

Effect of Diversification on Financial Performance of Quoted Manufacturing Firms in Nigeria

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Abstract: *Corporate diversification has been a concern for corporate organizations that are determined for growth and expansion. Despite the existence of several frameworks of corporate governance and management to ensure effective and efficient management of subsidiaries and business segments, firms are still facing financial performance challenges resulting from management policies, structural and operational deficiencies, and accountability and transparency issues which could not be addressed by available studies conducted in advanced and industrialized countries with stable and low risks environment. Effect of subsidiaries diversification on the financial performance of Nigeria's quoted manufacturing firms is an empirical panacea for developing nations. This study examines the effect of subsidiaries diversification and business segments diversification on the financial performance (return on assets, return on equity, and return on capital employed) of quoted manufacturing firms in Nigerian. The study used Ex-post-facto research design and secondary data from 42 firms out of the 63 quoted manufacturing firms in Nigeria from 2007 to 2017. Structural equation modeling (SEM) (Partial Least Squares, PLS) was used for data analysis and test of hypotheses. PLS Results indicate that while subsidiaries diversification has no significant effect, business segments diversification has a significant effect on the ROA, ROE, and ROCE of quoted manufacturing firms in Nigeria. The study concluded that the financial performance of quoted manufacturing firms in Nigeria is significantly affected by expansion through business segments. The study recommends that quoted manufacturing firms in Nigeria should create more businesses with unique products and geographical locations within the main company to improve their financial performance. The study also recommends that quoted manufacturing firms in Nigeria should carefully select their choice of diversification through the creation of subsidiaries to maintain and improve superior financial performance.*

Keywords: *Subsidiary diversification, Business segment diversification, Return on Assets, Return on Equity, Return on Capital Employed*

Introduction

Business organizations, particularly, corporate businesses are established to exist perpetually; consequently, they deployed different strategies to ensure their continued existence and growth including opening new business segments and subsidiaries, opening new markets and increasing product range. This situation can closely be linked to the effects of business environment volatility, uncertainty, complexity, and ambiguity arising from globalization, competition and the need to meet strategic growth objectives. Environmental volatility or instability can be attributed to changes in the business environment not only due to political activities but also due to upward and downward movements in economic activities such as changes in outputs, inflation, interest rate and employment resulting in expansion or contraction in the economy. Similarly, the term globalization is linked with the process of interaction and integration among people, companies, and governments worldwide causing a complex and multifaceted phenomenon that brings local and national economies into a global, unregulated and borderless market economy. Advancement in transportation and telecommunication technology worldwide which increases global interactions, growth of international trade, and diffusion of ideas, cultures, capital, technology, and data facilitate the growth and development of businesses.

The complexity and dynamism of the business environment, and the trend of globalization present enormous opportunities for exploring new processes, methods, products, markets, technology, customers, suppliers, distributors, and all other business opportunities to increase business profitability and general performance of firms. However, achieving this depends fundamentally on how effectively the firms harness their resource through the adoption and implementation of appropriate management strategies. Above all, the intensity of competition faced by firms and their strategic growth objective have driven them to consider various strategies such as business process re-engineering, corporate restructuring, corporate diversification,

organizational development, and mergers and acquisitions.

Among management strategies, corporate diversification is one strategy that is effective in sustaining increases in profitability, competitive advantage, superior customer satisfaction, and improves organizational performance. Thus, many scholars recognize diversification as a strategy of overcoming environmental challenges as well as achieving the objectives of capturing major markets, increasing profitability, and reducing the risks of putting “firms’ eggs in one basket.” Firms need to extend their range of business operations outside their current businesses or increase their investment in other areas because of fluctuations in demand, future uncertainty, and the opportunity to take advantage of more profitable opportunities available in other sectors (Cannon & Hillebrandt, 1989; Pawaskar, 1999; Teo, 2002). Various perspectives have been used academically to clarify the phenomenon of corporate diversification using different theoretical foundations. Montgomery (1994); Park and Jang (2013); Kim, Hoskisson, and Lee (2014) are a few of the studies that find corporate diversification to have a positive effect on economies of scale and scope, learning, operational flexibility and stable profits (performance). However, Wan and Hoskisson (2003), Lu and Beamish (2004), Ang (2007), Kim and Mathur (2008) studies show that diversification does not always lead to better performance. This is because the process often requires a company to absorb substantial costs resulting from any restructuring or the reorientation of resources which include resistance to change; unexpected costs resulting from exchange rate fluctuations, inflation, and political uncertainty; management challenges related to structural complexity; new administrative structures; increased information processing; and coordination, communications and motivation issues arising from cultural differences.

Firms exploit different forms of expansion including opening subsidiaries and business segments due to their relative significance. Many

kinds of literature emphasize the strategic role or impact of subsidiaries and business segments, thus agreed that it influences performance (Anderson, Forsgren & Holm, 2002). Some benefits of diversification through subsidiaries and business segments include access to local markets, supply export markets, influence on strategic repositioning, increased access to internal equity financing sources, the economy of scale and scope, access to cheaper input market and large output market leading to full capacity utilization and marketing advantage in new locations which lead to increased overall performance (Birkinshaw, 1996; Dunning & Lundan, 2008; Estrin, Meyer, Wright, & Foliano, 2008; Ushijima & Schaede, 2013; Rugman & Oh, 2012; Oh & Contractor, 2014; Nguyen, 2014). Product development cost and production can also be spread by subsidiaries and business segments through geographic markets (Kobrin, 1991; Tallman & Li, 1996; Capar & Kotabe, 2003). Regardless of the difference in findings, diversification will continue to remain significant among corporate management strategies and firms' performance management.

Corporate organizations pursue different objectives including increased profitability, increased market share, increased sales turnover, among others. In pursuance of these objectives, particularly, the objective of increased market share, corporate firms expand their businesses by creating and controlling different other businesses with separate legal and structural frameworks and autonomy (subsidiaries) and by opening and managing different business outfits that are fully integrated within the main firms with no distinct or autonomous legal framework (business segments). The hope is that expansion activities will improve the financial performance of the firms. However, structural complexity which increases governance and management challenges resulting to increase management policies, increase in structural and operational deficiencies, an increase in operational costs, and accountability and transparency issues that might negatively affect the overall financial performance of the firms is usually stumbled upon. The consequence is that corporate firms involved

in diversification or expansions might rather experience reduced financial performance which might lead to significant financial problems in the long run. To reduce or minimize the likelihood of corporate firms diving into this devastating financial dilemma due to their expansions moves, there is a need to empirically determine whether the expansions of corporate firms by creating subsidiaries and business segments will lead to improvement in the financial performance of the firms or not. Most of the studies conducted on subsidiaries and business segments diversification are carried out in advanced and industrialized countries with more stabilized and low risks environment. Using the findings of these studies in developing nations like Nigeria might be inappropriate and unrealistic. Thus, there is a need to conduct more studies in developing nations with more dynamic and high risks environmental factors to provide more empirical evidence for an appropriate, realistic, and successful application.

Thus, this study investigates the effect of subsidiaries diversification on the financial performance of Nigeria's quoted manufacturing firms. The study specifically:

- Examines the effect of subsidiaries diversification on the financial performance of Nigeria's quoted manufacturing firms; and
- Evaluates the effect of business segments diversification on the financial performance of Nigeria's quoted manufacturing firms.

Review of Literature

Diversification and performance of the firm are extensively discussed in corporate finance and strategic management literature and several arguments are advanced due to their complex nature (Akkermans, 2010). The majority of diversification definitions center on the notion that diversification finds its root from the word diverse indicating diversity (Pitts & Hopkins, 1997). Riswan and Suyono (2016) define corporate diversification as an expansion of the already existing business into numerous different businesses. Ramanujam and Varadarajan (1989) see diversification as operating in numerous

businesses concurrently by a firm or entry of a firm into new lines of activities either by the process of an internal expansion or by acquisition. Moreover, diversification of business is a means of expanding the size of the business, achieving an economy of scale, and thereby generating synergic effects for overall operation. According to Njuguna (2013) diversification can be concentric, conglomerate, internal and external. Concentric diversification occurs when a firm adds related products or markets with the goal of achieving strategic fit which allows an organization to achieve synergy and greater total effectiveness. Conglomerate diversification occurs when a firm diversifies into areas that are unrelated to its current line of business with the primary purpose of improving profitability through firm marketing or production synergy. Internal diversification is to market existing products in new markets by expanding the firm's geographic base to include new customers, either within its home country or in international markets as well as finding new users for a current product that is new in existing markets. External diversification occurs when a firm looks outside of its current operations and buys access to new products or markets through mergers and acquisitions and subsidiaries.

A business subsidiary is a firm that is owned or controlled by another (Parent) firm which can be a corporation or limited liability company. Business subsidiaries are often separate and distinct legal entities for the purposes of taxation, regulation, and liability. A business segment is part of a company which is not legally distinct like a subsidiary, and is fully integrated within the main company but can be identified by the products it provides or geographical locations it operates in. While subsidiaries diversification means a firm is expanding into owning and controlling different businesses that are operating with a separate legal framework, business segments diversification is the expansion by firms to fully integrate different businesses with no legal distinction within the main company (Gupte, Sen & Paranjape, 2013). Management often divides companies into business segments to help gauge what areas of the company are

performing well and what areas need improvements.

Firm performance definitions and measurements are very complex and continue to challenge scholars in all fields of research. One definition that is most acceptable is to view the firm performance from the stakeholder theory perspective which allows distinguishing between performance antecedents and outcomes which provides a conceptual structure to define performance indicators and dimensions; and gives choices in relation to time and reference point (Santo & Brito, 2012). The stakeholder theory offers a social perspective to the objectives of the firm and, to an extent, conflicts with the economic view of value maximization. Measuring performance under this concept involves identifying the stakeholders and defining the set of performance outcomes that measure their satisfaction (Connolly, Conlon, & Deutsch; Hitt; & Zammuto in Santo & Brito, 2012). Investors often used the superiority of firms' financial performance represented by profitability, growth and market value (Cho & Pucik, 2005; Venkatraman & Ramanujam, 1986). Profitability measures a firm's past ability to generate returns; growth expresses a firm's past ability to increase its size, and the market value represents the external assessment and expectation of firms' future performance. Increased size results in increased cash generation and profit, economies of scale and market power, and consequently, enhanced future profitability; while market value relates to historical profitability, growth levels and incorporate future expectations of market changes and competitive moves (Santo & Brito, 2012).

Moreover, Palich, Cardinal and Miller (2000) posit that diversification literature typically used accounting and market-based measures of performance. Whereas accounting measures provide an evaluative referent (*ex-post*), market-based measures are more future-oriented measures (*ex-ante*) of the firms' prospects and are considered as a more long-run perspective (Dubofsky & Varadarajan, 1987). Accounting measures are appreciated because they reflect

realized performance and not affected by the expectations of shareholders (Covas, 2004). The major disadvantages of the accounting-based measure of performance are that it can be manipulated to some extent by management, its inability to reflect future risk or opportunities due to its evaluative character, and it is not suitable to compare across countries as each country has its own accounting standards (Fisher & McGowan, 1983; Ramanujam & Varadarajan, 1989; Barney, 1997; and Covas, 2004). Market measures do not share any of these drawbacks; however, management primarily depends on accounting data when making strategic decisions, limiting the use of solely market-based measures. Furthermore, accounting-based measures reflect realized performance which might be able to measure the actual and realistic effect of diversification on performance during different situations including crisis years. Additionally, the fact that share prices tend to follow announcements pertaining to accounting data underlines the relevance of accounting-based measures (Holzmann, Copeland & Hayya; Fama & Miller in Akkermans, 2010). Consequently, for the purpose of robustness, this study used accounting-based measures (Return on Assets, ROA; Return on Equity, ROE; and Return on Capital Employed, ROCE) as the measurements (proxies) of performance. ROA measure of firm performance has to be a common and major measure among diversification studies (Chakrabarti, Singh, & Mahmood, 2007). ROA is an accounting-based performance indicator that captures the efficiency of resource allocation via a firm operation (Waddock & Graves, 1997). It also soundly captures management's ability to utilize assets effectively as it is not affected by the way assets are financed which is more relevant to diversification study as it may reveal possible diversification inefficiencies (Libby, Libby & Short, 2010). ROE measure is the ratio of net income (income available to common stockholders) to stockholders' equity. It is a measure of company performance from the viewpoint of the shareholders. It is a frequently used variable in judging the top management performance and for making executive

compensation decisions (Pandya and Rao, 1998). It is essential when calculating ROE to use the profit for ordinary shareholders, which is the profit after tax and after interest charges (Abdelsalam & Weetman, 2003). ROCE is a measure of how efficient management is in using long-term finances to generate operating profits. It is defined as the ratio of profit before interest and tax to total assets less current liabilities.

Theoretical Review

There are many theoretical foundations such as the portfolio investment theory, foreign direct investment theory, market power theory, internal market efficiencies theory and resource-based theory that said economies of scale and scope improves organization learning, and operational flexibility and stable profits can be accomplished through various forms of diversification. This study is, however, premised on the Resource-Based Theory (RBT). RBT proposes that firms can enter into different product markets by leveraging their resources or capabilities (Wan, Hoskisson, Short, & Yiu, 2011). The theory takes a firm as a collection of resources or capabilities that are very difficult or nearly impossible to imitate which enable it to successfully compete against other firms (Wernerfel, 1995). It is a strategic theory about how a firm can exploit the resources to achieve its economic goals or a sustainable competitive advantage over its rivals. Thus, firms leverage diversification, particularly, creating new subsidiaries and segments within and out of the country as a strategy to profitably deploy and exploit its resources (Li, 2007). Accordingly, resources can be broadly defined to include assets, organizational processes, firm attributes, information, or knowledge controlled by the firm which can be used to conceive of and implement their strategies. Other resources are brand names, technological abilities, efficient procedures, and other (tangible and intangible) resources used by the firm (Madhani, 2010). Accordingly, the theory outlines two assumptions. The first assumption is firms' resource heterogeneity which maintained that there are systematic differences across firms within an industry with respect to the resources

they control. The second assumption is resource immobility which maintained that resources are relatively stable across firms such that heterogeneity can be enduring (Barney, 1997). The RBT makes the proposition that resources contribute to a firm's competitive position if they are exploited in such a manner that their potentially valuable services are made available to the firm (Helfat & Peteraf; Barney & Penrose in Li, 2007). Thus, diversification through subsidiaries and/or segments is carried out in response to the excess capacity in productive factors and/or resources in which firms share in order to attain economies of scope and scale, synergy and increased overall performance. However, RBT has certain limitations including the integration of transaction costs theory into resource-based view and the difficulty to define and evaluate strategic assets due to the intangible characteristics of resources in the theory. Madhani (2010) opines that limitations of the RBV can be grouped under the vagueness of terminology associated with the RBV, the tautological nature of some of the views underlying assumptions and the methodological issues (bias towards quantitative research against qualitative methodologies).

Empirical Review

Jun, Gonzalez, and Zhang (2018) investigated the return predictability between subsidiaries and their parent firms by using an international sample of parent firms with complex ownership structures from 23 developed markets. The study found that portfolio returns of the ownership-weighted subsidiaries significantly predict the future returns of a parent firm in terms of statistics and economics. The study finds indirectly owned subsidiaries, foreign subsidiaries, different-industry subsidiaries, and minor ownership subsidiaries generate larger predictive power than directly owned subsidiaries, local subsidiaries, same-industry subsidiaries, and major ownership subsidiaries for future returns of parent firms. Tetteh and Okantey (2016) study sought to ascertain the factors that contribute to the performance of multinational subsidiary banks in Ghana. Using an unbalanced random effects

panel regression estimation following the Hausman specification test, the study found that increasing bank size by additional subsidiaries does not necessarily lead to increased performance. Thus, Multinational Subsidiary (MNS) banks underperform as they increase in size, and are inefficient and so shift their costs and risks to customers in the form of high-interest charges on credit. The study also found that older MNSs perform better than the relatively younger ones. Gammelgaard, McDonald, Stephan, Tuselmann, and Dorrenbacher (2012) used network approaches to subsidiary theory to investigate the performance impacts of interactions among the factors of autonomy, intra-organizational network relationships, and inter-organizational network relationships using SEM. The study analyzed both direct and indirect interactions among these factors and examined the changes in terms of increases in the interactions between the main factors rather than the levels of these factors. The results, which are based on data gathered from a survey of 350 foreign-owned subsidiaries in the UK, Germany, and Denmark reveal complex interactions between increases in autonomy and network relationships, and the subsequent impact of these changes on performance. The results also highlight the central role of inter-organizational network relationships in the interaction between the factors, which produce significant and positive effects on performance.

Furthermore, Omondi (2015) used an agency perspective to investigate the relationship between parents and subsidiaries and how it affects the performance of Telkom Kenya (Orange). Using a case study approach and personal interview, and content analysis technique, findings reveal that parent-subsidiary relationship does influence coordination of policy and operations; that firms are able to leverage on technology within the parent's company ambit which enhances efficiencies; and that a clear feedback channel will improve the relationship and communication between the parent and subsidiaries as well as improve performance. Guo & Cao (2012) studied firms with different

diversifying degrees and found that diversified firms operate on a premium. By using an annual dataset comprised of 12,006 for 3070 firms during 1996-2002, and employing a panel data model, the study found a positive relationship between firm performance and diversification. Thus, firms choose the extent of their operations and decide whether to operate in a single industry or diversifying into multiple industries by owing to different business segments. Tanriverdi and Lee's (2008) study test how the presence of network externalities, complementary related diversification strategies (related segments) in production and consumption can be critical for achieving positive returns to within-industry diversification. The study tested the proposition in a longitudinal study of 884 firms in the software industry. Results indicate that related diversification across operating system platforms and related diversification across software product-markets complement each other and mutually affect each other's marginal returns and improves sales growth and market share.

Methodology

Ex-post-facto research design is adopted for the study due to the fact that data was collected from annual reports/accounts and archives of the companies under investigation. Thus, the phenomenon of the study had already taken place and the data are in existence making it a quantitative and deductive research approach that sourced data from secondary sources. The population of this study covers all manufacturing firms quoted by the Nigerian Stock Exchange (NSE). The study used secondary data from annual reports and archives of manufacturing firms listed by the Nigeria Stock exchange (NSE) for the study period (2008-2018). The period is a recent period that witnesses significant economic and political developments. The world economic meltdown of 2007/2008, oil boom period of 2011-2013, Nigeria's recession of 2014-2016 due to the collapse in crude oil prices, and different elections that produced three different democratically elected governments are a few examples. According to the Nigeria Stock Exchange Fact Book (2018), there are 63 firms in the five (5) sub-sectors of the manufacturing industry.

Manufacturing firms are significantly involved in the production and distribution of goods that are used by a significant number of the masses making it one of the critical industries in the Nigerian economy. Besides, the firms share a similarity in assets and liabilities. Quoted firms are selected because they are legally expected to publish their annual reports which provide reliable and valid data for any empirical investigation.

The judgmental sampling technique was used to select 42 firms for the study. Judgmental or purposive sampling technique gives the researcher the opportunity to select sample elements or representatives of the population that will best provide reliable and valid information to answer the research questions and meet research objectives. In this study, not all the 63 firms (study population) provide reliable and valid data, particularly, data regarding the exogenous variable (business subsidiaries and segments), that is required to make a reasonable conclusion. Besides, some of the firms are not listed within the study period (2008-2018). Thus, 9 firms that are not listed within the study period and 12 firms without required data for the study are automatically excluded from the study while the remaining 42 constituted the sample size for the study.

The reliability and validity of data are functions of the method by which the data were collected and the source otherwise known as the Authority or Reputation of the source (Dochartaigh, 2002). Thus, the Nigerian Stock Exchange (NSE) that authored the fact book from which the data for the study was sourced is an authorized body that provides valid and reliable information on listed firms in Nigeria.

The study uses two sets of variables, that is, the exogenous and endogenous variables. Endogenous variables (dependent variables) are proxies as Return on Assets (ROA), Return on Equity (ROE) and Return on Capital Employed (ROCE). The use of more than one measure of performance increases robustness and prior studies advocated for multiple measures of performance (Naman & Slevin, 1993; Signaw, Simpson & Baker, 1998). ROA is frequently used

for financial performance in prior studies (Wang & Chang, 2006; Ernest & Jooh, 2010; Adamu, Zubairu, Ibrahim, & Ibrahim, 2011); and is the ratio of net income (income available to common stockholders) to the book value of total assets; ROE is the ratio of net income (income available to common stockholders) to stockholders' equity, and ROCE is the ratio of profit before interest and tax to total assets less current liabilities.

$$ROA = \frac{\text{Profit Before Interest and Tax}}{\text{Total Assets}} \times 100$$

$$ROE = \frac{(\text{Profit After Tax})}{\text{Share capital + Reseraves}} \times 100$$

$$ROE = \frac{\text{Profit Before Interest and Tax}}{\text{Total Assets - Total Liabilities}} \times 100$$

The exogenous variables (independent variables) in this study are subsidiaries diversification and business segments diversification. Wiersema and Beck (2017) opine that diversification has been measured using categorical measures (such as the Wrigley/Rumelt typology), discrete count measure (the number of businesses in which the firm operates), and continuous measures such as the concentric index and the entropy measure. In this study, the discrete count measure is used where diversification is measured in terms of the number of businesses the firms are operating (subsidiaries and segments). While subsidiaries diversification is proxy by the total number of subsidiaries owned by firms, business segments are measured by the total number of business segments owned by firms.

The study uses both descriptive and inferential statistics to present and analyze data through Structural Equation Model (SEM) as used by prior studies (Gammelgaard, et al., 2012; Vernaik, Midgley & Devinney, 2005; Fey, Morgulis-Yakushev, Park, & Bjorkman, 2009). This method is preferred by the researcher because it estimates

the multiple and interrelated dependence in a single analysis and it also allows the use of more than one dependent variable. Descriptive analysis is used to compute the mean, standard deviation, minimum and maximum values of both the endogenous and exogenous variables of the study; correlation (Bivariate) analysis is used to explain the association between endogenous and exogenous variables; and Partial Least Squares (PLS) is used to investigate the impact of the exogenous variables on the endogenous variables and to test the hypotheses. PLS technique is used in two ways, namely, measurement model evaluation and structural model evaluation; resulting in two sets of linear equations: an inner model that specifies relationships between latent variables, and an outer model analyzing relationships between the latent variables and associated manifest variables. This permits the simultaneous analysis of the path coefficients between latent variables, and the path coefficients between these variables and their constructs (measurements) (Fey et al. 2009). This allows for an assessment of the reliability and validity of the measurement model, as well as an assessment of the structural model. Finally, the PLS method is effective in guarding against inadequacies, such as skewed distributions of manifest variables, multicollinearity within blocks of manifest variables and between latent variables, and omissions of data (Cassel, Hackl, & Westlund, 1999). The Model Specification for PLS equation is given below:

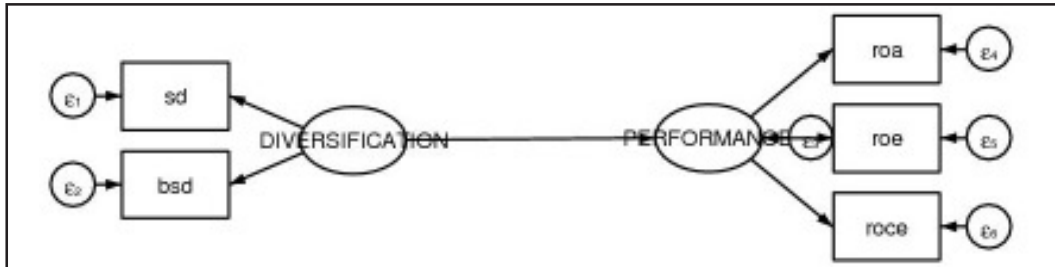
$$ROA = \beta_0 + (SD)_1 \beta_1 + (BSD)_2 \beta_2 + \epsilon_i \quad \dots 1$$

$$ROE = \beta_0 + (SD)_1 \beta_1 + (BSD)_2 \beta_2 + \epsilon_i \quad \dots 2$$

$$ROCE = \beta_0 + (SD)_1 \beta_1 + (BSD)_2 \beta_2 + \epsilon_i \quad \dots 3$$

Where \hat{a} = beta, ROA= Return on Assets, ROE= Return on Equity, ROCE= Return on Capital Employed, SD= Subsidiaries diversification, BSD= Business segments diversification and ϵ = Error term

Figure 1: Research Model



Source: Researcher Computation using STATA 13.0 (2019)

In order to assess the validity of the measurement model, this study used the criterion suggested by Ali, Liu and Niazi (2017), and Andreev, Heart, Maoz, and Pliskin (2009). Thus, the study checked with satisfactory results reflective indicators such as item reliability, variable reliability, convergent validity, and discriminant validity. Thus, Andreev, et al., (2009) suggested that the variable reliability of formative indicators should be performed through a test of Variance Inflation Factor (VIF).

A Variance Inflation Factor (VIF) test was conducted with a minimum mean of 1.61 (see table 4.2) to determine the presence of the collinearity problem.

Results and Discussions

This study analyses the data set through STATA 13.0, and structural equation modeling based on path analysis. Different tables are used to present the study descriptive statistics, correlation matrix and model estimates.

Table1: Descriptive Statistics

Variable	Obs	Mean	Std. dev.	Min	Max
ROA	462	0.0387	0.1814	-1.8895	0.6756
ROE	462	1.6647	32.4727	-20.877	697.011
ROCE	462	0.0698	0.3815	-3.779	1.1312
SD	462	1.6277	3.7820	0	24
BSD	462	3.0022	2.1409	1	14

Source: Researcher Computation using STATA 13.0 (2019)

Table 1 explains the summary of descriptive statistics of all the variables of the study. The results show the average performance of 0.03K, N1.66K, and 0.69K; minimum of N-1.89K, N-20.88K, N-3.78K; and maximum of 0.68K, N697, and N1.13K for ROA, ROE, and ROCE respectively. This is an indication that all the firms have experienced a different level of performance. The average performance of the firms indicates an increase in the financial performance of the firms in which the study is measuring over the study period. The standard deviations for ROA, ROE, and ROCE are 0.18, 32.47 and 0.38

respectively. This shows that only ROE has significant variation from the standard among the three financial performance constructs used. Similarly, SD and BSD have averages diversification of 1.63 and 3.00; minimum of 0.00, and 1.00 as well as a maximum of 24 and 14 respectively. This is an indication of significant evidence of subsidiaries and business segments diversification of the sample population. The standard deviations of 3.7820 and 2.1409 for SD and BSD respectively show a significant variation between SD and BSD from the standard among sampled quoted manufacturing firms.

Table 2: Correlation Matrix

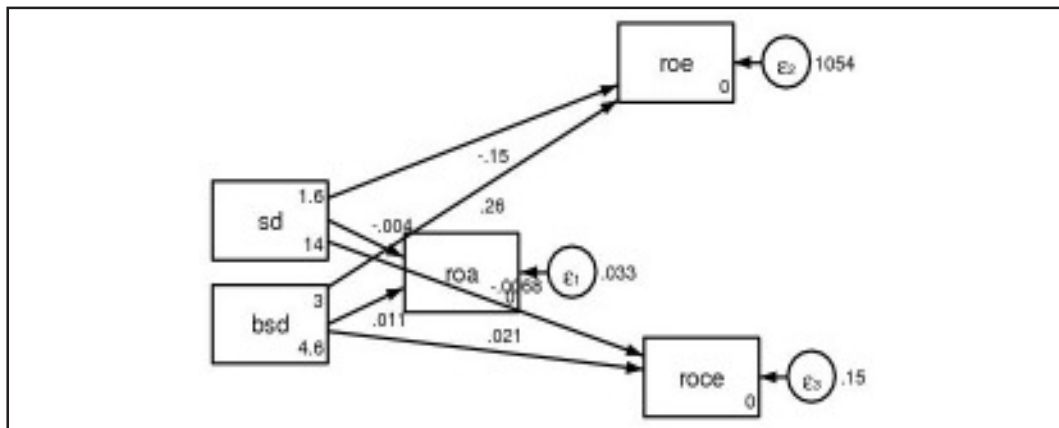
	ROA	ROE	ROCE	SD	BSD	VIF	R ²	Aj R ²
ROA	1.0000						0.10	0.011
ROE	0.7136	1.0000					0.02	0.002
ROCE	0.9871	0.7157	1.0000				0.09	0.008
SD	-0.127	-0.1599	-0.1193	1.0000		1.61		
BSD	-0.019	-0.0453	-0.0158	0.2791	1.0000	1.61		

Source: Researcher Computation using STATA 13.0 (2019)

Table 2 represents the correlation matrix of each variable. The result shows that all endogenous variables (ROA, ROE, and ROCE) have a positive and strong relationship between themselves, but a negative and weak relationship with all the explanatory or exogenous variables (SD and BSD). This indicates that the endogenous

variables represent the same financially viable phenomenon and that there are inverse relationships between subsidiaries and business segments diversification and financial performance of the quoted manufacturing firms in Nigeria. The results also show that there is a positive and weak relationship between the two exogenous variables (SD and BSD).

Figure 2: Estimated Analysis



Source: Researcher Computation using STATA 13.0 (2019)

Table 3: Model Estimates

Beta	Relationship	Coefficient	z-value	p-value
$\hat{\alpha}_1$	SD -> ROA	-0.0040	1.48	0.139
$\hat{\alpha}_1$	SD -> ROE	-0.1453	-0.30	0.764
$\hat{\alpha}_1$	SD -> ROCE	-0.0068	-1.19	0.233
$\hat{\alpha}_2$	BSD -> ROA	0.1131	3.73	0.000
$\hat{\alpha}_2$	BSD -> ROE	0.2553	0.47	0.636
$\hat{\alpha}_2$	BSD -> ROCE	0.0206	3.24	0.001

Source: Computation using STATA 13.0

Table 3 shows the list of coefficients ($\hat{\beta}$) along with t-values and significance value (P) for the period of 2008 to 2018 for the three- models. Beta 1 ($\hat{\beta}_1$) specifies the beta and coefficients of the independent variable (SD) used for the performance variable (ROA, ROE, and ROCE). Beta 2 ($\hat{\beta}_2$) specifies beta and coefficients of the second independent variables (BSD) for performance variables (ROA, ROE, and ROCE). The results show that a 1% increase in Subsidiaries' diversification results to 0.4%, 14% and a 0.6% decrease in financial performance variables (ROA, ROE & ROCE). Similarly, a 1% increase in business segment diversification results in a positive increase of 11%, 25% and 2% of ROA, ROE, and ROCE respectively.

The table also shows that subsidiaries' diversification has no significant effect on the three performance variables (ROA, ROE, and ROCE) as the p-values (0.139, 0.764 and 0.233) are more than the 5% level of significance. Therefore, the study accepts the statements of the hypothesis that subsidiaries diversification does not have a significant effect on the financial performance of quoted manufacturing firms in Nigeria. On the contrary, the results also show that business segments' diversification p-value against financial performance (0.000 and 0.001) are significant at 5% for ROA and ROCE. Thus, the study rejects the hypothesis that business segment diversification has no significant effect on the financial performance of quoted manufacturing firms in Nigeria.

The findings imply that while the financial performance of quoted manufacturing firms in Nigeria wouldn't be significantly affected by subsidiaries diversification, business segments diversification would considerably influence the financial performance (measured by ROA and ROCE) of quoted manufacturing firms in Nigeria. The result is in line with the findings of Tetteh and Okantey (2016) and Gammelgaard, et al., (2012) which found negative and insignificant effects of subsidiaries diversification on the financial performance of firms. However, Guo & Cao (2012) study found a positive and significant relationship between firms with different

diversifying degrees (multiples industries by business segments) and financial performance. Tanriverdi and Lee (2008) also found that related diversification in terms of business segments improves sales growth and market share.

Conclusion and Recommendations

Base on the findings, the conclusion is that while diversification through the creation of subsidiaries would not have a positive and significant impact, diversification through establishing business segments might have a positive and significant impact on the financial performance of quoted manufacturing firms in Nigeria. The study, therefore, recommended that quoted manufacturing firms in Nigeria should strategically increase their expansion through establishing different business parts that are fully integrated within the main company with no legal distinction but with different products and/or geographical locations identity (business segments). It is also recommended that quoted manufacturing firms in Nigeria should be selective in adopting diversification through the creation of subsidiaries to maintain and improve superior financial performance.

Reference

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