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C-Suite Bias, Firm Characteristics, and Capital Structure Decisions of Quoted Industrial Firms in Nigeria

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Abstract

Most people exaggerate their own skills and accomplishments, which can have disastrous results. The C-suite has a tremendous impact on business choices, as decisions made in the workplace can be skewed by unconscious prejudice, and this bias can have negative consequences. Therefore, this study explores C-suite bias, firm characteristics, and capital structure decisions of quoted industrial goods firms in Nigeria. Data from 2002 to 2020 was used in an ex-post-facto research design while pooled OLS was used for analyses. The study found that C-suite tenure had a favourable influence on capital structure, suggesting that the duration during which C-suite executives govern their firms' affairs has a beneficial effect on the capital structure decisions. Therefore, the study advances that corporations should enable C-suite members to serve for a longer period of time; because the longer they remain at the helm of the company's affairs, the better their capital structure decisions.

***Keywords*:** C-suites, Behavioural Accounting, Capital Structure, Biases, Overconfidence

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Introduction

Capital structure decision which is concerned with the capital mix of a company, is evolving. When the economy and business environment were steady, capital mix complexity was minimal. During the industrial revolution, more money was needed to fund manufacturing, hence joint stock firms emerged. The joint stock firm raises funds by selling shares to the public for subscription; investors receive a certificate of ownership as shareholders. Loan capital was also established due to rising demand. Loan capital providers have fixed-interest investments. The interest is tax-deductible and not subject to operational income fluctuations. On the other hand, the introduction of leverage in the form of debt capital into the capital structure of firms is accompanied with the problem of capital mix (Datta et al., 2021). This is unlike where capital of a firm comprises solely of equity capital and retained earnings.

Moreover, the current globalisation era has brought about greater dimensions of complexities into capital structure decisions. This period is characterised by uncertainties, complexities, acute competition, and continuous changes in consumers' taste, and technological change (Balcilar et a., 2019). In Nigeria, the attendant's effects of policy (monetary and fiscal) summersaults, insecurity, weak institutions, poor infrastructure, and bad governance have bedevilled capital financing of firms (Okonkwo et al., 2015; Onime, 2018). Particularly, several Nigerian companies have reportedly experienced decline in performance (International Monetary Fund [IMF], 2021), and this has been attributed to poor capital structure decisions by managers amongst other things (Michael & Babajide, 2021), hence, the choice of the industrial goods sector given their huge share on the market. Further, literature relating to country specific factors affecting capital financing in Nigeria (Haruna et al., 2020; Mbonu & Amahalu, 2021) also reveals that firms' specific characteristics are factors influencing capital structure decisions. Since country specific factors and firms' specific factors affect capital structure decisions, based on the trade-off theory (Tesfaye & Minga, 2013), the proposition of this study is that C-suite (described as top management executives (Nath & Mahajan, 2011)) specific characteristics, particularly C-suite bias is capable of influencing capital structure decisions of firms. Underestimation of the variance of risky processes or the general miscalibration in beliefs is C-suite bias.

This proposition is also premised on the fact that a capital structure decision is strategic in nature, and as such, it is a decision usually made by the board of directors; hence, the traits of the individual members of the board is expected to influence the eventual capital structure decisions. Similarly, C-suites play a crucial role in

estimating future uncertainties, such as cash flows (Feng et al., 2020) and in developing their capital structure policies using those predictions as inputs. This task alone is cumbersome and is made more complicated by the C-suites bias. This psychological evidence suggests that C-suites show bias in forecasting; they often predict too narrow probability distributions (Atoyebi, 2017; Forbes, 2015). This is because they either overvalue their capacity to forecast into the future, or they undervalue the fluctuation of random events. Despite the importance of the subject matter, there are a limited number of empirical studies relating to C-suite bias's impact on capital structure decisions. Due to the control illusion, the lofty promise of desired results, and the comparatively vague performance evaluation benchmark, C-suites are known to be more biased compared to others (Malmendier et al., 2011). Psychologists suggested that C-suites are not entirely rational, which is one of the factors responsible for bias. Given the role of C-suites as the company's top decision-maker and their data accessibility, there is a relationship between the C-suites' managerial features and capital structure decisions (Carpenter, 2011). Although C-suite and inventory management have been linked together (Kim & Na, 2021), there exists a dearth of research on the possible link between C-suite and capital structure decisions.

Previous studies have examined the influence of firms' characteristics on the capital structure decisions in firms (Bolarinwa & Adegboye, 2021; Khan et al., 2020; Panda & Nanda, 2020). Some studies looked at taxes, size of the company, corporate risk, and assets tangibility as possible factors determining the capital structure but ignored C-suites' bias (see Musau, 2017; Turkson et al., 2013; Wagana, 2014). It is evident from the existing studies that there is a dearth of research on how C-suites' bias and firm characteristics affect the decisions on the capital structure of quoted companies in a developing economy like Nigeria, which is Africa's largest economy. Therefore, the objectives of the study are to: (i) examine the effect of firms' characteristics on the decisions regarding the capital structure of quoted industrial companies in Nigeria, and, (ii) assess the effect of C-suites' bias on capital structure decisions of quoted industrial companies in Nigeria.

This study focuses on the listed industrial goods companies from year 2002 to year 2020. The motivation for this research site is based on the recent news that industrial goods firms are running businesses at a loss; the loss which may be connected to high cost of doing business, particularly the cost of financing (IMF, 2021). This is a source of great concern which raises the need for this research with the operationalisation of variables such as of C-suite and tangibility. Findings from

this research contribute to existing capital structure literature through attention paid to the cognitive biases of C-suites which were measured using C-suite age, accounting experience and tenure.

The rest of this paper is organised as follows: the next section discusses the literature review and this is followed by the methodology. The empirical results are presented thereafter, while the last section presents the conclusion of the research together with the theoretical and practical implication of findings, and future research directions.

Literature Review

Capital Structure

Capital structure can be defined as the equity-to-debt ratio. It denotes that an establishment uses some blend of debt and equity to fund its operations (Gurusamy, 2021; Tsai et al., 2010). Nirajini and Priya (2013) and Yildirim (2021) defined capital structure as a financing approach applied by an organisation using a mixture of long-term funds (ordinary and preferential shares, loan stocks debentures, loans, etc.) together with short term obligations, including overdraft and other payables. Lambe (2014) and more recently, Chadha and Seth, (2021) noted that capital structure is a mix of the company's diverse securities used to finance its investment opportunities. There is a resemblance in the definitions above, and the capital structure reflects the equity and debt components used by a firm to fund its operations. The decision about capital structure is the most critical factor for C-suites and owners. This is not an easy task, however, because it entails the wise proportional collection of debt and equity that includes various benefits and costs in the balance between debt-equity components.

C-suites Bias/Overconfidence

According to Svejenova and Alvarez (2017), the C-suite is a phrase that refers to a corporation's senior leadership team or executive committee, and it is a relatively recent term that is experiencing significant transition. Individuals in the C-suite, such as the Chief Executive Officer (CEO), Chief Financial Officer (CFO), Chief Marketing Officer (CMO), Chief Information Officer (CIO), and other business leaders are responsible for determining the strategic direction of the company along with planning and monitoring its execution in the global market (including capital structure decisions) (Wright et al., 2015). As a result, these are some of the most crucial responsibilities in any business.

Bias is a vital, modern concept of behavioural accounting or finance, which has a particular position in psychological and financial theory. Psychologists have defined biased persons as very precise ones who believe their knowledge is superior to others. Bias makes individuals overestimate their skills and knowledge and make them feel that they have control over issues and events over which they may have any control (Baker & Nofsinger, 2010). The continuum of C-suites' traits examined in the literature on corporate finance ranges from education, risk aversion, gender, and childhood experiences, to behavioural biases, engagement escalation, and loss aversion. C-suites' bias can be measured by studying the moments that the Chief Executive Officer (CEO) exercises his options (Malmendier et al., 2019) and secondly by exploring the future estimations of the Chief Financial Officer (Ben-David et al., 2013). C-suites' bias is simply stated as the over-optimistic belief of company executives in future returns, or cash flows, that accrue to their companies (Malmendier & Tate, 2015).

There seems to be a significant explanatory power of C-suites' biases on decisions regarding corporate financing. For example, bias is linked with higher leverage and, uniquely, with short-term debt prioritised (Graham, 2013; Hafizah, 2015). Empirical evidence has shown that personal attributes play a crucial role in decisions on investment, mergers, and financing (Baker & Wurgler, 2013; Wang et al., 2021). The bias of a manager leads to overestimating the probability of a good state and may also result in excessive value-reducing debt levels. This managerial irrationality caused by the C-suite's behavioural biases concerning capital structure decisions leads to a significant challenge to corporate governance. According to Malmendier et al. (2011), biased C-suites are more likely than rational C-suites to make value-destroying decisions. Bias may affect the C-suite's ability to adapt sub-optimal, excessively heavy, and debt-laden capital structure. It can result in C-suites making wholly inadequate information into new proposals, thereby making judgment errors in their decisions regarding the venture(s) to fund (Selody, 2010). However, Huang et al. (2011) believed C-suites' bias is effective in high agency conflict companies. They believed that an optimised corporate governance structure could diminish or eliminate behavioural biases resulting from the over-confidence of the management.

Theoretical Perspectives

Some of the theories that underpin capital structure include the optimal capital theory (Vasilescu, 2010), pecking order theory (Donaldson, 1961), trade-off theory (Tesfaye & Minga, 2013), and decision-making theory (Mogashoa, 2017).

For Myers (1984) and Myers and Majluf (1984), the concept of an optimal capital structure is based on the assumption of asymmetric information. The existence of information asymmetries between a company and the probable providers of finance induces the relative costs of finance to differ from one source to another. For example, an internal source of finance where the fund provider is the company would have more information about the company than new shareholders. Those new equity holders will expect a higher return on investments. This means that issuing new equity shares will cost the firm more than using internal financing. The theory provides a good rationale for why firms would be involved in financial management. Vasilescu (2010) provides substantial evidence by stating that the expected (present value) loss cost will be mirrored in the current market value of a firm if shareholders perceive net loss as a realistic possibility. Furthermore, he states that a right decision on the capital structure that is costless reduces the risk of net loss effectively or reduces those costs to zero, thus increasing the firm's value.

Another perspective from literature is the pecking order theory which stemmed from Donaldson's (1961) hypothesis that company management prefer employing internal financing as a source of new extra funding demand. The theory assumes that funding choice excludes external funding except in some instances where additional funding is needed (Meyers, 1984). Firms often choose internal finance over any form of external funding, according to Serrasqueiro and Caetano (2015), who believe that pecking order theory and trade-off theory are not mutually exclusive. In addition, when companies need external finance, debt is preferred over stock. For example, fresh share offers and debt-for-equity exchange plans, which are linked to a company's downturn in the stock price, suggest that explaining events reduces leverage (debt).

The ability to deduct interest payments from a company's taxable income is a huge benefit of employing debt in the capital structure. As a result, even if the firm would require more money for some reason in the first place, there is a forecasted advantage for enterprises who use debt, as well as the knowledge that debt benefits from tax deductions rather than other methods of external funding. In order for the trade-off theory to work, it must be assumed that the capital structure is governed by the trade-off between benefits and debt costs (Tesfaye & Minga, 2013). Assuming the trade-off hypothesis remains static, more debt should be acquired by firms that generate higher profits, as bankruptcy costs are lower and the predicted tax shield advantages are greater (Kristoffer & Hambusch, 2014). An attempt was made by Kane et al. (1984) to offset the static trade-off theory's shortcoming of being unable to explain the association between strong profitability and low debt ratios.

Managers' tendency to ignore reasonable choices in favour of avoiding losses and framing reliance is best exemplified by the prospect theory. When faced with guaranteed rewards, decision-makers are more inclined to prefer definite outcomes over likely ones, leading to risk aversion and risk-seeking behaviour, respectively (Mogashoa, 2017). One school of thought holds that one's risk aversion develops when risk is perceived as unbeneficial to one's financial well-being; conversely, risk taking develops if risk is perceived as beneficial. In a study of behavioural finance theories, Alghalith et al. (2012) discovered evidence that contradicted prospect theory, indicating that managers are risk-averse when confronted with profits. Investors' risk-seeking behaviour are seen in empirical investigations of key theories and assumptions of behavioural finance. Authors have investigated the framing, editing, and assessment phases when selecting between possibilities presented by the prospect theory. Using prospect theory, if a situation is framed correctly, the decision-makers' behaviours, conventions, and expectations all play a role in how they make decisions. Therefore, hinged on that theory, this current study proposes that C-suite's behaviour as portrayed by their biases, affects the decisions made on capital structure.

Empirical Review

Hribar and Yang (2015) evaluated the connection between excessive managerial confidence and managerial predictions. The findings showed that the possibility of C-suites performing predictions, optimism level in predictions, and accuracy and predictions increases with over-confidence. Barros et al. (2013) and De Vries (2010) reached a consensus that the leverage levels of the firm increase with fixed assets, investment opportunities, non-debt tax shields, and firm size. Similarly, the leverage levels decrease due to volatility, advertising spending, the likelihood of bankruptcy, profitability, and product uniqueness (Malmendier et al., 2011). The work of Bilgehan (2014) utilised theoretical and empirical analyses to examine psychological biases and the capital structure decisions from 1997 to 2012. The study showed that the biases played by C-suites have a strong influence on the choice of capital structure. Barros and Di Miceli da-Silveira (2007) found some evidence that the Brazilian non-financial companies' capital structure decisions between 1998 and 2003 were overconfidence and optimism bias. Ben-David et al. (2013) demonstrated a miscalibration of overconfidence among C-suites using Chief Financial Officers (CFOs). They noted that in many business decisions, the CFOs make miscalibration, including financial decisions. The study concluded that companies with overconfident C-suites are investing more, paying fewer dividends, using debt more aggressively, engaging in market timing, providing more managerial forecasts, and tilting executive compensation toward performance.

Tomak (2013) studied the relationship between overconfidence and capital structure in Turkish manufacturing firms listed on the Istanbul Stock Exchange (ISE) between 2002 and 2011 using ordinary least squares and demonstrated that the connection between confidence and leverage is unclear, which indicated insufficient evidence to suggest that overconfident C-suites have a preference for leverage. In a sample of French companies, Mefteh and Oliver (2007) assess the implications of the trust of managers as a determinant of capital structure. They discover that traditional capital structure determinants are important for French firms, as they are important for many countries. They also find that C-suites' confidence is highly negative in illustrating decisions about French firm financing, as evidenced by the industry sentiment indices. They said that this outcome does not support the notion that C-suites act on their expected psychological bias of displaying a debt preference when self-assured. However, the study explained industry sentiment measurement into a prevalent consumer confidence component and a distinctive C-suite confidence component. Thus, it finds that the C-suite component has the expected positive relation with leverage. Accordingly, investor confidence is negatively linked to leverage, while the component of C-suites' trust is positively linked to leverage. The result confirms C-suites are biased and confident in their debt preference. Furthermore, they assume that the investor confidence component dominates C-suites confidence, resulting in an overall negative effect of leverage industry sentiment (Mefteh & Oliver, 2007). Irene and Noor (2015) studied the relationship between managerial overconfidence and leverage decisions of publicly listed companies in Malaysia from 2002 through 2011 using Dynamic panel models. The study revealed that, when C-suites are motivated, overconfidence is related significantly and positively to debt.

Looking at some specific behavioural characteristics of biased C-suits, Adam et al. (2015) examined managers' biases and the management of corporate risks. The sample size of the gold mining firms in North America is used. The result showed that when the market moves against a hedge, managers reduce their hedge positions but do not increase their hedge positions when the market favours the hedge. The finding suggested that behavioural biases affect corporate risk management practices, and recognising these biases can bridge the gap between the theory and practice of corporate risk management. Kramer and Liao (2012) used managerial overconfidence measurement criteria presented by Malmendier et al. (2011) to review the influence of C-suites overconfidence on analyst perspectives. The findings showed that analysts optimistically consider profits from undertakings with overconfident C-suites. C-suite overconfidence hypothesis publications by Yang and Kim (2020) also indicate

that confident managers systemically spend too much on internal funds instead of loans or stocks. According to the findings, firms with depleted operational cash flow (OCF) as a result of overinvestment by their overconfident C-suite are more likely to alter their OCF figures. They discovered that overconfident C-suites modify negative OCF in a more positive direction than reasonable counterparts, and that overconfident C-suites exercise greater discretion over OCF.

Shao and Wang (2013) conducted research on C-suites' irrational behaviour and the reasons for that in capital investment decision-making of corporate entities. The study presents the procedure for revealing the irrational behaviour of managers in decision-making regarding corporate capital investments. It finds that C-suites will use heuristics when estimating cash flow for lack of a coherent frame of mind, such that cognitive bias and psychological factors occur in heuristics. The main reason for irrational conduct is the lack of financial literacy in ascertaining the discounted rate. In this step, the concept of capital cost, risk management method, and discounted rate models, cognitive bias, and psychological factors are confused by most managers. C-suites, they say, act irrationally while making decisions because their behaviour is affected by cognitive biases (Shao & Wang, 2013).

When examining some demographic characteristics of biased C-suits, Doan and Iskandar-Datta (2021) used two distinct scenarios to debate about the implications of five ideas about the relevance of gender in the C-suite. The study investigated the influence of the Chief Financial Officer's (CFO) gender on the share price responsiveness to the executive's employment and on post-hire business performance. Both tests corroborate the concept that female CEOs are less biased than their male colleagues, but not less risk averse. Additionally, data indicate that female Chief Financial Officers considerably boost operating performance for enterprises functioning in low volatility environments. Younger C-suites take more risks than older ones, and women C-suites are more confident and prefer more debt in Malaysian firms (Irene & Noor, 2015). Chen and Hammes (2014) reported in a study of firms traded on the Shanghai Stock Exchange over the period 2007 to 2012, firms with older C-suits are more likely to have lower debt. Ben-David et al. (2013) examined managerial attitude and corporate actions. Results suggest that prior career knowledge and education are correlated with corporate decision-making.

Examining some firm characteristics along with C-suit attributes, Chen and Hammes (2014) assessed the attributes of C-suites and the choice of low leverage companies traded on the Shanghai Stock Exchange over the period 2007 to 2012

using logistic regression. It has been found that low-leverage firms are smaller with higher profitability and hold more cash balances than control firms selected by industry and size. It was also reported that risk-aversion managers and firms with higher ownership of the first shareholder are more likely to have lower debt. According to Gietl and Kassner (2020), an empirical investigation revealed that management overconfidence and government guarantees are significant contributors to taking unnecessary risks in the banking business. In a principal-agent model, where the bank manager sets the degree of risk, the researchers integrated management overconfidence and limited bank liability. A manager that is overconfident overestimates the returns to risk. The study's findings indicated that management confidence demands intervention in banker compensation. This is because the bank exploits the manager's high bonus valuation, which results in excessive risk-taking in equilibrium and is exacerbated by government guarantees. Additionally, it revealed that overconfident C-suites are more prevalent in banks that receive big government guarantees, have low bonus taxes, and have lenient capital standards.

Using the period from 1998 to 2003, Malmendier et al. (2019) examined C-suites optimism, overconfidence, and capital structure determinants for Brazilian companies listed on the São Paulo stock exchange (BOVESPA). The empirical analysis suggests that critical determinants of capital structure such as profitability, size, dividend payment, tangibility, and corporate governance standards are also found relevant. The results indicate that behavioural approaches based on research into human psychology can provide appropriate contributions to understanding corporate decision making.

Following the review of prior studies, this study hypothesises that

H_1: Firms' characteristics have no significant influence on the decisions regarding the capital structure of quoted industrial companies in Nigeria, and

H_2: C-suites' bias does not significantly influence the capital structure decision of quoted industrial companies in Nigeria.

Methodology

The research was carried out using secondary quantitative data from quoted industrial goods companies in Nigeria. The *ex-post-facto* research design is adopted to study the relationship between variables, i.e., how various independent variables are manipulated to examine how a dependent variable is affected within a relatively

controlled environment (Kumar, 2011). This research design is preferred because the objective is to determine the effect and cause of the relationship, which is generally applied using a quantitative approach.

The research focused on quoted industrial firms in Nigeria covering the period 2002 to 2020. Quoted firms were used due to the greater availability and reliability of data that have passed through regulatory requirements. The environmental qualities which may skew outcomes will not have a negative impact on the subjects being surveyed. Similar to Ullah et al. (2012), this study utilised data from thirteen (13) quoted industrial firms and expand the scope with accessible data for the period 2002 to 2020. The simple random sampling technique was used to select thirteen (13) Nigerian industrial goods companies listed on the Nigerian Stock Exchange and have complete financial records from 2002 to 2020 on their websites or the Nigerian Stock Exchange. The annual financial statements of all quoted industrial firms in Nigeria were obtained for the purpose of data extraction. The variables extracted from the annual financial statements were subjected to content analysis and statistical data analysis to arrive at a systematic result for this study.

Due to the nature of the variables under study, a documentary data source is appropriate. Table 1 presents the details of how the variables used in the study were measured.

Table 1: Measurement of Variables

Variable	**Measurement**	**Supporting Literature**
Capital Structure Decision	This study measured the decision on the capital structure as debt-to-equity mix in financing an enterprise because the decision on the capital structure is recognised as the decision on the ratio or right mix of debt and equity of a firm	Awan and Amin (2014); Shahar and Manja (2018).
C-suite Age	This is measured as the natural logarithm of the CEO's age.	Barno (2017); Noorfaiz and Zuriawati (2015)
C-suite Tenure	This is measured as the natural logarithm of CEO's tenure plus 1. 1 was added to the natural log because the natural log of CEOs with a single (1) tenure is 0, by adding 1 to the natural log differentiates the natural log of 1 which is 0 from a dummy variable.	Irene and Noor (2015)

Variable	Measurement	Supporting Literature
C-suite Education	This is measured as a dummy, which means that the CEOs with accounting and finance educational background are measured as 1 and CEOs without accounting and finance educational experience are measured as 0.	Ho and Chang (2009); Irene and Noor (2015)
C-suite Ownership	A percentage of CEO shareholding measures this to the total number of shares issued.	Barros and Di Miceli da-Silveira (2007); Irene and Noor (2015); Fowler (2013)
Profitability	This study measures it as the percentage of profit after tax on a year's total assets. This helps to control decisions regarding the non-behavioural aspect of capital structure.	Forte et al. (2013)
The tangibility of Net Asset	This measures the ratio between the non-current asset and total asset of a firm, as indicated in the statement of financial position at a particular point in time.	Forte et al. (2013)
Firm Size	The natural logarithm of assets is used to measure the firm size. It is one of the widely used proxies of asymmetric information.	Esghaier (2017); Mustaruddin et al. (2017); Wang et al. (2011).

Model Specification

This study looks at the relationship between managerial bias, firm characteristics, and decisions about capital structure. Therefore, the model for the study is formulated as follows.

The panel data model specification is:

$$CSD = f(MBI_{it}, \mu) \quad (1)$$

$$CSD_{it} = \beta_0 + \beta_1 CSE_{it} + \beta_2 CST_{it} + \beta_3 CSO_{it} + \beta_4 CSA_{it} + \varepsilon_{it} \quad (2)$$

$$CSD = f(FC_{it}, \mu) \quad (3)$$

$$CSD_{it} = \beta_0 + \beta_1 SIZE_{it} + \beta_2 TNG_{it} + \beta_3 PRF_{it} + \varepsilon_{it} \quad (4)$$

$$CSD = f(MBI_{it}, FC_{it}, \mu) \quad (5)$$

$$CSD_{it} = \beta_0 + \beta_1 CSE_{it} + \beta_2 CST_{it} + \beta_3 CSO_{it} + \beta_4 CSA_{it} + \beta_5 SIZE_{it} + \beta_6 TNG_{it} + \beta_7 PRF_{it} + \varepsilon_{it} \quad (6)$$

where CSD = Capital Structure Decision, CSE = C-suite Education, CSA = C-suite Age, CST = C-suite Tenure, CSO = C-suite Ownership, SIZE = Firm Size, TNG = Tangibility of Net Asset, PRF = profitability, μ = Stochastic (error) term, β_0 = Constant, $\beta_1 - \beta_7$ = Coefficients of the variables to be estimated.

The presence of error term (ε or μ) takes care of some variables which affect the decisions on the capital structure but are not specified in the model.

Method of Data Analysis

The numerical values of the model parameters are assessed through the Panel Estimation technique, using data from thirteen (13) Nigerian industrial goods firms listed on the Nigerian Stock Exchange from 2002 to 2020. Ordinary Least Square (OLS) estimation technique was adopted for this study. The OLS estimation technique is used because it has a unique property of Best Linear Unbiased Estimator (BLUE), compared to other estimation techniques (Gujarati & Porter, 2009). The OLS method also possesses consistency, unbiased, minimal variance, and efficiency estimates. Furthermore, if the estimates show the existence of cointegration, using the Error Correction Mechanism (ECM), their differentiated form must be adjusted back to their long-term form. In this study, descriptive analysis is adopted to analyse the trend and statistics of the various variables mentioned above over the specified period.

Analysis and Results

Summary Statistics

Some statistical properties of the variables used in this study are shown in the summary statistics. Table 2 shows that the mean capital structure measured as the debt-to-equity percentage is 16.42%. This indicates that over the period under review, the listed industrial-goods firms are not over-leveraged on average. Meanwhile, out of the firms in the industrial goods sector, Lafarge Plc has the highest debt to equity of 86.79% for the period under consideration. In contrast, BOC gases Plc. has the lowest. The descriptive statistics of C-suite education has a mean value of 0.756, approximately 1. This means that the listed firms' C-suite has, on average, an educational background in the financial decisions of firms such as accounting or degrees in finance.

The average C-suite ownership of the selected companies shows a value of 3.31%, a minimum value of 0%, and a maximum value of 54.14%. There is a wide variance between the minimum and maximum value of C-suite ownership, which

implies a wide disparity between the percentages of shares held by CEOs in the total number of shares issued by their firms. The mean value of C-suite ownership of industrial goods firms in Table 2 is about two tenures with a minimum and maximum tenure of one and three, respectively.

The mean value of the firm size in Table 2 is 14.59, which is slightly below the 20.23 maximum value. This indicates a small variance in the size of the selected listed firms that implies that they are not significantly different from each other in terms of size. Profitability shows an 8.41, -85.12, and 100.94 mean, minimum and maximum values, respectively. Based on these descriptive profitability statistics, it implies that the selected companies have moderate performance over the period under consideration on average. Asset tangibility shows that firms have an average non-current asset of 58% to total assets.

The Skewness indicates that the variables except for CSA, CSD, CST, and SIZE are positively skewed. The Kurtosis statistics show a thin-tailed distribution for the variables. The statistic Jarque-Bera shows that not all variables are normally distributed.

Table 2: Descriptive Statistics

	CSD	CSA	CSE	CSO	CST	SIZE	PRF	TNG
Mean	16.42	4.16	0.76	3.31	1.67	14.59	8.42	0.59
Median	9.16	4.17	1.00	0.19	1.69	15.95	8.31	0.56
Maximum	86.8	4.37	1.00	54.14	2.61	20.24	100.94	4.64
Minimum	0.00	3.87	0.00	0.00	1.00	0.00	-85.12	0.00
Std. Dev.	19.22	0.10	0.43	9.00	0.54	4.42	18.66	0.54
Skewness	1.56	-0.49	-1.19	4.52	-0.02	-2.2	0.15	4.00
Kurtosis	5.18	2.75	2.423	24.02	1.66	7.63	11.3	25.96
Jarque-Bera	98.89	7.07	41.16	35577.31	12.3	279.29	471.01	4041.47
Probability	0.00	0.03	0.00	0.00	0.00	0.00	0.00	0.00
Sum	2693.01	681.71	124.00	543.51	272.75	2392.84	1380.06	96.02
Sum Sq. Dev.	60236.24	1.75	30.24	13217.04	47.37	3189.30	56749.45	48.27

Multicollinearity Test

Multicollinearity occurs when a regression model contains evidence of a robust linear relationship among the explanatory variables. With the Variance Inflation Factors (VIF) test, this study tested multicollinearity. The rule of thumb using the VIF

test is that the VIF for a variable must be no higher than 10 to confirm there is no high collinearity (Gujarati & Porter, 2009). The result of this VIF test is presented in Table 3 and it shows that all variables have a VIF of less than 10, which suggests that the independent variables in the model are not highly correlated.

Table 3: Variance Inflation Factor

Variable	VIF
CSA	1.348
CST	1.397
CSE	1.212
CSO	1.883
SIZE	1.807
PRFT	1.365
TNG	1.322

Preliminary Diagnostic Tests

The test for random effects in the model was conducted on the Breusch Pagan Lagrange Multiplier (LM). The null hypothesis is that there is no effect; there is zero variance in the non-observed fixed effects. The decision rule is that the study rejects the null hypothesis if the result of Breusch Pagan Lagrange Multiplier (LM) is significant at the 5% significance level (Gujarati & Porter, 2009). The Breusch Pagan LM test in Table shows the result of a significance level of 103,7855 ($p = 0.00 < 0.05$). This result confirmed the rejection of the null hypothesis because it is significant at the significance level of 5%. This means the low *p*-value counts against the null hypothesis that the pooled OLS model is adequate, in favour of the alternative random effects.

The Hausman test was carried out to test whether the random-effects model is more consistent than the fixed effects model. The null hypothesis is more consistent with the random-effects model. The decision rule is that the study rejects the null hypothesis if the Hausman test is significant at the 5% significance level Gujarati & Porter, 2009). The Hausman test in Table 4 shows the 61.5107 chi-square statistics ($p = 0.000 > 0.05$ significance level). This result showed the rejection of the null hypothesis because it is significant at the significance level of 5%. This implies that a high *p*-value counts, in favour of the fixed-effect model, against the null hypothesis that the random-effects model is consistent.

The cross-sectional dependence test was performed using the Pesaran's Cross-sectional Dependence (CD) test. Table 4 reports the results of the preliminary diagnostic tests showed that the Pesaran CD test shows residuals in the model to be not cross-sectional dependent.

Table 4: Preliminary Diagnostic Tests

Test	Null Hypothesis	Statistic	*p*-value
PBreusch-Pagan Test	No effect	103.785	0.000
Hausman Test	No effect	61.510	0.000
Pesaran's CD Test	No cross-sectional dependence	3.265	0.001

Model Estimation Result

The regression in Table 5 reveals that C-suite's education has a negative and significant relationship of -151.5% ($p = 0.000 < 0.05$) with the capital structure decisions of the selected industrial goods firms. Furthermore, the constant value of 1160.685% ($p = 0.013 < 0.05$) in Table 5 indicates the average capital structure decisions of C-suites with a non-educational background in financial decision-making, whereas the average capital structure of C-suites with an educational background in financial decision-making is 1009.172% [-151.512 + 1160.685] ($p < 0.01$) with the capital structure decisions of the selected industrial goods firms. Similarly, C-suite's age has a negative and significant association with the capital structure of industrial goods firms. This finding implies that an increase in the age of C-suites has an impact on the capital structure of these listed companies by -15.134% ($p < 0.1$).

In contrast, C-suite tenure showed a positive and significant effect on the capital structure with a coefficient of 36.076 ($p < 0.05$), which shows that an increase in the tenure of the C-suites of the listed companies will have a positive impact on their capital structure. C-suite ownership has a negative but non-significant effect on capital structure decisions, as indicated by the selected industrial goods companies' -0.8307% ($p = 0.523$).

All the variables used as proxies for firm characteristics, except for firm size, showed an insignificant relationship with capital structure decisions. Size indicated a negative and significant relationship with the capital structure. This means that a percentage increase in the firms' size will negatively affect the listed firms' capital structure by 10.8396% ($p = 0.0000 < 0.05$). At the same time, tangibility and

profitability showed an insignificant relationship with capital structure decisions. This means that neither tangibility nor profitability of the firms significantly impacts their capital structure, as they indicated -5.9426% (p = 0.7221) and -0.6537% (p = 0.1463) respectively on the capital structure decisions of the selected industrial goods companies.

Although the individual effects of the C-suite bias proxies and firm characteristics on the capital structure are mixed, the F-statistics of 6.3885 at 0.01 significance level indicate a combined and statistically significant effect of capital structure decision, C-suite age, C-suite tenure, C-suite ownership, tangibility of net assets, firm size, and profitability at 1% level on capital structure. The F-stat's significant nature means the model's overall goodness of fit is satisfactory. This also means a significant association between C-suite bias, firm characteristics, and capital structure in selected Nigerian industrial goods companies.

Table 5: Model Estimation

Variable	**Coefficient**	**Std. Error**	***t*-Statistic**	***p*-value**
Constant	1160.685	463.112	2.506	0.013
CSE	-151.513	32.333	-4.686	0.000
CSA	-215.134	115.080	-1.869	0.064
CST	36.076	16.189	2.228	0.027
CSO	-0.830	1.129	-0.641	0.523
SIZE	-10.840	2.458	-4.411	0.000
TNG	-5.943	16.675	-0.356	0.722
PRFT	-0.654	0.448	-1.461	0.146

Effects Specification
Cross- section Fixed (Dummy Variable)

R-squared	0.427	Mean dependent var	41.973
Adjusted R-squared	0.360	S.D. dependent var	103.648
S.E. of regression	82.932	Akaike info criterion	11.777
Sum squared residual	1004145	Schwarz criterion	12.117
Log likelihood	-947.728	Hannan-Quinn criterion	11.915
F-statistics	6.388	Durbin –Watson stat	1.471
Prob (F-statistic)	0.000		

Discussion of Findings

The empirical results show that C-suite ownership indicates only a negligible effect on the selected firms' capital structure out of the C-suite bias proxies. This depicts that the company's capital structure is affected by neither increasing nor decreasing the C-suites shareholding in industrial goods firms. C-suites education is negatively related (β = -151.5130) to capital structure, implying that the higher the number of C-suites with an educational background in accounting and finance in the selected firm, the poorer its capital structure decisions. This is in tandem with Ho and Chang's (2009) findings that C-suites such as CEOs with accounting and finance education tend to be over-confident and could lead the business to financial distress as they over-estimate their capabilities. C-suite tenure showed a positive effect (β = 26.080) on the capital structure of the industrial goods firms, thus implying that the period during which C-suite control their firms' affairs positively affects the decisions they make about capital structure. In contrast to Chen and Hammes (2014) and Irene and Noor (2015), C-suit age was identified as having a negative impact on capital structure decisions.

Based on the estimated model, firm size affects the selected firms' capital structure negatively and significantly. This shows that the larger the company's size, the poorer its decision regarding the capital structure. This negates Handoko's (2016) findings that the firm size is the dominant firm characteristic which positively affects the capital structure of a firm. Studies such as Chen and Hammes (2014) and Booth et al. (2001) also revealed firm size as a predominant feature of the firm. Tangibility has indicated an insignificant negative effect on the selected firms' capital structure. This implies that their capital structure is not increased by either the increase or decrease in the percentage of non-current assets in the firms' asset structure. Profitability also showed a negligible impact on the selected firms' capital structure. This contradicts Forte et al. (2013) findings that profitability has an important and positive impact on capital structure decisions.

Conclusions and Implications

In this present-day competitive business environment, C-suites have a pivotal role to play in estimating future uncertainties and in using those predictions as inputs to design their capital structure policies. Contributing to literature on the role of C-suits, this study also concludes that the C-suites of firms with an educational background in accounting and finance make more unfortunate capital structure decisions. C-suit age was identified as having a similar negative impact. In contrast, C-suit tenure has

a positive effect on capital structure decisions. In addition to C-suit characteristics, the firm's size is also an impact factor in determining the proportional relationship between equity and debt.

The result of this study, suggest that C-suite tenure would allow better capital structure decisions. Therefore, firms should allow C-suites to have a longer tenure, since the longer they stay at the helms of affairs of the firm, the better the capital structure decisions made by them. However, older people should comprise the C-suites of industrial goods firms because the C-suites' age showed a strong inverse relationship with the firms' capital structure. Concerning firm characteristics, caution should be exercised by industrial goods companies in Nigeria on acts that increase or decrease their profitability or tangibility since they have combined though individually insignificant impact on capital structure. Industrial goods firms are not advised to have a capital structure proportionate to their size; because the firm's size is adversely and significantly associated with capital structure.

In conclusion, this study adds to the existing studies on behavioural accounting and finance by checking the combined impact of C-suites bias and firm characteristics on the capital structure of listed industrial goods companies in Nigeria. This is relevant given the lack of existing studies on the effects of C-suites bias and firm features on the country's capital structure, particularly in industry. Existing studies (Barros & Di Miceli da-Silveira, 2007; Fowler, 2013; Irene & Noor, 2015) focused on developed countries, and as such could not be applied to Nigeria's context due to disparity in corporate regulatory frameworks, financial and economic systems. The findings of this study gives credence to the prospect theory, which states that if a scenario is framed appropriately, the behaviours of the decision-makers have a part in how they make decisions. The findings of this study, which are based on that theory, lead to the conclusion that the behaviour of C-suite executives, as depicted by their biases, influences the decisions made regarding capital structure.

Future studies on the behavioural aspect of capital structure should be extended to involve religiosity (CEO, board, or local community), and multinationalism, to mention but a few as moderators on the C-suites bias. A multidisciplinary approach should be the focus of future studies. For example, they could draw on psychology, genetics, and sociology to better explain capital structure decisions. In addition to the above, a study to confirm the findings of this study (which were found to contradict several previous studies) could be conducted in the future.

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