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Effects of Innovation and Risk Taking on the Profitability of Quoted Manufacturing Companies in Nigeria

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Abstract

Many manufacturing firms are under pressure to survive in the Nigerian capital market. The surly operating environment, in which many manufacturing firms have found themselves hinder their profit creation efforts. This has resulted in collapse of many manufacturing companies which apparently pose challenges for sustainability and by extension for the economy. The objective of this research therefore, is to examine the effect of innovation and risk taking as corporate entrepreneurship dimensions on the profitability of the manufacturing firms in Nigeria. Data for the study were obtained with the aid of self-administered structured questionnaire, while the structural equation model, PLS-SEM was used to analyze the data generated. The findings reveal that innovation has negative but significant effect on profitability of selected manufacturing firms, entailing that increase in the innovation negatively influence profitability of the manufacturing firms. Also, Risk taking negatively affects profitability. Based on findings, the following recommendations are made; there should be improved and sustained innovative activities by manufacturing firms. Manufacturing firms in Nigeria should be flexible to change through innovative ideas and manufacturing firms in Nigeria should change their attitude by engaging in risk taking tendencies, this will drive profitability.

Keywords:
Profitability, Innovation, Risk taking, Structural Equation Model, PLS-SEM

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Background to the Study

In the last 30 years, the focus of research in the field of entrepreneurship has changed dramatically. Concepts such as innovation and risk at the individual level have been dropped in favour of researching the ability of large organizations to determine factors of improvement, innovation and performance (Lumpkin & Dess, 1996). Reinforcing this paradigm, Kuratko & Hodgetts, (2004) enthuse that corporate entrepreneurship is a dynamic process of vision, change, and creation which requires an application of energy and passion towards the creation and implementation of new ideas, creative solutions to withstand pressures. Similarly, researchers like Zahra, Neubaum and Huse (2000), focus on the ability of the company to create new ventures, hence they argued that corporate entrepreneurship can include formal or informal activities aimed at creating new businesses inside established companies through product and process innovations and market development. Explaining the concept further, Ling, Simsek, Lubatkin and Veiga (2008) bring up the various perspectives by approaching corporate entrepreneurship as the sum of a company's innovation, renewal and venturing efforts. Furthermore, corporate entrepreneurship is also beneficial to specialized business organizations and for national economies too, since it can improve an economy by increasing productivity, improving best practices, creating new industries, and raising international competitiveness (Wennekers & Thurik 1999).

Manufacturing sector profitability is the proof of economic progress, improved national income and rising standard of living. However, report shows that the manufacturing sector is experiencing a declinein the sector with its Manufacturing Purchasing Managers' Index (PMI) at less than 50 per cent (Okoro, 2016). Given this situation, many manufacturing firms are under pressure to survive in the Nigerian capital market. Therefore, manufacturing firms must review practices and actively search for new ways to practice risk taking and innovation to strengthen entrepreneurship within their organizations (Kemelgor, 2002).

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). Therefore, innovation, a dimension of corporate entrepreneurship (CE) involves new ideas, originality, and creative processes as well as trends related to technologies which are separate issues from current practice (Lumpkin & Dess, 2001). On the other hand, Risk taking is the readiness to transfer more resources to projects which can be high cost of failure (Miller & Friesen, 1978). Risk taking is always a difficult decision taken by firms in the course of operation. This strategic option either makes the manufacturing companies more or less productive and profitable. In an attempt to properly situate risk taking as a catalyst for performance, Kolakovic, et al (2008) examines the influence of corporate entrepreneurship dimension, risk taking on the performance of Croatian large companies. Company's performance was measured by value added and finding shows that risk taking has negative value and that large

companies due to specific Croatian transitional economy are risk averse. In contrast, this study is on the Nigerian manufacturing sector and the dependent variable is profitability, which is distinct from the aforementioned study performance proxy. This gave rise to literature and methodological gaps, explored by this study. Based on this information, the purpose of this study is to investigate the effects of the dimensions of corporate entrepreneurship such as: innovation and risk taking, on Nigerian manufacturing company's profitability.

Statement of Problem

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. Thus, the aforementioned trend resulted in collapse of many manufacturing companies which apparently pose challenges for sustainability and by extension for the economy.

Furthermore, a review of financial results of leading companies on the Nigerian Stock Exchange, NSE, for the first quarter ended March 31, 2018 (Q1' 18) showed a poor start to the year as they struggled to break even during the three month period. A breakdown showed that revenue for the companies numbering 89 stood at N2.572 trillion, a mere 9.4 percent increase over N2.352 trillion recorded by the companies in the corresponding in 2017 (Nnorun, 2018). The reports of the companies for the period showed that growth in revenue and Profit Before Tax, PBT, was muted in almost all the major sectors, including the bellwethers comprising of banking, consumer goods and industrial goods sectors. The results also showed that the manufacturing entities represented majorly by consumer goods and industrial goods companies are neck deep in trouble as majority of the companies ended the quarter with a negative financial position.

Objectives

i. To examine the effect of innovation on the profitability of manufacturing companies in Nigeria.
ii. To determine the effect of risk-taking on profitability of Nigeria manufacturing companies.

Hypotheses

i. $\mathbf{H_{01:}}$ Innovation has no significant effect on the profitability of manufacturing companies in Nigeria.
ii. $\mathbf{H_{02}}$**:** Risk-Taking has no significant effect on profitability of manufacturing companies in Nigeria.

Literature Review

Innovation

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 (Clark 2010; 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) notes that all factors of organizational entrepreneurship have direct effects on organizational performance and that variable such as innovation, self-emergence and organizational support are also beneficial. Hisrich, Peters and Shepherd (2008) assert that resistance against flexibility, growth, and diversification facing business organization is on how to create and manage an organizational environment, where multiple innovations can occur on a sustained basis which can be surmounted by developing a spirit of entrepreneurship within the existing organization, called corporate entrepreneurship.

Risk taking

This refers to the possibility of loss related to quickness in taking bold actions and committing resources in the pursuit of new opportunities. These are instances when a company is not bothered or scared to break away from safe, well and usual businesses and ventures into the unknown. The corporate entrepreneurship dimension of risk taking reflects the desire of an organization to refrain from the tried-and-true and venture into the indefinite (Wiklund & Shepherd, 2005). Corporate risk taking can be conceptualized as the firm attitude to apply new venture for the goal of corporate profitability and growth by accommodating the estimated probable losses (Bulut & Yalmaz, 2008). In industries with technological opportunities engaging in corporate entrepreneurship, risk taking plays a significant part in companies' success.

Profitability

Profit is an excess of revenues over associated expenses for an activity over a period of time. The engine that drives enterprise is not thrift but profit (Keynes, 1936). Every business should earn sufficient profits to survive and grow over a long period of time. It is the index to the economic progress, improved national income and rising standard of living. No doubt, profit is the legitimate object, but it should not be over emphasized. Management should try to maximize its profit keeping in mind the welfare of the society. Thus, profit is not just the reward to owners but it is also related with the interest of other segments of the society. Profit is the yardstick for judging not just the economic, but the managerial efficiency and social objectives also (Weston & Brigham 1993).

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.

There are two approaches to the concept of profit,-Accounting and Economic. Accounting profit is based on the matching principle which holds that income and expenditure should be matched so far as their relationship can be established or justifiably assumed in order to declare the difference as the profit. Put differently, profit is the difference between the revenue and expenses and expired costs of a particular period (Okwoli, 1998). Accounting profit uses realized or actual gains and losses and is calculated according to generally accepted accounting principles. It is a company's total income reduced by the explicit costs of producing goods or services. These explicit costs involve direct monetary movement and include expenses such as the cost of raw materials, employee wages, transportation, rent and interest on capital. Usually, accounting profit is limited to time periods, such as a fiscal quarter or year. Accounting profit computations are primarily used for income tax purposes, financial statement preparations and to review financial performance. There are also two forms of accounting profit- gross profit or margin and net profit or margin (Okwoli, 1998).

Gross profit margin and net profit margin are two separate profitability ratios used to assess a company's financial stability and overall health. Profit margin is a percentage measurement of profit that expresses the amount a company earns per dollar/naira of sales. Obviously, if a company makes more money per sale, it has a higher profit margin. The gross profit margin shows total revenue minus the cost of goods (the amount it cost the company to produce the goods or services that it sold, commonly referred to as cost of goods sold, or COGS). The calculation to arrive at gross profit margin is:

Gross profit margin = (revenue - cost of goods sold) / revenue (Horton, 2015). The net profit margin is a more accurate measure of a company's profitability, as it reveals the percentage of revenue that actually reflects a company's profit per dollar/naira of sales. Net profitability is an important distinction, since increases in revenue do not necessarily translate into actual increased profitability. Net profit is the gross profit (revenue minus cost of goods) minus operating expenses and all other expenses, such as taxes and interest paid on debt. The formula for net profit margin is as follows:

Net profit margin = (revenue - cost of goods - operating expenses - other expenses - interest - taxes) / revenue (Peavler, 2016). Examining net profit margin can help a company gain a much clearer picture of its overall expenses compared to revenue. It is often much easier for a company to increase its profitability by reducing costs than by increased sales, especially if the company operates in a very competitive market.

The economist has contrary view of the concept of profit from the accountant. The economist approach is based on Hick's classical view on income which he explains that a man's income is the maximum value which he can consume during a week and still expects to be as well-off at the end of the week as he was at the beginning (Hicks,1946). Therefore, an economic profit is the difference between the revenue received from the sale of an output and the opportunity cost of the input used (Horton, 2015). Economic

profit is determined by economic principles, not GAAP. Just like accounting profit, costs are deducted from revenues. Economic profit uses implicit costs, not just explicit costs. Implicit costs are considered opportunity costs and are normally the company's own resources. Examples of implicit costs include company-owned buildings, equipment and self-employment resources. Economic profit computations are not normally limited to time periods like accounting profit. Economic profit is used more to judge total value of the company a bit like the performance metric economic value added (EVA) would and is helpful in calculating total production costs (Horton,2015).

Stylized Fact of the Nigerian Manufacturing Sector

In Nigeria, the subsector is responsible for about 10% of total GDP annually. In terms of employment generation, manufacturing activities account for about 12 per cent of the labor force in the formal sector of the nation's economy (MAN 2012). Total manufacturing output in the formal sector in Nigeria was N6,845,678.59 million in 2010. It increased over the following two years, by N1,326,277.80 million or 19.37% in 2011 to reach N8,171,906.39 million and by N1,652,610.80 million or 20.22% in 2012 to reach a total of N9,824,517.19 million (MAN, 2011). In all three years (2010-2012), the formal manufacturing sector was dominated by output from the food beverages and tobacco activity, with N4,930,494.55 million or 72.02% of output contributed in 2010. Despite the activity's growth of N488,855.06 million or 9.91% in 2011 and N712,759.35 million or 13.15% in 2012, this total output share declined to 66.32% and 62.42% in 2011 and 2012 respectively (MAN 2013). The second largest contributor to manufacturing output during this period was the textile, apparel and footwear activity, with a figure of N792,693.12 million in 2010, representing 11.58% of total output. With growth of N398,019.65 million or 50.21% in 2011, the total output of N1,190,712.77 million represented 14.57% of total output. This share increased further in 2012, with output of N1,652,840.71 million representing 16.82% of the total, due to output growth of N462,127.94 million or 38.81%. Other manufacturing and non-metallic products were the third and fourth greatest contributors to manufacturing output, representing N392,317.00 million or 11.58% of the total and N187,709.52 million or 5.73% of the total in 2010(MAN 2013).

The level of growth in manufacturing sector in the country has been affected negatively by high interest on lending rate and this is responsible for high cost of production in the country's manufacturing sector (Adebiyi, 2001). Okafor (2012) further observes that the level of Nigerian manufacturing industries performance will continue to decline because of low implementation of government budget and difficulties in assessing raw materials. Thus, changes in the manufacturing share of the GDP and capacity utilization shows that firms that are efficient can contribute to job creation, technology promotion and as well as ensuring equitable distribution of economic opportunities and the macroeconomic stability of the country.

Theoretical Review

The study is anchored Schumpeterian theory of socio-economic entrepreneurial field. Schumpeter (1961) posits that the entrepreneur moves the economy out of the static equilibrium, and this is achieved by creating new products or production methods thereby rendering others obsolete. He agrees that the joy of carrying through innovations is the primary motive of the entrepreneur and the acquisition of social power a subsidiary to it. The entrepreneur is not (necessarily) the one who invents new combinations but the one who identifies how these new recipe can be applied in production. This line of reasoning implies that a business owner is considered an entrepreneur only if he is carrying out new combinations. Schumpeter views the entrepreneur as an inventor, initiator, risk-taker, and agent of change or catalyst who discover and uses the opportunity of introducing new techniques for the production of commodities that improves organizations (Okwoli, 2013). The relationship between Schumpeterian theory and the study is that, this research has two main constructs-innovations and risk-taking which are also exhaustively as major attributes of an entrepreneur.

Empirical Review

Several studies have been carried to ascertain the effect of innovation and competitive aggressiveness on profitability. 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).

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.

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.

Kolakovic, Sisek and Milovanovic (2008) investigated the influence of corporate entrepreneurship on the performance of Croatian large companies. The aim of the paper is to define CE, explore its characteristics and to contribute to better understanding of the relationship between corporate entrepreneurship and company's performance measured by value-added. Findings of the study indicates that risk taking and proactiveness have negative values which show that large companies, due to the specific Croatian transitional economy, are risk averse and that they are not the first movers in the market place. On the other hand, innovativeness shows positive values, which means firms are trying to be innovative and so it can be said that only innovativeness, as a dimension of CE, is a factor that has an influence on the performance of Croatian large companies.

The review of literature in this area shows that research areas have focused more on developed economies while developing economies such Nigeria have been neglected. More appalling is the fact that only few studies in this area have investigated the manufacturing sector in Nigeria which of course gives more credence to this study.

Methodology

Research Design

This study adopted the causal/quantitative research design. The causal research design is appropriate to find the impact of variables. Jeremy (2006) opines that causal design is useful to studies that explore effects of independent variables on dependent variable. This research explores the effects of corporate entrepreneurship dimensions (innovation and risk taking) on profitability.

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') to reflect the agreement of the respondents on the issues raised. The population for this study is made up of 109 manufacturing companies which are further classified into engineering sector, construction sector, electronic sector, chemical sector, energy sector, textile sector, food and beverage sector, metal working sector, plastic sector, transport and telecommunication sector. A total of 109 questionnaires was administered i.e. two questionnaire given to each firm. Only a total of 104 were returned giving a response rate of 95.4%. The data for this study was subjected to data cleaning tests and certified for the final analysis.

Method of Analysis

Structural Equation Modeling (SEM) method of analysis was applied. Cohen, West and Aiken (2003), stated that structural equation model is a multivariate analysis, and is used to determine causal relationship among variables. The SEM is an extension of the general linear model (GLM) that enables a researcher to test a set of regression equations simultaneously.

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. There are four critical issues relevant to the application of PLS-SEM.

(1) The data: PLS-SEM works efficiently with small sample sizes,
(2) Model properties: and complex models and makes practically no assumptions about the underlying data (in terms of data distribution)
(3) The PLS-SEM algorithm: can easily handle reflective and formative measurement models
(4) Model evaluation issues: PLS-SEM as well as single-item construct, is a tool with no identification problems. It can therefore be applied ina wide range of research situations.

Model fit

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).

Model Assessment

The assessment of the constructs involves determining indicator reliability, internal consistency reliability, convergent validity and discriminant validity, as described by Hair, Anderson, Tathan, & Black.(1998), Hair, Sarstedt, Ringle & Mena (2012) and Henseler, Ringle, and Sinkovics (2009).

Table 1: Convergent Validity

	INN_	PRO	RT
INN1	0.792		
INN2	0.809		
INN3	0.775		
INN4	0.782		
INN5	0.826		
INN6	0.769		
INN7	0.775		
PRO3		1.000	
RT2			0.734
RT3			0.844
RT4			0.808
RT5			0.802

The result in Table 1 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 2: Discriminant Validity

	INN_	PRO	RT
INN_	(0.790)		
PRO	-0.285	(1.000)	
RT	0.761	-0.254	(0.798)

Table 2 show the discriminant validity result. Discriminant validity was assessed as recommended by Fornell and Larker (1981). The discriminant validity was assessed by the average variance extracted for each construct compared with the corresponding correlation. The bolded and in bracket diagonal values of the squared AVE estimates are larger than inter-correlation constructs. Hence, a confirmation of the discriminant validity for each construct used in this study.

Table 4: Reliability Test Result

	Cronbach's Alpha	rho_A	Composite Reliability	Average Variance Extracted (AVE)
INN_	0.900	0.903	0.921	0.624
PRO	1.000	1.000	1.000	1.000
RT	0.814	0.841	0.875	0.637

Table 4 shows the result of the reliability test. Recommendation by Hinton, Brownlow, McMurray, & Cozens (2004) stated that an "Alpha score above 0.75 is generally taken to have a high reliability, 0.5-0.75 indicate a moderate reliable scale, and a value below indicates a low reliability". This indicates a reliable instrument. The result indicated that all the variables are reliable and are certified for further analysis.

Confirmatory Factor Analysis

This study carried out several criteria for assessing model structures. This was carried out in a two-step process,

1) The assessment of the measurement model and
2) The assessment of the structural model.

1) **Assessment of the measurement models**

The confirmatory factor analysis (CFA) was applied to establish whether the measurement items converge to the corresponding constructs (factors). An item loading is usually thought to be high if the loading coefficient is above 0.5, and considered low if the coefficient is below 0.4 (Gefen & Straub, 2005).

Table 5: Outer VIF Values

	VIF
INN1	2.098
INN2	2.203
INN3	2.027
INN4	1.905
INN5	2.384
INN6	1.961
INN7	1.851
PRO3	1.000
RT2	1.625
RT3	1.870
RT4	2.045
RT5	1.490

Table 5 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 four, and no indicator variable was discarded due to their negative weights.
(2) The assessment of the structural model

Table 6: F-square

	INN_	PRO	RT
INN_		0.022	
PRO			
RT		**0.004**	

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^2original – R^2omitted)/(1-R^2original). 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. Here, it can be said that the f-squared values for innovation (INN), and risk taking (RT) have small effect sizes.

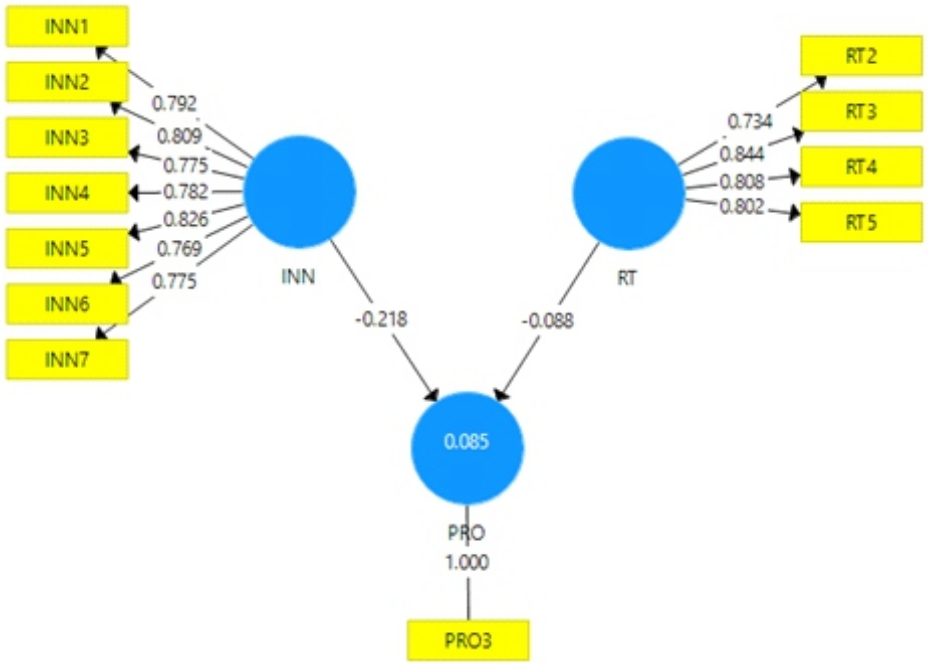

Figure 1: PLS-SEM structural model with Bootstrapping result

Test of Hypotheses

Table 6: Regression estimates of direct latent constructs

	Original Sample (O)	Sample Mean (M)	Standard Deviation (STDEV)	T Statistics (|O/STDEV|)	P Values
INN_ -> PRO	-0.218	-0.228	0.106	2.054	0.041
RT -> PRO	-0.088	-0.096	0.105	0.843	0.400

H_{01}: Innovation has no significant effect on the profitability of manufacturing companies in Nigeria.

H_{i1}: Innovation has significant effect on the profitability of manufacturing companies in Nigeria.

As shown in the Table 6, the standardized regression weight and T-statistic for INN to PROF are -0.218 and 2.054 respectively, suggesting that this path is statistically significant at $\alpha = 0.05$. The results demonstrate a negative support for the alternate hypothesis (H_1). This indicates that the innovation has negative and significant effect on profitability of selected manufacturing firms, entailing that if there was increase in the innovation then it would negatively influence profitability of the manufacturing firms. In summary, these results further suggest that Innovation was a major determinant of manufacturing firms' profitability.

Decision

Given that the p-value of 0.041 is less than the significance level of 0.05 as shown in Table 6, the null hypothesis is rejected, while the alternate hypothesis which states that innovation as a dimension of Corporate Entrepreneurship (CE) has significant effect on the profitability of manufacturing companies in Nigeria is accepted, concluding that innovation as a dimension of Corporate Entrepreneurship (CE) has a significant effect on the profitability of manufacturing companies in Nigeria.

H_{02}: Risk-Taking has no significant effect on profitability of manufacturing companies in Nigeria.

H_{i2}: Risk-Taking has significant effect on profitability of manufacturing companies in Nigeria.

As shown in the Table 6, the standardized regression weight and T-test for RT to PROF is -0.088 and 0.843, indicating that the path is statistically insignificant at $\alpha = 0.05$. The results demonstrate that there is a negative effect of risk taking on profitability. This result implies that if there was increase in risk taking, it would negatively influence profitability of the manufacturing firms. Thus, the result suggested that risk-taking is not a major determinant of manufacturing firms' profitability.

Decision

Given that the p-value 0.400 is greater than the significance level of 0.05 as shown in Table 6, the null hypothesis is upheld. While the alternate hypothesis, which states that risk-taking as a dimension of Corporate Entrepreneurship (CE) has a significant effect on profitability of manufacturing companies in Nigeria, is rejected. Concluding that risk-taking as a dimension of corporate entrepreneurship has no significant effect on profitability of manufacturing companies in Nigeria.

Discussion of Findings

In this hypothesis, the null hypothesis was rejected and the alternate hypothesis which states that innovation has a significant effect on profitability of selected manufacturing firms is accepted indicating that the more manufacturing firms innovate, the more they are likely to make profit. This finding disagrees with previous study of Karacaoglu, Bayrakdaroglu and San (2013). It shows that innovation has positive relation with financial performance of the firms. Also, the finding is inconsistent with, Wiklund, (1999) and Lekmat & Selvarajah (2008), which states that innovative firms have capabilities to monitor the market changes and respond quickly, thus capitalizing on emerging opportunities and noted that all factors of organizational entrepreneurship have direct effects on organizational performance and that variable such as innovation, self-emergence and organizational support are also beneficial. Also, Hisrich, Peters and Shepherd (2008) assert that resistance against flexibility, growth, and diversification facing business organization is on how to create and manage an organizational environment, where multiple innovations can occur on a sustained basis which can be surmounted by developing a spirit of entrepreneurship within the existing organization, called corporate entrepreneurship.

Furthermore, this finding disagrees with the anchored theory of the study, which is Schumpeterian theory, as it relates to Schumpeter's characterization of an entrepreneur as a risk-taker and stressed the need to be innovative and creative to be successful as encapsulated in the socio-economic theory. This theory suggests that entrepreneurship is the fundamental phenomenon, the decisive factor in the process of economic development and that entrepreneurship is broadly the same as innovation. On the other hand, the finding agrees and stress that innovation has significant effect on manufacturing companies' profitability

The implication of this finding on the manufacturing sector and by extension on the economy is that operators must strive to be consistent in their innovative endeavours if they want to remain competitive and achieve profitability. Profitability will no doubt lead to expansion and growth in capacity and operation of the firms. Therefore, manufacturing companies that constantly embrace innovation, all things being equal, will remain profitable and this in turn boosts the country's economy.

In hypothesis two, we accept the null hypothesis which states that risk taking has no significant effect on profitability of selected manufacturing firms. But, we rejected the alternate hypothesis. This result isin consonance with Karacaoglu, Bayrakdaroglu and San (2013), who found that risk taking positively influences financial performance of the firms. Consequently, seeing risk and grabbing them may be considered too certain and requires an extra talent of people who can see the extra ordinary things. Relatedly, the finding contradicts the study of Olaniran, Namusonge and Muturi (2016) which reveals a positively and significant relationship between risk taking and firm performance.

The finding further consolidates the opportunity based theory with Drucker as one of the major proponent. Drucker (1985) posit that entrepreneurs exploit the opportunities that change in technology, consumer preferences and many others create. Risk taking as a dimension of corporate entrepreneurship therefore, is an opportunity that manufacturing companies must fully exploit and implement so as to attain maximum profitability.

Implication on the economy or manufacturing sector is that operators of the manufacturing firms should strive and embark on meaningful risk taking if they must remain competitive and attain profit levels. Though the finding emphasizes a positive relationship between risk-taking and profitability but with no significant effect, however, the role of corporate risk taking cannot be overemphasized since it can be conceptualized as the firm's attitude to apply new venture for the goal of profitability. Risk taking if carefully planned as indicated by Wiklund & Shepherd, (2005) and Bulut & Yalmaz (2008)will in no small measure, increase the level of profitability of organization. By extension, if the manufacturing companies pay more attention to risk taking it will stimulate profits and this will in turn enhance growth in the economy and such growth will have a spill over on manufacturing value-added.

Conclusion and Recommendations

The main objective of this study is to examine the effects of innovation and risk taking on the profitability of quoted manufacturing companies in Nigeria. From the findings and discussions, the following conclusions were derived. On examining the effect of innovation on profitability, it was established that innovation has significant effect on profitability of selected manufacturing firms. Likewise, it can be concluded that though the finding emphasizes a negative relationship between risk-taking and profitability but with no significant effect. By extension, if the manufacturing companies pay more attention to risk taking it will stimulate profits and this will in turn enhance growth in the economy and such growth will have a spill over on manufacturing value-added. It is therefore, safe to say that most manufacturing firms do not take calculated risk and hence risk taking does not significantly affect profit.

This implies that, many manufacturing firms in Nigeria are not first movers and by extension they are not highly competitive and enterprising enough, and this ultimately makes the companies less productive and unprofitable. This study recommends that there is need to improve and sustain innovative activities by manufacturing firms. Manufacturing firms in Nigeria should be flexible to change through innovative ideas. It also recommends that firms in Nigeria should change their attitude by engaging in risk taking tendencies.

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Appendix

SCHOOL OF POSTGRADUATE STUDIES
UNIVERSITY OF JOS, JOS-NIGERIA

--- Date ---

Dear Respondent,

QUESTIONNAIRE

I am an M.Phil/ Ph.D Student in Business Administration, in the above University conducting a research titled, **Effects of Innovation and Risk Taking on the Profitability of Quoted Manufacturing Companies in Nigeria.** Fundamentally the research seeks to explore empirically the impact of Corporate Entrepreneurship on Profitability of Manufacturing Companies. You are requested to participate in this academic exercise, and your response to this questionnaire is of high value.

The response from this questionnaire will be treated with strict confidentiality and will not be identified with any particular person or institution.

Thank you in anticipation of your co-operation.

Yours Sincerely,

Patrick Agbo Onumah
UJ/PGMS/2014/0226
08036787117

SECTION A: FIRM CHARACTERISTICS

Instruction: Please tick the box that probably fits your situation.

a. Position/Rank in the firm _____
b. How long has the firm been in-existence?

Less than 5 yr. ☐ 6 - 10 yrs. ☐ 11 - 15yrs. ☐ 16 - 20 yrs. ☐ 21 yrs. and above ☐

SECTION B:

Construct one: Innovation

Instructions: Please choose only one answer to each question.

To what extent do you agree or disagree with the following statements?

1) Strongly Disagree (SD);
2) Disagree (D)
3) Undecided (U)
4) Agree (A) and
5) Strongly Agree (SA)

SN	Code	Innovation	5	4	3	2	1
1	INN1	Your organisation has emphasis on introducing new technology which impact on profitability					
2	INN2	Your company has strong focus on Research and Development activities which impact on profitability					
3	INN3	Your organisation invests heavily on new product development which impact on profitability					
4	INN4	Your organisation is open to outside ideas that can lead to new business opportunity which impact on profitability					
5	INN5	Innovation and creativity are part of the business strategy which impact on profitability					
6	INN6	Employees are encouraged to come up with new ideas which impact on profitability					
7	INN7	Chief Executive Officer (CEO) and Leaders are involved in fostering innovation which impact on profitability					
8	INN8	The innovative initiatives pursued/funded by your firm are often somewhat risky and industry leading (i.e., chosen in advance of other firms' potentially similar initiatives)which impact on profitability					

Construct Two: Risk Taking
Instructions: Please choose only one answer to each question.
To what extent do you agree or disagree with the following statements?
1) Strongly Disagree (SD)
2) Disagree (D)
3) Undecided (U)
4) Agree (A) and
5) Strongly Agree (SA)

		Risk Taking	5	4	3	2	1
1	RT1	Your company research and design division has a culture of introducing new products in the complex market which impact on profitability					
2	RT2	Your company commits significant resources to ventures in uncertain conditions which impact on profitability					
3	RT3	Business growth is driven by new innovations which brings potential customer business failures which impact on profitability					
4	RT4	Your company takes bold actions by venturing in the unknown business environments which impact on profitability					
5	RT5	Your company shows a great deal of tolerance for high risk projects and rewards individuals for taking calculated risks which impact on profitability					
6	RT6	The organisation strives to be the first in the market with new services while the future remains unknown which impact on profitability					
7	RT7	Your firm often pre-empts its rivals by being an early leader with innovations whose successful outcomes cannot be assured but impacts on profit					
8	RT8	In general, your firm is on the cutting edge when it comes to exploiting entrepreneurial opportunities because of the desire and demonstrated ability to embrace novel (and often risky) innovative initiatives ahead of rivals.					

Construct Three: Profitability
Instructions: Please choose only one answer to each question.
To what extent do you agree or disagree with the following statements?
1) Strongly Disagree (SD)
2) Disagree (D)
3) Undecided (U)
4) Agree (A) and
5) Strongly Agree (SA)

		Profitability	5	4	3	2	1
1	PRO1	In the last five years, the return on your asset has been steadily increasing					
2	PRO2	The profit level has had a significant effect on the return of equity of your firm in the last five years of your operation					
3	PRO3	The applicability of the dimensions of corporate entrepreneurship has enhanced the net profit of your company					
4	PRO4	Your firm's earning before tax in the last five years has doubled.					
5	PRO5	The adoption and application of the corporate entrepreneurship dimension has enhanced the level of sales					
6	PRO6	The level of your firm's gross profit has improved the level of your firm's profitability in last five years					