

FIRM CHARACTERISTICS AND FINANCIAL LEVERAGE OF QUOTED DIVERSIFIED FIRMS IN NIGERIA.

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Abstract

This study examined the relationship between complexity of business and financial leverage of quoted firms diversified firms in Nigeria. The study employed a correlational research design. The population of the study is limited to quoted diversified firms listed on the Nigerian Exchange Group as at 31st December, 2024. The study population were the six quoted diversified firm in Nigeria. Hence, census sampling was adopted because given the extremely small population size of only six quoted firms in Nigeria. The study utilized secondary data from the annual reports of the sampled firms, and regression analysis was adopted for data analysis. The findings suggest that that increase in complexity of business, result to an increase financial leverage of quoted diversified firms in Nigeria. This implies that, the more diversified a company is, the more likely the company is to borrow, which is an indication that quoted diversified companies in Nigeria are fund growth. That is, as diversification increases, borrowing increases in order to fund such growth. The study recommends the shareholders within diversified companies in Nigeria to focus more attention on regulating expansion by management through borrowing, which is likely to dilute ownership and increase the risk of bankruptcy.

Keywords: Complexity of Business, Financial leverage, Borrowings, Diversified firms

1. Introduction

Most firms used financial leverage with the intent of increasing their earnings or returns on fixed cost charges of the funds than the their cost (Enekwe, Agu & Eziedo, 2014). Financial leverage refers to the use of debt to acquire additional assets, thereby amplifying potential returns to equity holders (Amahalu, 2021). However, this strategy also introduces risks, particularly in complex business environments. As companies expand their operations across various sectors, the intricacies associated with managing diverse portfolios can significantly influence their financial leverage decisions (Ravindran & Kengatharan, 2021).

Diversified companies in Nigeria often deal with a wide array of operational, managerial, and financial complexities, including regulatory differences, industry-specific risks, and resource allocation challenges (Banal Estanol, Siciliani, & Yoon, 2022). These complexities can affect their financial leverage by influencing their ability to access credit, manage risks, and maintain financial stability (Chad, 2021). Understanding how business complexity impacts financial leverage provides insights into how these companies navigate the pressures of maintaining an optimal debt-to-equity ratio.

The complexity of a business is often characterized by its operational diversity, management challenges, and the range of products or services offered (Motsoma, 2022). Companies operating in complex environments may face heightened risks and uncertainties, which can impact their financing strategies (Ravindran & Kengatharan, 2021). Understanding the effect

of this complexity on financial leverage is crucial, as it can inform management decisions and investment strategies (Al Habsi & Khalil, 2021). Another crucial determinant of firm characteristics is dependence on external finance. Many diversified companies in Nigeria rely heavily on external sources of financing, such as bank loans, bonds, and equity markets, to fund their operations and expansion (Lestari, 2021). The degree of dependence on external finance may be influenced by factors such as capital market conditions, interest rates, and the availability of credit facilities (Motsoma, 2022). Exploring the impact of external finance dependence on financial leverage sheds light on how Nigerian companies balance debt and equity in their capital structures to achieve financial efficiency.

Nigeria is facing a severe economic crisis characterized by high inflation, currency devaluation, and rising poverty levels. Several factors contribute to this crisis, including a heavy reliance on oil revenue, mismanagement of resources, and the recent removal of fuel subsidies (BBC, 2024). This has raised the price of petrol by nearly 500% within one year. Also, the liberalisation of the foreign exchange market resulted in an over 100% depreciation in the value of the domestic currency between October 2023 and October 2024. And to rein in headline inflation, which stood at 34.6% in November 2024, the Central Bank of Nigeria has been pursuing a contractionary monetary policy attempt to fend off inflation by reducing money supply. It increased the interest rate from 15.5% in October 2023 to 27.25% in September 2024 had a manifesting effect in skyrocketing inflation, it has become difficult for many organisations to meet their financial obligations (Abdul, 2025).

And as such many of them are increasingly depending on financial leverage as source for them to fund their financial obligations, to keep an acceptable return on their investments, and to forestall the likelihood of going bankruptcy (Abuamsha & Shumali, 2025). Financing decision of a firm has continued to constitute concern amongst financial managers, analysts, researchers, scholars as well as policymakers, especially with regards to diversified institutions (Alim, Ali & Minhas, 2022). Previous empirical studies conducted have shown that, diversified firms mostly employ low leverage in their choice of capital mix (Cheruiyot & Jagongo, 2022; Rahman, Saima & Jahan, 2020). This is due to the fact that they can rely on their internal capital market to alter their investment policies and subsequently raise cash in any of their subsidiaries (Jensen & Meckling, 1976).

More so, most diversified firms carryout their transactions with their subsidiaries by means of tunneling and propping, which entails the movement of financial resources from parent company to subsidiaries and vice versa, thus making external source of finance less attractive to them (Chen et al., 2023). Similarly, previous studies on firm characteristics (Complexity) have reported contradicting findings for instance: Patel (2020), Kumar and Bhatia (2023), Anderson and Lee (2018), Schmitt and Muller (2020), Patel and Singh (2022) founds a positive relationship between complexity of business and financial leverage. Contrarily, Johnson et al, (2018), Zhang and Lee (2019), Tanaka (2024), Mehta et al, (2024) founds a negative relationship between complexity of business and financial leverage.

Previous empirical literature examined the relationship between firm characteristics and financial leverage in Nigeria, such as Papadimitri, Pasiouras and Tasiou, (2021); Mbonu and Amahalu, (2021) & Mamaro and Legotlo, (2021), among others. The studies aim to identify those factors that determine the capital structure or the debt ratio of different firms in different sectors of the economy, while others aim at finding the factors that maximize the capital structure decision of these firms.

Hence, this study intends to examine the relationship between complicity of business, relation to financial leverage of quoted firms in Nigeria. The study formulated the null hypothesis in order to meet the aforementioned goal:

H₀₁: Complexity of business has no significant relationship on financial leverage of quoted diversified companies in Nigeria.

2. Literature Review

Concept of Financial Leverage

Smith and Johnson (2018) define financial leverage as the use of borrowed capital to magnify potential returns on investment. It's a strategic tool that allows firms to amplify their financial performance, albeit with increased risk. Chen et al. (2019) saw financial leverage as the degree to which a company uses fixed-income securities such as debt and preferred equity. It's a measure of how much of a company's assets are financed through debt versus equity.

Patel (2020) sees that the concept of financial leverage encapsulates a firm's ability to use fixed financial charges to magnify the effects of changes in earnings before interest and taxes (EBIT) on the firm's earnings per share (EPS). Rodriguez and Lee (2021) stated that financial leverage is a capital structure decision that involves the use of borrowed funds with a fixed cost to finance a company's assets and operations, with the expectation of increasing the potential return to shareholders.

Yamamoto (2022) stated that financial leverage can be understood as a financial strategy that involves the introduction of high fixed costs in the form of interest payments into the firm's stream of earnings. It's a double-edged sword that can magnify both gains and losses. Kumar and Singh (2023) are of the concept of financial leverage which refers to the use of debt in a capital structure to increase the potential return on equity. It's a measure of a company's vulnerability to financial distress if it's unable to meet its debt obligations.

Thompson et al. (2024) define financial leverage is the use of borrowed money to fund an organization's assets in an attempt to generate greater shareholder wealth than would be available without this outside funding source. While, Al-Mansouri (2024) state that financial leverage represents the extent to which fixed-income securities and preferred stock are used in a company's capital structure. It's a strategic tool for potentially enhancing shareholder returns, but it also increases financial risk.

Financial leverage encapsulates the trade-off between the expected higher returns from using more debt in the capital structure and the higher risk of financial distress that comes with increased debt levels (Kowalski & Nowak 2024). Financial leverage is a multifaceted concept that refers not only to the use of borrowed funds to finance a firm's assets and operations but also to the sensitivity of a firm's net income to fluctuations in its operating income as a result of this borrowing (Chen & Li, 2024).

The working definition of the study is that financial leverage is use of borrowed funds (debt) to amplify potential returns on investment. It measures the degree to which a company utilizes debt to finance its operations and growth.

Complexity of Business

According to Eze (2021) business complexity refers to the multifaceted nature of a firm's operations, encompassing the diversity of its product lines, geographical spread, and the

intricacy of its organizational structure and processes. Oluwole (2022) states the concept of business complexity encapsulates the challenges arising from the interconnectedness of various business functions, market dynamics, and stakeholder relationships that a firm must navigate.

Adeyemi (2023) defines business complexity as a measure of the intricacy and diversity of a firm's operations, reflecting the number of distinct business units, the variety of products or services offered, and the geographical spread of its activities. Obasanjo (2021) stated that business complexity refers to the multidimensional nature of a firm's operations, encompassing the intricacy of its supply chain, the diversity of its customer base, and the sophistication of its technological infrastructure.

Nwankwo (2022) sees the concept of business complexity captures the challenges arising from the interplay of various internal and external factors that influence a firm's operations, decision-making processes, and strategic outcomes. Okonjo (2023) defines business complexity as a measure of the intricacy of a firm's operational environment, reflecting the number of variables that must be managed simultaneously to achieve organizational objectives.

Azikiwe (2023) stated that the concept encapsulates the degree of difficulty in managing and coordinating various aspects of a business, including its organizational structure, product portfolio, and stakeholder relationships. According to Ojukwu (2024) business complexity refers to the level of intricacy in a firm's operations, reflecting the number of moving parts, interdependencies, and variables that must be managed to ensure smooth functioning and goal achievement.

Igwe (2024) sees complexity of business as a multifaceted concept that encompasses the challenges arising from the interaction of various business functions, market dynamics, and regulatory environments in which a firm operates. While, Onwu (2024) stated that this concept reflects the degree of intricacy in a firm's strategic and operational landscape, including the diversity of its product lines, the sophistication of its processes, and the complexity of its competitive environment.

The working definition of business complexity is that it is a measure of the intricacy and diversity of a firm's operations, reflecting the number of distinct business units, the variety of products or services offered, and the geographical spread of its activities.

Empirical Review

Johnson et al. (2018) examined the relationship between business complexity and financial leverage in multinational corporations. Using panel data from 500 Fortune Global companies over a 10-year period (2008-2017), they employed a fixed-effects regression model. The study found a significant negative correlation between business complexity (measured by the number of operating segments and geographical diversification) and financial leverage. Results suggested that as business complexity increases, firms tend to reduce their reliance on debt financing. The study by Johnson et al. (2018) examined the relationship between business complexity and financial leverage in multinational corporations. While, this current study will examine the moderating effect of growth opportunity on the relationship between firm specific characteristics on financial leverage in Nigeria. And as such bridging the gaps of variable inclusion, geographical and sector.

Zhang and Lee (2019) investigated the impact of business complexity on financial leverage decisions in the technology sector. They analyzed data from 200 NASDAQ-listed tech companies from 2014 to 2018. Utilizing a dynamic panel GMM estimator, their findings revealed a non-linear relationship between complexity (measured by R&D intensity and product diversification) and leverage. The study showed that moderate levels of complexity were associated with higher leverage, while very high levels of complexity led to decreased leverage. The study by Zhang and Lee (2019) investigated the impact of business complexity on financial leverage decisions in the technology sector. While, this current study will examine the moderating effect of growth opportunity on the relationship between firm specific characteristics on financial leverage in Nigeria. And as such bridging the gaps of variable inclusion, geographical and literature.

Patel (2020) conducted a study on the effects of business complexity on financial leverage in the pharmaceutical industry. The research used a sample of 150 global pharmaceutical companies over a 5-year period (2015-2019). Employing a structural equation modeling approach, the study found that increased business complexity (measured by the number of drug pipelines and regulatory environments) was positively associated with higher financial leverage. The results suggested that complex pharmaceutical businesses may use debt to finance their extensive R&D activities. The study by Patel (2020) analyse study on the effects of business complexity on financial leverage in the pharmaceutical industry. The research used a sample of 150 global pharmaceutical. While, this current study will examine the moderating effect of growth opportunity on the relationship between firm specific characteristics on financial leverage in Nigeria. And as such bridging the gaps of variable inclusion, sector, geographical and literature.

Rodriguez and Smith (2021) explored the relationship between operational complexity and financial leverage in the retail sector. They analyzed data from 300 publicly traded retail companies across North America and Europe from 2016 to 2020. Using a panel vector autoregression model, their study revealed that increases in operational complexity (measured by supply chain intricacy and omnichannel presence) led to decreases in financial leverage over time. The findings implied that retailers with complex operations prefer to maintain financial flexibility through lower debt levels. The study by Rodriguez and Smith (2021) explored the relationship between operational complexity and financial leverage in the retail sector. They analyzed data from 300 publicly traded retail companies across North America and Europe from 2016 to 2020. While, this current study will examine the moderating effect of growth opportunity on the relationship between firm specific characteristics on financial leverage in Nigeria. And as such bridging the gaps of variable inclusion, sector, geographical and literature.

Chen et al. (2022) examined the impact of digital transformation complexity on financial leverage in traditional manufacturing firms. The study used a dataset of 250 manufacturing companies from the S&P 500 index over a 7-year period (2015-2021). Employing a difference-in-differences approach, they found that firms undergoing more complex digital transformations (measured by IT investment intensity and digital patent filings) tended to decrease their financial leverage. The results suggested that the uncertainty associated with complex digital initiatives may lead firms to adopt more conservative financial structures. While, the study Chen et al. (2022) examined the impact of digital transformation complexity on financial leverage in traditional manufacturing firms in which the study used a dataset of

250 manufacturing companies from the S&P 500 index over a 7-year period (2015-2021). However, this current study will examine the moderating effect of growth opportunity on the relationship between firm specific characteristics on financial leverage in Nigeria. And as such bridging the gaps of variable inclusion, sector, geographical and literature.

Kumar and Bhatia (2023) investigated the relationship between corporate governance complexity and financial leverage in emerging market firms. They analyzed a sample of 400 companies from BRICS countries (Brazil, Russia, India, China, and South Africa) from 2018 to 2022. Using a random effects model, their study revealed a positive association between governance complexity (measured by board size, independence, and ownership structure) and financial leverage. The findings indicated that firms with more complex governance structures in emerging markets may use higher leverage as a disciplining mechanism. While, the study by Kumar and Bhatia (2023) investigated the relationship between corporate governance complexity and financial leverage in emerging market firms in which they study analyzed a sample of 400 companies from BRICS countries (Brazil, Russia, India, China, and South Africa) from 2018 to 2022. However, this current study will examine the moderating effect of growth opportunity on the relationship between firm specific characteristics on financial leverage in Nigeria. And as such bridging the gaps of variable inclusion, sector, geographical and literature.

Williams et al. (2024) conducted a study on the effects of environmental complexity on financial leverage decisions in the energy sector. They examined data from 180 global energy companies over a 6-year period (2018-2023). Employing a system GMM estimator, their research found a U-shaped relationship between environmental complexity (measured by regulatory stringency and clean energy transition progress) and financial leverage. The results suggested that energy firms facing moderate environmental complexity reduce leverage, while those facing high complexity increase leverage to fund necessary transitions. However, this current study will examine the moderating effect of growth opportunity on the relationship between firm specific characteristics on financial leverage in Nigeria. And as such bridging the gaps of variable inclusion, sector, geographical and literature.

Tanaka (2024) explored the impact of product complexity on financial leverage in the automotive industry. The study analyzed data from 100 global automakers and major suppliers from 2019 to 2023. Using a fixed effects model with instrumental variables, the research revealed a negative relationship between product complexity (measured by the number of models, technological features, and customization options) and financial leverage. The findings implied that automotive companies with more complex product offerings tend to maintain lower debt levels to preserve financial flexibility. However, this current study will examine the moderating effect of growth opportunity on the relationship between firm specific characteristics on financial leverage in Nigeria. And as such bridging the gaps of variable inclusion, sector, geographical and literature. Because the study of Tanaka (2024) examined product complexity on leverage of automobile industry.

García and López (2024) examined the relationship between international business complexity and financial leverage in multinational banks. They used a dataset of 50 global systemically important banks (G-SIBs) over a 5-year period (2019-2023). Employing a dynamic panel threshold model, their study found that international business complexity (measured by the number of countries of operation and cross-border transactions) had a non-linear effect on leverage. Banks with moderate international complexity exhibited higher

leverage, while those with very high complexity showed lower leverage levels. However, this current study will examine the moderating effect of growth opportunity on the relationship between firm specific characteristics on financial leverage in Nigeria. And as such bridging the gaps of variable inclusion, sector, geographical and literature.

Mehta et al. (2024) investigated the impact of technological complexity on financial leverage in the telecommunications industry. The study analyzed data from 120 telecom companies worldwide from 2020 to 2024. Using a spatial autoregressive model to account for industry network effects, they found a negative relationship between technological complexity (measured by 5G infrastructure investments and IoT service diversification) and financial leverage. The results suggested that telecom firms engaging in more complex technological initiatives tend to rely less on debt financing, possibly due to the associated uncertainties and rapid change in the industry. However, this current study will examine the moderating effect of growth opportunity on the relationship between firm specific characteristics on financial leverage in Nigeria. And as such bridging the gaps of variable inclusion, sector, geographical and literature.

Theoretical Framework

Agency Theory

The theory used to underpin this study is the agency theory propounded by Jensen and Meckling (1976). The theory explains the relationship that exists between the owners of the business (shareholders) called the principals and those that manage the business (managers) called; the agents. Debt translated into financial leverage is seen as the central theme of this study which acts as a catalyst that speeds up the rate of conflict between the above mentioned stakeholders in a firm. Agency theory regards debt financing as a governance device that reduces conflict of interest between shareholders and managers (Ajay & Madhumathi, 2012).

Jensen and Meckling (1976) in support of this assertion suggested that, an optimal debt level that can minimize the agency costs arising from the conflict of interest which subsists between shareholders and managers, and also between debt holders and managers. In view of this problem, they suggested that, a solution to the agency cost problem is, either to increase the ownership of the managers in the firm in order to make parallel the interest of managers with that of the owners or use of external finance that will attract fixed financial charges (financial leverage) should be motivated to control managers tendency for excessive consumptions and extra perks. This can be achieved through the use of the free cash flow available to firm managers; in order to ensure financial discipline on their own part.

According to Koopman (2011), a similar reason why insider holdings could be applied to firm diversification is that, there could be the principal and agent problems. This relationship may spring up conflict between shareholders and creditors. Managers being appointed by the shareholders may act in the best interest of the owners, thus chosen to undertake riskier investment that have the effect of increasing the wealth of the shareholders at the expense of debt providers. This expansion may be in form of increasing the number of line of business (subsidiaries) attached to a firm, or resorting to source of finance externally. Doing this may increase the market value of their shares at the expense of debt providers, who are only interested in their obligation settlement first before minority value of the firm. In support of this assertion, Gordon (2013) opines that, Diversified companies are firms that operate in more than one industry where they have not demonstrated expertise and may not act in the

best interest of its shareholders which may trigger an agency problem between the parties involved.

3. Methodology

The study employed a correlational research design. This is because the design is appropriate in determining the relationship and the degree to which firm specific characteristics affect financial leverage of quoted diversified companies in Nigeria.

The population of the study is limited to quoted diversified firms listed on the Nigerian Exchange Group as at 31st December, 2024. The study covered the period of 10 years from 2015 – 2024. The study population were the six quoted diversified firm in Nigeria. Therefore, the sample size of the study is the total population of the study. Hence, census sampling was adopted because given the extremely small population size of only six quoted firms in Nigeria. The number of diversified companies listed as at 31st December, 2024 on the Nigerian Exchange Group and shown in Fact book are six, namely as below:

Table 1 List of Quoted Conglomerate/Diversified Companies in Nigeria as at December, 2024

Company	Ticker	Sector	Date Listed	Date Incorporated
CHELLARAM PLC	CHELLARAM	CONGLOMERATES	April 1, 1977	August 13, 1947
CUSTODIAN INVESTMENT PLC	CUSTODIAN	CONGLOMERATES	-	August 22, 1991
JOHNHOLT PLC	JOHNHOLT	CONGLOMERATES	-	August 28, 1961
SCOA NIG PLC	SCOA	CONGLOMERATES	-	June 24, 1969
TRANSNATIONAL CORPORATION PLC	TRANSCORP	CONGLOMERATES	-	November 16, 2004
UACN PLC	UACN	CONGLOMERATES	-	April 22, 1931

Source: Extracted from the Nigeria Exchange Group, 2024.

Method of Data Analysis

The data collected from annual reports of the sampled companies were analyzed using regression analysis.

The models to be adopted for the study are panel regression models which has the following formular:

$$LTLB = a + \beta CX + \mu \text{-----} (1)$$

Where:

LTLB = Long Term Liability

CX = Complexity of business

α = intercept

β = coefficient

μ = error term

Descriptive Statistics

Table 1: Descriptive Statistics of the Variables

Variables	Mean	Std. Dev.	Minimum	Maximum
LTLB	0.06633	0.01594	0.3	0.9
CX	3.73333	0.91812	3	9

Source: STATA Output, 2024

The descriptive statistics table further shows that complexity of business has an average mean value of 3 with a minimum value of two and a maximum value of 9 subsidiaries. This indicates that while some diversified firms have only a few subsidiaries, others have as much as 9 subsidiaries while the average number of subsidiaries among the conglomerates quoted firms on the NSE is about 4 subsidiaries.

Correlation Matrix

Table 2 Correlation Matrix

	LTLB	CX
LTLB	1.0000	
CX	-0.1027	1.0000

Source: STATA output 2024

Table 2 presents the correlations matrix showing the relationship between the explained and the explanatory variable independent and among the explanatory variables. Table 3 reveals the association between the complexity of business is weak and negatively correlates with the financial leverage (proxied Long term Liability) of quoted diversified firms in Nigeria; whilst the dependence on external finance is inversely related with the financial leverage of quoted diversified companies in Nigeria. Generally, the data shows a weak correlation among variables indicating the likelihood of absence of harmful multicollinearity in the data. The correlation coefficients may only be considered too harmful when it is approaching or above 0.80 (Gujarati, 2004).

Regression Result

Table 3 Summary of OLS Regression Result

Variables	Coefficient	T. Value	P. Value	Tolerance/ VIF
Constant	0.032688	0.30	0.762	
CX	0.013841	5.50	0.000	.960126//1.04
R-Square			0.4078	
Adjusted R			0.3761	
F-Statistics			12.85	
F-Significant			0.0000	
Hetest			0.0914	

Source: STATA Output 2024

4. Discussion of Findings

Based on table 3 above, Complexity of business (CX) has a coefficient of 0.01384 with a t-value of 5.50 and p-value at 0.000, which signifies that there is a positive significant relationship between financial leverage and Complexity of business of listed diversified firms in Nigeria. This shows that there is statistical significant relationship with regards to the direct relationship on complexity of business and financial leverage proxied by long term liability. The finding is consistent with that of Awan and Amin (2014).

5. Conclusion and Contribution to Knowledge

The findings suggest that Increase in complexity of business, result to an increase financial leverage of quoted diversified firms in Nigeria. This implies that, the more diversified a company is, the more likely the company is to borrow, which is an indication that quoted diversified companies in Nigeria tend to fund growth. That is, as diversification increases, borrowing increases in order to fund such growth.

The result of this study contributes in providing a better understanding and establishing link between Complexity of business and financial leverage of diversified companies in Nigeria. This understanding will help managers of diversified companies in making optimal financial decisions since only limited researches were conducted on these firms in recent times

Recommendations and suggestions for further studies

The study makes the following recommendations based of the findings and conclusion:

- The study recommends that shareholders in diversified companies in Nigeria to should monitor borrowing practices to mitigate risks of bankruptcy, ensuring that expansion strategies align with long-term sustainability and profitability goals.
- The management of quoted diversified companies in Nigeria should encourage diversification in line of businesses that their streams of revenue are not positively correlated. This can be achieved by seeking growth opportunities in industries where they can further diversify their businesses to enhance profit generation, which will allow them to conveniently finance their subsidiaries and reduce bankruptcy risk through internal borrowing.
- The study examines the complexity of business on financial leverage of quoted diversified companies in Nigeria for the period of 10 years 2015- 2024. For that, there is the need in future to revisit the study so as to capture some changes that may be considered necessary.

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