INTERNATIONAL JOURNAL OF BUSINESS AND MANAGEMENT RESEARCH
P-ISSN: 1118-4256, E-ISSN:3034-4327
Vol. 5| No.1 | June 2024
Page No.: 317-340

Innovation and Performance of Quoted Companies in Nigeria:

An Empirical Analysis

[1]Stella Olohi ENAINI and [2] Akim UMORU

Department of Business Administration and Management

Auchi Polytechnic Auchi

Corresponding author's email: *enainistella1969@gmail.com*

Abstract

Firms across sectors face competitive and dynamic environments, necessitating a modern and innovative mindset to compete. Research indicates that specific innovation activities significantly impact firm performance. This study examined the innovation and performance of quoted companies in Nigeria, using data from the 2023 annual financial statements of 40 randomly selected firms from the Nigeria Exchange Group. Performance was measured by the current ratio, while the independent variable, innovation outcomes was assessed using an innovation index (II). The II was calculated based on the presence (score of 1) or absence (score of 0) of product, process, organization, and marketing innovations, with a maximum score of 4. Data analysis involved checking for outliers and linearity, followed by estimating the model parameters using the ordinary least square method of linear regression. Results revealed a strong positive relationship between innovation and performance. The study concluded that comprehensive creativity and innovation are essential for firm success. It recommended that companies prioritize innovation to remain competitive, expand through increased patronage, and enhance profitability. Furthermore, innovation should be a key factor in evaluating the performance of quoted companies in Nigeria.

Keywords: **I**nnovation, Performance and Firm performance

Introduction

Innovation refers to the introduction of new products, services, or processes. It is a critical driver of competitive advantage and business success in the global marketplace (Tidd & Bessant, 2018). In the context of Nigeria, Africa's largest economy, innovation plays a pivotal role in navigating the complex and dynamic business environment. Quoted companies in Nigeria, listed on the Nigerian Stock Exchange (NSE), operate in a landscape characterized by rapid economic changes, evolving consumer preferences, and intense competition both locally and internationally.

The economic landscape of Nigeria, marked by its rich natural resources, notably oil, has historically shaped the business environment. However, in recent years, the focus has shifted towards diversifying the economy, with an increasing emphasis on sectors such as telecommunications, finance, and technology among others (Adeoye& Elegunde, 2012). This shift underscores the importance of innovation for companies seeking to remain competitive and profitable in a transitioning economy.

Globally, innovation is recognized as a key driver of business performance, enabling companies to enhance their competitiveness, drive revenue growth, improve operational efficiency, and expand their market share (Schumpeter, 1942; Porter, 1990). In Nigeria, the need for innovation is further heightened by specific challenges, including infrastructural deficits, regulatory uncertainties, and the need for technological advancement. In addition, innovation is seen as a process of adoption, absorption and diffusion of traditional available technology in Nigeria and other developing countries (Jagede,Ilori, Sonibare, Oluwale & Siyanbola, 2012 cited in Enaini ,2019) This indicate that the means of gaining competitive edge by firms is the capability to exploit the locally available technology. This capability is embedded in the set of skills and competences which the firm possesses and /or can exploit to manage change. Tidd (2001) cited in Enaini (2019) opines that innovation capability consist of the skills, knowledge, recourses, creativity and attitude needed to

continuously generate ideas and change into marketable new or significantly improved devices, products, processes and services.

According to the United Nations Conference on Trade and Development (UNCTAD, 2017), innovation is required for the realisation of sustainable development. However, it is disheartening to know that despite the National Science and Technology (S&T) policy implemented in 1986 and the Nigerian Industrial Revolution Plan (NIRP) launched in 2014 to link innovation to the industry, the Nigerian economy is yet to be transformed from being a primary sector-oriented economy to an industrialised one, thus, the country continues to remain in the category of lower-middle-income countries of the world (Olusola, 2023)

In the Nigerian context, the importance of innovation is not just theoretical but evidenced by the performance of companies that have embraced innovative practices. These firms have shown resilience in the face of economic fluctuations, regulatory challenges, and competitive pressures, often outperforming their peers in terms of revenue growth, profitability, and market share expansion.

The link between innovation and firm performance at various levels of aggregation has been the focus of attention in a number of studies in recent times (see Lin & Chen, 2007; Enaini, 2019) Controversies exist in the literature on the relationship between innovation and firm performance. Studies by Mazlina and Normaz, (2015); Karabulut, (2015); Carvalho and Avellar, (2017); Fu., Mohnen., & Zanello,(2018) showed that innovation exerts positive effects on firm performance .

In light of the above, the study sought to address the following questions: What is the type and degree of relationship between innovation and performance? What is the effect of innovation on firms' performance?

Review of Related Literature

Conceptual Review

Innovation

Numerous studies in economics, organizational theory, strategic management and marketing have focused on studying innovation in recent times. Schumpeter (1934) identifies innovation as the motor of economic development. He identified the elements of innovation to include: (i) introduction of a new product (ii) introduction of a new method of production (iii) opening of a new market (iv) conquest of a new source of supply of raw materials or semi manufactured goods, and (v) implementation of a new form of organization. He also pointed out that innovation is the driving force of capitalism and since then, subsequent authors (see Abernathy &Clarke, 1985) have used the context of economic entities to explore the concept of innovation. Innovation reflects the tendency of a firm to enhance, appreciate and acquire new ideas, novelty, experimentation and the creative processes that may result in new products, services or technological process
Tidd, Bessant and Povitt(2001) opine that innovation is the making of something new. This implies that innovation is the generation, development and implementation of new ideas or behaviours which can be a new product or service, a production process, a new structure or administrative system or a new program pertaining to members (West & Anderson, 1996)

Supporting this view, Hersttatt, Twari Ernst and Buse(2008) affirms that innovation is the invention and commercialization of new (or significant improvement) of existing products, processes and/ or services. The need for new processes and inventive organizing has become imperative for all establishments, including those already engaged in research. Firms must generate continual innovations in order to gain market shares or overcome

oppositions to endure the fiercer competition and declining product life cycles(Hakon & Martine, 2019).

Innovation, according to the World Bank (2017), involves commercial applications of new technology, new materials, or new methods and processes. It mostly refers to the technique of leveraging existing technologies, copying features from other products, or adopting new business models from industry competitors. This idea has recently become a hot topic in conversations about how to boost productivity in both rich and developing countries (Quadri, 2021).

In line with Schumpeter's concept of innovation, the Organisation for Economic Cooperation and Development (OECD) came up with four main types of innovation in its Oslo Manual (2005), which are categorized into two broad clusters of technological and non-technological innovations. The following are the four primary sorts of innovations:

Product innovation is defined as the introduction of a new or significantly improved product or service in terms of its qualities or intended uses. Technical requirements, components and materials, embedded software, user friendliness, and other functional characteristics are examples of significant breakthroughs. To measure the complexity or uniqueness of an innovation in this context, traditional surveys have used three criteria: new products for the company, new products for the market, and new products for the global market.

Process innovation is the implementation of a novel or considerably improved manufacturing or delivery technique. Creative techniques for producing goods or providing services; innovative logistics, delivery, or distribution methods for inputs, goods, or services; and innovative supporting activities for processes, such as maintenance systems

or operations for purchasing, accounting, or computing, are all examples of significant changes in procedures, equipment, and/or software.

Marketing innovation is the introduction of a new marketing approach that involves considerable changes in product design or packaging, product positioning, product promotion, or pricing. These are designed to increase the effectiveness and efficiency of marketing in order to gain a competitive advantage. Marketing innovation includes a new brand, extension of new market. For instance, brand building, brand alliance, market repositioning, and market expansion among others.

Organizational innovation is the introduction of a new method for organizing the working environment of a company or enterprise. Structure innovations, such as the number of levels of hierarchy; function divisional structure (R&D, production, human resources, finance, and so on) or the borderline between line and support functions; and procedural innovations, such as changes to day-to-day activities, are all influenced by accountability and responsibilities. New procedures and processes are adopted inside a firm organization as a result of this innovation.

Manufacturing enterprises must transform raw resources into outputs, which needs technical touches across the industrial spectrum to generate new goods. Values are frequently formed through the transformation of basic materials into finished goods (Obunike & Udu, 2018). Furthermore, corporations utilise skills and expertise in the process of converting input into product. Technological innovation involves firms having technical competencies in order to produce types that are relevant to client needs.

Performance

For decades firms were operating business in order to perform so it is not a contemporary phenomenon. To perform is the end result of activities and it is to produce valued results.

Draft and Maric (2004) see performance as the ability to attain firm goal by using resources in an efficient and effective manner. Performance could be described as the behavior, the way in which organization, teams and individuals get work done (Enaini, 2014). There are two major streams of research on the determinant of firm performance in business policy literature. One is built on the behavioural and sociological paradigm and sees organizational factors and their fit with the environment as the major determinants of success in firms the other line of research is based primarily upon an economic tradition, emphasizing the importance of external market factors in determining firm success. (Enaini, 2019)

Firm performance can include different aspects of an organization's performance, such as efficiently exploiting its resources and achieving desired outcomes. It is focused on the capability and ability of a company to meet its objectives and meet the needs of its users relative to its competitors. Weihrich, Cannice &Koontz (2008) sees the dimensions of firm performance as profitability, growth, customer satisfaction, effectiveness, efficiency among others

Innovation and Firm Performance Nexus

The relationship between innovation and firm performance has been extensively studied, with substantial evidence indicating that innovation significantly influences corporate success. In the context of Nigerian quoted companies, this relationship is particularly important given the unique challenges and opportunities in the Nigerian business environment. Research consistently shows a positive correlation between innovation and firms' performance. Innovations in product development, process improvements, and business models often lead to increased efficiency, cost reductions, and enhanced market position (Schumpeter, 1934). In Nigeria, studies have highlighted that companies investing in research and development (R&D) and adopting new technologies tend to report better financial outcomes and market performance (Adeoye &Elegunde, 2012).

The impact of innovation on performance varies across different sectors. For instance, the telecommunications and banking sectors in Nigeria have seen significant benefits from technological innovations, such as mobile banking and digital payment systems (Oluwatobi, Efobi, Olurinola, &Alege, 2015). These innovations have not only improved operational efficiency but also expanded market reach and customer base. In contrast, the manufacturing sector faces more significant challenges due to infrastructural deficits and regulatory constraints, which can hinder the pace and impact of innovation (Oyewale, Adeyemo, & Ogunleye, 2016).

Despite the recognized benefits of innovation, Nigerian companies face several challenges that can impede their innovative capabilities. These include inadequate infrastructure, limited access to finance, regulatory bottlenecks, and a shortage of skilled labor (Akinwale, 2018). These barriers can stifle innovation efforts, making it difficult for firms to compete effectively both locally and globally. As such, companies often require supportive government policies and institutional frameworks to foster a conducive environment for innovation (Egbetokun, Siyanbola, Olamade, Adebowale, & Sanni, 2017).

Theoretical Framework

OECD (1981) and Berglund (2004) cited in Enaini (2019) argue that there is no one best theory of innovation. Many authors have found innovation theory lacking in cumulativeness and consistency. Attempts have been made to single out and empirically test different determinants, moderators and contingencies of innovation such as formalization, slack recourses and external communication (Berglund, 2004). For this reason, this paper is anchored on Economic Theory of Innovation. This theory argues that the outcomes of performance depend on the intensity of competition, the type of innovation and the timing of the innovation irrespective of the stage or period of the innovation as well as the size of the market, the price-elasticity of demand, the negotiating power of the

innovating firm including suppliers and customers. Economic theory also assumes the conditions of the demand and supply in a market which are often exogenously given, and also influences the extent to which competing firms can imitate others through employing one or a combination of various appropriation tactics including: trademarks, lead-time, secrecy, copy right , patents, service efforts and particular sales and achieving a good fit between technology-related innovations and complementary rare assets of the firm (Teece ,2006) Thus, choosing adequate appropriation tactics assist the firm in gaining private profits from innovation. Although the success of this tactics depends on the industries and the type of innovation carried out.

Empirical Review

Previous studies on innovation and company performance in emerging economies like Nigeria have provided valuable insights into the dynamics of this relationship. Adeoye and Elegunde (2012) highlighted the positive impact of innovation on financial outcomes and market performance for Nigerian firms investing in research and development (R&D) and adopting new technologies. Oluwatobi et al. (2015) underscored the significant benefits of technological innovations, particularly in sectors such as telecommunications and banking, where innovations like mobile banking and digital payment systems have enhanced operational efficiency and market reach. However, Oyewale et al. (2016) identified challenges such as infrastructural deficits, limited access to finance, and regulatory constraints, which can hinder innovation efforts in Nigerian firms. Fajemisin (2016) further emphasized the contextual variability of innovation effectiveness, suggesting that factors like firm size, industry, and innovation type influence the innovation-performance relationship. Osabutey and Jin (2016) advocated for supportive policies and institutional frameworks to bolster the innovative capabilities of firms in emerging economies like Nigeria, enabling them to capitalize on innovation for improved performance. Collectively, these studies contribute to the understanding of how innovation influences company performance in the context of emerging economies, offering insights relevant to

policymakers, business leaders, and researchers aiming to foster innovation-driven growth and competitiveness.

Lin and Chen (2007) using a t-test data analysis examine the relationship between innovation and company sales in Taiwan. The results show that there is no significant difference between marketing innovation and company sales which indicate that innovation has less impact on company sales. Nguyen and Mothe (2008) investigate the effect of marketing innovation on firm's performance using 555 firms in Luxembour. The result shows that firms focusing on market innovation are likely to improve customers' satisfaction. Baker and Sinkula (2005) examine over 100 empirical studies regarding market innovation conducted between 1990 and 2005 and note that out of the seventeen papers that studied the relationship between marketing innovation and product success sixteen representing (94%) reported a significant positive relationship

Similarly, Carvalho and Avellar (2017) analysed the interaction between innovation and the performance of 2,846 businesses in Brazil. Productivity of workers and TFP-total factor productivity was used to measure the performance, panel analysis using the fixed-effect model and using a cross-sectional model. The finding shows that the relationship between innovation and productivity was positively significant. The results suggested that productivity is influenced by the procurement of plants and equipment for innovation. They concluded that innovation enhanced the emergent impact on the productivity of the Brazilian manufacturing industry.

In addition, Krusinskas *et al.* (2015) using panel data analyses, explored the intensity of R&D investments, innovations and firm performance of 8,000 firms in Lithuanian industrial sectors between 2005 and 2012. The study showed that medium-low-tech enterprises were the leading investors in fixed and tangible assets before 2010 although; they were replaced by the high-tech industry in 2010. The study also showed that through innovation high-tech firms exhibited a high level of productivity.

Furthermore, Karabulut (2015) investigated the impact of various innovation types on the performance of 197 firms in the Turkish manufacturing industry. Using the regression model, the study showed that products, processes and organizational innovations have positive impacts on firm performance. Other performance indicators like customer service, internal control performance, learning curve and growth performance were also influenced by innovative activities. Innovations in marketing were shown to have a positive impact on firm performance, customer services, and internal control performance.

Adeyeye *et al.* (2016) studied innovation and its determinants among 1,000 manufacturing enterprises in Nigeria. Binary logistic regression was employed in investigating the interaction between the innovative activities and other independent variables used in the study. Results showed that expenditure on R&D; investment in plant and machinery positively influences innovative activities.

Enaini (2019) examined the relationship between innovativeness and firm performance in Nigeria using one hundred and thirteen quoted companies that consistently published their annual financial report between 2012 and 2017 . Unbalanced Panel data analysis was used to ascertain the possible firm specific innovation factors.(Labour- technology capital intensity, administrative And marketing ,research and development (R&D) and innovative intangible asset rights) Results showed that innovation has a negative impact on firm performance

Olusola(2023) investigated the existence of innovation types and examined their effects on firm performance in Nigeria's manufacturing industry. Using logistic regression analysis, he sourced data from forty-eight (48) non-quoted manufacturing firms (consisting of food, beverages and tobacco; textile, apparel and footwear; non-metallic, pharmaceuticals and cement). The results showed the existence of product, process, marketing and an organisational innovation in Nigeria's manufacturing industry. Likewise, recruitment

modelling and talent management as other organisational innovation techniques employed in Nigeria's manufacturing industry. The study also revealed that product innovation ($t = 0.67$; $p < 0.05$) and patent rights ($t = 2.13$; $p < 0.05$) had positive and significant effects on firm performance.

Research Gap: While a considerable body of literature explores the relationship between innovation and company performance, studies specific to the Nigerian context remain limited. Globally, research has established a positive correlation between innovation and various metrics of company performance, including revenue growth, market share expansion, and profitability (Tidd & Bessant, 2018). However, these findings are predominantly based on data from developed economies, with less emphasis on emerging markets like Nigeria. (Adeleye et al., 2020).

The Nigerian market, characterized by unique economic, social, and infrastructural challenges, presents a distinct landscape for businesses. Despite Nigeria's significant economic size and potential for innovation-led growth, there is a notable dearth of empirical studies that focus on the intricate dynamics between innovation and company performance within this local context to the best of the researchers knowledge. Existing studies often either tangentially include Nigeria as part of broader regional analyses or fail to delve deeply into sector-specific impacts of innovation (Osabuohien et al., 2019).

Moreover, the literature that does address the Nigerian market often lacks longitudinal depth, focusing on short-term impacts without considering how the relationship between innovation and performance evolves over time. This gap hinders the ability to draw conclusive insights about the long-term benefits of innovation for Nigerian companies (Adebayo et al., 2021).

Another significant gap is the underrepresentation of various sectors. While some industries, such as telecommunications and finance, are relatively well-studied, others, especially in the manufacturing and agribusiness sectors, lack comprehensive research.

This oversight limits understanding of how innovation impacts performance across the diverse landscape of Nigerian business (Adeleye et al, 2020).

The implications of these gaps are profound. Without a detailed understanding of how innovation influences company performance in the Nigerian context, policymakers, business leaders, and investors may struggle to make informed decisions. The application of findings from other regions to Nigeria might not account for local nuances, potentially leading to suboptimal strategies for fostering innovation.

Methodology

This study is a cross-sectional descriptive survey design as the data are from different subjects for a period of time. The data for this work was collected from the 2023 annual financial statements of the forty (40) selected quoted companies that were randomly selected from the population of the listed companies in the Nigeria exchange group. The selected quoted companies are: Roads Nig. PLC, Unilever Nig. PLC ,Greif Nig PLC, Vita Foam Nig PLC, Scoa Nig PLC, NCR Nig PLC Nestle Ng PLC, Smart Product Nig PLC , Transcorp Power PLC, Geregu Power PLC ,Chapel Hill Denham Nig, Julius Berger Nig PLC, Ronchess Global Resources PLC, Austin Laz & Company PLC, Berger Paints PLC, BUA Cement PLC,BUA Foods PLC, Cadbury nig PLC, Champion Brew PLC, Dangote Sugar Refinery PLC, Guinness Nig PLC, Ellah Lakes PLC, FTN Cocoa Processors PLC, Livestock Feeds PLC, Okomu oil palm plc, Presco PLC, Ekocorps PLC, Fidson Healthcare PLC, May & Baker Nig PLC ,Mecure Industries PLC, Morison Industries PLC, Abbey Mortgage Bank PLC, Briclinks Africa PLC, Chams Holdings Company PLC, CWG PLC, Conoil PLC, Eterna PLC, JA Paul Gold & Ventures PLC, MRS Oil Nig PLC and Oando PLC

The performance of the companies was measured using the current ratio while the independent variable is innovation outcomes measured by innovation index (II), computed using firms' response on presence or absence of (product, process, organization and

marketing) innovation. The index is a simple unweighted average of the lack (score of 0) or presence (score of 1) of each of the identified elements affecting firms' innovation, with a maximum value of 4 for any firm's presence of the four (4) types of innovation (Abereijo et al., 2007).

The analysis was carried out by first exploring the data to check for outliers in the data sets and linearity of the relationship between the variables; and secondly formulating and estimating the model and its parameters. The method of estimating the parameters of the model is the ordinary least square of the linear regression method.

The model for this study is the simple linear regression model and it is stated as:

$$FP_{it} = \beta_0 + \beta_1 II_{it} + \in_{it} \qquad 1$$

Where FP_t is the i^{th} firm performance for year t, β_0 is the intercept, β_1 is the slope of the model, II_{it} is the innovation index of the i^{th} firm for year t and $\in_{it}$ is the residual term which is assumed to be Guassian.

Data Presentation and Analysis

In this section, we present the outcome from the exploratory data analysis and that from the estimation of the regression model.

Results from Exploratory Data Analysis

The stem - and – leaf plot of the firms performance displayed below showed that there were two (2) firms (Julius Berger Nigeria PLC with 3.9 and Austin Laz & Company PLC with 7.2) whose performance were reported as extremes and the box plot reported Austin Laz & Company PLC as an outlier. The presence of the extremes and outlier affected the strength of the relationship between the variables from our investigation with an r = 0.47 and r^2 = 0.68. However, the independent variable, the measure of the adequacy was

significant. The extreme values when replaced with the mean and a further analysis gave a better correlation value of 0.54 and $r^2 = 0.74$.

Performance of selected Quoted Companies in Nigeria Stem-and-Leaf Plot

Frequency Stem & Leaf

12.00 0 . 000000000012

9.00 0 . 566778889

12.00 1 . 000111112244

3.00 1 . 689

1.00 2 . 1

1.00 2 . 8

2.00 Extremes (>=3.9)

Stem width: 1.00

Each leaf: 1 case(s)

Figure 1: Stem – and - leaf plot of the performance of the selected quoted companies

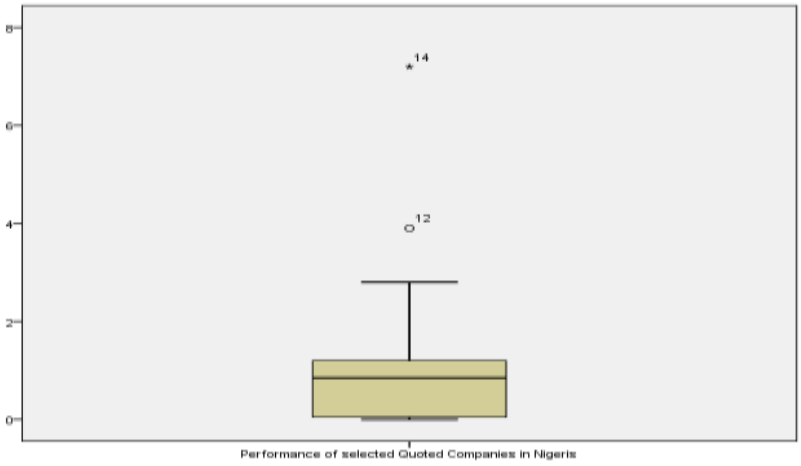
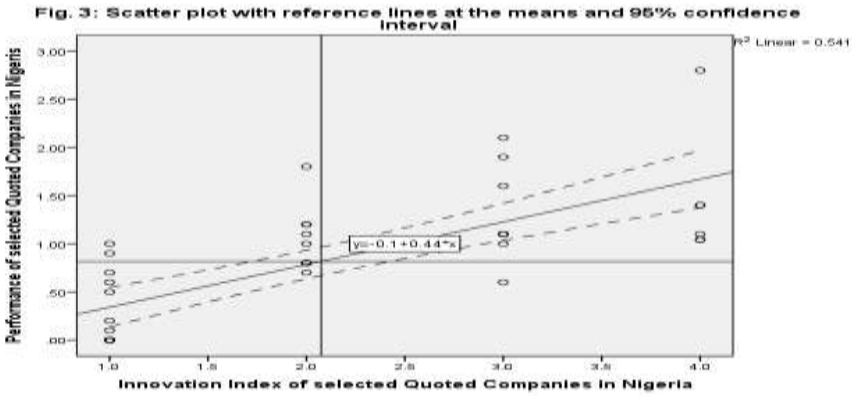


Figure 2: Box plot of the performance of the selected quoted companies

The plot on figure 3 is the scatter plot measuring the direction of the relationship between Innovation and of the selected quoted companies in Nigeria. The plot affirmed a positive relationship between the variables implying that an increase in the innovations by the firm will raise their performance. Hence, companies should make effort and be innovative so as to be able to stay in business, expand from increase patronage and make more profit.



Results from Regression Analysis

The results in table 1 give the summary of the model. In measuring the direction and degree of the relationship between innovation and firms' performance, the value of the r = 0.736 implies that there is a very high positive relationship between innovation and performance

of the quoted companies in Nigeria. With the value of the r^2 of 0.54 implies that the independent variable (innovation) has been able to explain about 54.1% of the systematic variation in the performance of the selected quoted companies leaving about 45.9% unexplained. The implication here is that there are certainly other factors that influence the performance of a firm. This study interest is on a single factor influence on the performance of the firms and from our result, we can adjudge that the model gave a good fit of the data.

Table 1: Model Summary[b]

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.736[a]	.541	.529	.46237

a. Predictors: (Constant), Innovation Index of selected Quoted Companies in Nigeria

b. Dependent Variable: Performance of selected Quoted Companies in Nigeria

On how adequate our model stands to predict the values of performance, the results in the ANOVA in Table 2 depicted that the model is adequate for prediction since the p-value of the computed F-statistic is less than the critical p-value of 0.05. The implication here is that we are sure of predicting values that are accurate for effective decision making as it relates to the number of innovations and the possible performance level that will be achieved.

Table 2: ANOVA[a]

Model		Sum of Squares	Df	Mean Square	F	Sig.
1	Regression	9.582	1	9.582	44.821	.000[b]
	Residual	8.124	38	.214		
	Total	17.706	39			

a. Dependent Variable: Performance of selected Quoted Companies in Nigeris

b. Predictors: (Constant), Innovation Index of selected Quoted Companies in Nigeria

Table 3: Coefficients[a]

Model		Unstandardized Coefficients		Standardized Coefficients		
		B	Std. Error	Beta	T	Sig.
1	(Constant)	-.103	.156		-.659	.514
	Innovation Index of selected Quoted Companies in Nigeria	.443	.066	.736	6.695	.000

a. Dependent Variable: Performance of selected Quoted Companies in Nigeria

From Table 3, the estimated regression model is

$$\widehat{FP}_{it} = -0.103 + 0.444II_{it} \qquad 2$$

On the significance of the parameters of the model, the results in Table 3 depicted that innovation index is significant in the model since its p-value of 0.00 is lesser than the critical p-value of 0.05. This implies that innovation is an important variable in determining the performance of quoted firms in Nigeria.

From the results, innovation has a significant positive effect on performance. Also from the estimated model, if a firm increases her innovation index by a unit, it will lead to a growth in the performance by 0.443 units. A look at the estimated model, we see that the value of the intercept term is negative and the intercept is the value of the dependent variable when the independent variable is 0. Hence,the negative value implies that if a firm refuses to be innovative, she is bound to make loses over time.

Discussion of Findings

Innovation is widely recognized as a key driver of firm performance, as it allows companies to create new products, services, processes, or business models that differentiate them from

competitors and meet the changing needs of customers. Empirical studies consistently show a positive relationship between innovation and firm performance.

In our study, we found a linear positive and significant relationship between innovation and performance of firms in Nigeria. The finding is in line with Adeoye and Elegunde (2012) Karabulut (2015), Krusinskas *et al.* (2015), Oluwatobi et al. (2015) Adeyeye *et al.* (2016), Fajemisin (2016), Osabutey and Jin (2016) and Oyewale et al. (2016) who find that innovation has positive impact on firm performance. Although the result is not in conformity with Lin and Chen (2007), who find that innovation has less impact on firm performance. We also found a positive effect of innovation on performance with the independent variable coming out significant. The findings supports those by Carvalho and Avellar (2017), and Olusola (2023) who find that innovation has a positive effect on firm performance but negate the findings of Enaini (2019) whose results showed that innovation has a negative effect on firm performance. The model was found to be adequate for prediction with the model having a good fit too.

Overall, empirical evidence suggests that innovation is a key driver of firm performance. Companies that invest in innovation and develop a culture of creativity and continuous improvement are more likely to achieve higher levels of performance and sustainable competitive advantage. Businesses that prioritize innovation are better positioned to adapt to market changes, meet customer needs, and outperform competitors in the long run.

Conclusion

In Nigeria, we looked at the link between innovations and quoted firms performance. Innovation, in all of its manifestations (product, process, organization and marketing) is seen as a critical aspect that can significantly improve the performance of firms. From the stem- and – leaf plot we discovered that most companies with 0 performance had just a point for innovation and companies with high performance had 3 or 4 points of innovation.

This was confirmed by the test of the relationship and well as the regression analysis carried out. We therefore stress the need for an all-round creativity and innovations by firms if they are to succeed.

Recommendations

1. Companies in Nigeria should make effort to be innovative holistically so as to be able to stay in business, expand from increase patronage and make more profit.
2. Studies to explore the impact of the various types of innovation on the performance of the listed companies should be carried out.
3. Though the performance of the companies was well modeled by the single variable in our study, we recommend the inclusion of other variables so as to explain the variations in the performance more.

Acknowledgment

The researchers want to use this medium to thank Tertiary Education Trust Fund (TETFUND) and Auchi polytechnic for sponsoring this study. Without TEFUND intervention through Auchi Polytechnic, Auchi, this study would not have been a reality today.

References

Abereijo, Isaac & Oluwagbemiga, Matthew & Akinade, Stephen. (2007). Assessment of the capabilities for innovation by small and medium industry in Nigeria. African Journal of Business Management. 1. 209-217.

Abernathy, W., & Clarke, K. (1985). Innovation: Mapping the wind of creative destruction. *Research Policy, 14*(3), 3-22.

Adeleye, B. N., Gershon, O., Ogundipe, A., Owolabi, O., Ogunrinola, I., & Adediran, O. (2020). Comparative investigation of the growth-poverty-inequality trilemma in Sub-Saharan Africa and Latin American and Caribbean Countries. *Heliyon, 6*(12).

Adeoye, A. O., & Elegunde, A. F. (2012). Impacts of external business environment on organisational performance in the food and beverage industry in Nigeria. *British Journal of Arts and Social Sciences, 6*(2), 194-201.

Adeyeye, M. M., Jegede, O. O., Ilori, M. O., & Akinwale, Y. O. (2016). Innovation and its determinants among manufacturing firms in Nigeria: An empirical analysis. *African Journal of Science, Technology, Innovation and Development*, 8(3), 225-234. https://doi.org/10.1080/20421338.2016.1138885

Aghion, P., & Howitt, P. (1992). A model of growth through creative destruction. *Econometrica, 60*(2), 323-351.

Akinwale, Y. O. (2018). Empirical analysis of innovation and firm performance: Evidence from Nigerian small and medium enterprises. *Journal of Innovation and Entrepreneurship, 7*(1), 16.

Barney, J. (1991). Firm resources and sustained competitive advantage. *Journal of Management, 17*(1), 99-120.

Berglund, H. (2004). Interesting theories of innovation: The practical use of the particular. Working paper presented at the Department of Innovation Engineering and Management, Chalmers University of Technology, Sweden. ISSN: 1650-5417.

Carvalhov, L., & Avellar, A. P. (2017). Innovation and productivity: Empirical evidence for Brazilian industrial enterprises. *RAUSP Management Journal*. http://dx.doi.org/10.1016/j.rausp.2016.12.009

Daft, R. L., & Marcic, D. (2004). Principles of management: Understanding management. http://swlearning.com Retrieved on 5th May, 2023

Egbetokun, A. A., Siyanbola, W. O., Olamade, O. O., Adebowale, B. A., & Sanni, M. (2017). Innovation systems research: An agenda for developing countries to performance. *African Journal of Science, Technology, Innovation and Development, 2*(3), 297-310.

Enaini, S. O. (2014). Innovation and performance of quoted companies in Nigeria. Unpublished Doctoral Dissertation, University of Benin, Benin City.

Enaini, S. O. (2019). Innovativeness and firm performance: Evidence from Nigeria. *Quarterly Journal of Contemporary Research, 7*(1), 67-91.

Freeman, C. (1982). *The economics of industrial innovation*. Cambridge: MIT Press.

Fu, X., Mohnen, P., & Zanello, G. (2018). Innovation and productivity in formal and informal firms in Ghana. *Technological Forecasting and Social Change*. http://dx.doi.org/10.1016/j.techfore.2017.08.009

Grant, R. M. (1996). Toward a knowledge-based theory of the firm. *Strategic Management Journal, 17*(S2), 109-122.

Hakon, O., & Martine, H. H. (2019). Innovation and firm performance: A longitudinal study of the innovation survey in Denmark. Unpublished MSc Thesis, Copenhagen Business School.

Herstatt, C., Twari, R., Ernst, D., & Buse, S. (2008). India's national innovation system: Key elements and corporate perspective. *East–West Centre Working Papers, Economic Series No. 96*.

Hisrich, R. D., & Peters, M. (2002). *Entrepreneurship*. Boston: McGraw-Hill Inc.

Jegede, O. O., Ilori, M. O., Siyanbola, W. O., & Abereijo, I. O. (2012). Assessment of technological innovation in selected indigenous oilfield servicing firms in Nigeria. National Centre for Technology Management. http://www.nacetem.org Retrieved on 24th March, 2023.

Karabulut, A. T. (2015). Effects of innovation types on performance of manufacturing firms in Turkey. *Procedia - Social and Behavioral Sciences, 195*, 1355-1364.

Krusinskas, R., Norvaisiene, R., Lakstutiene, A., & Vaitkevicius, S. (2015). Investment, innovation and firm performance: Empirical evidence from small manufacturing industries. *Journal of Finance and Economics*, *3*(6), 122-131.

Lin, C. Y., & Chen, M. Y. (2007). Does innovation lead? An empirical study of SMEs in Taiwan. *Management Research News, 30*(2), 115-132.

Mazlina, S., & Normaz, W. I. (2015). Innovation and productivity: Evidence from firms' level data on Malaysian manufacturing sector. *International Journal of Economics and Management, 9*(1), 93-114.

Nelson, R. R., & Winter, S. G. (1982). *An evolutionary theory of economic change*. Cambridge: Harvard University Press.

Obunike, C. F., & Udu, A. A. (2018). Technological innovativeness and growth: A study of small-scale manufacturing firms in Lagos State. *Economics of Development, 17*, 39-53.

Olusola, J. D. (2023). Innovation types and firm performance in Nigeria. *Indo-Asian Journal of Finance and Accounting, 4*(11), 145-159.

Oluwabemiga, O. O., Olubukunola, U. R., & Akinlabi, B. H. (2014). The relationship between R&D investment and firm performance: An empirical evidence from Nigerian firms. *International Journal of Financial Research, 5*(1), 86-92.

Oluwatobi, S. O., Efobi, U. R., Olurinola, I. O., & Alege, P. O. (2015). Innovation in Africa: Why institutions matter. *South African Journal of Economics*, *83*(3), 390-410.

Organisation for Economic Cooperation and Development. (1981). *The measurement of scientific and technical activities – Frascati Manual 1980*. Paris: OECD.

Organisation for Economic Cooperation and Development. (2005). *Oslo Manual: Guidelines for collecting and interpreting innovation data* (3rd ed.). OECD and Eurostat.

Osabuohien, E., Okorie, U., Olayiwola, K., & Efobi, U. (2019). Innovation and company performance in Nigeria: An empirical analysis. *Journal of African Business*, 20(2), 245-267. https://doi.org/10.1080/15228916.2019.1581045

Osabutey, E. L. C., & Jin, Z. (2016). Factors influencing technology and knowledge transfer: Configurationally recipes for Sub-Saharan Africa. *Journal of Business Research, 69*(11), 5390-5395.

Oyewale, O., Adeyemo, S. O., & Ogunleye, O. S. (2016). Determinants of innovation capability in Nigerian firms: An exploratory analysis. *International Journal of Innovation Science, 8*(3), 215-234.

Porter, M. E. (1990). *The competitive advantage of nations*. New York: Free Press.

Quadri, U. F. (2021). Firms' performance and innovation: Evidence from small and medium enterprises (SMEs) in Nigeria. *European Journal of Economics, 1*(2). ISSN: 2669-2384

Schumpeter, J. A. (1934). *The theory of economic development*. Cambridge: Harvard University Press.

Teece, D. (2006). Reflections on profiting from innovation. *Research Policy, 35*(8), 1131-1146.

Teece, D. J., Pisano, G., & Shuen, A. (1997). Dynamic capabilities and strategic management. *Strategic Management Journal, 18*(7), 509-533.

Tidd, J., Bessant, J., & Pavitt, K. (2001). *Managing innovation: Integrating technological, market and organizational change* (3rd ed.). Chichester: Wiley.

West, M. A., & Anderson, N. R. (1996). Innovation in top management teams. *Journal of Applied Psychology, 81*(6), 680-693.

World Bank. (2017). *A practitioner's guide to innovation policy*.