



## COMPETITIVE AGGRESSIVENESS, INNOVATION AND PROFITABILITY: THE CASE OF QUOTED MANUFACTURING COMPANIES IN NIGERIA

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### Abstract

*This study examined the effect of competitive aggressiveness on profitability of quoted manufacturing companies in Nigeria with innovation as the mediator. Data for the study was obtained from primary source through the administration of a well-structured questionnaire. The sample size of this study was determined by using judgmental sampling technique in which 100 hundred manufacturing firms were selected based on the availability of up to date financial statement. A total of 100 copies of questionnaires were distributed and 100 questionnaires were returned. The data was subjected to series of cleansing to ensure reliability and validity. The study applied structural equation model, PLS-SEM. The findings revealed that competitive aggressiveness has positive and significant effect on profitability of selected manufacturing firms, entailing that increase in the competitive aggressiveness positively influence profitability and there is a positive relationship between innovation and profitability. Again, the result showed that, innovation has a positive and significant influence on the relationship between competitive aggressiveness and profitability, this implies that innovation is a good mediator. This study recommends that there is need to intensify aggressive competitiveness at individual level and*

*the firm's level. This will enhance their prompt response to rival's every move in industry. Again, there is need to improve and sustain innovative activities by manufacturing firms. Manufacturing firms in Nigeria should be flexible to change through innovative ideas. This will drive profitability. Keywords: Competitive Aggressiveness Profitability, Innovation, Structural Equation Model, PLS-SEM, Corporate Entrepreneurship, Mediation*

## INTRODUCTION

Nigeria has been experiencing drop in prices of stocks which influences and creates associated crises in the industries (banking, oil sector, manufacturing among others). This trend resulted in collapse of various businesses which apparently pose challenges for the economy. It is thus noticeable that, developing countries like Nigeria that are faced with seeming volatile pressures from increased worldwide competition stemming from globalization, constant technological changes, customers' demand, foreign competition, legal environment and so on, require new ways of managing human resource to cushion the effects on organizational performance. To face these vicious competitions, Vuuren, Groenwald and Gantsho, (2009) posited that, organisations must review practices and actively search for new ways to practice flexibility, increase capacity of competitive aggression through innovation. Competitive aggressiveness as a dimension of corporate entrepreneurship indicates the power level of firms' attempts to do better than business rivals recognized by an aggressive stance and a strong response to competitor's actions (Lumpkin & Dess, 2001). Some researcher like Covin & Covin (1990) has tested and developed competitive aggressiveness as another dimension of entrepreneurial orientation. In some studies, the concepts of competitive aggressiveness and proactiveness have been treated as if they are identical with each other (Covin & Covin, 1990), however, Lumpkin & Dess (2001) have suggested that these two are different dimensions.

Corporate entrepreneurial thinking and acting is changing the way business is conducted at every level (Kuratko, Morris & Covin, 2011). It is a phenomenon that can occur in a variety of different organizational contexts. Entrepreneurship is the process of creating value by bringing together a unique combination of resources to exploit an opportunity (Stevenson & Jarillo-Mossi, 1986). The consequences of the financial crises at the international level during the recession of 2008 transferred shocks from one country to another. Corporate entrepreneurship is about creating organizations, change, innovation, wealth and instilling value creation. Innovativeness indicates an organizational tendency to offer newness and originality via experimentation and research services and new process development (Dess & Lumpkin, 2005). It is clear that today's environment is filled with many contradictions, and dealing with paradox

becomes a critical aspect of managing in the new innovative landscape (Kuratko & Morris, 2018).

To achieve a transformation, it is required toward strengthening entrepreneurship within organizations. Thus, the far-reaching impact of globalization, in terms of market, consumers, competitors and technologies on businesses has made corporate entrepreneurship as a relevant phenomenon to organizational performance in general and profitability in particular (Kemelgor, 2002).

Profitability is the primary goal of trading business ventures. Without profitability the business will not survive in the long run. So, measuring current and past profitability and projecting future profitability is very important (Hofstrand, 2009). Profitability means ability to make profit from all the business activities of an organization, company, firm, or an enterprise. It shows how efficiently the management can make profit by using all the resources available in the market. Profitability is the ability of a given investment to earn a return from its use (Harward & Upton 1961). Sometimes, the terms 'Profit' and 'Profitability' are used interchangeably and this also applies in this research. Okwoli (1998) stated that most entrepreneurs invest in order to make a return, the profit earned by a business can be used to measure the success of that investment. Put differently, profit is the difference between the revenue and expenses and expired costs of a particular period. Therefore, this study main objective is to examine the effect of competitive aggressiveness on profitability of quoted manufacturing companies in Nigeria with innovation as the mediator.

## **LITERATURE REVIEW & HYPOTHESES DEVELOPMENT**

### **Competitive Aggressiveness and Profitability**

Competitive aggressiveness and dexterity cover the entrepreneurial direction and activities of top management (Antoncic & Hisrich, 2004). This dimension of CE demonstrates the intensity level and company's efforts to outperform competitors, and this strategy is given impetus by combative stance and a powerful response to rival's moves (Lumpkin & Dess, 2001). Even when some researches on CE like Smart & Conant (1994) neglected the competitive aggressiveness dimension, other studies like Lumpkin & Dess (1996) opines that it is a separate dimension from proactiveness. Therefore, it is characterized by aggressive and very forceful responses to competitors' actions and moves. In their research on small manufacturing firms, researchers found that the companies that attempt corporate entrepreneurship in the form of competitive aggressive behavior when doing business in turbulent environments, generally do well (Antoncic & Hisrich, 2004).

Blackford (2014) noted that aggressiveness in promoting innovative products and services is a sign of Competitive aggressiveness and hence this dimension is also closely related to innovation. It is argued that firms would find it hard to practice Competitive aggressiveness in the absence of innovation. The CA construct focuses more on intimidation of competitors and conflict with existing customers.

Previous studies such as Arshad *et al.*, (2013) and Campos *et al.*, (2013) have reported positive correlations between competitive aggressiveness and firm performance in different economic sectors and contexts. Setiawan *et al.* (2015) have also established positive influence of competitive aggressiveness on Malaysian construction contractors. Some studies such as Hughes & Morgan (2007) and Casillas & Morino (2010) however, failed to establish positive correlations between competitive aggressiveness and firm performance. Hence, this study seek to test:

*H<sub>01</sub>: Competitive aggressiveness has no effect on the profitability of manufacturing companies in Nigeria.*

### **Innovation and Profitability**

Innovativeness reflects a firm's tendency to engage in, and support new ideas, uniqueness, experimentation and creative processes that may result in new products, services, or technological processes (Lumpkin & Dess 1996). Innovative firms have capabilities to monitor the market changes and respond quickly, thus capitalizing on emerging opportunities (Wiklund, 1999). Lekmat & Selvarajah (2008) noted that all factors of entrepreneurship orientation have direct effects on profitability and that innovation, support profitability effectively. However, Hisrich, Peters and Shepherd (2008) asserted that most firms experience resistance to Profitability because they lack innovative capabilities. Thus this study sought to test:

*H<sub>02</sub>: Innovation has no effect on profitability of Nigeria manufacturing companies.*

### **Competitive Aggressiveness and Innovation**

Competitive aggressiveness focuses more on intimidation of competitors and conflict with existing customers. The construct also exhibits some degree of rigorousness, forcefulness, and bellicose in competing, leading to a higher level of performance (Bovhenc, 2012). Examples of some aggressive strategies adopted by competing firms are fierce price competition, market entry with a new or superior offering, fast-following a rival into a market, continuously exploiting information, using unconventional surprise tactics (Hughes & Morgan, 2007).

An aggressive firm can rely on offensive strategies instead of defensive strategies in this light. A sustain competitive advantage with efficient innovation adopted can beat other

competitors in the marketplace with innovative products and services while achieving sustainable competitive advantages (SCA). According to Madhani (2010) sustainable competitive advantages are company assets, attributes, or abilities that are difficult to duplicate or exceed; and provide a superior or favorable long-term position over a firm's competitors. These advantages allow businesses to be more successful than their competitors over a long period, resulting in sustained growth.

*H<sub>03</sub>: Competitive aggressiveness has no effect on innovation of manufacturing companies in Nigeria.*

### **Competitive Aggressiveness, Innovation and Profitability (Innovation as a Mediator)**

According to Organisation for Economic Co-operation and Development (2005), innovation is 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. Innovation refers to creating something new and implementing it successfully at a market. Innovation in firms takes place when knowledge is commercialised, for example in the form of new products, services, processes, or business models (Baldwin & Gellatly, 2003).

Innovation can be broadly categorised as radical or incremental, where radical innovations are new technologies, processes or new products that fill needs perhaps not yet recognized while incremental innovations improves what already exists (Chetty & Stangl, 2010). The distinction here is about the degree of change associated with the innovation and the resulting impact on a firm's perceived risk and existing core competencies. The OECD (2005) identified four types of innovation as product innovation, process innovation, marketing and organisational innovation. Product innovation means introducing the new or significantly improved products or services (Polder et al., 2010).

For product innovation, the product must either be a new product or significantly improved with respect to its features, intended use, components and material. Change in design that brings significant change in the intended use or characteristics of the product is also considered as product innovation (OECD, 2005). It is also argued that the reason why firms aim product innovation is to bring efficiency in the business (Polder et al. 2010). Process innovation means improving the production and logistic methods significantly or bringing significant improvements in the supporting activities such as purchasing, accounting, maintenance and computing (Polder et al., 2010). OECD (2005) defined the process innovation as implementation of the production or delivery method that is new or significantly improved.

This includes significant changes in techniques, equipment and software. Process innovations can be intended to decrease production unit costs, to increase quality, or to produce or deliver new or significantly improved products. Marketing innovation is defined as the identification of new markets and finding out how they are better served or how they may become more receptive to the available products (Shergill & Nargundkar 2005).

The objective of marketing innovation being to increase the sales and market share and opening new markets, it includes activities such as implementing new marketing method that involve significant changes in the packaging, design, placement and product promotion and pricing strategy (Chou, 2009). The distinctive feature for the marketing innovation from the other types of innovation is the implementation of new marketing method that the firm has never implemented before. Organisational innovation is defined as introduction of new practices of doing business, workplace organizing methods, decision making system and new ways of managing external relations (Polder et al., 2010). OECD (2005) defined the organisational innovation as implementing new ways of organizing business practices, external relations and work place.

*H<sub>04</sub>: Innovation does not mediate the effect of competitive aggressiveness on profitability of Nigeria manufacturing companies.*

## **Theoretical Review**

### ***Opportunity-Based Theory***

Major proponents of the opportunity-based theory are Peter Drucker and Howard Stevenson (Kwabena, 2011). Drucker (1985) posit that entrepreneurs do not cause change as claimed by the Schumpeterian school but exploit the opportunities that change in technology, consumer preferences and many others creates. He further maintains that, the entrepreneur always searches for change, responds to it, and exploits it as an opportunity. Apparently, Drucker's opportunity construct indicates that entrepreneurs have an eye more for possibilities created by change than the problems. Stevenson (1990) is a major contributor to this theory and he extends Drucker's opportunity-based construct to include resourcefulness. This is based on research to determine the differences between entrepreneurial management and administrative management.

### ***Resource- Based Theory***

The Resource-based theory of entrepreneurship argues that access to resources by founders is an important judge of opportunity based entrepreneurship and new business growth. Aldrich, (1999) and Alvarez & Busenitz, (2001) are proponents of this theory. This theory argues

that entrepreneurs have individual-specific resources that facilitate the recognition of new opportunities and the assembling of new resources for the emerging firm. A brief summary of other contributors to this theory and their specific views include: Resource based theory stresses the importance of financial, social and human resource. By implication, access to resources enhances the individual's ability to detect and act upon discovered opportunities (Davidson & Honing, 2003).

### ***Socio-Economic Theory***

Schumpeter (1961) set himself the specific task of accounting for the development of capitalist economies. According to him, entrepreneurship is the fundamental phenomenon, the decisive factor in the process of economic development; entrepreneurship is broadly the same with innovation, with what he calls creative response. This theory suggests that, economic development proceeds through a variety of entrepreneurial acts in which productive means, including those presently being engaged customarily somewhere, are disconnected from the circular flow and allocated to fresh combinations. He asserts that entrepreneurship is not a profession and therefore, there is no entrepreneurial class. That the main force behind entrepreneurship is profit motive. The study is anchored on these theories.

### **Empirical Review**

Linyiru (2015) studied the Influence of corporate entrepreneurship on the performance of state corporations in Kenya. The aim of this study is to establish the influence of corporate entrepreneurship on performance of state corporations. The study is guided by five specific objectives which include: to establish the effect of proactiveness on performance of state corporations, to determine the influence of risk taking on performance of state corporations, to evaluate the effect of innovativeness on performance of state corporations, to establish the influence of competitive aggressiveness on performance of state corporations, and to determine the effect of organization factors on the performance of state corporations. The study findings indicated that there is improved firm performance which is linked to corporate entrepreneurship. Results shows that companies initiate actions to which competitors responded to, the firms had a tendency to be ahead of other competitors in introducing novel ideas or products and the companies strived in identifying new markets to sell products. Results, also indicates that risk taking, innovativeness, competitive aggressiveness and organizational factors were key determinants of firm performance for commercial state corporations in Kenya. This study did not adopt innovation as a mediator.

Mpando and Sandada (2015) studied to understand the mediating role of innovation on the business networking and business performance relationship. The study adopted a quantitative approach to gather 154 usable questionnaires from SMEs in Zimbabwe. The results revealed a statistically significant relationship between business networking and performance and also the mediating role that innovation plays between the business networking and performance relationship. The study makes a contribution to the existing literature on management and SME by assessing the mediating role of innovation in the relationship between business networking and business performance in the SME sector of a Sub-Saharan African country. This study failed to adopt Structural Equation Model to test innovation as a mediator.

Vincent, Bharadwaj, and Challagalla (n.d) used emerging meta-analytic methods, in combination with structural equations methodology, to synthesize empirical studies that examine the correlates (antecedents and/or outcomes) of organizational innovation. Overall, this study draws upon a meta-analytic database of 134 independent samples from 83 studies from the period of 1980 through 2003. Specifically, the study examines the impact of 27 determinants and 3 performance outcomes of innovation with an overall sample size of 122,943. Organizational capabilities and structure account for the majority of unique variance explained in predicting innovation. Overall findings indicate that innovation is significantly and positively related to superior performance. This study is more of qualitative analysis than quantitative.

Zehir, Köle and Yıldız (2015) investigated the relationship between market orientation, innovation capability and export performance and also to figure out the mediator effect of innovation capability on the relationship between market orientation and export performance with an implementation on small and medium-sized enterprises (SMEs) in Turkey. In order to test the hypotheses in the research model, a field study was carried out using the survey method with 474 owners and managers in total, from 186 number of firms operating in manufacturing sector. Data collected from 474 owners and managers have been analyzed using correlation and regression analysis with Structural Equation Model (SEM). Analysis is performed using SPSS and AMOS software packages. As a result of this study, it is founded that innovation capability has a partial mediator effect on market orientation dimensions and export performance. This empirical findings show that SMEs can be able to achieve competitive advantage through improving a market-driven innovation capability. This study did not adopt innovation as a mediator.

Karacaoglu, Bayrakdaroglu and San (2013) studied the impact of corporate entrepreneurship on firms' financial performance; evidence from Istanbul stock exchange firms. The study aims to show the interaction between financial performance and CE, which the



authors identified as whole activities of new product, process, market, technology, strategy and improving management techniques. The research findings indicate dimensions of corporate entrepreneurship such as innovation, risk taking and proactiveness has positive relation and interaction with financial performance of the firms, while autonomy and competitive aggressiveness did not show any relation with financial performances of the firms. This study did not adopt innovation as a mediator.

Nkosi (2011) studied corporate entrepreneurship and organizational performance in the information and communication technology industry in South Africa. The research aims at finding out the link between Corporate Entrepreneurship (CE) and organizational performance in Information and Communication Technology (ICT). The results show that there is a positive relationship between corporate entrepreneurship dimensions (innovation, pro-activeness, risk taking and entrepreneurial culture) each of which is linked to a hypothesis and company performance (measured in sales growth, market value growth, employment rate, return on investment, return on equity, return on assets, return on sales and operating profit). This study did not adopt innovation as a mediator.

## **METHODOLOGY**

In this study, causal research design was adopted. The causal research design is appropriate to find the impact of variables, Jeremy (2006) asserted that causal design is useful to studies that explore effects of independent variables on dependent variable.

### **Data Collection**

The data was collected through the distribution questionnaire. The nature of the questionnaire used for this study was a five-point Likert-scale, ranging from “strongly agree” to “strongly disagree” (5 = ‘Strongly Agree’, 4 = ‘Agree’, 3 = ‘Undecided’, 2 = ‘Disagree’ and 1 = ‘Strongly Disagree’).

### **Sampling**

The sample size of this study was determined by using judgmental sampling technique in which 100 hundred manufacturing firms were selected based on the availability of up to date financial statement. A total of 100 copies of questionnaires were distributed and 100 questionnaires were returned, which represents a response rate of 100%. The multi-stage sampling technique comprises both the probability and nonprobability sampling methods were applied. These two methods enable sampling to be carried out in stages. A non-probability sampling method (purposive sampling) was used at the first stage to select the target sector

which is the manufacturing sector. While the probability method of sampling, simple random sampling was applied for the selection of the respondents to answer the questionnaire for this study. For this study either the chief executive officer (CEO) or the company secretary is expected to respond to the questionnaire

### Method of Data Analysis

This study adopts regression analysis, in which the Structural Equation Modeling (SEM) method of analysis was applied. SEM is of two methods; Variance Based Structural Equation Modelling (VB-SEM) and the Covariance Based Structural Equation Modelling (CB-SEM) (Esposito, 2009). While the VB-SEM also known as Partial Least Square Structural Equation Modelling (PLS-SEM) requires small sample size and little or no fitness tests. Goodhue, Lewis and Thompson (2006) have argued that PLS is not inferior to CB-SEM, especially when a situation of small sample size and non-normal data distribution is expected from any study. Data analysis was conducted using partial least square (PLS) software 3.3.3, given that the PLS-SEM perform better with lower sample size like in this study. The PLS-SEM in study tested for the measurement model and the structural model.

Table 1: Definition of construct and measurement

S/N	Construct	Measurement	Source
1	<b>Innovation:</b>	Measured using five point Likert Scale with eight (8) items.	Adopted from Karacaoglu, Bayrakdaroglu and San (2013). Some of the items from Karacaoglu, Bayrakdaroglu and San (2013) were modified to suit this present study
2	<b>Competitive aggressiveness</b>	This variable was measured and coded as a five-point Likert-Scale with six (6) items.	This variable was adopted from Karacaoglu, Bayrakdaroglu and San (2013)
3	<b>Profitability</b>	This variable was measured and coded as a five-point Likert-Scale with five (5) items.	This variable was adopted from Karacaoglu, Bayrakdaroglu and San (2013), Antoncic, & Scarlat (2008)

### Operationalization and Measurement of Variables

#### a. Innovation

Innovation describes the tendency of a firm to engage new ideas that is unique and peculiar to the firm which results in new products, services, or technological advancement.

Innovation is a step by step monitoring of changes in the market environment and taking quick decision (Clark 2010; Nasrat, 2016).

### b. Competitive aggressiveness

When entrepreneur engage competitors in the same industry in the quest to outperform them with better business strategies. It the ability of an entrepreneur to respond (check and balance) its competitors actions and moves (Nasrat, 2016; Lumpkin & Dess, 2001).

### c. Profitability

Profitability means ability to make profit from all the business activities of an organization, company, firm, or an enterprise. It shows how efficiently the management can make profit by using all the resources available in the market (Harward & Upton 1961).

## FINDINGS

### Measurement model

The measurement model assesses the constructs involved in the study, which is to determine whether the indicators such as, Composite reliability (CR), convergent validity, average variance extracted (AVE) and discriminant validity, as described by Hair et al. (2011), Hair et al (2012) and Henseler et al (2009) met their required threshold.

Table 2: Convergent Validity

Construct	Items	Loadings	AVE	CR
Competitive Aggressiveness	CA1	0.826	0.608	0.903
	CA2	0.798		
	CA3	0.762		
	CA4	0.830		
	CA5	0.714		
	CA6	0.741		
Profitability	PRO1	0.827	0.633	0.912
	PRO2	0.791		
	PRO3	0.846		
	PRO4	0.768		
	PRO5	0.815		
	PRO6	0.719		
Innovation	INN2	0.847	0.702	0.904
	INN3	0.906		
	INN5	0.842		
	INN7	0.719		

The result in Table 2 shows the convergent validity for the constructs under study. The results thus demonstrated a high level of convergent validity of the latent construct and used in the model. An AVE value of at least 0.5 indicates sufficient convergent validity, meaning that a latent variable can explain at least half of the variance of its indicators on average.

Table 3: Heterotrait-Monotrait Ratio (HTMT) Discriminant Validity

	CA	INN	PRO
CA	-	-	-
INN	0.786	-	-
PRO	0.813	0.838	-

Table 3 show the discriminant validity result. According to Henseler, Ringle, & Sarstedt (2015: 121), a well-fitting model should indicate that the heterotrait correlations should be smaller than monotrait correlations, meaning that the HTMT ratio should be below 1.0, Henseler, Ringle, & Sarstedt (2015: 121) suggested that if the HTMT value is below 0.90, discriminant validity has been established. Gold et al. (2001) and Teo et al. (2008) also use the .90 cutoff, though Clark & Watson (1995) and Kline (2011) use the more stringent cutoff of .85. Results in Table 3 indicated that discriminant validity was established.

### The structural model

Structural model fitness is examined after measurement model assessment has been met and fitness is shown to be acceptable. The structural or inner model consists of the factors and the arrows that connect one factor to another. The loadings of the direct paths connecting factors are standardized regression coefficients. To ensure that the final estimated result from the PLS is true, it is important to determine the fitness of the model. The fitness of the model can be assessed in the following ways; testing for collinearity of the structural model, assessing the significance and relevance of the structural model relationships, the level of the  $R^2$  values, and the  $f^2$  effect size (Tenenhaus, Vinzi, Chatelin & Lauro 2005). Höck & Ringle, (2006) described results above the cutoffs 0.67, 0.33 and 0.19 to be “substantial”, “moderate” and “weak” respectively. The R-square here would be considered to be of moderate strength or effect.

To assess multicollinearity in the structural model, tolerance or VIF criteria may be applied, discussed and illustrated. The VIF benchmark should be less than 4.

The f-square effect size measure is another name for the R-square change effect. The f-square coefficient can be constructed equal to  $(R^2_{\text{original}} - R^2_{\text{omitted}})/(1 - R^2_{\text{original}})$ . The denominator in this equation is “Unexplained”. The f-square equation expresses how large a

proportion of unexplained variance is accounted for by  $R^2$  change (Hair et al., 2014). Following Cohen (1988), .02 represents a “small”  $f^2$  effect size, .15 represents a “medium” effect, and .35 represents a “high” effect size.

Table 4: Structural Fitness Indices

Construct	Items	VIF	$R^2$	$f^2$	$Q^2$
Competitive Aggressiveness	<b>CA1</b>	<b>2.689</b>			
	<b>CA2</b>	<b>2.177</b>			
	<b>CA3</b>	<b>2.618</b>			
	<b>CA4</b>	<b>3.041</b>			
	<b>CA5</b>	<b>1.575</b>			
	<b>CA6</b>	<b>1.993</b>			
Profitability			0.631	0.257	0.391
	<b>PRO1</b>	<b>2.376</b>			
	<b>PRO2</b>	4.015			
	<b>PRO3</b>	4.866			
	<b>PRO4</b>	<b>2.919</b>			
	<b>PRO5</b>	<b>2.847</b>			
Innovation	<b>PRO6</b>	<b>1.763</b>			
			0.468	0.881	0.316
	<b>INN2</b>	<b>3.591</b>			
	<b>INN3</b>	<b>4.452</b>			
	<b>INN5</b>	<b>2.226</b>			
	<b>INN7</b>	<b>1.341</b>			

Table 4 also presents the VIF diagnostic and estimated PLS weights for the indicators of all the items from the questionnaire. A common rule of thumb is that problematic multicollinearity may exist when the variance inflation factor (VIF) coefficient is higher than 4.0 (some use the more lenient cutoff of 5.0). None of the original indicators had VIF greater than 5.

The overall effect size measure for the structural model, as in regression, indicated that 63.1% and 468% of the variation in the profitability and innovation respectively, are explained by the effect of competitive aggressiveness.

The f-squared is considered medium effect because PROF and INN have value of 0.257 and 0.881 are greater than .15 which represented a “medium” and “high” effects respectively.

The  $Q^2$  was estimated by the blindfolding method. The values of the  $Q^2$  are 0.391 and 0.316 indicated that since they are greater than zero, they have predictive relevance for this study.

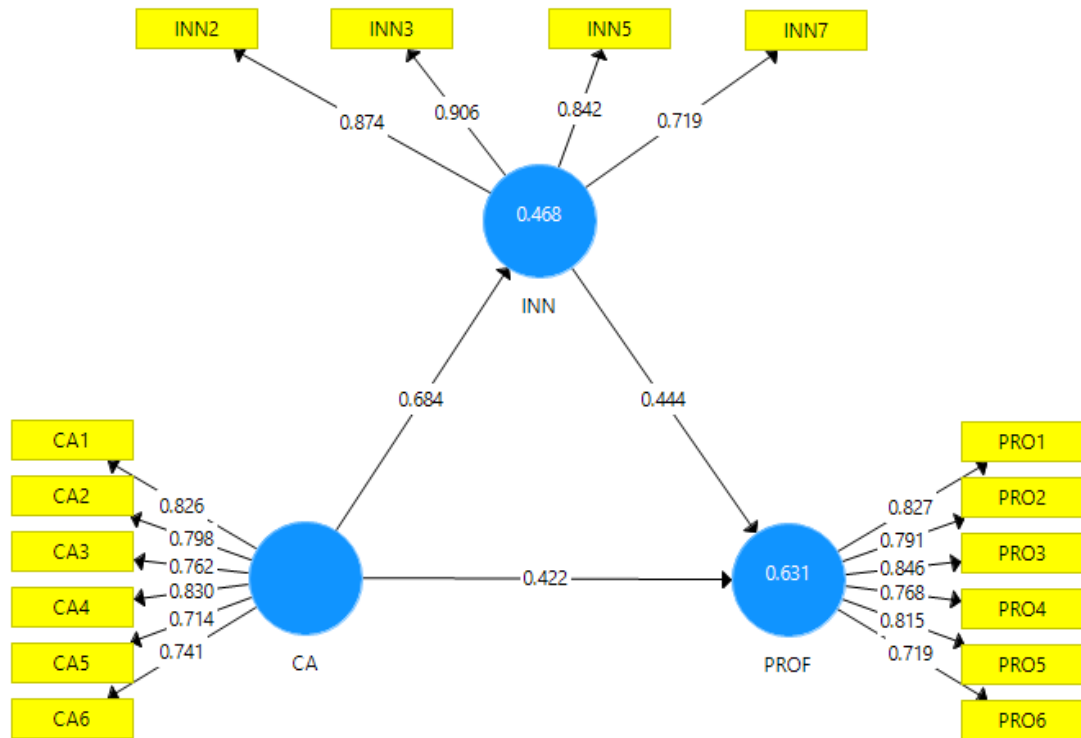


Figure 1: PLS-SEM structural model

Table 5: PLS-SEM Result

Variables	Coeff. B	Std err	t-test	P-value	Decision
CA -> PRO	0.422	0.164	2.566	0.011	Significant
INN -> PRO	0.444	0.159	2.798	0.005	Significant
CA -> INN	0.684	0.069	9.961	0.000	Significant

### Hypothesis One

**H<sub>01</sub>:** Competitive aggressiveness has no significant effect on the profitability of manufacturing companies in Nigeria.

The decision rule is that if the p-value is less than the level of significance of 0.05, the null hypothesis will be rejected while the alternate hypothesis is accepted. But if the p-value is greater than the level of 0.05, accept the null hypothesis and reject the alternate.

As shown in Figure 1 and Table 5, the standardized regression weight for Competitive aggressiveness (CA) on Profitability (PRO) is 0.422, suggesting that this path is statistically significant at  $\alpha = 0.05$ . This indicated that Competitive aggressiveness (CA) has positive and significant effect on profitability (PRO). This means that CA will increase PRO. Given that the p-value 0.011 is less than the significance level of 0.05 as shown in Table 5, it is therefore concluded that the null hypothesis is rejected while the alternate hypothesis is accepted, thus,

Competitive aggressiveness has a significant effect on the profitability of manufacturing companies in Nigeria

### ***Hypothesis Two***

**H<sub>02</sub>:** Innovation has no significant effect on profitability of Nigeria manufacturing companies.

As shown in Figure 1 and Table 5, the standardized regression weight for Innovation (INN) on profitability (PRO) is 0.444, suggesting that this path is statistically significant at  $\alpha = 0.05$ . This indicated that Innovation (INN) has positive and significant effect on profitability (PRO). This means that INN will increase PRO. Since the p-value 0.005 is less than the significance level of 0.05 as shown in Table 5. Hence, the null hypothesis is rejected while the alternate hypothesis is accepted implying that, Innovation has a significant effect on profitability of Nigeria manufacturing companies.

### ***Hypothesis Three***

**H<sub>03</sub>:** Competitive aggressiveness has no significant effect on innovation of manufacturing companies in Nigeria.

From Figure 1 and Table 5, the standardized regression weight for Competitive aggressiveness (CA) on Innovation (INN) is 0.684, indicating that this path is statistically significant at  $\alpha = 0.05$ . It shows that Competitive aggressiveness (CA) has positive and significant effect on Innovation (INN). This means that CA will increase INN. Since the p-value 0.000 is less than the significance level of 0.05 as shown in Table 5. Therefore, the null hypothesis is rejected while the alternate hypothesis is accepted implying that, Competitive aggressiveness has a significant effect on innovation of manufacturing companies in Nigeria.

## **Mediating role of Innovation**

### ***Hypothesis Four***

**H<sub>04</sub>:** Innovation does not mediate the effect of competitive aggressiveness on profitability of Nigeria manufacturing companies.

### ***Decision Rule***

There are two conditions that must be met for mediation to occur:

1. The first condition requires that the t-value is  $\geq 1.65$  for one-tailed test.
2. The second condition based on the contributions of Preacher and Hayes (2008) there must be non-zero linking the upper class interval (UCL) and lower class interval (LCI).

Table 6: PLS-SEM Result for CA, INN and PRO

	<b>Coeff. B</b>	<b>Std err</b>	<b>t-test</b>	<b>LCI</b>	<b>UCI</b>	<b>Decision</b>
<b>CA -&gt; INN -&gt; PRO</b>	0.304	0.107	2.851**	0.061	0.496	Significant

From Table 6, based on the first condition, the t-test value is 2.851 which is greater than 1.65, while the (LCI=0.061, and the UCI=0.496) do not have zero (0) between upper and lower class interval. Therefore, innovation does mediate the effect of competitive aggressiveness on profitability of Nigeria manufacturing companies.

## DISCUSSION OF FINDINGS

For the hypothesis one, the null hypothesis is rejected while the alternate hypothesis is accepted, thus, Competitive aggressiveness has no significant effect on the profitability of manufacturing companies in Nigeria. This finding does agree with previous studies such as Linyiru (2015). The results indicated the competitive aggressiveness positively affect business performance. This supported the resource based theory. This theory argued that entrepreneurs have individual-specific resources that facilitate the recognition of new opportunities and the assembling of new resources for the emerging firm. By implication, access to resources enhances the individual's ability to detect and act upon discovered opportunities. This theory is relevant to the Nigerian manufacturing sector as availability resources, especially financial resource can enhance greater opportunities.

For hypothesis two, it was found that Innovation has a significant effect on profitability of Nigeria manufacturing companies. This result is in consonance with Linyiru (2015), Karacaoglu, Bayrakdaroglu and San (2013) and Nkosi (2011).

In hypothesis three, Competitive aggressiveness has a significant effect on innovation of manufacturing companies in Nigeria. The opportunity based theory is supported in this outcome. The theory is of the relevance because entrepreneurs do not cause change as claimed by the Schumpeterian school, but exploit the opportunities that change in technology, consumer preferences and many others creates. Again, the theory maintained that, the entrepreneur always searches for change, responds to it, and exploits it as an opportunity. The opportunity based theory indicated that entrepreneurs have eyes more for possibilities created by change than the problems.

In hypothesis four, Innovation does mediate the effect of competitive aggressiveness on profitability of Nigeria manufacturing companies. This result is consistent with the finding of Mpando and Sandada (2015), Vincent, Bharadwaj, and Challagalla (n.d) and Zehir, Köle and Yıldız (2015) who found that innovation is a good mediator. The result supported the socio-



economic theory that economic development or any product development proceeds through a variety of entrepreneurial acts in which productive means, including those presently being engaged customarily somewhere, are disconnected from the circular flow and allocated to fresh combinations with what he calls creative response.

## **CONCLUSION AND RECOMMENDATIONS**

The main objective of this study is to examine the effect of competitive aggressiveness and profitability of Quoted Manufacturing Companies in Nigeria, with Innovation as a mediator. From the findings and discussions, the following conclusions were derived. On examining the effect of competitive aggressiveness, innovation on profitability, it was established that competitive aggressiveness and innovation have significant effect on profitability of selected manufacturing firms. Likewise, the study established that competitive aggressiveness has significant effect on innovation and innovation is a good mediator of relationship between competitiveness and profitability of manufacturing companies in Nigeria.

This study recommends that there is need to intensify aggressive competitiveness at individual level and the firm's level. This will enhance their prompt response to rival's every move in industry. For instance, firms can enhance its competitive position by entering markets with drastically lower prices, copying the business practices or techniques of successful competitors, or making timely announcements of new products or techniques.

Again, there is need to improve and sustain innovative activities by manufacturing firms. Manufacturing firms in Nigeria should be flexible to change through innovative ideas. This will drive profitability. For instance, manufacturing firms should encourage employees to come up with new ideas which can be invested heavily on thereby floating new product development. This innovative initiatives pursued and funded by these manufacturing firms even though risky can empower them to be industry leaders which can impact positively on their profitability.

## **LIMITATIONS AND FUTURE STUDIES**

The study is limited to corporate entrepreneurship and profitability of quoted manufacturing companies in Nigeria. It did not cover other sector such as the banking sector, insurance etc. in Nigeria. Also, since this study is on corporate entrepreneurship and profitability of quoted manufacturing companies in Nigeria, a further research should be carried out to test CE dimensions on the performance of non-listed firms in Nigeria.

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