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Moderating Effect Of Firm Size On Innovation And Firm Competitiveness Relationship: The Case Of Manufacturing Small And Medium Enterprises In Nairobi County, Kenya

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Abstract: ***This study analyse the moderating effect of firm size on the innovation and firm competitiveness relationship in manufacturing SMEs in Nairobi county, Kenya. To achieve the study objective, a descripto-explanatory research design was employed with a quantitative approach. A cross sectional survey was used to collect data from a sample of 284 manufacturing SMEs from Nairobi County for the period of three years (2012–2014). A semi-structured questionnaire was used as the main tool of data collection. The questionnaire collected data on firm innovation, competitiveness and firm size. Hierarchical regression analysis was used to test the moderating effect of firm size on innovation and competitiveness in manufacturing SMEs in Nairobi County. Results of regression analysis indicate a statistically significant relationship between innovation and competitiveness with β coefficient = 0.439 and ρ value, p = 0.000 < 0.05. The inclusion of the interaction variable, firm-size leads to an R^2 change of 0.335 (33.5%) indicating a substantial increase in the explanatory power of the model. The interaction of the moderator and innovation variables magnifies the change in firm competitiveness. Regression results with the moderator variable, firm size* innovation gives (β= 0.664, p=0.000< 0.05) indicating a positive significant effect on competitiveness. The study concludes that firm size has a significant moderating effect on the innovation and competitiveness relationship. This has implications in innovation studies, in firms' pursuit for competitiveness using innovation strategy and in effective policy formulation to enhance SMEs competitiveness. The study therefore recommends that SMEs implement innovation to improve their competitiveness. Firms and the government should consider firm size as indicated by firm resources in formulating effective innovation strategies and policies for firm competitiveness. The study contributes by giving empirical evidence of the moderating effect of firm size on innovation and firm competitiveness. This has implications on innovation studies framework and provides a basis for effective strategy and policy formulation to improve SMEs competitiveness.***

Keywords: Innovation; competitiveness; firm size; SMEs; Manufacturing; Kenya

I. INTRODUCTION

Small and medium Enterprises (SMEs) play a significant role in socio-economic development and the competitiveness of economies globally. These enterprises generate significant income, employment, provide opportunities for developing and adopting appropriate technology and are a major source for innovations (Shiu and Walker, 2007; Subrahmanya et al., 2010). SMEs dominate world businesses and are estimated to comprise 95% of all enterprises worldwide. In developed countries, SMEs contribute about 64% to the GDP (Ayyagari et al., 2007). In Kenya, SMEs cut across all sectors of the economy as major source of employment and income (GOK, 2005). 98% of all businesses are SMEs contributing about 25% of GDP and 50% of formal employment (Ministry of Industrialization and Enterprise Development, 2015; Kenya National Bureau of Statistics, 2016). SMEs are central in national development strategies aimed at stirring up economic activity as well as reducing unemployment and poverty. A competitive SME sector is thus mandatory if Kenya is to attain its development blue print, Vision 2030 (GOK, 2007).

Kenya Vision 2030 aims at the country becoming a newly industrialised economy, achieving middle level income status with a sustainable annual average GDP growth rate of 10%.

The manufacturing sector that is predominantly SMEs is among the key productive sectors identified to spur economic development and deliver the 10% annual growth. The sector has immense potential for wealth creation and capital accumulation, knowledge spill-overs, poverty alleviation and employment generation (GOK, 2007). Competitive manufacturing SMEs are an essential component of Kenya's initiatives to become a globally competitive and prosperous nation by 2030 (GOK, 2007). Despite the huge potential, the sector has over the years experienced minimal growth with a declining proportionate share in total GDP from 11.8 per cent in 2011 to 9.2 per cent in 2016 (KNBS, 2017). The sector's growth in 2016 decreased to 3.5 per cent from 7.2 per cent in 2011. This is against Vision 2030 sector's annual growth rate target of 10 per cent. The sector growth compares unfavourably to the 10.0 per cent annual growth envisaged in Vision 2030, and also to the average sector growth for developing and emerging industrial economies at 6.2 per cent (UNIDO, 2015). The contribution and growth of the sector depicts low competitiveness.

SMEs dominate the manufacturing sector in Kenya. About 85% of manufacturing firms in Kenya are small, contributing only about 20% of sector's GDP. The share of medium and large firms is about 15% and yet their contribution to sector's GDP is above 60% (Kippra, 2017). Competitive manufacturing SMEs form an essential part of Kenya's development strategies to be a globally competitive and prosperous nation by 2030 (GOK, 2007). The development of competitive manufacturing SMEs form the foundation for the growth of manufacturing industry (KAM, 2017). However, the competitiveness of SMEs in the manufacturing sector is affected by several challenges that hinder them from maximising their potential, consequently limiting their contribution to socio-economic development. The challenges include stiff competition from larger enterprises and multinationals; limited access to resources and markets; overcrowded saturated markets; limited technology and unfavourable legal regulation among others (GOK, 2005). These have been compounded by globalisation, shortening product lifecycles, rapid advancement in technology, increased standards requirements and changing consumer needs and preferences (Kiraka, 2009; KAM, 2012).

In the current dynamic business environment, competitiveness is a critical factor for firm's survival, growth and success (Oral & Kettani, 2009). Intense competition in global and local markets requires firms to improve their competitiveness to survive. SMEs in the manufacturing sector can only remain relevant in national development as envisaged by Kenya Vision 2030 if they can survive and compete effectively. It is imperative that they develop sustainable strategies for survival and competitiveness. Innovation is widely acknowledged as a core factor in firm competitiveness, viability and growth (Becheikh, Landry & Amara, 2006; Kiraka, 2009; Lin & Chen, 2007). Consequently, pressure on all businesses to continually innovate by developing and launching new products and services is greater than ever (Kiraka, Kobia & Katwalo, 2013). It is believed that SMEs require greater innovation in order to remain competitive as they lack the economies of scale and resource advantage of their larger counterparts (Lin& Chen, 2007; Aikeli, 2007). Innovation offers enterprises the opportunity to raise their competitiveness by enabling them to produce quality products and apply more efficient and productive processes to perform better (Gunday, *et al*., 2008). Innovation has inevitably become central to strategies and policies in the pursuit of firm competitiveness.

Despite SMEs being acknowledged as being more innovative and better positioned to innovate

Most SMEs remain uncompetitive as compared to their larger counterparts. The Kenyan manufacturing SMEs are uncompetitive as compared to the large manufacturing enterprises. On the other hand, there is a lot of emphasis on firm innovation as a strategy to improve their competitiveness. Several empirical studies have been carried out on the effect and role of innovation on firm competitiveness. The studies have shown mixed findings, whereas some found no significant effects of innovation on firm performance and competitiveness (Kiss, 2011;Terzioski, 2010) others found a significant relationship between innovation and competitiveness and firm performance (Lin & Chen, 2007; Varis & Littunen, 2010; Ar & Baki, 2011; Atalay et al., 2013; Najib, 2013, Gakure *et al*., 2013; Mensah & Acquah, 2015).

Firm size is one of the critical organizational factor that has an impact on firm operations and performance. Firm size is correlated to organizational operations and capabilities necessary for firm competitiveness (Liargovas & Skandalis, 2010). One critical question is whether firm size moderates the effect of innovation on firm competitiveness since it has an effect on firm capabilities, operations and performance. Most innovation studies have dwelt on the effect of innovation on firm competitiveness without considering the moderating effect of firm size and this has given mixed results with some indicating innovation has a significant effect on competitiveness while others indicating a non-significant relationship. This study therefore sought to make a contribution to the knowledge gap by providing some empirical evidence on the moderating effect of firm size on the effect of innovation on firm competitiveness in manufacturing SMEs' in Nairobi County. This knowledge is important and useful in effective strategy formulation in the use of innovation to improve competitiveness. This knowledge also helps to improve the framework for innovation and firm competitiveness studies.

The structure of this paper is as follows; chapter one gives an introduction and background information of the study, chapter two presents literature review based on the study variables, chapter three presents the research methods used, while chapter four presents the research findings and analysis results. Lastly chapter five gives the conclusion and study recommendations.

II. LITERATURE REVIEW

FIRM COMPETITIVENESS

Ramasamy (1995) defines competitiveness as the ability of an enterprise to increase its market share, profit and growth while sustaining its position in the market for a period of time. Porter (1990) defines competitiveness as the ability of a firm to successfully compete in a given business environment. He

considers competitiveness as a function of dynamic progressiveness, innovation and an ability to change and improve. Lall (2001) on the other hand defines competitiveness as the ability of a firm to do better than others in terms of profitability, sales and market share. He perceives competitiveness in industrial firms as a means of developing relative efficiency along with sustainable growth. According to Altenburg et al., (1998), enterprise competitiveness is the ability to sustain a market position by providing quality products on time, at competitive prices and having the flexibility to respond quickly to changes in demand and this requires firms to develop their innovative capacity.

Several measures of competitiveness have been considered from the use of simple indicators to complex indexes (Buzzigoli & Viviani, 2009). For a long time, competitiveness has been synonymous with a firm's long-term profit performance. According to Konstantinos and Skandalis (2009) competitiveness can be measured using financial performance like profitability. Hence the existence of a good financial performance suggests a firm or industry with increasing competitiveness (Konstantinos & Skandalis, 2009).

Various financial performance measures are often used to measure firm competitiveness and they include return on sales, return on assets and turnover. Although financial indicators are the most widely used indicators of competitiveness, non-financial performance proxies are also important and include the market share of a firm, market share growth and the overall customer satisfaction (Liargovas & Konstantinos, 2009). At the firm level, sales, volume, productivity and market share have been used as indicators of competitiveness. Market performance indicators usually correlate with financial performance indicators (Slater & Olson, 2000). An increasing market share or sales will most likely correlate with increased profits for the firm.

INNOVATION

Innovation is considered a dominant factor in firm competitiveness and the ability to innovate the single most important factor in developing and sustaining firm competitiveness. It is one of the key practices underpinning the survival and competitiveness of firms in the global competitive environment (Kiraka, Kobia & Katwalo, 2013; Lin & Chen, 2007). According to Porter (1992), a firm is able to compete effectively and better than its competitors if it creates a specific and durable differentiating factor and innovation is one of the key means of creating the differentiating factor. As an essential tool of firm strategies, innovation can be employed by firms to differentiate their products, improve efficiency, enter new markets, increase market share and to create competitiveness (Gunday, Ulusoy, Kilic & Alpkan, 2008).

Increasing global competitive pressure, shortened product lifecycles and ease of imitation make it necessary for firms to innovate to sustain competitiveness (Hamid and Tasmin, 2013). Hence the pressure on all businesses to continually innovate by developing and launching new products and services is greater than ever (Kiraka et al., 2013). Innovation has thus become central to firm strategies and policies in the pursuit of firm competitiveness. It remains a credible goal of many firms, national policies and is central in many firms' competitiveness (Cantwell, 2003; Aikaeli, 2007).

According to Schumpeter (1934), 'innovation is the introduction of a product which is new to consumers or of higher quality than existing products, new methods of production, the opening of new markets, the use of new sources of supply that lead to the restructuring of an industry'. On the other hand, Porter (1990) perceives innovation as a combination of improvements in technology and better methods of doing things exhibited in product and process changes, new approaches to marketing, new forms of distribution and new concepts of scope. Forsman (2010) defines innovation as the generation and implementation of new or improved processes, products/ services, production methods or single actions aimed at increasing the competitiveness of an enterprise.

OECD Innovation manual defines "innovation as the implementation of a new or significantly improved product (good or service), or process, a new marketing method, or a new organisational method in business practices, workplace organisation or external relations" (OECD, 2005). The minimum requirement for an innovation being the product, process, marketing or organisational method must be new (or significantly improved) to the firm. This includes products, processes and methods that firms are the first to develop and those that have been adopted from other firms or organisations. Key elements of innovation are novelty, commercialization or exploitation of new possibilities through bringing to the market and to practical use of a new concept or idea.

Two conventional ways of categorising innovations have been proposed; the object of change and the nature/ radicalness of the change. This first categorisation based on the object of change was proposed by Schumpeter (1934). Accordingly, innovation is categorised into product, process, market and organizational innovations. OECD Innovation Manual identifies four main types of innovation based on the Object of change; product, process, marketing and organizational innovations (OECD, 2005). Schumpeter (1939) on the other hand distinguished five different types of innovation which include: new products; new processes (technological process innovation and organisational innovation); new sources of supply/raw materials; the exploration of new markets; and new ways to organise business.

The second categorization relates to the "newness", i.e. the extent or degree of change. Accordingly, innovation is categorised as being radical or incremental. Radical innovations are unique, novel and influential involving major changes that lead to the substitution of existing products/ services (Varis & Littunen, 2010). They are new to the market, industry, and country or world and offer significant unprecedented performance that may transform existing markets or create new ones. Radical innovations require completely new knowledge, technology and provide more benefits and utility (Varis & Littunen, 2010; Trott, 2008). Radical innovations require a high degree of internal R&D, hence are more supported by cooperation of the firm with universities and research organizations (Todtling & Kaufuman, 2001). Incremental innovations provide minor or

major improvements in functionality and performance to an existing product/ service or processes. Such innovations include adaptations, refinement, enhancements or line extensions by adding new features (Garcia & Calantone, 2002). This is the most common type of innovation in many organizations especially in SMEs.

Although there are various output indicators of innovation, three indicators have received a lot of attention; number of patents, new product announcements, and the number and degree of newness of new products (Ahuja & Katila, 2001; Garcia & Calantone, 2002; Romijn & Albaladejo, 2002). New products/services are the most obvious indicators of innovation output, since this is the goal of product innovation process (Wakasugi & Koyata, 1997; Romijn & Albaladejo, 2002). A factor to consider in this indicator is the degree of newness of the new product/service. This study considered the use of new products, services and marketing and organizational methods as the indicators of innovation.

INNOVATION AND FIRM COMPETITIVENESS

Firm competitiveness has largely been attributed to a firm's internal factors as compared to the external environment and is dependent on firm process, offerings in the market and the efficiency of its systems (Penrose, 1959; Porter, 1992; Cantwell, 2003). Innovation is acknowledged as being critical in the improvement of firm process, products and services, marketing and organizational systems leading to competitiveness (Ferreira & Marques, 2009). Hence for firms in a dynamic environment characterized by accelerating change, complexity and uncertainty, their ability to remain competitive in their external environment is closely linked to their capacity to continuously innovate (Johannessen, Olsen & Lumpkin, 2001)

Sonja (2005) conducted a research on the effects of innovation activities in SMEs in the Republic of Croatia using data from 498 SMEs in manufacturing and service enterprises. Their study findings indicate that implementation of innovations led to increased market share, improved product quality, and reduced material cost per unit. Lin and Chen (2007) in their study, on innovation and performance, explored the relationship between innovation and firm performance of SMEs in Taiwan. Their findings reveal that innovation had a weak link with firm sales and administrative innovation was the most crucial factor in explaining sales rather than technological innovations.

Terziovski (2010) carried out a study on innovation practice and its implications in manufacturing SMEs using a sample of 600 SMEs in Austria. The study did not find a significant relationship between innovation and SME performance. Kiss (2011) carried out a study on the impact of innovation on firm competitiveness in Hungary. The study found no significant relationship between innovation and competitiveness. Rojas *et al.* (2013) carried out a study on Innovation and Competitiveness in SMEs in San Luis, Potosi in Mexico. Results indicated a high significant positive relationship between innovation activities of SMEs and Competitiveness.

Gakure, *et al.* (2013) carried out a study on the Role of innovation in Kenyan Electrical and electronic manufacturing enterprises using multivariate linear regression analysis. Their results revealed a significant positive relationship between innovation and firm competitiveness. Najib (2013) carried out a study to examine the potential of market orientation and innovation as sources of competitiveness in food processing SMEs. Findings indicate that innovation had positive effects on competitiveness of SMEs. They concluded that innovation was one of the most important factors that can be used to enhance competitiveness. Aziz and Samad (2016) in their study to examine the effect of Innovation on the competitive advantage of food manufacturing SMEs in Malaysia revealed that innovation had a strong positive impact on SMEs competitive advantage, in which innovation contributed 73.5% of the competitive advantage. This leads us to our Hypothesis 1

H_1: Innovation has positive significant effects on competitiveness

FIRM SIZE, INNOVATION AND COMPETITIVENESS/ PERFORMANCE

Firm size is an important internal factor affecting both innovation capacity and firm competitiveness. The definition of firm size varies in different countries and even different industries in the same country. Firm size has been defined as organization's resources, turnover, or workforce size (Zhang, et al., 2013). Firm size is indicated by several factors that include total number of permanent employees, turnover and capital employed. This study used the total number of permanent employees to indicate the size of the firm. Accordingly Small enterprises have 5-49 permanent employees while Medium enterprises have 50-99 permanent employees (CBS, ICEG & K-REP, 1999).

Large firms are expected to have more competitive power due to their resource advantage and economies of scales as compared to small firms. Larger firms are also thought to engage more in internal R&D which results in innovation a precursor for firm competitiveness (Selcuk, 2013). According to Lin & Chen (2007) firm size maybe a precursor for firm performance. Schumpeter (1942) hypothesized that larger firms innovate more because of their ability to access funds and spread R&D risk. Niresh and Velnampy (2014) argue that firm size is one of the key factors influencing profitability due to the positive effect of economies of scale. Thus size is considered by manufacturing firms as a factor influencing their sustainable competitive advantage in terms of profit and market share.

Damanpour (1996) claimed larger firms were more innovative due to their access to the resources that are necessary for innovation and firm competitiveness. Large firms are thought to have the resource advantage over small firms which they can leverage for their competitiveness. As such, firm size is also thought to influence innovation. Covin, et al., (2006) established that firm size affects the firm's processes and performance and its innovation ability.

According to the resource based theory, firm level competitiveness can be viewed as competencies based on available physical and human resources and networks that

allow a firm to compete effectively in its market while serving customers (Szerb & Ulbert, 2009). Financial resources, human resources, capabilities and organizational process are key factors contributing to the competitiveness of enterprises. Among the key firm processes affecting competitiveness is innovation which is influenced by the availability of key firm resources. Firm resources have been linked with firm size and in some cases firm size has been used to denote firm resources.

Secluk (2016) in their study on factors affecting firm competitiveness: evidence from an emerging market, found a positive significant effect of firm size on firm competitiveness indicated by profitability and return on assets. Liargovas and Skandalis (2010) in their study on factors affecting firm competitiveness investigated financial and non-financial determinants of firm competitiveness. Research findings showed that leverage, firm size, and export activity had a significant effect on firm competitiveness indicated by return on sales and return on assets.

Dogan (2013) in their study of the impact of firm size on profitability using a data set of 200 listed companies for the period 2008-2011, found a significant positive relationship between firm size and profitability. Giovanis and Ozdamar (2014) in their study on the determinants of profitability found firm size to have positive effects on profitability only up to a certain point after which the relationship turns negative. Firm size has been indicated to have an influence on firm operations and performance. This brings us to the second hypothesis;

H_2:Firm size has a significant moderating effect on the effect of innovation on firm competitiveness in Manufacturing SMEs in Nairobi County.

Most of the above studies reviewed considered the effect of innovation on firm competitiveness without taking into consideration the interaction effects of firm size. Other studies considered the influence of firm size on competitiveness and or the influence of firm size on innovation. This study introduced firm size as a moderating variable influencing the effect of innovation on firm competitiveness. This is in line with previous studies that indicate firm size has an effect on its operations, capabilities and performance. This partly explains why studies on the effect of innovation on firm competitiveness show mixed results. Inclusion of firm size as a moderator improves the research framework for innovation and competitiveness studies.

III. RESEARCH METHODS

RESEARCH DESIGN

The study adopted a descripto-explanatory design which combines descriptive and explanatory designs (Saunders, Lewis & Thornhill, 2012). The descriptive design was appropriate in ascertaining the status and nature of innovation in the manufacturing SMEs, while the explanatory design was useful in establishing the relationship between innovation, competitiveness and firm size. Cross sectional survey strategy was used to collect data.

TARGET POPULATION, SAMPLING AND SAMPLE SIZE

The target population for the study was manufacturing SMEs in Nairobi County that employ 5- 99 permanent employees. There were 987 registered manufacturing SMEs of which 341 are small employing 11-49 permanent employees and 646 are medium employing 50- 99 permanent employees. A sample size of 284 enterprises was selected using multistage sampling that combined purposive and stratified random sampling. In the first stage of sampling, 3 Industrial clusters were purposively selected from Nairobi County where the manufacturing SMEs are concentrated. This was followed by stratified random sampling to select SMEs from the three industrial clusters. Stratification was based on the size of the enterprises where the enterprises are classified into small and medium enterprises.

The study used primary data that was collected from the enterprises. A semi-structured questionnaire was the main tool of data collection. The research instrument was administered by the researcher to the manager/ owner of the enterprise with the help of research assistants.

The questionnaire comprised of 3 major sections. Section one focused on the enterprise' bio-data. Section two focused on innovation and collected data on the types and numbers of innovations implemented in the enterprise in the last three years. Innovation was measured using the number of innovations implemented by the enterprise. These were categorised into 4 points on a likert scale. Lastly, section three focused on the effect of innovation on firm competitiveness and the influence of firm size. Firm competitiveness was indicated by profitability and market share. A 5 point likert scale was used to measure profitability and market share.

ANALYSIS/STUDY RESULTS

A total of 284 questionnaires were distributed to the SMEs out of which 209 were returned dully filled translating to a response rate of 73.6 %. The profile of SMEs that responded is shown in table 1 below.

	Frequency	%
Number of permanent employees in your enterprise		
5-49	74	35.4
50-99	135	64.6
Total	209	100.0
Age of Enterprise		
Less than 5 years	27	12.9
5-10 years	63	30.1
11-15 years	36	17.2
16-20 years	18	8.6
More than 20 years	65	31.1
Total	209	100.0
Business Ownership		
Sole proprietorship	66	31.73
Partnership	14	6.25
Limited Company	129	62.02
Total	209	100.0
Capital Employed in Enterprise		
<10,000,000	64	30.6
10,000,001-20,000,000	33	15.8
20,000,001-30,000,000	29	13.9
30,000,001-40,000,000	32	15.3
Over 40,000,000	51	24.4
Total	209	100.0

Source:Author, 2015

Table1: SMEs Profile

INNOVATION

Respondents were asked to indicate the number and type of innovations they had implemented in the last three years. (2012-2014). The results are presented in table 2 below.

Innovation	Number of Innovations per Enterprise			
Type of Innovation	**< 3**	**3-6**	**7-10**	**> 10**
Product	86	64	22	4
Process	110	44	16	1
Marketing	82	12	4	
Organizational	44	9		
Total	322	129	42	5

Table 2: Level of Innovation in Enterprises

Results in Table 2 above indicate 203 of the enterprises had at least one innovation, while 6 enterprises had none. 92 % of the firms had implemented product (goods or services) innovation, 87.5 % had implemented process innovation while 69 % had implemented marketing and while 51.6 % had implemented organizational innovation in the period 2012 – 2014. Majority of the enterprises had less than 3 innovations implemented in the period of three years.

NATURE OF INNOVATION

The study sought to find out from respondents the nature and novelty of their innovation by either rating them as significantly improved, new to the firm, new to the market, new to the country and new to the world. The Study findings are shown in Table 3 below

Type of Innovation	Degree of Newness / Nature of Novelty				
	Significantly Improved	**New**			
		New to the Firm	**New to the Market**	**New to the country**	**New to the World**
Product	86	62	46	2	1
Process	80	69	27	5	
Marketing	83	47	14		
Organizational	48	32	10	2	

Source: Author, 2015

Table 3: Degree of Newness of Innovation/ Nature of Novelty

In terms of innovation novelty, 50 % of the enterprises had introduced innovations that were significantly improved the lowest level of novelty, while 34 % had implemented innovations that were new to the firm, 15 % of the enterprises had introduced innovations that were new to the Kenyan market. Only one enterprise representing 0.005 % of the total respondents had successfully implemented a product innovation that was new to the world, the highest degree of novelty. Even though most of the enterprises were innovating, majority were innovating at the lowest level of novelty and this may have had an impact on the level of firm competitiveness.

EFFECT OF INNOVATION ON FIRM COMPETITIVENESS

Hypothesis H_1: Innovation has significant effect on Firm competitiveness in Manufacturing SMEs in Nairobi County.

To test this hypothesis a two-step hierarchical regression was carried out. Step 1 used control variables (Financial Resources, HR) as the independent variables and Step 2 included the innovation variable. Control and independent variables were regressed against competitiveness which was operationalised as a composite variable of firm profitability and market share.

Model		Unstandardized Coefficients B	SE	Standardized Coefficients β	ρ	R^2	ΔR^2
1	(Constant)	2.342	.297		.000	0.308	-
	Finance	.330	.051	.543	.000	-	-
	HR	-.176	.153	-.098	.250	-	-
2	(Constant)	1.075	.358		.003	0.461	0.153
	Finance	.210	.051	.346	.000	-	-
	HR	-.139	.136	-.077	.309	-	-
	Innovation	**.742**	**.142**	**.439**	**.000**	-	-

Source: Author, 2015

Table 4: Results from hierarchical regression analysis of innovation on competitiveness

Results of regression analysis in Table 4 reveal an R^2 of 0. 308 for control variables; Finance and HR indicating the two variables account for 30.8 % of the variation in firm competitiveness. Regression Analysis results for step 2 with the inclusion of innovation reveal R^2 =0 .461. This indicate that innovation with the control variables explain 45.6% of the variation in competitiveness. Change in R^2 is 0.153 indicating innovation alone explain 15.3 % of the change in firm competitiveness.

Regression results for innovation against competitiveness (β= 0.439, p= 0.000 < 0.05) indicating a statistically significant relationship between innovation and competitiveness. The regression coefficient of 0.439 implies that a unit increase in innovation would lead to 0.439 increase in competitiveness.

Hence H_1 was not rejected at α =0.05 and the study concluded that innovation has a positive significant effect on firm competitiveness in Manufacturing SMEs in Nairobi City County, Kenya

IV. DISCUSSION

These findings are in line with previous study findings that concluded that innovation has positive significant effect on firm competitiveness /performance (Lin & Chen, 2007; Atalay *et al*., 2013; Varis & Littunen, 2013; Rozic & Sonja, 2005; Sewang *et al*., 2011; Gakure *et al*.,2013; Najib, 2013; Rojas *et al*.,2013; Aziz & Samad, 2016; Secluk, 2016). However the findings are not consistent with those of

Tervioski (2010) and Kiss (2011) who found no significant relationship between innovation and competitiveness.

Study findings also resonate with the widely accepted theoretical literature that link innovation to firm competitiveness. Enterprises can implement innovation to improve their competitiveness. It is however prudent for firms that seek to enhance their competitiveness, to also to consider other factors in addition to innovation these include firm competences and firm resources especially finance.

MODERATING EFFECT OF FIRM SIZE ON THE INNOVATION AND FIRM COMPETITIVENESS RELATIONSHIP

H_2: Firm size has moderating effect on the innovation and firm competitiveness relationship of manufacturing SMEs in Nairobi County, Kenya

To test this hypothesis, Whisman and McClelland (2005) three-step hierarchical regression approach to test for moderation was used

- ✓ In Step one, innovation variables (independent variables) were regressed on competitiveness (dependent variable).
- ✓ In step two, innovation variable (independent variable) and firm size (moderating variable) were regressed on Competitiveness.
- ✓ In step three, the interaction variable innovation* firm size was included in the model as an independent variable in addition to Innovation and firm size. Regression results are presented

Model		Unstandardized Coefficients		Standardized Coefficients	ρ	R^2	Δ R^2	Desicion
		B	SE	β				
1	(Constant)	1.076	.359		.003	0.464		**Innovation has significant effect on firm competitiveness**
	Finance	.217	.052	.353	.000			
	HR	-.150	.137	-.083	.275			
	Innovation	.737	.143	.435	.000			
2	(Constant)	.755	.395		.059	0.483	0.19	**Firm size as a dependent variable does not have significant effect on competitiveness**
	Finance	.170	.057	.276	.004			
	HR	-.109	.137	-.060	.428			
	Innovation	.731	.141	.432	.000			
	Firm Size	.288	.156	.159	.068			
3	(Constant)	1.421	.241		.000	0.809	0.335	**The interaction variable firmsize* innovation has a significant effect. Firm size is a moderating variable**
	Finance	.060	.035	.097	.093			
	HR	-.120	.081	-.066	.145			
	Innovation	.882	.085	.521	.000			
	Firm Size	-.119	.098	-.066	.230			
	Innov* Size	.197	.015	.664	.000			

Table 5: Results from Regression Analysis showing the moderating effect of Firm-size on the Relationship between Innovation and Firm Competitiveness

The results in Table 5 show R^2 =0.464 and adjusted R^2= 0.447 for Model 1. This indicates that Firm Resources and Innovation explained 46.4 % variation in competitiveness. With the inclusion of Firm size in Model 2, there was an increase R^2 change of 0.019 or 1.9 % from 0.464 to 0.483 %. Hence firm resources, innovation and firm size explains 0.483 % of the variation in firm competitiveness. In model 3, with the inclusion of the interaction variable, R^2 = 0.818 while adjusted R^2 is 0.809. This led to R^2 change of 0.335 (33.5%) indicating a substantial increase in the explanatory power of the model. The interaction of the moderator and Innovation magnifies the change in firm competitiveness.

- ✓ Model 1, Financial resources (β= 0.353, p=0.000 < 0.05) and innovation (β= 0.435, p=0.000 < 0.05) indicate that financial resources and innovation has a positive significant effect on competitiveness. Human resources (β= -0.083, p=0.275 > 0.05) indicating a statistically insignificant relationship between HR and competitiveness.
- ✓ Model 2: Financial resources (β= 0.276, p=0.004< 0.05) and innovation (β= 0.432, p=0.000< 0.05) indicate that financial resources and innovation have positive significant effect on the dependent variable competitiveness. Human resources (β= -0.060, p=0.428 > 0.05) indicating a statistically insignificant relationship between Human resources and competitiveness and Firm Size (β= 0.159, p=0.068 > 0.05 indicating that firm size has a statistically insignificant effect on competitiveness.
- ✓ Model 3: Financial resources (β= 0.097, p=0.093 > 0.05), Firm Size (β= - 0.66, p=0.145 > 0.05 indicating that financial resources and firm size have a statistically insignificant effect on competitiveness. Innovation (β= 0.521, p=0.000< 0.05) and the interaction Innovation* Size (β= 0.664, p=0.000< 0.05) have positive significant effect on the dependent variable competitiveness.

Hence, the study accepted hypothesis H_2 at α = 0.05 and concluded that firm size has a moderating effect on the relationship between innovation and competitiveness in Manufacturing SMEs in Nairobi county.

V. DISCUSSION

These findings are in line with those of previous studies that confirm that firm size influence both innovation and competitiveness (Gunday et al., 2008; OECD, 2005; Marques &Ferreira, 2009). Studies also indicate that firm factors that include firm age size, strategies, collaborations and networks are more important in firm behaviour including innovation and competitiveness as compared to external factors (Gunday et al., 2008; Sternberg & Arndt, 2009). According to Schumpeter, the development of innovation requires the accumulation of knowledge and financial resources which are endowed to larger firms as compared to smaller firms (Schumpeter, 1954).

Large firms are expected to have more competitive power due to their resource advantage and economies of scales. These firms tend to have R &D related facilities, capital and superior human resources. The resources influence a firms activities including innovation which impacts on competitiveness. Access to resources enables such firms to carry out their business activities effectively (Secluk, 2016, Liargovas & Skandalis, 2010). In some cases firm size has being used to denote firm resources, knowledge and market power (Cantwell, 2003). From the Resource based view of the firm, resources represent an important factor that contributes to firm competitiveness (Wernfelt, 1984). According to Penrose (1959) a firm can gain competitive advantage by having distinctive resources or capabilities which are valuable, difficult to imitate and rare in the market place. Study finding reveal that firm financial resources have a significant effect on competitiveness. The influence of firm resources on the firm competitiveness has been highlighted by various authors (Penrose, 1959; Porter, 1990; Lee & Sukuco, 2007; Szerb & Ulbert, 2009). Many SMEs are faced with the challenge of limited resources affecting their competitiveness.

VI. CONCLUSION

The study sought to establish the effect of innovation on firm competitiveness and the moderating effect of firm size on the innovation and firm competitiveness relationship in Manufacturing SMEs in Nairobi County, Kenya. On the basis of the findings, the study made the following conclusions.

Innovation is an important factor in firm competitiveness. Manufacturing SMEs in Nairobi had embraced it with 96% of the respondent SMEs having at least one innovation. Research findings, indicate that innovation had a statistically significant positive effect on firm competitiveness. The study concludes that implementation of product, process, marketing and organizational innovations results in an increase in firm competitiveness. Manufacturing SMEs can therefore improve their competitiveness by implementing the different types of innovations.

Even though innovation had positive significant effect on firm competitiveness, the explanatory power (contribution) was moderate. This is an indication that even though innovation is a significant factor in firm competitiveness other factors also contributes to firm competitiveness and influence the magnitude of the impact. From literature reviewed, such factors include firm resources; physical, human, intellectual and capital resources, R&D activities of the firm, firm competences and other external factors. The external environment including market conditions, economic conditions and legal environment also influences a firm's ability to compete. Hence for firm competitiveness, innovation should be coupled with a conducive, supporting internal and external environment.

The study findings also indicate that firm size has significant moderating effect on the innovation and competitiveness relationship. Innovation effect on firm competitiveness is amplified with the introduction of the interaction of the moderating variable firm size with innovation. Based on the research findings of this study firm size should be considered in innovation studies, competitiveness strategies based on innovation and government policies seeking to improve firm competitiveness. This study findings may help explain mixed results arising from different firm sizes. Various indicators used to indicate firm size should be considered and include physical and human resources, firm capabilities and competences and process. These factors will moderate the impact of innovation on firm competitiveness.

VII. RECOMMENDATIONS

Results indicate that innovation has a significant positive effect on firm competitiveness. The study recommends to owners/ managers of SMEs to develop and implement innovations to improve competitiveness. To fully benefit from innovations firms need to improve the internal environment of the firms including firm resources, and other competences. For effective innovation firms require new knowledge that result from R&D. Hence SMEs need to engage in internal R&D and or collaborative research with research institutions. SMEs also need to form linkages with knowledge generating institutions like universities, R&D Institutions, Private research laboratories that will provide new knowledge necessary for innovations with high novelty.

Study findings also indicate that firm size has a moderating effect on the impact of innovation on firm competitiveness. SMEs therefore need to consider firm size represented by firm resources in the use of innovation strategy for competitiveness. Firms need to further ensure sufficient resources and capabilities to augment the effect of innovation on competitiveness. This may be one of the factors affecting SMEs as many have limited resources when compared to large organizations. The study recommends that government policy to improve SMEs competitiveness through innovation should consider firm size and firm resources. To be effective the government needs to improve access to resources. Lastly the study recommends that innovation studies examining its impact on competitiveness/performance should consider firm size in the research framework as this affects their findings and implications enterprises.

VIII. STUDY LIMITATIONS

Even though the study was designed to enable the researcher collect accurate and authentic data that can be used to make some inferences, it was however not free from limitations. The cross sectional nature of study as opposed to longitudinal survey may impose some limitation to the given that the effect of innovations have a time lag after implementation. However the research attempted to deal with this limitation by obtaining innovation data for a period of three years as opposed to one year. Secondly, the study was based on Manufacturing SMEs that may be unique from other SMEs hence the generalization of the results across the SMEs not be very accurate. Different Industries may operate and be influenced by different factors. The study used the number of permanent employees as an indicator for firm-size. However

in the current economy, in order to cut down on costs most manufacturing enterprises opt to use more casuals and limit the number of permanent staff or opt to outsource some services. This may have an implication on the firm size variable. The results of the study should therefore be interpreted within these limitations.

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