X_2 + \beta_3 X_3 + \beta_4 X_4 + \beta_5 X_5 + \epsilon \dots \text{equation 4.7}$$

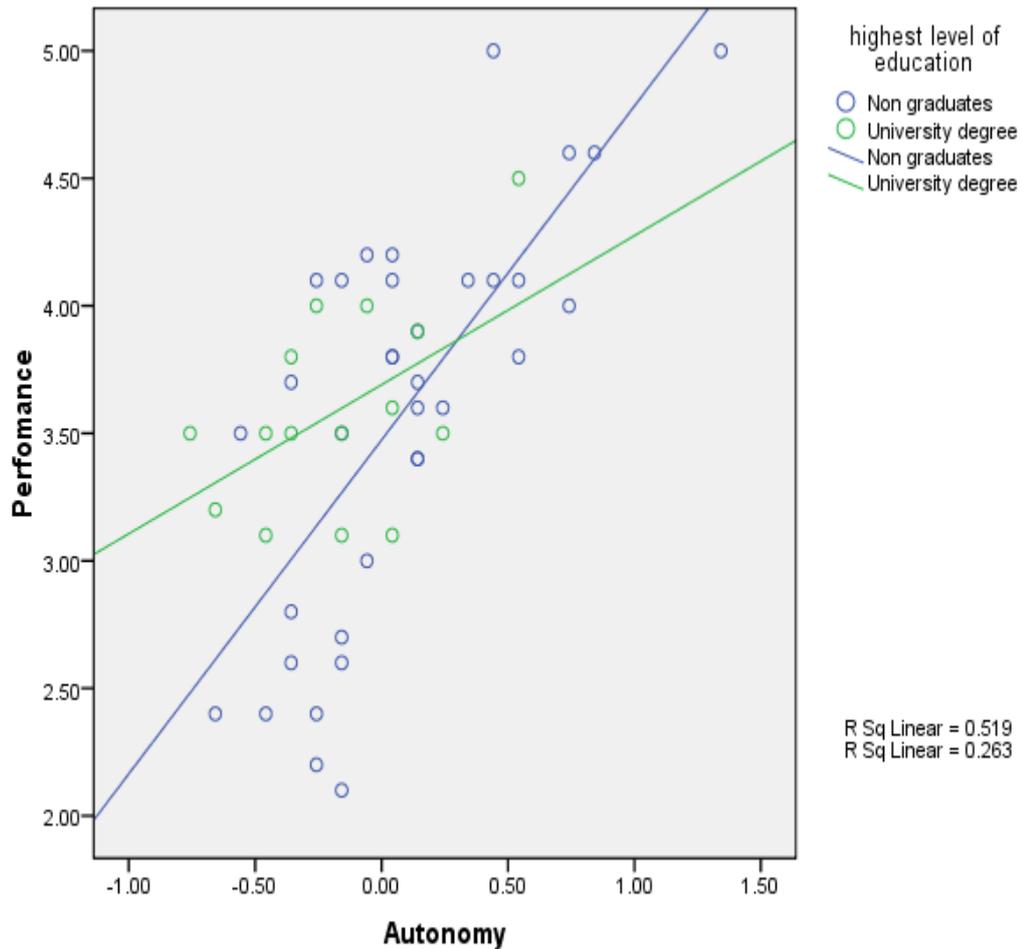
$$Y = \beta_0 + \beta_1 X_1 * Z + \beta_2 X_2 * Z + \beta_3 X_3 * Z + \beta_4 X_4 * Z + \epsilon \dots \text{equation 4.8}$$

Equation 4.8 shows the effect of the moderator Z which is the education level of the entrepreneur alongside the five entrepreneurial dimensions and the relationship they have with performance of the SMEs.

Y is the dependent variable which is the performance of the SMEs, is each of the independent variables, and Z is the moderating variable.  $X_1*Z$  is the interaction term between autonomy and the moderator,  $X_2*Z$ ,  $X_3*Z$ ,  $X_4*Z$ ,  $X_5*Z$  are interaction terms between innovativeness, Proactiveness, risk taking and competitive aggressiveness. Scatter diagrams were drawn between each of the five entrepreneurial dimensions, the moderator and the performance of the SMEs. This was done to form an idea of whether a relationship exists before carrying out the regression analysis to determine if the relationship is statistically significant.

(a) Relationship between the level of education, autonomy and performance of the SMEs.

A scatter diagram was drawn to see if the level of education moderates the relationship between autonomy and performance of the business. The scatter diagram suggests that relationship exists and a further test will be done to determine the degree of this relationship.

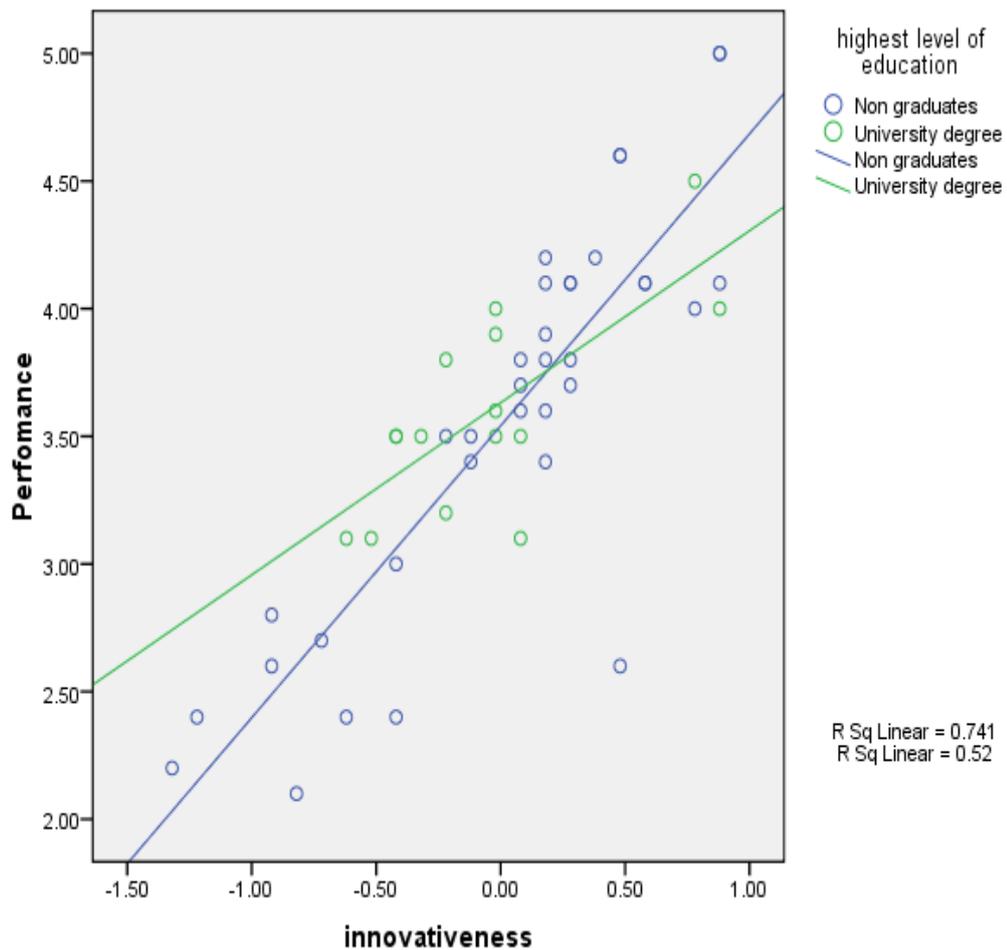


**Figure 4.1: Autonomy, level of education and Performance scatter diagram.**

The line of best fit drawn depicts a relationship. However the scatters points are widely spaced which suggests a weak relationship. Further statistical analysis will be carried out to determine if the relationship is statistically significant.

b) Relationship between the level of education, innovativeness and performance of the SMEs.

A scatter diagram was drawn to see if the level of education moderates the relationship between innovativeness and performance of the business. The scatter diagram suggests that a relationship exists and a further test will be done to determine the degree of this relationship.



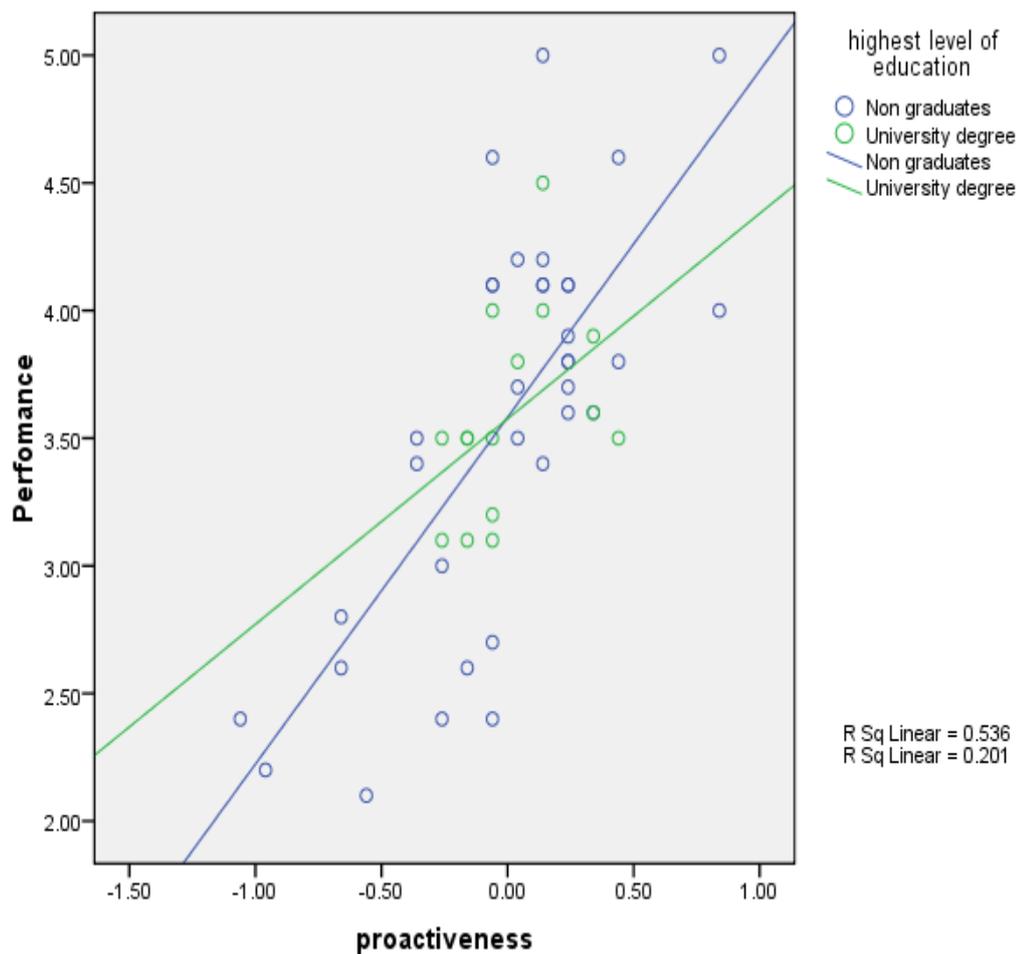
**Figure 4.2: Innovativeness, level of education and Performance scatter diagram**

The line of best fit drawn depicts a relationship. However the scatters points are widely spaced which suggests a weak relationship. Further statistical analysis will be carried out to determine if the relationship is statistically significant

c) Relationship between the level of education, Proactiveness and performance of the SMEs.

A scatter diagram was drawn to see if the level of education moderates the relationship between innovativeness and performance of the business. The scatter

diagram suggests that a relationship exists and a further test will be done to determine the degree of this relationship.

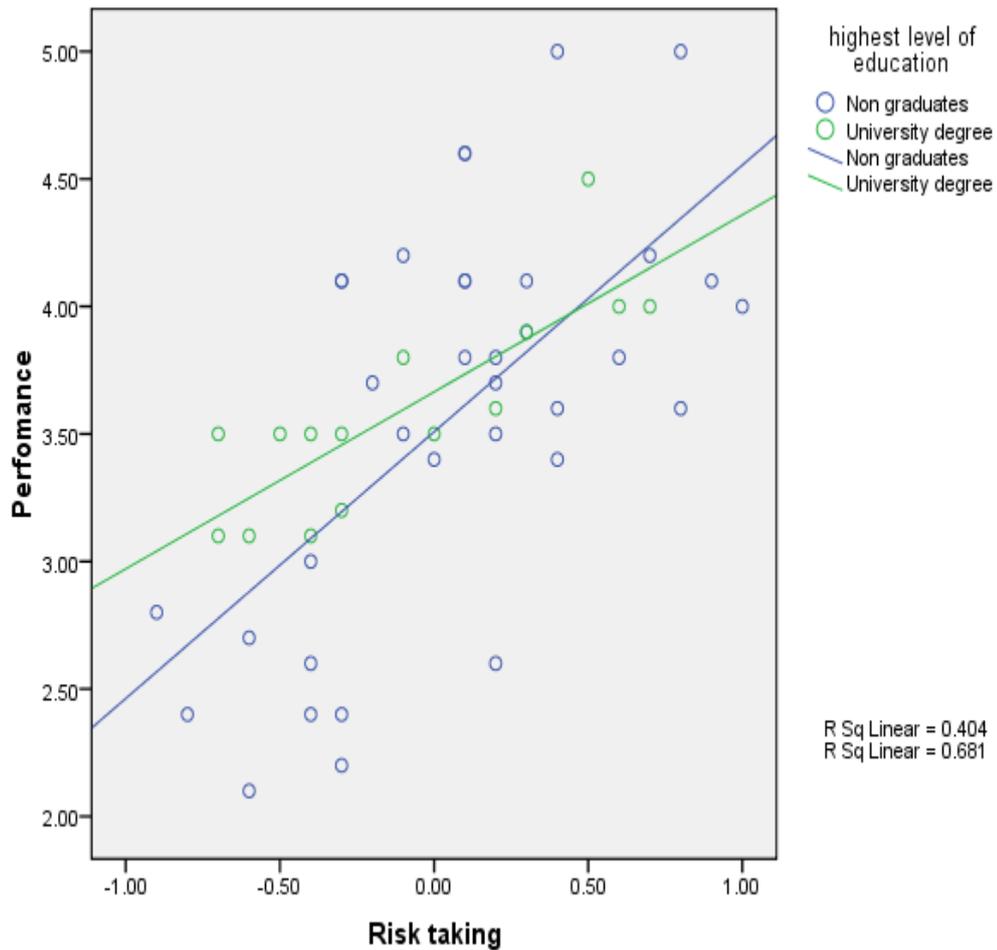


**Figure 4.3: Proactiveness, level of education and Performance scatter diagram**

The line of best fit drawn depicts a relationship. However the scatters points are widely spaced which suggests a weak relationship. Further statistical analysis will be carried out to determine if the relationship is statistically significant

d) Relationship between the level of education, risk taking and performance of the SMEs.

A scatter diagram was drawn to see if the level of education moderates the relationship between risk taking and performance of the business.

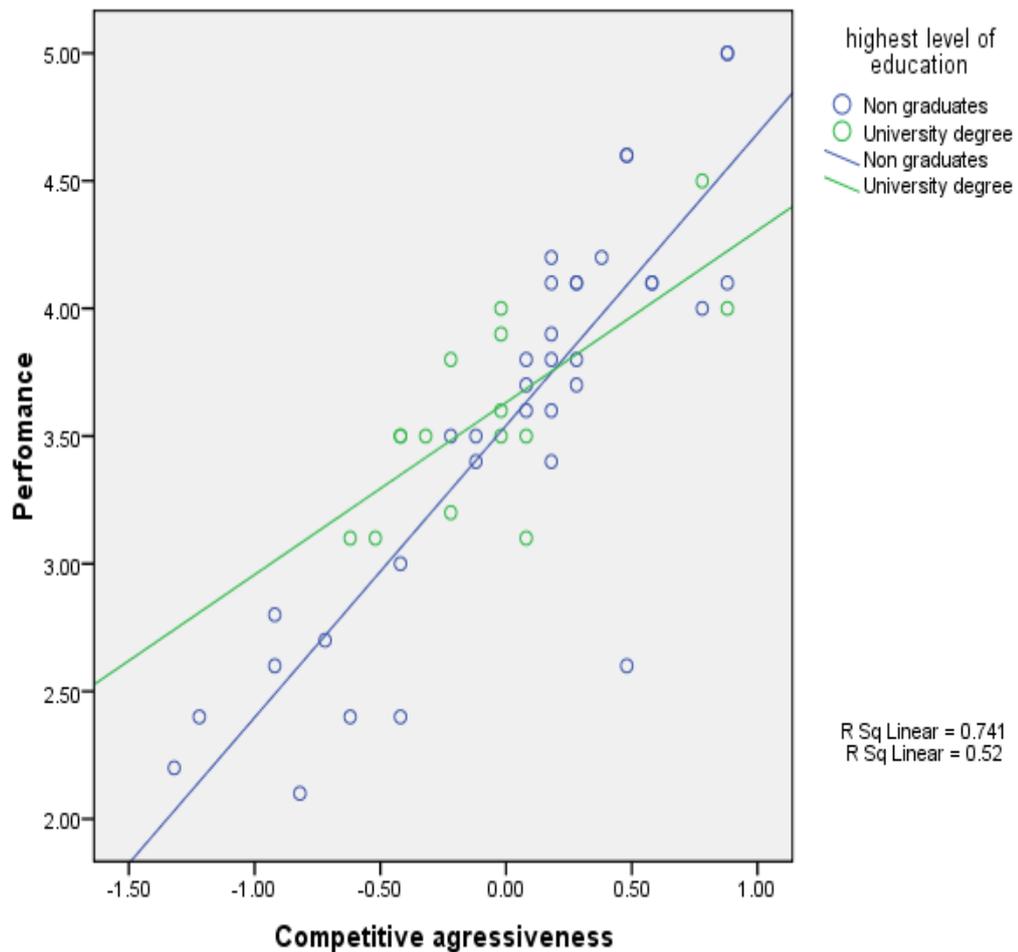


**Figure 4.4: risk taking, level of education and Performance scatter diagram**

The line of best fit drawn depicts a relationship. However the scatters points are widely spaced which suggests a weak relationship. Further statistical analysis will be carried out to determine if the relationship is statistically significant

e) Relationship between the level of education, competitive Aggressiveness and performance of the SMEs.

A scatter diagram was drawn to see if the level of education moderates the relationship between competitive aggressiveness and performance of the business. The scatter diagram suggests that a relationship exists and a further test will be done to determine relationship is statistically significant.



**Figure 4.5: Competitive aggressiveness, level of education and Performance scatter diagram**

The line of best fit drawn depicts a relationship. However the scatters points are widely spaced which suggests a weak relationship. Further statistical analysis will be carried out to determine if the relationship is statistically significant

#### 4.8.8 Regression Results for Moderating Effect of the Level of Education on Performance of SMEs in the Agro-based Manufacturing Sector.

The hypothesis.H0<sub>6</sub>:B<sub>6</sub>: The education level of an entrepreneur does not significantly moderate the influence of EO on performance of agro-based manufacturing SMEs was tested using regression. Multiple regression analysis was used to estimate the interaction effect and test the moderating effect of the entrepreneur's level of education and performance of the SME.

In Table 4.45 Model 1 represented multiple linear regression analysis of entrepreneurial orientation dimensions and performance of SMEs without moderating variable while model 2 represented hierarchical Moderated Multiple Regression analysis of entrepreneurial orientation dimensions and performance of SMEs with the moderating variable.

**Table 4. 45: Model Summary for all Variables with Moderating Variable**

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.586 <sup>a</sup>	.470	.457	.21039
2	.423 <sup>b</sup>	.388	.376	.11014

a. Predictors: (Constant), X<sub>1</sub>, X<sub>2</sub>, X<sub>3</sub>, X<sub>4</sub> X<sub>5</sub>

b. Predictors: (Constant), X<sub>1</sub>\*Z, X<sub>2</sub>\*Z, X<sub>3</sub>\*Z, X<sub>4</sub>\*Z X<sub>5</sub>\*Z

The results in Table 4.45 shows that coefficient of correlation (R) was 0.586 without the moderating variable, indicating that there is a relationship between performance of SMEs and entrepreneurial orientation dimensions (X<sub>1</sub>. is autonomy, X<sub>2</sub> - innovativeness, X<sub>3</sub> - risk taking, X<sub>4</sub>. Proactiveness and X<sub>5</sub> - competitive aggressiveness) without the level of education. The results further show that when

moderating variable in the overall model was absent R squared was 0.470 (47.0%) and it changed to 0.488 (48.8 %) when the level of education was introduced. This implies that the level of education does not add significant improvement in performance of SMES in the agro based manufacturing sector. . Gathenya (2012), suggested that moderating factors relating to the firm and the environment should also be investigated as to how they moderate performance of SMEs.

**Table 4. 46: ANOVA Test for all Variables with Moderating Variable**

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	11.589	1	11.489	47.231	.000 <sup>b</sup>
	Residual	11.676	48	.243		
	Total	23.166	49			
2	Regression	11.491	2	5.746	23.130	.000 <sup>b</sup>
	Residual	11.675	47	.248		
	Total	23.166	49			

a. Dependent Variable: Performance Of SMEs

b. Predictors: (Constant), X<sub>1</sub>\*Z, X<sub>2</sub>\*Z, X<sub>3</sub>\*Z, X<sub>4</sub>\*Z ,X<sub>5</sub>\*Z

The ANOVA results shown in Table 4.46 show that the overall regression model between performance of SMEs and entrepreneurial orientation dimensions (X<sub>1</sub>. autonomy, X<sub>2</sub> - innovativeness, X<sub>3</sub> - risk taking, X<sub>4</sub>. Proactiveness and X<sub>5</sub> - competitive aggressiveness,) was significant at (F (1, 48) = 47.231, P< 0.001).

**Table 4.47: Beta Coefficient for all Variables with Moderating Variable**

Model	Unstandardized Coefficients		Standardized Coefficients		Sig.
	B	Std. Error	Beta	t	
2 (Constant)	2.342	.075		48.02	.000
X <sub>1</sub> *Z	.223	.4.35	.215	1.665	0.10
X <sub>2</sub> *Z	.302	.260	1.57	1.808	0.077
X <sub>3</sub> *Z	.026	.358	1.32	0.982	0.331
X <sub>4</sub> *Z	.204	.635	0.096	.872	0.388
X <sub>5</sub> *Z	.794	.2.60	1.57	1.808	0.077

a. Dependent Variable: Performance of SMEs

According to beta coefficient results in Table 4.47, there was no significant difference in the beta coefficients before and after the introduction of the moderating variable. This is supported by the fact that all the p values were not less than 0.05. The overall regression model equation with the level of education as the moderating variable was defined as;

$$Y = 3.342 + 0.223X_1*Z + 0.302X_2*Z + 0.026X_3*Z + 0.204X_4*Z + 0.794X_5$$

.....equation 4.9

(X<sub>1</sub>. is Autonomy, X<sub>2</sub> - Innovativeness, X<sub>3</sub> - Risk taking, X<sub>4</sub>. Proactiveness and X<sub>5</sub> - Competitive aggressiveness.)The model was compared with the model without the

moderating variable ( $Y = 3.578 + 0.243X_1 + 0.321X_2 + 0.028X_3 + 0.211X_4 + 0.834X_5$ ) where no significant change in beta coefficients was noted.  $H_{06}:B_6 = 0$  (The education level of an entrepreneur does not significantly moderate the relationship between EO and performance of agro-based manufacturing SMEs in Kiambu County), is therefore accepted. .

It can therefore be concluded that other factors would possibly significantly moderate the entrepreneurial dimensions and performance of SMEs in the agro-based manufacturing sector. The entrepreneur may be limited by other factors other than their level of education in pursuit of the five Entrepreneurial Orientation dimensions. According to Gathungu, Aiko and Michuki (2014) a firm's ability to directly link itself to the opportunities in the external environment positively moderates the relationship between entrepreneurial orientation and performance of the firms. The environmental variables include availability of resources, dynamism and hostility. Dynamism is the speed at which the business environment is changing.

Organizations competing in environments where high levels of dynamism are present must have financial flexibility to adapt to a changing environment to ensure survival. (Mthanti, 2012). In today's competitive landscape, SMEs cannot rely on internally controlled resources alone to pursue advantage creating and enhancing strategies (Gaudici, 2013). The entrepreneurs must collaborate with other firms to gain access to information, skills, expertise, assets and technologies. A firm's ability to persistently outperform rivals depends also on advantageous access to external information and resources uniquely held by other market participants ( Kroeger, 2007). This would make networking necessary among the entrepreneurs. External factors would considerably positively moderate the entrepreneurial orientation dimensions and performance of SMEs in the agro-based manufacturing sector in Kiambu County.

## CHAPTER FIVE

### SUMMARY, CONCLUSIONS AND RECOMMENDATIONS

#### 5.1 Introduction

This chapter presents the summary of the study findings as guided by the specific objectives. The conclusion as well as the recommendations for future research is given as per the findings. The study sought to investigate the relationship between entrepreneurial Orientation and performance of SMEs in the agro-based manufacturing sector in Kiambu County. Specifically the study sought to investigate the relationship between autonomy, innovativeness, Proactiveness, risk taking and competitive aggressiveness and performance of agro-based manufacturing SMEs in Kiambu County.

#### 5.2 Summary

**Specific Objective1: To analyze the relationship between autonomy aspect of an entrepreneur and the performance of agro-based manufacturing SMEs in Kiambu County.**

Autonomy refers to the independent action of an individual or a team in bringing forth an idea or a vision and carrying it through to completion. It also reflects the strong desire of a person to have freedom in the development of an idea and in its implementation. In general, it means the ability and will to be self-directed in the pursuit of opportunities. Autonomy offered by firms would motivate employees to work in a positive manner that could lead to higher firm performance. From the findings of this study, there is a significant relationship between autonomy of the entrepreneur and the performance of the agro-based manufacturing SMEs.

**Specific Objective2: To assess the relationship between entrepreneurs' innovativeness and the performance of agro-based manufacturing SMEs in Kiambu County.**

Innovativeness as the propensity of a firm to innovate or develop new products that meet and / or exceed customers' expectations or the extent of unmet market needs as reflected in its uniqueness in comparison to similar products offered in the market. Innovativeness relates to the type of products and services an SME has introduced to the market. In the context of Entrepreneurial Orientation, innovativeness is defined more narrowly emphasizing the importance of technological leadership to the SME, as well as changes in its product lines. This study revealed that innovativeness increased the performance of the SMEs in the agro-based manufacturing sector.

**Specific Objective3: To examine the relationship between the entrepreneurs's Proactiveness and the performance of agro-based manufacturing SMEs in Kiambu County.**

Proactiveness describes the characteristic of entrepreneurial actions to anticipate opportunities both in terms of products or technologies and in terms of markets and consumer demands. Proactiveness is manifested in: aggressive behavior directed at rival firms, and the organizational pursuit of favorable business opportunities. It is simply the ability to take initiative, whenever the situation demands. Firms could utilize proactive behavior in order to increase their competitive position in relation to other firms. The findings of this study revealed that Proactiveness increased the agro-based manufacturing SMEs.

**Specific Objective4: To examine the relationship between the risk taking behavior of an entrepreneur on the performance of agro-based manufacturing SMEs in Kiambu County**

Organizations and their executives face three types of risks: business risk, financial risk and personal risk. Business risk refers to the risk of entering untested markets or committing unproven technologies. Financial risk is related to heavy borrowing or committing a significant amount of resource for growth. Personal risk is related to a person, normally an executive who decides to take a strategic course of action. The

findings of the study indicate that risk taking increases performance of the agro-based manufacturing SMEs.

**Specific Objective5: To analyze the relationship between competitive aggressiveness of an entrepreneur and the performance of agro-based manufacturing SMEs in Kiambu County.**

Competitive aggressiveness refers to a firm's propensity to directly and intensely challenge its competitors to achieve entry or improve position, that is, to outperform industry rivals in the marketplace. Competitive aggressiveness is an SMEs way of engaging with its competitors, distinguishing between SMEs that shy away from direct competition with other SMEs, and those that aggressively pursue the competitors target market. Competitive aggressiveness increases performance of the SMEs.

**Specific Objective6: To evaluate the role of education level in moderating the role of entrepreneurial orientation on the performance of agro-based manufacturing SMEs in Kiambu County.**

There is little consensus on what constitutes suitable moderators in entrepreneurial orientation studies. This leaves a concern and demands scholarly attention to providing more conclusive evidence on the impact of moderating variables on the strength and direction of entrepreneurial orientation. The study included education level of the entrepreneur as the moderating variable which tempers with the relationship between entrepreneurial orientation and performance. This is an internal factor within the SMEs.

The level of education was dichotomized between graduates and non-graduates. The findings of the study revealed positive significant relationship between the five Entrepreneurial orientation dimensions and performance of the SMES. When the level of education of the entrepreneurs was introduced as the moderator, being the interaction term, the relationship was distorted, and the model became insignificant.

This means that the level of education has no significant moderating effect on each of the five Entrepreneurial Orientation dimensions.

### **5.3 Conclusion**

**Specific Objective1: To analyze the relationship between autonomy aspect of an entrepreneur and the performance of agro-based manufacturing SMEs in Kiambu County.**

The study concludes that there is a positive relationship between autonomy and performance of SMEs in the agro-based manufacturing sector in Kiambu County. SMEs in this sector, aiming at increased performance should practice autonomy. Employees should be given some level of freedom to decide on their working methods, seeking new business opportunities, and in making decisions on business opportunities to be pursued. On the other hand it would work against improved performance if employees never participate to some degree in making decisions regarding their working methods, seeking new business opportunities as well as making decisions on the business opportunities to be pursued.

**Specific Objective2: To assess the relationship between entrepreneurs' innovativeness and the performance of agro-based manufacturing SMEs in Kiambu County.**

The study concludes that innovativeness is a statistically significant factor in determining performance of agro-based manufacturing SMEs in kiambu County. SMEs aiming to have a good performance should be innovative. The SMEs should regularly introduce improvements on existing products, improve the production process, and improve on customer services such as through online communication as well as use of mobile money payments. In addition the SMEs should strive to look for new business opportunities and new markets to target.

**Specific Objective3: To examine the relationship between the entrepreneurs's Proactiveness and the performance of agro-based manufacturing SMEs in Kiambu County.**

The findings of this study lead to the conclusion that Proactiveness is a statistically significant factor in determining performance of agro-based SMES in the manufacturing sector in Kiambu County. Entrepreneurs should therefore aim at being proactive to improve the performance of the SMEs. The entrepreneurs should aim at lowering costs in order to expand their market share and should also aim at enhancing the features of the products to improve their customers' experiences. They should also introduce new business processes to keep up with emerging technology such as use of mobile money and online marketing.

**Specific Objective4: To examine the relationship between the risk taking behavior of an entrepreneur on the performance of agro-based manufacturing SMEs in Kiambu County.**

The findings of this study lead to the conclusion that there is a positive relationship between risk taking and the performance of agro-based manufacturing SMEs. Entrepreneurs should therefore take calculated risks as this would lead to improved performance of the agro-based SMEs. The entrepreneurs should take calculated risks with new business ideas, and in business decision making. They should have a strong tendency to commit resources for high risk projects and they should aggressively exploit potential opportunities regardless of the uncertainty. They should also never shy away from taking up an opportunity due to the risk of failure.

**Specific Objective5: To analyze the relationship between competitive aggressiveness of an entrepreneur and the performance of agro-based manufacturing SMEs in Kiambu County.**

This study concludes that competitive aggressiveness is a statistically significant factor in determining the performance of SMEs in the agro-based manufacturing sector in Kiambu County. Entrepreneurs should therefore be competitively aggressive for improved performance of the SMEs. The entrepreneurs should introduce new products before their competitors do. They should always seek to use emerging technology in order to reach out to the customers ahead of the competition.

They should always ensure that competitors react to their actions. This would ensure that the entrepreneur stays ahead of the competition.

**Specific Objective6: To evaluate the role of education level in moderating the relationship between entrepreneurial orientation and performance of agro-based manufacturing SMEs in Kiambu County.**

This study concludes that the level of education has no significant moderating effect on the five entrepreneurial orientation dimensions and performance of SMEs in the agro-based manufacturing sector in Kiambu County. It can therefore be concluded that other factors would possibly significantly moderate the entrepreneurial dimensions and performance of SMEs in the agro-based manufacturing sector. The entrepreneur may be limited by other factors other than their level of education in pursuit of the five Entrepreneurial Orientation dimensions. A firm's ability to directly link itself to the opportunities in the external environment positively moderates the relationship between entrepreneurial orientation and performance of the firms. The environmental variables include availability of resources, dynamism and hostility. Dynamism is the speed at which the business environment is changing.

Organizations competing in environments where high levels of dynamism are present must have financial flexibility to adapt to a changing environment to ensure survival. In today's competitive landscape, SMEs cannot rely on internally controlled resources alone to pursue advantage creating and enhancing strategies. The entrepreneurs must collaborate with other firms to gain access to information, skills, expertise, assets and technologies. A firm's ability to persistently outperform rivals depends also on advantageous access to external information and resources uniquely held by other market participants. This would make networking necessary among the entrepreneurs. External factors would considerably positively moderate the entrepreneurial orientation dimensions and performance of SMEs in the agro-based manufacturing sector in Kiambu County. Moderating factors relating to the firm and the environment should also be investigated as to how they moderate performance of SMEs.

In conclusion, the findings of this study confirm the practice of the five entrepreneurial dimensions namely: autonomy, innovativeness, risk taking, Proactiveness and competitive aggressiveness in the agro-based manufacturing SMEs in Kiambu County. The findings also indicate that the level of education of the entrepreneur does not act a moderator between the five entrepreneurial dimensions and performance of the SMEs. The findings of this study contribute to existing literature on Entrepreneurial orientation.

#### **5.4 Recommendations**

Based on the findings of this study the following recommendations were proposed in relation to each objective of the study. The study revealed the the practice of the five entrepreneurial orientation dimensions results in increased performance in the SMEs.

##### **5.4.1. Autonomy**

Based on the findings of this study, the researcher recommends that entrepreneurs in the agro-based manufacturing sector should practice autonomy. The entrepreneurs should give room to the employees to make decisions on their working methods, set their own targets and regulate their time under the supervision of the manager/owner. The set targets should be reviewed periodically to make any changes necessary.

##### **5.4.2. Innovativeness**

Based on the findings of the study, the entrepreneurs should strive to be innovative within their financial ability and in consideration of whether the business environment is hostile or not. Innovation within an organization is negatively impacted by pressure of hostile environment, where competition is high and resources are scarce. In the absence of a hostile environment, the entrepreneur should strive to regularly introduce improvements on existing products, as well as improve

on the production process. This in addition to finding new ways to reach out to customers, using online platforms for marketing, and use of mobile money for payments.

#### **5.4.3. Risk Taking**

Based on the findings of this study, Entrepreneurs should take calculated risks in the agro-based manufacturing SMEs in consideration of the dynamism of the business environment. Dynamic environments require a greater level of risk taking in strategic decision making and processes to more effectively and successfully respond to the invariable state of change, regardless of the level of availability of resources in the environment. Dynamic environments require organizations to increase decision making speed in responding to environment changes. Failure of firms to adopt risky behavior, in dynamic environments results in loss of market share, as well as falling behind competitors willing to accept the risk and pursue a more aggressive strategic approach. In view of the importance of risk taking, entrepreneurs should always aggressively exploit potential opportunities regardless of the uncertainty. They should be willing to accept a certain level of risk.

#### **5.4.4 Proactiveness**

.Based on the findings of this study, entrepreneurs should be proactive. Proactiveness would enable the SMEs to better capitalize on opportunities emerging in dynamic environments and thus leading to a competitive advantage for the SME. It is entrepreneurial actions to anticipate future opportunities in terms of products, technologies and in terms of markets and consumer demands. Entrepreneurs should regularly introduce new products for emerging markets. They should also regularly introduce new business processes to keep up with emerging technologies.

#### **5.4.5. Competitive Aggressiveness**

Entrepreneurs should be competitively aggressive, based on the findings of this study. This is an SME's way of engaging with competitors and aggressively to pursue their competitors target market. The entrepreneurs should always try to

introduce new products ahead of their competitors and should always ensure that the quality of their products is better than that of their competitors.

### **5.5 Areas for Further Research**

The underlying assumption of Colvin and Slevin model as used in this study is that it is beneficial to identify the unique contributions of each sub-dimension of Entrepreneurial Orientation such that firms could seek the best combination to improve their performance. The study equally found that each entrepreneurial Orientation sub-dimension contributes to performance of SMEs in the agro-based manufacturing sector.

Although this study provides insight into Entrepreneurial orientation dimensions and how they affect performance of SMEs, several areas remain unclear and require to be addressed by future research.

First of all is that the study employed a cross-sectional research design, but the researcher is aware that there are other research designs and therefore suggests that other researchers employ longitudinal study to measure the framework in varying conditions of internal and external environments of the SMEs over a given period of time.

The SMEs were sampled from one geographical location which is Kiambu County. Future research may consider expanding the scope to include other geographical regions to confirm the findings of this study and to establish whether there is a significant difference in entrepreneurial orientation practices by agro-based manufacturing SMEs in different geographical regions.

The study was carried out in Kenya, and the findings of this study should be replicated in other developing economies to see whether there is a difference in the practice of the entrepreneurial orientation dimensions. The study focused on agro-based manufacturing sector, studies should be carried out in other sectors of the economy as well.

The conceptual model of this study limited itself to the level of education as the moderating variable, the findings of the study revealed that education level is not a significant moderator between entrepreneurial Orientation and performance of the SMEs. This model can be replicated in similar studies to establish if the findings will be the same. Further, this study can be extended to include other internal factors such as access to finance and ability to network with other entrepreneurs in similar industry as well as external environmental variables such as level of dynamism in the business environment, availability of resources and hostility of the business environment.

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## APPENDICES

### Appendix i: Letter of Introduction

Rachel Wanjiru Waithaka

P.O. Box 166-01001

Kalimoni

Kenya.

June 10, 2015

Dear Sir/Madam,

#### **REQUEST FOR RESEARCH ASSISTANCE**

I am a postgraduate student at Jomo Kenyatta University of Agriculture pursuing degree of doctor of philosophy in entrepreneurship. I am undertaking a research project on the influence of entrepreneurial orientation on performance of small and medium enterprises in the agro-based manufacturing sector in Kiambu County.

I am kindly inviting you to participate in this research study by completing the attached questionnaire as accurately as possible. In order to ensure that all information will remain confidential, please do not include your name anywhere on the research questionnaire. The data collected will be used for academic purpose only.

Yours faithfully

Rachel Wanjiru Waithaka

**Appendix ii: Questionnaire for the Entrepreneurs**

**KINDLY ANSWER THE FOLLOWING QUESTIONS**

**SECTION ONE –General characteristics of the SME**

1. Please indicate the activities of your business

[Dairy processing]  [Fruit juices]  [Bakery]  [milling]  [Beverages]

[Any other-specify].....

2. How long have your business been in operation?

[0-3 years]  [3-5 years]  [5-8years]  [8-10 years]  [Above 10 years]

3. What is your highest educational level?

[ ] No formal education  [ ] Primary level  [ ] Secondary level  [ ] Certificate

[ ] Diploma  [ ] University degree

4. Who owns the business?

[ ] Sole ownership

[ ] Family business

[ ] Partnership

5. Estimate the value of the business (Ksh)

[ ] Less than 100, 000

[ ] 100,001-200,000

[ ] 100,001-400,000

[ ] 400,001-500,000

[ ] Above 500,000

6. Estimate the annual earnings of the business in the last three years

[ ] 2012.....  [ ] 2013.....  [ ] 2014.....

7. What is the number of employees [0-10] [11-20] [21-30] [31-40] [41-50] [Above 50]

SECTION II

8. *Instructions:* To what extent do you agree with the following statements concerning **AUTONOMY**? Indicate if you **strongly disagree (SD)**, **disagree (D)**, **somehow agree (N)**, **agree (A)**, or **strongly agree (SA)**

STATEMENTS	SA	A	N	D	SD
1. I am always inclined towards making my own decisions					
2.I always set my business goals					
3. I always regulate my time					
4.I am responsible for all decisions I make					
5.I am responsible for the results of all my decisions					
6.Employees have freedom to decide their own working methods					
7. Employees always have freedom to set their own targets					
8.Employees are always allowed to seek new business opportunities					
9.Employees are always allowed to decide business opportunities to be pursued					
10.Employees never have authority to make any decisions					

8a) As an entrepreneur how does being autonomous influence the performance of the business?.....  
 .....

8b) Has a decision made by an employee ever been adopted and implemented.....

9. *Instructions:* To what extent do you agree with the following statements concerning **INNOVATIVENESS**? Indicate if you **strongly disagree (SD)**, **disagree (D)**, **somehow agree (N)**, **agree (A)**, or **strongly agree (SA)**

STATEMENTS	SA	A	N	D	SD
1). I always look out for new business opportunities					
2). I always look for new markets to target					
3). often create new products that will provide value for customers.					
4). I always find new ways to reach out to customers such as through social media					
5). I always find ways to create value to customers such as through social media.					
6). I regularly introduce improvements on existing products.					
7). I regularly improve on the production process.					
8). I regularly improve on customer service such as through use of mobile payment services.					
9) I always encourage development of employee's ideas for the purpose of business improvement.					
10).I always remain in the same business and target only the existing markets.					

9a) Please explain the influence of innovativeness on the performance of the business.....

9b) Has business introduced any new products recently? If yes, please give details.....

10. *Instructions:* To what extent do you agree with the following statements concerning **PROACTIVENESS**? Indicate if you **strongly disagree (SD)**, **disagree (D)**, **somehow agree (N)**, **agree (A)**, or **strongly agree (SA)**

STATEMENTS	SA	A	N	D	SD
1). I always strive to enter new markets					
2). I regularly introduce new products for emerging markets.					
3). I regularly introduce new production technology to improve efficiency.					
4). I always introduce new business processes to keep up with emerging technology such as mobile money.					
5).I always strive to seek opportunities for partnerships.					
6). I always strive to lower cost in order to expand my market share.					
7). I always strive to improve on product quality					
8). I always enhance the features of the products to improve on customers' experience.					
9). I never seek new markets.					
10). I always strive to pursue different marketing strategies such as social media					

10a) Please explain the influence of Proactiveness on performance of the business.....

10b) Has the business introduced any new product ahead of the competitor s recently?.....  
 .....

11. *Instructions:* To what extent do you agree with the following statements concerning **RISK TAKING**? Indicate if you **strongly disagree (SD)**, **disagree (D)**, **somehow agree (N)**, **agree (A)**, or **strongly agree (SA)**

STATEMENTS	SA	A	N	D	SD
1). I always take calculated risk in my business decisions					
2). When introducing new products, I am always willing to accept a certain level of risk					
3). I never shy away from taking up an opportunity due to the risk of failure					
4). I always encourage employees to take risks without fear of punishment.					
5).I always take calculated risks with new ideas.					
6). I always have a strong tendency , to commit huge resources for high risk projects					
7). I always aggressively exploit potential opportunities regardless of the uncertainty					
8). I never venture into risky projects.					
9). I always seek financial credit as a means of funding my business activities.					
10). I always tend to venture into business areas that no one else has ventured into.					

11a) How does your ability to take risks influence the performance of the business?

.....

11b) Has the business committed resources to a new project recently? Give details.....

.....

12. *Instructions:* To what extent do you agree with the following statements concerning **COMPETITIVE AGRESSIVENESS**? Indicate if you **strongly disagree (SD)**, **disagree (D)**, **somehow agree (N)**, **agree (A)**, or **strongly agree (SA)**

STATEMENTS	SA	A	N	D	SD
1). I always enter new markets ahead of competitors.					
2). I often introduce new products before competitors do.					
3).I always try to introduce new products to beat the existing competitors position.					
4). I always change the production process to make them more efficient than the competitors.					
5)I am never the first to introduce new products.					
6). I strive to lower cost in order to offer my products at lower price than the competitors.					
7). I always seek to use emerging technologies to reach out to the customers ahead of the competition.					
8).I always ensure the quality of my product are better than that of the competitors					
9). I always strive to create partnership with the best partner before the competitors do.					
10). I always ensure that my competitors are the ones reacting to my actions.					

12a) What changes has the business introduced in products to out do competition?.....

13. *Instructions:* To what extent do you agree with the following statements concerning **PERFORMANCE** of the business? Indicate if you **strongly disagree (SD)**, **disagree (D)**, **somehow agree (N)**, **agree (A)**, or **strongly agree (SA)**

<b>STATEMENTS</b>	<b>SA</b>	<b>A</b>	<b>N</b>	<b>D</b>	<b>SD</b>
1).The volume of sales has increased in the last three years.					
2)The number of employees has increased in the last three years					
3.The business has opened branches in the last three years.					
4). Recurrent expenditure has increased in the last three years.					
5). Customer loyalty has increased in the last three years.					
6) market share has increased in the last three years.					
7). Profitability has increased in the last three years.					
8) Assets have increased in the last three years.					
9).The business has diversified its products in the last three years.					
10). The cost of production has decreased over the last three years.					

**Appendix iii: list of agro-based smes in food manufacturing sector in Kiambu County**

	<b>NAME OF BUSINESS</b>	<b>Physical Address.</b>	<b>Zone.</b>
1	MAK DELICACIES	Thika	Kiganjo
2	ABARDARE CREAMARIES LTD	Kikuyu	Karuri
3	AFRICAN HIGHLAND PRODUCE	Kiambu	
4	AFRIMAC NUTS CO. LTD	Thika	Makongeni
5	ALANIC PRODUCTS LIMITED	Thika	Munene Industries
6	ALFA POSHO MILLERS	Thika	Kiganjo
7	ANGELIC HEALTH PRODUCTS	Karuri	
8	ANGLERS HAVEN LTD.	Karuri	
9	AQUAMIST MINERAL WATER	Karuri	
10	AROMA BAKERS	Kiambu	
11	AVOIL INDUSTRIES	Thika	Garissa Road
12	AZAM BAKERS	Thika	Workshop Rd.
13	B.M DELICACIES	Ruiru	
14	B.M FEEDS AND MILLERS	Thika	
15	BAKERS DELIGHT	Thika	Uhuru St.
16	BAKER'S HUT	Githurai	Off Thika Rd.
17	BAKEX MILLERS LTD	Thika	Garissa Road
18	BETA BAKERS	Thika	Kenyatta H/Way
19	BEVAN KENYA LIMITED	Thika	
20	BIDCO OIL REFINARIES Ltd	Thika	
21	BIDII POSHO MILL	Thika	Madaraka Market
22	BINDIP ENTERPRISES	Ruiru	
23	BLESSED BAKERS	Limuru	

24	BOMA YETU LTD.	Thika	
25	BRIGHT BONIKA FOOD INDUSTRIES	Kikuyu	
26	BROADBLEST BAKERS LTD	Thika	Kisii Estate
27	BROADWAYS BAKERY LIMITED	Thika	Garissa Road
28	BROOKSIDE DAIRY LTD	Ruiru	Off/ Nairobi Rd.
29	CAKE HOUSE LTD	Kiambu	
30	CANDY PROCESSOR LTD	Limuru	
31	CAPWELL INDUSTRIES LTD	Thika	Off Garissa Rd.
32	CARBACID INDUSTRIES	Kiambu	
33	CAREST FOOD PRODUCTS	Thika	
34	CENTOFOODS INDUSTRIES LTD	Thika	Kenyatta H/Way
35	CENTRAL POSHO MILL	Thika	Kisii Estate
36	CHANIA BAKERS	Thika	Workshop Rd.
37	CHANIA BAKERS	Workshop Rd.	
38	CHANIA FLOUR MILLS	Thika	Garissa Road
39	CLASSIC FOOD PRODUCTS LTD	Thika	Lodwar Rd.
40	CLEAN BAKERS INVESTMENT LTD.	Karuri	
41	CLEANSHELF SUPERMARKETS LTD	Kiambu Town	
42	COLACY BAKERS	Juja	
43	COSMIT E.A LTD.	Thika	
44	CRAFT BAKERS LTD	Karuri	
45	DANMATE BAKER'S	Kiambu	Kenyatta H/Way
46	DASH CAKE HOUSE	Thika	
47	DAYLIGHT SAUSAGES	Kiambu	
48	DEL DISTILLERS	Thika	
49	DELI BITES KENYA LTD	Ruiru	
50	DELIGHTS	Kagendo Complex	Karuri
51	DELLI BITES KENYA LIMITED	Thika	Behind Jogoo Kimakia

52	DELMONTE KENYA LTD	Thika	
53	DEMAND POSHO MILL	Thika	Makongeni
54	EBOSS FOOD PROCESSOR	Kiambu	
55	EMO BAKERS	Thika	
56	EQUATORIAL NUTS LTD	Thika	Makongeni
57	ESSENTIAL FARM PRODUCE LTD.	Thika	
58	FAMILY WONDER CAKES.	Karuri	
59	FARMER'S CHOICE LTD	Thika	Majengo
60	FIRST FARM LTD	Kikuyu	
61	FISHING PRIORITIES LTD	Karuri	
62	FOUNTAIN MINI BAKERS	Thika	Garissa Road
63	FRANK FRESH JUICE LTD.	Githurai	
64	FRESH CORN MILLERS	Kiambu	
65	FRESH N CRUNCHY LTD	Thika	
66	FRESH SQUEEZE LTD.	Ruiru	
67	FRESHMARK FOOD PRODUCTS LTD	Karuri	
68	GACHEGE TEA FACTORY	Kiambu	
69	GAL BAKING SERVICES	Githurai	
70	GALLANT BEVERAGES LTD	Thika	Station Road.
71	GEWA BAKERS	Thika	Garissa Road
72	GITHUNGURI DAIRY LTD	Githunguri	Karuri
73	GITHUNGURI TEA FACTORY	Githunguri	
74	GLACIER PRODUCTS	Kiambu	
75	GOLDEN BISCUITS(1985) LTD	Thika	Kampala Rd.
76	GRACEHILL DAIRY	Thika	
77	GRAFAM LIMITED	Kiambu	
78	GRAND BEVERAGES LTD	Thika	Kenyatta H/Way
79	GRANITE BROOK	Ruiru	

GUAMA MILLERS AND		
80	MANUFACTURERS	Ruiru Kenyatta Rd.
81	GUANGO DAIRY PRODUCTS LTD	Karuri Guango Estate
82	HERITAGE DISTILLERS LTD	Limuru
83	HEXING NUTS TRADING CO-LIMITED	Thika Muindi Mbingu St.
84	HIGHLAND MILLERS	Ruiru
85	HIGHLANDS COFFEE COMPANY LTD	Thika Makongeni
86	HOME BAKERS	Odiri Rd. Karuri
87	HONEY BEAUTY LTD	Rosslyn Garden Limuru
88	HYDROLAB LIMITED	Kiambu Tigoni
89	IDEAL MATUNDA LTD	Thika U.T.I
90	IHUGO INDUSTRIES	Thika
91	INENTO BEE PRODUCTS E.A LTD	Thika Garissa Road
92	J.R. BHATT PROCESSORS LTD	Thika HAILE SILLASSIE AV.
93	J.T HOME BAKERS	Githurai
94	JACKY'S K LTD	Laxcon Hse Limuru
95	JAMII EDIBLE OILS	Thika Garissa Road
96	JEQI POSHO MILL	Thika Kiganjo
97	JETLAK FOODS LTD.	Ruiru Ruiru/ Kiambu Rd.
98	JKUAT NISSIN FOOD LTD	Juja
99	JOMACE CAKE EXPERTS	Thika Landless
100	JOMU SPICE FIRM LTD	Ruiru
101	JRB PRODUCE LTD.	Thika
102	JUFRED MILK PRODUCTS LTD	Limuru
103	JUNGLE NUTS LIMITED	Thika Makongeni
104	JUNIOR POSHO MILL	Thika
105	JUPITER POSHO MILL	Thika Kilifi Rd.
106	KABAA TEA FACTORY	Githunguri

107	KAGIS BAKERS	Githurai	
108	KAGWE TEA FACTORY	Kiambu	Lari
109	KAMENU POSHOMILL	Makongeni	Kamenu Estate
110	KARIRANA ESTATES LTD	Kiambu	
111	KASSMATT SUPERMARKET	Thika	
112	KATES BAKERY	Thika	Mama Ngina St.
113	KEGA BAKERY.	Karuri	Limuru Rd.
114	KENAFRIC BAKERY LTD	Thika	Thika H/Way
115	KENBLEST GROUP LTD.	Thika	Garissa Road
116	KENFINE FOODS LIMITED	Thika	Kamenu Ward
117	KENYA FRUIT PROCESSORS LTD	Thika	Garissa Road
118	KENYA NUT CO LTD	Thika	Garissa Road
119	KENYA ORCHARDS LTD	Juja	
120	KEVIAN LTD	Thika	Makongeni
121	KIAMBU DAIRY	Kiambu	
122	KIAMBUGI POSHO MILL	Thika	Kiganjo
123	KIBURI FOOD PROCESSORS LTD	Ruiru	New Kiburi Hse.
124	KIFARU INDUSTRIES LTD.	Thika	Off Garissa Rd.
125	KIGA BOTTLERS LIMITED	Thika	Juakali
126	KIGANDA ENTERPRISES	Thika	
127	KILIMAMBOGO MILLERS LTD	Thika	Kyanjau
128	KINALE DAIRIES	Kiambu	
129	KING MILLS INDUSTRIES LTD	Thika	
130	KOIMU LTD	Thika	
131	KORN MILL MILLERS	Thika	Juakali
132	KORN MILL MILLERS	Thika	Kiganda Ward
133	KUDOS INVESTMENT LTD	Ruiru	
134	LAKI LAKI LTD	Thika	

135	LEESTER SUPERMARKET	Thika	Makongeni
136	LEVILLA BAKERY LTD.	Karuri	
137	LIEBE ENTERPRISES	Thika	
138	LIMURU MILK PROCESSORS LTD	Limuru	Limuru/Nairobi Rd.
139	LIMURU TEA CO. LTD	Limuru	
140	LORDS BAKERS	Limuru Town	
141	MACADAMIA NUTS LTD	Thika	
142	MACADAMIA SPRINGS LTD	Thika	Kenyatta H/Way
143	MACAROL BAKERIES LTD.	Thika	Donyo Sabuk.
144	MACH MILLERS LTD	Juja	
145	MAISHA FLOUR MILLA	Thika	
146	MAKOMBOKI TEA FACTORY	Thika	
147	MAMA MILLERS LTD	Thika	Makongeni
148	MARIMBA TEA FACTORY	Limuru	
149	MARS LTD	Kiambu	
150	MART BAKERS	Thika	
151	MATAARA TEA FACTORY	Gatundu	
152	MATAMU HOLDING LTD	Thika	Munene Industries
153	MATHAI SUPERMARKETS LTD	Thika	
154	MAYCORN LIMITED	Thika	Garissa Road
155	MCNEEL MILLERS LTD	Thika	Makongeni
156	MEATWELL PRODUCTS	Kiambu	
157	MELVIN MARSH INTERNATIONAL	Kiambu	
158	MERRY MOODS LTD	Kikuyu	
159	MILL BAKERS	Githurai	
160	MINI BAKERIES	Thika	Enterprise Rd.
161	MINI GROUPS HOLDINGS LTD	Thika	
162	MJENGO LTD	Thika	Gen. Kago Rd.

163	MO-LITO LTD	Limuru	
164	MOTHER'S PRIDE BAKERY	Thika	
165	MUKAFARA ENTERPRISES LTD	Thika	
166	MUNDORO TEA FACTORY	Gatundu	
167	MUNJOLAND ENTERPRISES	Thika	
168	MWIHIA INVESTMENT CO. LTD	Thika	Off Garissa Rd.
169	NAIVAS SUPERMARKETS	Thika	Makongeni
170	NELKA AGENCIES	Thika	
171	NEWDAY PRODUCTS LTD	Thika	
172	NGORONGO TEA FACTORY.	Kiambu	
173	NJAMKA LTD	Ruiru	
174	NJIWA POSHO MILL	Kiambu	
175	NJUTAM ENTERPRISES	Thika	
176	ORCHARD SPILLERS	Githurai	
177	OSWAL BAKERY LTD	Thika	R.B Rd.
178	PAMSIDE DAIRY LTD	Thika	Garissa Road
179	PAULS COOKIEMAN LTD	Ruiru	
180	PAWA UNGA MILLERS	Thika	
181	PEMBE FLOUR MILLS.	Thika	Kenyatta H/Way
182	PENDOCORN MILLERS	Makongeni	Thika
183	PENNY FOOD PRODUCTS.	Ruiru	
184	PEPSICO LTD	Ruiru	
185	PHIREHA BAKERS LTD	Thika	
186	PIONEER BAKERS	Thika	Makongeni
187	POLYMOON ENTERPRISES	Thika	
188	POWER STAR SUPERMARKETS LTD	Ruiru Town	
189	PREMIER FOOD INDUSTRIES	Baba Dogo Rd.	Off Thika Rd.
190	PREMIUM BAKERS	Thika	Makongeni

191	PRINCE BEEF SAUSAGES	Thika	Magoko Rd.
192	PRINCE BEEF SAUSAGES	Kiambu	
193	PRIPAL MILLERS LTD.	Thika	Workshop Rd.
194	PROPACK KENYA LTD	Kikuyu	
195	RANCKY ENTERPRISES	Thika	
196	RATN KENYA LTD	Kiambu	
197	RHINE BAKERS LTD	Limuru	
198	RHODES HOLDINGS LTD	Kiambu	
199	RIARA MINERAL WATER.	Karuri	
200	RIMWABI ENTERPRISES	Kikuyu	
201	RIVERDALE BLOOMS LTD	Thika	
202	RLIO INDUSTRIES LTD	Kikuyu	
203	ROKAB ENTERPRISES	Limuru	
204	ROSHAN HOLDINGS LTD	Thika	
205	RUIRU MINI BAKERS	Ruiru	
206	RUJOS INVESTMENTS LTD	Thika	Makongeni
207	SAVANNAH CHOICE LTD	Thika	
208	SAVANNAH SPRINGS MINERAL WATER	Off Kiambu Rd.	
209	SCARLIET BAKERS	Thika	Kiganjo
210	SHETHIA MILLERS LTD	Thika	Kabogo Rd.
211	SILVER LINKS MILLERS COMPANY LTD	Thika	Sawa House
212	SIMBA MILLS LTD	Thika	
213	SKYFOODS LTD	Juja	
214	SOCIETY STORES	Thika.	
215	SOYA FOODS INVESTMENTS	Thika	
216	SOYPRO LIMITED	Kiambu	
217	SPRING FARM NATURAL PRODUCTS LTD.	Kikuyu	
218	SUCA PROCESSORS	Thika	Makongeni

219	SUMMER POSHO MILL	Makongeni	Thika Dmbl Bldg. Kwa Maiko
220	SUNNY PROCESSORS LTD	Ruiru	Rd.
221	SUNPOWER PRODUCTS LTD	Karuri	St. Georges Rd.
222	SUNRISE GRAIN MILLERS LTD	Thika	Kakuzi Road.
223	SUPA FOOD INDUSTRIES	Makongeni	Thika
224	SUSTAINABLE MANAGEMENT SEVICES	Thika	Mangu Road.
225	SWAMIBAPA MAIZE MILLERS	Ruiru	
226	THIKA COFFEE MILLS	Thika	Gatanga Rd.
227	THIKA GRAIN MILLERS	Muindi Mbingu St.	Thika
228	THIKA MEAT SUPPLY	Donyo Sabuk	Thika.
229	TONA POSH MILL	Thika	Kenyatta H/Way
230	TOP CREAM CO. LTD	Thika	Muindi Mbingu St.
231	TRANS AFRICA COMMERCE ANAD HOLDING	Thika	
232	TRANS MILLERS LTD	Thika	Garissa Road
233	TROPICAL SUNSHINE PRODUCTS LTD	Thika	
234	TRUST FLOUR MILLS LTD	Thika	Kimathi Estate
235	TUSKEYS SUPERMARKETS	Thika	
236	TWIRI LTD	Kiambu	
237	UMOJA FLOUR MILLS	Thika	Workshop Rd.
238	UNITED PRIME LTD	Thika	
239	UNIVERSAL INDUSTRIES LTD	Thika	Munene Industries
240	UPLAND BACON INDUSTRIES	Limuru	
241	UTAMU MAIZE MILLERS	Thika	Makongeni
242	VALIDA POSHO MILL	Thika	Kenyatta H/Way
243	VINEPACK LIMITED	Githunguri	
244	WANANCHI MILLERS	Thika	Muindi Mbingu St.
245	WANCA CONFECTIONERS LTD	Ruiru	

246	WANGA POSHO MILL	Thika	
247	WILMAS BAKERS	Githunguri	
248	WIMSSY FRESH DAIRY	Limuru	
249	WOODDRAW INVESTMENT LTD	Ruaraka	Muindi Mbingu St.
250	YAM YAM SWEET BAKERS	Thika	Uhuru St.
251	ZION POSHO MILL	Thika	