

## Accounting Quality and Terms of Debt: Evidence from International Financial Reporting Standard (Ifrs) Firms in Nigeria

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**Abstract:** *Information asymmetry has been identified to play significant role of influencing lending with better conditions to the advantage of the borrower. As the assertion is rapidly gaining theoretical acceptance, this empirical research performs investigation into the association between accounting quality and terms of debt across five manufacturing enterprises. With data sourced and computed from their various annual financial statements over the period 2011-2020, the study adopts balanced panel data technique. Each model ranging from pooled Ordinary Least Square (POLS), Fixed and Radom Effects estimators are employed in the analysis. In selecting the appropriate model, Hausman test could not reject the null hypothesis indicating the acceptance of Random Effect estimates. The Generalized Least Square result reveals violation of a priori expectation based on sign in all the betas. Specifically, accruals, balance sheet bloat and firm size are positively associated with percentage of secured debt, however the impact is statistically insignificant. For balance sheet bloat; biasing of information through bloat is consistent with information asymmetry theory which leads to adverse selection problem. Introducing lagged secure debt improved the explanatory power of the model, although it is positive and insignificant. We further investigated whether accounting quality influences cost of debt. The association is observed to be positive. Overall the study concludes that firms with accounting quality issues are not able to secure debt financing at better terms based on asymmetric effects irrespective of the asset size of the firm. we recommend external auditors (Deloitte, KPMG, PwC and Ernst & Young) to perform recalculations in their assurance engagement to detect abnormal disparities between earnings and cashflow and insist on their correction.*

**Keywords:** *Enterprises, POLS, Cashflow, Fixed and Radom Effects*

## Introduction

Just over ten years ago Sloan (2001, p.343) noted that “the explicit role of accounting information in debt contracts is extensive, but there is relatively little research in this area”. It looks, however, that debt markets have recently begun to gain more and more attention from researchers. For example, a search from Social Science Research Network (SSRN) website yields dozens of recent accounting papers that handle debt contracting issues. Also, Armstrong et al. (2010, p.217) observed this development. They state that “the literature on how attributes of accounting system affect the design of debt contracts is both relatively new and growing”. In their recent paper, Costello and Wittenberg-Moerman (2011, p. 98) even state that “[t]he role of financial reporting quality in debt contracting is one of the fundamental issues in accounting research”.

A central goal of accounting information is to mitigate information asymmetry problems between a firm and those providing resources to a firm (e.g. lenders and shareholders) by providing decision useful information (IASB, 2010). Defining “decision useful” is, however, not straightforward. Li (2011) notes that although lenders and shareholders claim on the same assets and profits, their use of accounting information is likely to be fundamentally different for two main reasons. First, while the upside potential is likely to be important for shareholders, lenders are mainly concerned about the downside risk. Second, compared to shareholders, lenders are less concerned about the long-term prospects of the firm beyond the debt horizon. Furthermore, Armstrong et al. (2010, 214-215) point out that information needs differ not only between debt and equity providers, but also within various suppliers of debt. That is, the information needs of banks, for example, are likely to differ from those of bondholders.

Debt is a major source of new external financing. For example, Henderson et al. (2001) note that debt issuances are substantially more common than equity issuances. In their cross-country study, they found that during the sample period of 1990 to 2001 firms raised approximately \$25.3 trillion of new capital, with debt issuance accounting for \$20.8 trillion (82%) of all securities issued. According to Altunbas et al. (2009), corporate bonds and syndicated loans made up 94% of all public funds raised in the European capital markets in 2007, while public equity issuance accounted for only 6%. Armstrong et al. (2010, 214) point out that even though many of the debt issuances are likely to be replacing existing debt, it is clear that firms access debt markets far more frequently than equity markets. Yet they observe that most of the focus of capital markets accounting research has historically been on equity markets.

There is no uniform definition of the term Accounting Quality. Most studies describe accounting quality in terms of financial reports reflecting the true and fair value of a firm. Penman (2002) cited in Ames (2013) opined that accounting quality should be addressed and discussed in terms of the shareholders’ interests and the usefulness of accounting information in assisting the shareholders. Barth et al (2007) described accounting quality as the capability of accounting measures to reflect a firm’s economic condition and performance. Previous studies (Barth et al, 2007; Paananen, 2008) used earnings management, value relevance, and timely loss recognition as determinants of accounting quality. Barth, Landsman, Lang and Williams (2006) considered earnings management, accrual quality, and earnings timeliness as the dimensions of accounting quality; their argument was that these dimensions of accounting quality are potential sources of

the increase in comparability of variations in economic outcomes. For the purpose of this study, earnings management will be the determinant of accounting quality.

The importance of credit rating agencies has grown considerably during recent years, and they now have a major role in the debt markets (Jorion et al., 2009). Rating agencies act as information intermediaries that gather and analyze information about companies and provide assessment of their creditworthiness. (Beaver et al., 2006). As a central part of their rating process, rating agencies such as Moody's and Standard & Poor's analyze financial statements and make analytical adjustments to them. The purpose of these adjustments is to modify financial information so that it better reflects the underlying economics of a firm, and facilitates comparability (Moody's, 2005). Furthermore, adjustments aim at producing better estimates of the creditors' risks and rights (Standard & Poor's, 2007). Financial statement adjustments can thus be seen as a mechanism that enhances the decision usefulness of accounting information, at least in the credit risk assessment context.

Organizational loans are a significant source of financing for firms, with syndicated loans accounting for 51% of new capital issuances. Organizational tailor loan contract terms for individual borrowers based on a detailed analysis of financial statements. The quality of information in financial statements could be affected by self-interested and opportunistic discretionary accounting choices of borrowers. Thus, poor accounting quality leads to problems in assessment of the true economic performance of borrowers and has important implications for terms of debt.

In this study, we examine the effect of accounting quality and terms of debt on the basis of loan interest, security interest, loan maturity, accruals and balance sheet bloat, using evidence from IFRS firms in Nigeria. We intend to provide a comprehensive solution and evidence that poor accounting quality of borrowers has a substantial negative impact on both the price (interest cost of the loan, upfront and annual fees) as well as the non-price terms (loan maturity and collateral) of loan contracts

### **Aim and Objectives of the Study**

The aim of the study is to examine the relationship between accounting quality and terms of debt, evidence from IFRS firms in Nigeria.

The specific objectives are to:

- 1 Ascertain the relationship between accruals and secured debt to total debt.
- 2 Determine the relationship between accruals and interest rate
- 3 Investigate how balance sheet bloat relate to secured debt to total debt.
- 4 .Examine the association between balance sheet bloat and interest rate.
- 5 Examine whether the presence of firm size influences the relationship between accounting quality and terms of debt among quoted manufacturing firms in Nigeria..

## LITERATURE REVIEW

### *Theoretical Framework*

#### **Models Based on Accruals**

The financial statements, which are organized to present the information that the demanders need on time, appropriately and accurately, are prepared on the accrual basis. Accrual in the accounting language is the recording of a financial event on time to the relevant account with regard to the periodicity principle regardless of cash inflow or outflow. According to accrual basis, the impact of transactions and other events are accrued to the relevant account not when cash or cash equivalents are collected or paid but when these transactions and events take place, and they are reported in the financial reports of that period (Örten, Kaval, & Karapınar, 2011).

In other words, the fact that the results of the business' financial transactions and events are reflected on financial statements without waiting for them to be converted to cash takes place by virtue of accruals. In order to be able to describe accruals in a more comprehensive way, Richardson, Sloan, Soliman, and Tuna (2005) state that in case there is no accrual based accounting, the only asset or liability item that will appear on the balance sheet will be the cash account.

The reason for this is the fact that all other assets and liabilities are the result of accrual based accounting. In other words, assets other than cash are also included in the decision making process by using accruals. Thus accruals give the accounting incomes the ability to evaluate and measure performance (Durak, 2010).

The fact that accruals are an important indicator of a firm's performance causes accruals to be a means to make this performance look different from its actual position by managers having this intention.

Cash flows have impacts that are to reverse in the short run. For example managers can prefer to pay the debt due in the following period in order to write up the cash flows that are reported for one period; however the additive effect of cash flows this period can turn into a deductive effect in the following period. Accruals clean the accounting income from this kind of effects and provide it to be a more effective performance criterion (Ball & Shivakumar, 2006).

Most of the models that constitute the accounting quality and earnings management theory which is the most important indicator of this quality center on accruals because in essence accrual (as a system) can be more easily managed as compared to profit and cash flows. Departing from this main thought, Jones (1991) brought forward the assumption "earnings management will be put into practice not in the cash part of the profit but in the accrual part of it". This assumption has been tested by many researchers, its scope has been broadened and it has pioneered the formation of new assumptions and models. Since GAAP allows certain discretion to report accounting accruals, there is a possibility that accruals contain management's expectations about future cash flows or management's intention to manipulate information (Gomez, Okumura, & Kunitura, 2000).

According to Dechow and Skinner (2000), as a natural result of accrual basis, managers have to carry out an evaluation and make a decision about the accrual time and amount of earnings and expenditures. The fact that this state is combined with various conditions and purposes inevitably causes profit management. In other words, the main reasons of earnings management applications

are accrual accounting and the flexibility it provides to managers. With this flexibility provided, it is accepted that arrangements can be made on the earnings amount by using managers' experiences and information advantages in order to estimate the future cash flows and remove the mistakes and deficits that the period's cash flows contain. In the methods regarding the examination of accruals, the profits of firms are divided into two components as follows: the profit that is composed of earnings that are collected as cash and paid expenses, and the profit component that is composed of accruals that have not yet been converted to cash. Since cash flow is independent from the accounting policies that managers pursue, the managers who want to make the profit look high will try to achieve their goal by applying methods that will make the amount of the accruals increase.

According to Leuz, Nanda, and Wysocki (2003), when cash flows and accruals are compared in terms of information content, the result reveals that cash flows in firms contain more information. The reason for this is the opinion that as a result of accounting application alternatives in firms are more, the income smoothing incidents will be encountered more and that is why the earnings will become less related to value. That is why in researches; generally accruals are the point of departure in the determination and measurement of earnings management.

### Conceptual Framework

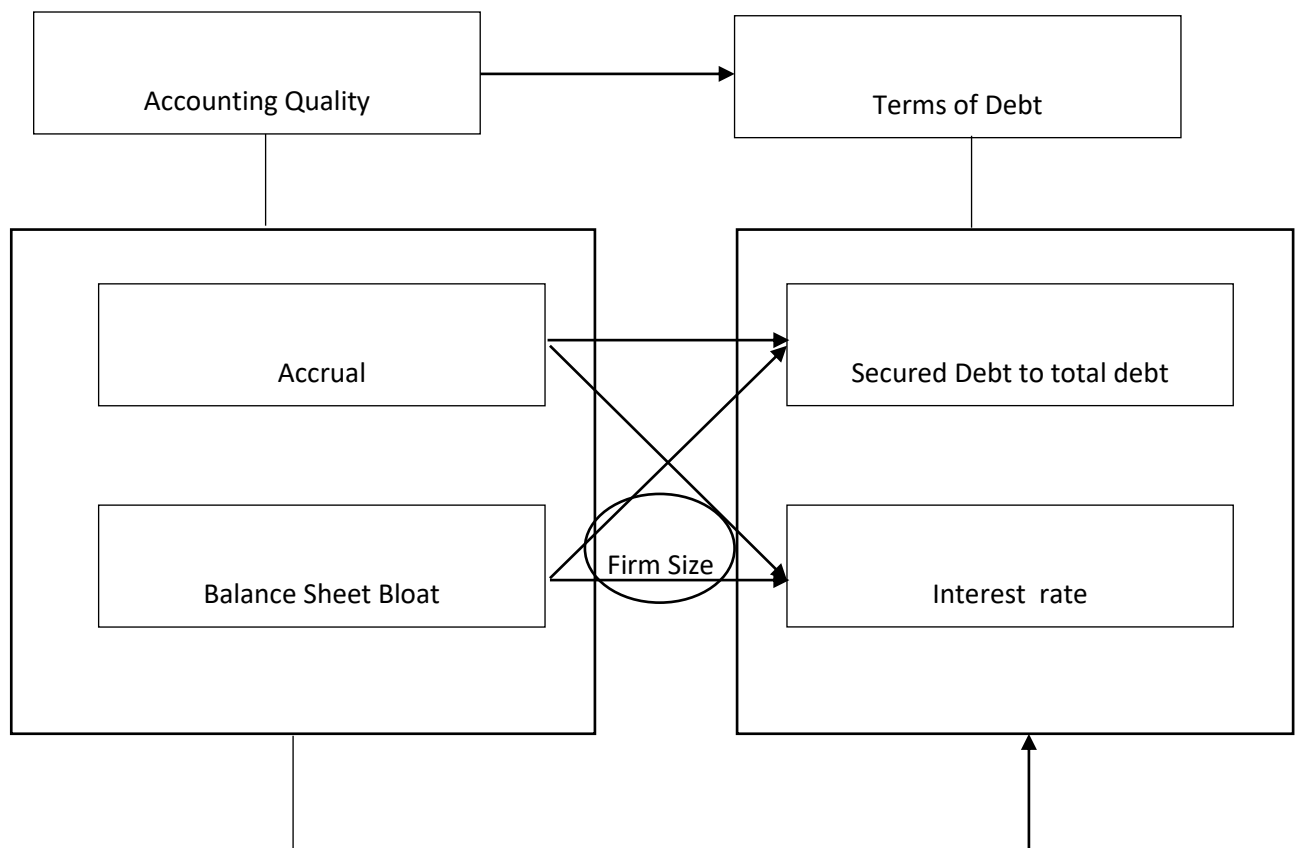


Figure 1: Conceptual relationships between accounting quality and terms of debt

The need for financial reporting arises from the separation between ownership and management. It can be viewed as a mechanism that helps owners and other capital providers to monitor the performance and financial situation of the company. In other words, financial reporting serves as a vehicle that reduces the information asymmetry between the outsiders (e.g. lenders) and insiders (e.g. managers) of the company. To succeed in this task, financial reporting must be of high quality, i.e. it must provide faithfully represented information that is relevant for decision making. This section discusses the factors that affect the demand and quality of financial reporting.

### **Accounting Quality**

The previous section established that demand for financial accounting arises from the need to mitigate information asymmetry problems between firm insiders and outsiders. This raises a question: How should financial information be prepared and presented so that it can succeed in this task? Scott (2009, 59) states that there does not exist a theoretically correct way to prepare financial statements. He, however, notes that if accountants understand the decision problems of financial statement users, they can tailor financial statement information so that it is more useful. Major accounting standard-setting bodies such as the IASB2 and FASB3 have also adopted this decision usefulness approach in their conceptual frameworks (Scott, 2009, p.88). For example, the IASB framework (2010) states that the purpose of financial reporting is “to provide financial information about the reporting entity that is useful to existing and potential investors, lenders and other creditors in making decisions about providing resources to the entity. Those decisions involve buying, selling, or holding equity and debt instruments, and providing or settling loans and other forms of credit.” Moreover, the IASB Framework (2010) identifies the qualitative characteristics that make the financial statement information useful. The two fundamental qualitative characteristics are relevance and faithful representation. Information is considered to be relevant if it is capable of making a difference in the decisions made by users, i.e. if it has predictive or confirmatory value (or both).

Materiality is an entity-specific aspect of relevance: information is material if omitting or misstating it could influence the decision making based on financial information. To be useful, financial information must not only represent relevant phenomena – it must also faithfully represent the phenomena that it purports to represent. A perfectly faithful representation has three characteristics: it is complete, neutral, and free from error. In addition to these two fundamental qualitative characteristics, the framework also lists four enhancing qualitative characteristics: comparability, verifiability, timeliness, and understandability.

The framework recognizes that financial reports cannot provide all possible information because of cost constraint – reporting financial information imposes costs, and these costs must be justified by the benefits.

The purpose of uniform accounting standards is to reduce managers’ ability to record similar economic transactions in dissimilar ways. In real world, however, the financial statement information usually does not capture the underlying business reality perfectly. (Palepu et al., 2007, 89-90). Palepu et al. (2007, p.89-94) list three potential sources of noise and bias in accounting data: (1) rigidity of accounting standards, (2) forecast errors and (3) managers’ accounting choices.



**Accruals:** Sloan (1996) separates reported earnings into cash flow and accrual components. He examines these two components separately and finds that the accrual component has lower persistence than the cash flow component. This finding suggests that high level of accruals is associated with low quality of earnings.

Additionally, Sloan (1996) documents – contrary to the traditional efficient market theory – that investors fail to correctly distinguish between the different persistence levels of these two earnings components. Consequently, firms with relatively high accrual levels experience negative abnormal stock returns (and low accrual firms positive abnormal stock returns) that are concentrated around future earnings announcements.

Hirshleifer et al. (2004) use a balance sheet based approach to measure the difference between cash and earnings profitability (i.e. total accruals). More specifically, they demonstrate that the level of net operating assets (NOA) represents the difference between cumulative earnings and cumulative free cash flow over time. Hirshleifer et al. (2004) note that accumulation of earnings is not sustainable unless there is a commensurate accumulation of free cash flows. A high level of NOA therefore indicates that the past accounting performance has been good, but equally good performance is unlikely to be sustained in the future.

Hirshleifer et al. (2004) measure NOA as the difference between operating assets (total assets – cash and short-term investments) and operating liabilities (total assets – total debt – minority interest – preferred stock – common equity) scaled by lagged total assets (assets at the beginning of financial year). They pay attention to cash flows and earnings quality. They examine the accruals anomaly in bond markets and find that corporate bonds of firms with low operating accruals perform better than bonds of high operating accruals firms. Their results therefore support the theory that mispricing of accruals documented in equity markets also extends to bond markets. Francis et al. (2005) show that higher-quality accruals are associated with lower cost of debt. Moreover, Francis et al. (2005) examine whether the pricing of accruals quality differs depending on the source of accruals quality. They find that the discretionary accruals component (i.e. accruals that represent managerial choices) has significantly smaller pricing effect than the innate accruals component (i.e. accruals that are driven by the firm's business model and operating environment). They hypothesized that discretionary accruals component reflects a mixture of information-risk decreasing and information-risk increasing effects<sup>6</sup>, and that these conflicting effects lower the discretionary accruals' overall cost of capital impact.

**Financial Statement Adjustment:** Adjusting financial statements is a fundamental part of credit rating process for rating agencies such as Moody's and Standard & Poor's (S&P). According to Moody's (2005), the purpose of financial statement adjustments is to "better reflect, for analytical purposes, the underlying economics of transactions and events and to improve comparability of a company's financial statements with those of its peers." S&P (Standard & Poor's, 2007) states that the objectives of specific adjustments can be classified into one or more of the following categories:

- a. Facilitate comparability.
- b. Facilitate period-over-period comparisons
- c. Better reflect underlying economics
- d. Normalize different estimates and assumptions

- e. Adjust for inconsistencies within accounting treatments
- f. Better reflect creditor's risks and rights
- g. Enhance forecasting

Both Moody's and S&P emphasize that their adjustments do not imply that companies' reported financial statements fail to comply with accounting standards. Moody's (2005) notes that their goal is to enhance the analytical value of financial statement, not to assess compliance with rules. According to S&P (2007), adjustments reflect the fundamental difference between accounting and analysis: the accountant must find one number to use in presenting the financial data, while the analyst's task is to pick apart the numbers in order to depict situation differently for a specific purpose or to gain another vantage point.

### **Terms of Debt**

There are two main sources of debt: private debt provided by banks or other financial institutions, and public debt that is sought directly from investors. Debt contracts typically have multiple contract terms: besides defining interest rate and maturity, lenders can also set debt covenants and require collateral. This section discusses the sources of debt and debt contracting terms.

There are two primary sources of debt financing: private and public debt markets. Private debt is typically provided by banks or other financial institutions. Public debt is sought directly from investors, for example through sales of commercial paper or 10 through the issuance of bonds. (Palepu et al., 2007, p.402-403).

Lenders in these two markets differ e.g. with respect to their access to information, ability to monitor the borrower, flexibility in resetting contract terms and the cost of renegotiating the contract. Since public debt is typically held by dispersed arm's-length investors, monitoring the debt and renegotiating the contract is difficult because of coordination and free-rider problems. In contrast, private lenders, such as banks, have superior access to information and they make investments in monitoring the borrower. Consequently, they face lower renegotiation cost and are able to write detailed and tailor-made contracts, breaches of which trigger renegotiation. (Bharath et al., 2008).

Syndicated loans are private debt securities that also have features of public debt, such as credit ratings and a secondary market (Wittenberg-Moerman, 2009). In Europe, however, the secondary market is relatively nascent and illiquid, especially compared with that in the U.S. (Standard & Poor's, 2010). In a syndicated loan, two or more lenders agree jointly to make a loan to a borrower. Every syndicate member has a separate claim on the debtor, although there is a single loan agreement contract. The syndicate is led by one or several arrangers that are responsible for bringing together the syndicate that lends money at the specified set of terms.

Corporate borrowers usually have their relationship banks at the core of the syndicate and they may bring in other institutions according to the size, complexity and the pricing of the loan. Arranging a syndicated loan is typically quicker and less costly (in terms of set-up fees) than a bond issuance. (Casu et al., 2006, 90-91).



**Security Debt:** If the firm has suitable collateral available, it may be able to reduce its borrowing costs by committing not to sell assets. It can do so credibly by securing the debt contract. A debt contract is said to be secured if the borrower pledges assets as security until the loan is paid in full. When debt is secured, the firm cannot dispose of the pledged assets without borrowers' approval. Moreover, if the firm files for bankruptcy, secured creditors acquire title to the pledged assets prior to any other claimant. The advantage of secured debt is that it is typically not as expensive to monitor as other forms of bond covenants. (Morellec, 2001).

**Loan Interest:** In general, the loan interest increases with the riskiness of the borrower. When determining the interest rate, it is important to assure that the yield on the loan is sufficient to cover

- (1) the lender's cost of borrowed funds,
- (2) the lenders cost of administering and servicing the loan,
- (3) a premium for exposure to default risk, and
- (4) at least a normal return on the equity capital necessary to support the lending operation. (Palepu et al., 2007, 411-413).

**Maturity** Short-term loans carry the advantage that the lender can frequently review the borrower and make adjustments to the terms of the loan when necessary (Palepu et al., 2007, 406). Borrowers with high probability of having insufficient cash flows therefore often have no choice but to borrow short term (Stohs & Mauer, 1996).

Renegotiation, however, imposes various transaction costs. The academic literature suggests that small firms with lower transaction costs are likely to issue short-term debt, while large firms are more likely to issue long-term debt to take advantage of economies of scale. (Alcock et al., 2012).

### **Empirical Review and Hypotheses Development**

Hirshleifer et al. (2004) use a balance sheet based approach to measure the difference between cash and earnings profitability (i.e. total accruals). More specifically, they demonstrate that the level of net operating assets (NOA) represents the difference between cumulative earnings and cumulative free cash flow over time. Hirshleifer et al. (2004) note that accumulation of earnings is not sustainable unless there is a commensurate accumulation of free cash flows. A high level of NOA therefore indicates that the past accounting performance has been good, but equally good performance is unlikely to be sustained in the future. Hirshleifer et al. (2004) hypothesize that investors often fail to discount for this sustainability effect, which leads to excessive investor optimism and systematic errors in market prices. Consistent with this hypothesis, they find that firms with high net operating assets earn negative long-run abnormal returns. Even though the mispricing of accruals was first studied in the context of equity markets, subsequent research has shown that accruals are relevant also in the debt markets.

Bhojraj and Swaminathan (2009) point out that since debt payments are made from cash flows – not from reported earnings – also lenders should 5 Hirshleifer et al. (2004) measure NOA as the difference between operating assets (total assets – cash and short-term investments) and operating liabilities (total assets – total debt – minority interest – preferred stock – common equity) scaled

by lagged total assets (assets at the beginning of financial year). 20 pay attention to cash flows and earnings quality. They examine the accruals anomaly in bond markets and find that corporate bonds of firms with low operating accruals perform better than bonds of high operating accruals firms. Their results therefore support the theory that mispricing of accruals documented in equity markets also extends to bond markets.

Francis et al. (2005) show that higher-quality accruals are associated with lower cost of debt. Moreover, Francis et al. (2005) examine whether the pricing of accruals quality differs depending on the source of accruals quality. They find that the discretionary accruals component (i.e. accruals that represent managerial choices) has significantly smaller pricing effect than the innate accruals component (i.e. accruals that are driven by the firm's business model and operating environment). They hypothesize that discretionary accruals component reflects a mixture of information-risk decreasing and information-risk increasing effects, and that these conflicting effects lower the discretionary accruals' overall cost of capital impact. Francis et al. (2005) conclude that their findings support the view that information risk is a priced risk factor in capital markets.

Sufi, (2007) shows that information asymmetries affect the syndicate structure. When borrowers are opaque, the lead arrangers retain a larger portion of the loan, and form a more concentrated syndicate. By increasing their risk exposure to the loan, the lead arrangers signal to the other syndicate members that they are actively investigating and monitoring the borrower.

Ball, (2008) document similar results. Moreover, they find that when borrowers' accounting information possesses high debt contracting value (i.e. provides timely and informative signals about their credit quality), it helps to mitigate the information asymmetry problems between the lead arranger and other syndicate participants. As a result, lead arrangers are able to hold smaller proportions of loans, and form a less concentrated syndicate.

Bharath et al. (2008) show that high-quality accounting, measured with the magnitude of operating accruals, lowers the cost of debt. Moreover, they demonstrate that accounting quality affects the choice of debt market, as well as the debt contract design. Bharath et al. (2008) show that firms with poorer accounting quality are more likely to choose private debt than public debt. Additionally, they document significant differences in the debt contract design between these two markets. In the case of private debt, there is substantial variation in all contract terms based on variation in borrower accounting quality: firms with low accounting quality pay higher interest rates, obtain shorter maturities and are more likely to post collateral. In public debt contracts, however, the higher risk from poorer accounting quality is entirely reflected in the interest spread. Bharath et al. (2008) hypothesize that these distinctions result from institutional differences between private and public lenders. Because private 6 Discretion allows reporting choices that can be used to improve earnings as a performance indicator. However, discretion can also be exploited to manage earnings in order to extract opportunistic gains. 21 lenders (e.g. banks) have superior information access, and recontracting flexibility compared to public lenders (e.g. bondholders), they are better able to fine-tune debt contracts on both price and non-price dimensions. Finally, Bharath et al. (2008) conjecture that accounting quality proxies for the information risk associated with estimating future cash flows of the firm, and that this information risk is priced incremental to borrower default risk.

**From the foregoing, the following hypotheses are developed in their null structures;**

HO<sub>1</sub>: Accruals does not relate significantly to secured debt to total debt.

HO<sub>2</sub>: There is no significant relationship between accrual quality and interest rate.

HO<sub>3</sub>: There is no significant relationship between balance sheet bloat and secured debt to total debt.

HO<sub>4</sub>: There is no significant relationship between balance sheet bloat and interest rate.

HO<sub>5</sub>: Firm size does not moderate the relationship between accrual quality and terms of debt.

## METHODOLOGY

**Research Design:** This study adopted quantitative research predicated on ex-post facto design. This research design was used based on the existence of quantitative data needed for analysis and the relevant variables on accounting quality and terms of debt, evidence from IFRS firms in Nigeria. Ex-post facto design was used because of the nature and types of data

**Study Area:** The study area is on variable on accounting quality and terms of debt, evidence from IFRS firms in Nigeria which are gotten from relevant documents, such as position CBN journals, IFRS publications, CITN publications, policy manuals, organizational structure charts and training documents; as well as some published information about organizations, such as financial statements and annual reports, journals, magazines, text-books and internet. Thus, this research has to adopt them and rely on such official publications for valid and reliable academic exercise.

**Population of the Study:** The population of this study consists of 72 listed firms on the Nigerian Stock Exchange which constituted the target population for this study. Given the fact that the researcher could not conduct an effective research on the target population because the population was too large, the researcher decided to limit the study to an accessible population.

**Sampling and Sample Size Determination:** The accessible population therefore constituted all listed firms quoted in Nigerian stock exchange. Available records, data and statistics reveal that there are seventeen (17) listed manufacturing firms quoted in Nigerian stock exchange. Out of these seventeen (17) manufacturing firms, only five (5) have accessible financial report. Consequently, the data used for this study is based on the twelve companies that are quoted. Also, since the study is relatively small, and the researcher can comfortably carry out an effective research, the census study which entails analyzing the entire population was adopted for the study.

**Nature/Sources of Data Secondary:** The nature and sources of data used for this study comprises of secondary data. The secondary data was collected from libraries, journals, bulleting, papers and the financial Report of these companies quoted on the Nigerian Stock Exchange (NSE). As for the financial report of these companies, the period under investigation was from 2011-2020.

**Methods of Data Collection:** This study was aided with the use of financial statements of the quoted firms in Nigerian stock exchange. This study employed a non-probabilistic version of judgmental approach in the data collection process. Judgmental in the context of using subjective mindset to select sample firms due to the availability of data from such entities.

**Operational Measures of Variables:** The researcher examined the effect of between accounting quality and terms of debt, evidence from IFRS firms in Nigeria covering the period of 2011-2020. Due to data limitations, we technically rely on accrual basis of accounting quality comprising of accrual, cost of debt and balance sheet bloat. The operational measures are derived as follows:

$$Accrual = \frac{Net\ income - cashflow\ from\ operations}{Average\ asset} \quad (1)$$

where Average assets = Average of beginning and ending total assets

$$balance\ sheet\ bloat = \frac{Operating\ assets - operating\ liabilities}{Lagged\ asset} \quad (2)$$

Where;

- Operating assets is cash and short-term investment deducted from total assets
- Operating liabilities is Total debt – Preferred stock – Minority interest – Common equity which are deducted from total assets.
- Lagged assets are beginning total assets

The dependent variable is terms of debt measured as secured debt to total debt. The mathematical expression is written below

$$SECDEBT = \frac{Secured\ debt}{total\ debt} \quad (3.3)$$

In order to build a second model, we include of cost debt as a factor whose value can be determined by accounting quality. We operationalize cost of debt as interest rate. This is in line with the studies by Spiceland, Yang and Zhang (2016). Interest is among key mechanisms in the debt contract. Interest revenue is the major economic benefit received by the debtholders from the borrowers.

**Method of Analysis:** The analysis will be done in phases: descriptive statistics analyzed according to moments. The first, second, third and fourth moments are considered. The panel data methods are fitting for this research and each of the ‘family’ of panel data technique is explained in the model specification.

### Model Specification

As a guide to accounting information quality, we explicitly and to a certain limit that data is available follow the modelling patterns in Hirvonen (2012). We build the research model based on asymmetric theory. Accounting information plays the role of minimizing asymmetric information. Information asymmetry means information advantage of one party in a transaction that the other contracting party does not possess at the right time.

Having mathematically expressed the dimensional measures of the analytical variables, we express a simplistic model accommodating the longitudinal and time series nature of the data class.

In our opinion a simplistic and general form is the pooled Ordinary Least Square (pooled OLS) in the following linear combinations which is used to fit the least square equation:

$$\ln Y_{it} = \beta_0 + \beta_1 \ln X_{1i} + \beta_2 \ln X_{2i} + \dots + \beta_k \ln X_{ki} + \varepsilon_i \quad (4)$$

Where;

- Y is the dependent variable responding to changes in the variables of the Right-Hand Side (RHS) equation constituting the  $i^{\text{th}}$  observation on the outcome variable;

- $\beta_1 \dots \beta_k$  are parametric constants holding other variables constant. These represent slope coefficients that provide an estimate of the influential variations of each X variates on Y.
- $\beta_0$  is the intercept, which means the expected value of Y when all the X variates equate to zero.
- $X_{it}$  represents a certain independent variable that varies cross-sectionally and with time;  $\varepsilon$  random disturbance term.

Before substituting the general expression variables in equation (3.4), it is empirically conventional that the relationship is functionally written as follows:

$$SECD = f(ACCRUAL, BSBLOAT, FIRMSIZE) \quad (5)$$

Where;

- SECD represents secured debt to total debt which represents terms of debt measurement as a dependent variable.
- ACCRUAL means accrual which is the ratio of the difference between net income and cashflow from operation as a proportion of average asset. In other words, it is calculated as the difference between net income and cash flow from operations, scaled by average total assets.
- BSBLOAT implies balance sheet bloat expressed as the difference between operating assets and liabilities as a proportion of lagged assets. It is a cumulative measure of the difference over time between accounting value added and cash value added – ‘balance sheet bloat’. It is calculated from the balance sheet as the difference between operating assets (total assets – cash and short-term investments) and operating liabilities (total assets – total debt – minority interest – preferred stock – common equity), scaled by lagged total assets.
- FIRMSIZE the size of the manufacturing firms differs in terms of their asset level. This stands out as the control variable which plays mediating role. Giant manufacturing corporations tend to have more segments. Others are smaller in the number of segments. Nestle Plc has two major segments comprising of food and beverage lines. Dangote seems to be more sophisticated in the segments in asset quantity, however larger firms tend to be older and have more established product lines and multiple sources of income, hence are perhaps less risky. Based on experience this study by *a priori* expect firm size to possess positive sign with terms of debt.

The functional equation is captured in the following restricted model. Causal relationships involving timeseries or panel data can be investigated using dynamic approaches. Thus, equation (1) can be remodeled in an econometric set up rewritten as follows:

$$SCED_{it} = \beta_0 + \beta_1 SCED_{it-1} + \beta_2 ACCRUAL_{it} + \beta_3 BSBLOAT_{it} + \beta_4 FIRMSIZE_{it} + \varepsilon_{it} \quad (3.6)$$

Where;

$SCED_{it-1}$  is the lag of secured debt to total debt and others are as already explained in the previous models. In addition, we expect parameters  $(\beta_1, \beta_3, \beta_4)$  to conform to *a priori* in conformity to empirical conclusion of Hirvonen (2012) of no statistically significant association with SECD indicating the impact to be relatively small. Like the author we expect that high accruals are negatively associated with terms of debt in the two accrual measures entering into the empirical model. The *a priori* expectation also follows the argument of Bhojraj and Swaminathan



(2009) suggesting that firms with high accruals (low cash flows relative to earnings) appear to have lower future earnings and cash flows than firms with low accruals. As for  $\beta_2$  we expect by prediction that firms with bloated balance sheets obtain loans at poorer conditionalities (securitization is inclusive) than firms with less bloated balance sheet. In sum an inverse relationship is implied in terms of *a priori*. This is further justified on the ground that BSBLOAT is a cumulative accrual measure because performance of firms with high accruals in terms of earnings is most likely to be unsustainable.

As regard to  $\beta_3$  we expect that firms with bloated balance sheet would obtain debt at poorer conditions than those with less balance sheet bloated.

Moreover, since panel data studies require estimating other competing models prior to model identification test, it is necessary to further model fixed and random effect (also called generalized least square) estimators.

The second model has the interest rate as outcome construct which is relatively expressed as follows:

$$INTR_{it} = \beta_0 + \beta_1 ACCRUAL_{it} + \beta_2 BSBLOAT_{it} + \beta_3 FIRMSIZE_{it} + \varepsilon_{it} \quad (3.8)$$

Where;

INTR is interest rate and others are as already explained.

### Fixed Effect Specification and Test

The argument in support of Fixed Effect (FE) estimator is an Ordinary Least Square (OLS) assumption on omission of important explanatory variable. It is evident that in the simple models above there is a limitation and potential for misspecification bias. In order to solve the problem of heterogeneity inherent in the entities, the competing models of random and fixed effect estimators are superior to pooled OLS in their capacity to accommodate the unobserved variable. The proposed solution in the FE framework is the creation of a common intercept which incorporates the restrictions that all intercept variables have similar parameter ( $H_0: \mu_1 = \mu_2 = \dots = \mu_N$ ). The FE model expression is in the equation below:

$$Y_{it} = \beta_1 X_{it} + \alpha_i + \mu_{it} \quad (3.7)$$

Where;

- $\alpha_i$  ( $i=1 \dots n$ ) is the unknown intercept for each entity ( $n$  subject/entity-specific intercepts). In the current study it represents industry specific dummies which takes the binary 1 when it has life and 0 when it does not
- $Y_{it}$  is an outcome variable where  $i$  represents an  $i^{th}$  cross-sectional dimension of the panel data (firms in the manufacturing industry); and  $t$  = time
- $X_{it}$  stands for a single regressor as already expressed,
- $\beta_1$  is the parameter of the regressor,
- $\mu_{it}$  is for the disturbance term assumed to be independently and identically distributed over the entire sample with constant variance.

However, for Within Group estimator, the model is transformed by expressing each original observation on the variables as deviations from their respective means so that the individual-specific effects  $\eta_i$  are eliminated as follows:

$$k_{it} - \bar{k}_{it} = \alpha(k_{it-1} - \bar{k}_{it-1}) + (\eta_i - \bar{\eta}_i + \varepsilon_{it} - \bar{\varepsilon}_{it}) \quad (3.8)$$



Where  $\bar{k}_{it}$  is the mean of  $k_{it}$ ,  $\bar{k}_{it-1}$  is the mean of  $k_{it-1}$ ,  $\bar{\eta}_i$  is the mean of  $\eta_i$ , and  $\bar{\epsilon}_{it}$  is the mean of  $\epsilon_{it}$ . However,  $\bar{\eta}_i = \eta_i$  so that  $\eta_i - \bar{\eta}_i = 0$ . This effectively eliminates the individual specific effects, thus, OLS can be applied.

Because information secure debt is fairly limited to accommodate a robust work, we build a second model with dependent variable to be interest rate fixed by monetary policy institutions. To measure interest rate which is cost of debt contracted at the first stage of the debt contraction, we follow Spiceland, Zhang and Yang (2019). The relationship is specified as follows:

$$INTR_{it} = \beta_0 + \beta_1 ACCRUAL_{it} + \beta_2 BSBLOAT_{it} + \beta_3 FIRMSIZE_{it} + \epsilon_{it} \quad (3.9)$$

Where;

INTR is cost of debt to proxy interest rate and others are as already explained.

### Random Effect Test Estimation

Random effect (RE) model also called error component model is an alternative to FE estimator. As it well known, under the random effects model, the intercepts for each cross-sectional unit are assumed to arise from a common intercept  $\alpha$  (which is the same for all cross-sectional units and over time), plus a random variable  $\epsilon_i$  that varies cross-sectionally but is constant over time.  $\epsilon_i$  measures the random deviation of each entity's intercept term from the 'global' intercept term  $\alpha$ . We can express the relation as:

$$\omega_{it} = \epsilon_i + v_{it} \quad (3.9). \text{ The random effect model becomes:}$$

$$y_{it} = \alpha + \beta x_{it} + \omega_{it} \quad (3.10)$$

$\omega_{it}$  represents composite error term

$-v_{it}$  is within-entity (individual observation error)

Since the most common conventional regression methods for panel data that will be employed which include Fixed-Effects-Model (FEM) and Random-Effects-Model (REM). Nevertheless, Hausman specification test will be done in order to determine whether random or fixed effect is more efficient.

### Hausman Test Estimation

In order to select between RE and FE we introduced a complex version of the Hausman test. This statistic evaluates the assumption of consistency of the FE estimate against the efficiency assumption of the RE estimate.

In simple terms, if Hausman test accepts  $H0$ : or  $p\text{-value} > 5\%$  hence the null hypothesis is that the preferred model is RE. Alternatively  $H1$ : if Hausman test of cross-section random hypothesis receives  $p\text{-value} < 5\%$ , then FE is conclusively the most preferred model.

This follows other model diagnostic tests ranging from likelihood ratio test, cross-sectional dependence (CD) tests, Wald test and Lagrange multiplier tests.

## RESULTS AND DISCUSSIONS

As it is currently conventional, a descriptive behaviour of the series is necessary since a normally distributed dataset is an ideal analytical data for empirical models. Of importance is the treatment we have given to the data prior to the descriptive test. The treatment mode is geared at minimizing to moderate degree the extent that outliers are integrated into the series. To do this the cleaning of the data follows the taking of natural logarithmic function of each series.

### Research Result and Analysis

The research results are combination of pooled OLS and other competing estimators. As it is conventional, we commence with descriptive statistics. The dataset is found in appendix 1.

### Descriptive Statistics Analysis

Table 1a shows the distributional properties of all the variables of study for key manufacturing firms from 2011 to year 2020. Table 1b displays the control variable (firm size). It is necessary to make comparison on size of firms which gives the bigger firms strong edge in their loan application and success.

**Table: 1a Descriptive Statistics**

Variable	$\bar{x}$	Med.	$\sigma$	S	K	P-value
ACCRUAL	-1.011953	-0.24259	1.529058	-1.150580	3.589294	0.002801
BLSBLOAT	-0.964141	-0.781715	0.627873	-0.951125	3.391868	0.019658
FIRMSIZE	19.03058	18.68680	1.093591	0.818853	2.490322	0.046680
SECD	1.442409	1.804141	1.066483	-1.537693	6.265761	0.000000
INTR	2.944473	2.927817	0.056290	0.749621	2.397110	0.065875
OBS	50	50	50	50	50	50

Sample moments consists of mean, median, standard deviations, skewness, kurtosis and probability statistics of Jarque-Bera of large firms. Looking at the distributional properties of the combined variables it is keenly observed that the median (mean  $\bar{x}$ ) ACCRUALS are -0.24259% (-1.011953%). The sign of ACCRUALS is still negative which means that majority of samples are more likely to underestimate than overestimate their earnings relative to cashflow. This value is close to the one reported in Hirvonen (2012). The standard deviation is 1.529058 which shows minimum deviation. It is negatively skewed at -1.15058 showing more thick tails at the left hand. At the 4<sup>th</sup> moment the kurtosis is 3.589294 however this is almost mesokurtic. INTR has a mean of 2.944473 but this is subject to a low variability given a standard deviation of 0.056290 and a positive skewness and platykurtic moment distribution.

The median (mean,  $\bar{x}$ ) BSBLOAT is -0.781715% (-0.964141%). The median and mean values are close each other. It is negatively skewed given a coefficient of -0.951125 indicating that it has more extreme values to the left. With a coefficient of 3.391868 which exceeds the standard 3, the

4<sup>th</sup> moment indicates a leptokurtic distribution which deviates from normal distribution. The standard deviation is 0.627873 which indicates that balance sheet bloat does not vary substantially across the samples.

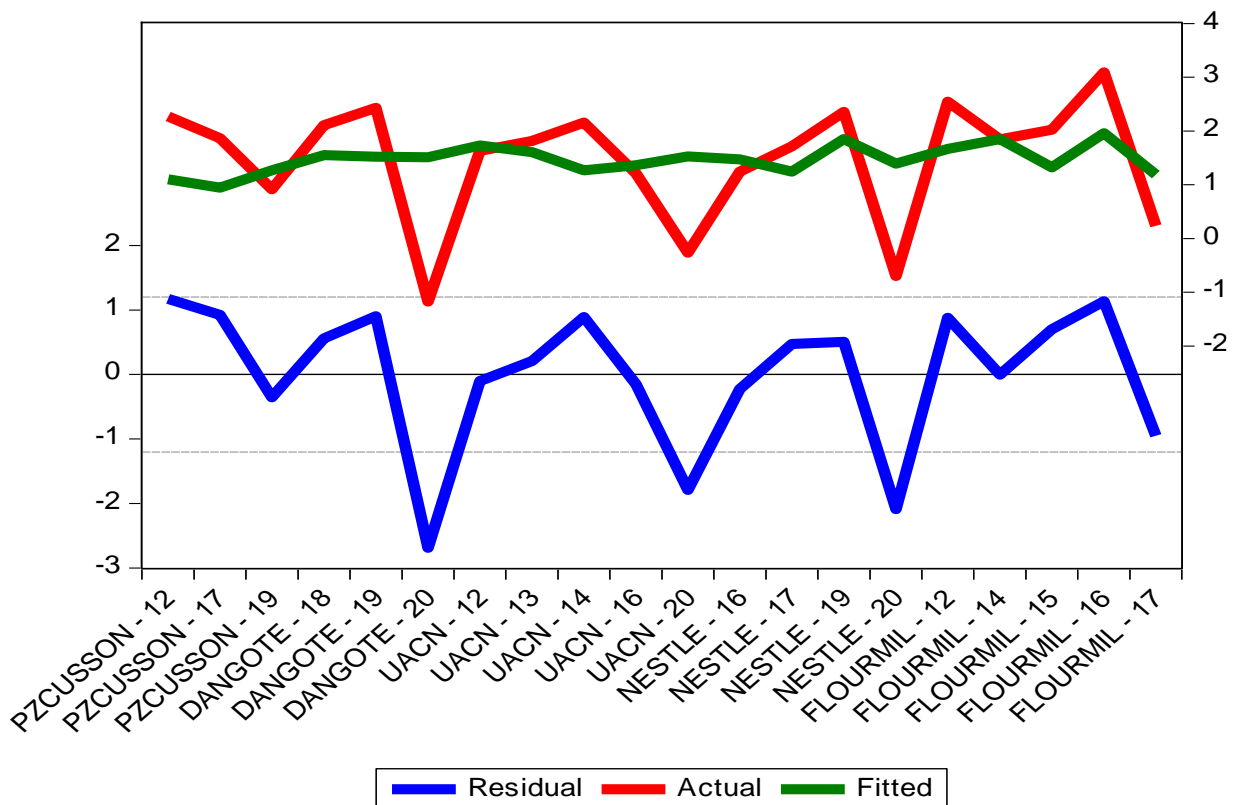
The median (mean) SECD is 1.804141% (1.442409%) indicating that sample enterprises are likely to rely more on terms of debt. SECD has more of higher values given a platykurtic coefficient of 6.265761 that is highly greater than 3.

The FIRMSIZE is comparable to the size of individual firms reported in Table 1b. The median (mean) of FIRMSIZE is 18.68680% (19.03058%) which means the samples cluster around the mean. Comparatively Dangote appears to command the largest FIRMSIZE of 20.81029%. Dangote FIRMSIZE exceeds the mean of the group. The p-value of 0.292447 in Dangote shows a normal distribution. FLOURMILL has a mean (FIRMSIZE) of 19.18311% almost equivalent to the 19.03058% of the entire mean of the sample. It also has low relative deviation given a standard deviation of 0.891907% which is also platykurtic given a kurtosis of coefficient of 1.752037%. UACN has moderate excess kurtosis of 3.073300 in FIRMSIZE.

**Table: 1b Descriptive Statistics for Firm size- Manufacturing firms**

Variable	$\bar{x}$	$\sigma$	S	K	P-value
DANGOTE	20.81029	0.564957	-1.187945	3.506570	0.292447
FLOURMILL	19.18311	0.891907	-0.720547	1.752037	0.469017
NESTLE	18.64438	0.274863	-0.462155	1.835464	0.630956
PZCUSSON	18.04289	0.259939	-1.099115	2.781001	0.361785
UACN	18.47222	0.335029	-1.230864	3.073300	0.282623
OBS	50	50	50	50	50

We can as well observe that all the firms have means in FIRMSIZE that are within the threshold of the mean of the entire sample. They are all related in terms of negative skewness with higher values to the left signifying fatter tails. All appears to have moderate deviation from mean of themselves. The high values of p-value in the Jarque-Bera indicates that our normality distribution assumption is invalid for FIRMSIZE.



**Figure 2 Residual Plots**

The pictorial illustration above is a residual plot to examine the predictive power of the model in the changes associated with term debt. Conventionally, linearity problem is detected by examining residual plot or regression standardized residuals against regression standardized predicted values which we have presented in Figure 2. plots. If any curve is observed in the graph it is an explicit indication that datasets have broken assumptions of linearity. It can be observed in the plot how the trend lines of actual and fitted lines move close to each other. The closeness indicates minimum error in the estimates hence we could rely on this for generalization of analysis. The usual OLS assumes linearity within variables. If the relationship fails in its linear property it is bias making meaningful generalization of the result. The graph above accurately exhibits linear behaviour against a quadratic curve.

### **Pooled OLS regression Analysis**

Right in Table 2 we present the mean of pooled OLS equation result to examine changes in SECD due to corresponding changes in the accounting quality.

### **Table 2: OLS Regression on Mean Equation Result**

Dependent Variable: SECD

Method: Panel Least Squares

Date: 04/29/21 Time: 10:02

Sample (adjusted): 2012 2020

Periods included: 9

Cross-sections included: 5

Total panel (balanced) observations: 45

<i>Variable</i>	<i>Coefficient</i>	<i>Std. Error</i>	<i>t-Statistic</i>	<i>P-value</i>	<i>K</i>
<i>1.521238</i>	<i>2.559291</i>	<i>0.594398</i>	<i>0.5556</i>		
<i>SECD(-1)</i>	<i>0.032201</i>	<i>0.151224</i>	<i>0.212936</i>	<i>0.8325</i>	
<i>ACCRUAL</i>	<i>0.109218</i>	<i>0.095399</i>	<i>1.144859</i>	<i>0.2591</i>	
<i>BSBLOAT</i>	<i>0.052891</i>	<i>0.243416</i>	<i>0.217288</i>	<i>0.8291</i>	
<i>FIRMSIZE</i>	<i>0.006062</i>	<i>0.136526</i>	<i>0.044404</i>	<i>0.9648</i>	

### Source: Result Output

The Table 2 shows the respective betas of the variables and their associated signs. The result is an estimate with neither fixed nor random effects model inclusion. We have ignored the entity constant effect variable that could play significant role in the changes in SECD. The term debt (SECD) in this regression is in proportion terms before conversion to percentages. The coefficient of ACCRUAL is 0.109218 which indicates that ceteris paribus SECD changes by approximately 0.109% for a unit rise in ACCRUAL, however this not significant at 5% significance level. BSBLOAT is positive and insignificant with a beta of 0.05289%, in addition FIRMSIZE is positive and insignificant.

Generally, we can observe that neither the intercept (*K*) nor any of the slope parameters turn out to be statistically significant.

Given the clear limitation of this result and estimator which has omitted unobserved industry-specific effect variable. We are aware of theoretical inappropriateness of the pooled OLS due to assumption that intercepts are uniform for each entity and for each year. Hence, we are compelled to rule out an OLS result since it does not effectively allow for different intercept for each manufacturing firm. The next table presents a result which compares the two leading estimators of fixed effect and random effect statistics. As a rule of thumb whichever of the leading two results appears statistically plausible, we carry on with it as valid either in terms of consistence or efficiency in estimate.

### 3 Fixed Effect Regression Analysis

Dependent Variable: SECD

Method: Panel Least Squares

Date: 04/29/21 Time: 10:07

Sample (adjusted): 2012 2020

Periods included: 9

Cross-sections included: 5

Total panel (balanced) observations: 45

**Table :3 Cross-section Fixed Effect Dummy Variable**

<i>Panel A</i>					
<i>Variable</i>	<i>Coefficient</i>	<i>Std. Error</i>	<i>t-Statistic</i>	<i>P-value</i>	<i>K</i>
	4.377391	6.851221	0.638921	0.5269	
<i>SECD(-1)</i>	-0.052269	0.159750	-0.327195	0.7454	
<i>ACCRUAL</i>	0.070223	0.102037	0.688208	0.4957	
<i>BSBLOAT</i>	0.200735	0.282838	0.709718	0.4825	
<i>FIRMSIZE</i>	-0.130177	0.357093	-0.364546	0.7176	

<i>Panel B</i>			
<i>Redundant Fixed Effects Tests</i>			
<i>Equation: Untitled</i>			
<i>Test cross-section fixed effects</i>			

<i>Effects test</i>	<i>Statistic</i>	<i>d.f.</i>	<i>p-value.</i>
<i>Cross-section F</i>	1.030961	(4,36)	0.4046
<i>Cross-section Chi-square</i>	4.880334	4	0.2998

The above fixed effect result is a restricted model with only cross-section fixed effect in focus. We have incorporated redundant effect in this regard to examine the capacity of fixed effect estimator to generate consistent estimate. Interestingly the panel A result is quantitatively different from the pooled OLS estimates. Therefore, it is comparatively fixed effect that generates more plausible result as the cross-section effect makes a difference.

Next, we determine between fixed and random effect result the most plausible in explaining the relationship. The use of Hausman test brings these two estimators to objective comparison.

### Hausman Test

The Table 4 is a summary statistic of Hausman test in the regression equation. Hausman test makes comparison of the fixed and random effects and determines the most appropriate through a hypothesis test.

**Table 3 Correlated Random Effects - Hausman Test**

<b>Cross-section Random</b>		<b>Chi-Sq. Statistic 4.123845</b>		<b>p-value 0.3895</b>
		<b>Chi-Sq. d.f 4</b>		
<i>Variable</i>	<i>Fixed</i>	<i>Random</i>	<i>Var (Diff.</i>	<i>p-value</i>
<i>SECD(-1)</i>	-0.052269	0.032201	0.002722	0.1054



<i>ACCRUAL</i>	0.070223	0.109218	0.001339	0.2865
<i>BLSBLOAT</i>	0.200735	0.052891	0.020929	0.3068
<i>FIRMSIZE</i>	-0.130177	0.006062	0.108933	0.6798

In the Table 3 the Hausman test hypothesis is a specification test whose  $p$ -value is 0.3895. The result of the Hausman test represents an empirical verdict supporting the acceptance of the null hypothesis of the random effect model estimator where  $p\text{-value} = 0.3895 > 0.05$  significance;  $\chi^2 = 4.123845$ ;  $df = 4$ . In this case random effect is preferred under the null hypothesis due to higher estimation efficiency which indicates having smallest asymptotic variance, at least if compared to the fixed effect. In this study every other subsequent analysis, interpretation of the coefficients and references exclusively follow dictates of the random effect result. We present this new result on panel EGLS of the random effect

## 5 Generalized Least Square Relationship Analysis

Dependent Variable: SECD

Method: Panel EGLS (Cross-section random effects)

Date: 04/29/21 Time: 10:17

Sample (adjusted): 2012 2020

Periods included: 9

Cross-sections included: 5

Total panel (balanced) observations: 45

Swamy and Arora estimator of component variances

### 5 Random Effect Result

Panel A				
Variable	Coefficient	Std. Error	t-Statistic	P-value
K	1.521238	2.555338	0.595318	0.5550
SECD(-1)	0.032201	0.150990	0.213265	0.8322
ACCRUAL	0.109218	0.095252	1.146630	0.2583
BSBLOAT	0.052891	0.243040	0.217624	0.8288
FIRMSIZE	0.006062	0.136315	0.044473	0.9647
Panel B				
Effect Specification				
		S.D	Rho.	
Cross-section random		0.000000	0.0000	
Idiosyncratic random		0.922646	1.0000	
Panel C				

<b>Weighted Statistics</b>			
<i>R-squared</i>	0.033401	<i>Mean dependent var</i>	1.532085
<i>Adjusted R-squared</i>	-0.063258	<i>S.D. dependent var</i>	0.896163
<i>S.E. of regression</i>	0.924073	<i>Sum squared resid</i>	34.15644
<i>F-statistic</i>	0.345557	<i>Durbin-Watson stat</i>	1.708604
<i>Prob(F-statistic)</i>	0.845525		
<b>Panel D</b>			
<b>Unweighted Statistics</b>			
<i>R-squared</i>	0.033401	<i>Mean dependent var</i>	1.532085
<i>Sum squared resid</i>	34.15644	<i>Durbin-Watson stat</i>	1.708604

In order to support the preference of random effect model over other methods, it is clear that the mean coefficients are of different order of magnitude compared with the pooled and fixed effects (refer to appendix 4 &5). All the estimates are positive and statistically insignificant. The individual statistics have empirical implications in this study. For instance, the ACCRUAL has a slope coefficient of 0.109218 which indicates that a unit percent change in accrual increases SECD by approximately 0.1092%, however the increase is not significant as  $p\text{ value } 0.2583 > 0.05$  significance level. BLSBLOAT has a slope coefficient of 0.052891 which is positive indicating that a unit percent increase in balance sheet bloat increases term debt by approximately 0.053% other things being constant. However, this is insignificant at probability of  $0.8288 > 0.05$  level of significance. The FIRMSIZE which proxied by asset of companies has a slope coefficient of 0.006062 indicating that a unit percent change in FIRMSIZE correspondingly leads to approximately 0.006% change in SECD. As seen in other betas the change is insignificant at 0.9647 which is greater 0.05 level of significance.

## 6 Model Diagnostic Test

In this sub-section we present diagnostic test of the estimators as it is econometrically necessary in order to justify the validity of the model result. To commence we present a new table on the representing statistical coefficients.

**Table 6 Mean and Variance Diagnostic Results**

<b>Panel A: Model Diagnostics</b>			
<i>Test statistics</i>	<i>value</i>	<i>df</i>	<i>p-value</i>
<i>F-statistic</i>	0.346627	(4, 40)	0.8448
<i>Chi-square</i>	1.386507	4	0.8465
<i>R<sup>2</sup></i>	0.132746		
<i>Log likelihood</i>	-55.20856	-	-
<b>Panel B: Residual cross-sectional Dependence</b>			
<i>Test</i>	<i>Statistic</i>	<i>d.f.</i>	<i>p-value.</i>
<i>Breusch-Pagan LM</i>	14.76858	10	0.1407
<i>Pesaran scaled LM</i>	-0.051747		0.9587

<i>Pesaran CD</i>	<i>1.892486</i>	<i>0.0584</i>
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Panel A is a Wald statistic result which computed  $F$ -statistic and  $Chi$ -squared values of 0.346627 and 1.386507. The values whose individual probabilities are 0.8448 and 0.8465 do not support the rejection of the null which suggests that lag of SECD and contemporaneous changes in ACCRUALS, FIRMSIZE and BSBLOAT equate to zero. Interestingly, all the variables are relevant in the explanation of changes in term debt of firms.

When explicitly focus on random effect model result,  $R^2$  of 0.132746 indicates that there are more variables to needed to explaining terms of debts from accounting quality of IFRS firms. In our model ACCRUALS, FIRMSIZE, and BSBLOAT can only explain 13.32746% of changes in secured debt. Despite the low coefficient of determination, a log likelihood ratio of -55.20856 the unrestricted model to be significantly plausible in explaining the relationships.

It is also necessary that the entities do not cross-sectionally depend on each other. Cross sectional dependence is to inefficient estimates as serial correlation is to spurious regression. In panel B of Table 6 there are three testing approaches to cross-sectional dependence ranging from Breusch-Pagan LM, Pesaran scaled LM and Pesaran CD.

Considering our heterogeneous panel data where  $T \rightarrow \infty$  and  $n$  is fixed, the Breusch-Pagan LM test has a  $p$ -value of 0.1407 which means the acceptance of null of no cross-sectional dependence. The rest of the methods can be applied to execute similar test. In the Pesaran Scaled version of LM and as pointed out in Pesaran CD the null of no cross-sectional dependence is not rejected given an evidence of 0.9587 and 0.0584 probabilities.

The Jarque-Bera probability is 0.007575 does not reject the alternate hypothesis since the  $p$ -value is bigger than 0.05. It could be the case of presence of outlier which is seldom the case that one or two very extreme residuals influence the rejection of normality assumption thus we could recognize and name outlier Covid-19 which dominated the year 2020. Despite the seemingly non-normality of the error in the residual it is inconsequential due to our sufficiently large sample. By appealing to central limit theorem, the sample mean converges to a normal distribution, therefore it is implied that the test statistics asymptotically follow appropriate distribution even the absence of error in normality (see Brooks, 2014p.164).

In another test we build a second model with cost of debt (interest rate as proxy) to serve as outcome variable. Like the SECD model, the Hausman test shows that RE (Random Effect) model result is efficient leading to the rejection of FE result. From the result the  $p$ -value of 0.2925 is greater than 5% significance level. Based on sign all the predictor variables are positive indicating that their rate of unit increase correspondingly leads to increase in the rate of interest by approximately 0.000148; 0.000426; 0.052220 percent representing each of ACCRUAL, BLSBLOAT and FIRMSIZE.

Considering hypothetical relations, at  $p$ -value of 0.1887 the null of no significant relationship is not rejected in ACCRUAL quality. The null could not also be rejected at 0.1597  $p$ -value of BLSBLOAT. However, we find FIRMSIZE as control instrument to be significant at 0.0000 suggesting the acceptance of the alternate hypothesis.

### Discussion of Findings

In discussing the findings presented in this research, the model building process of this study is incomplete without mentioning integration of lagged dependent variable (SECD) to complete a dynamic panel data which is conformity to Baltagi, Feng and Kao (2012). As the analysis commenced with descriptive statistics analysis for all the variables, however since firm size matters as control variables in terms of maintaining accounting quality, we perform another set of descriptive statistics. The comparison shows Dangote Plc to command the largest asset mean as it outstrips the remaining four firms (Flourmills, Nestle, PZ Cusson and UACN). Thus, it is comparatively the largest which implies it could potentially have better accounting quality, however all the companies report a negatively skewed FRIMSIZE.

In the mean equations there are several findings. The first being the positive and insignificant betas in the pooled OLS regression result. Violation of important assumption on non-omission of important variables associated with accounting quality means that OLS has obvious empirical limitation. Solution to the limitation is found in fixed and random effect results. Model selection guideline proposed in Hausman (1978) recognizes the efficient estimating powers of random effect since the null supporting the validity of random effect is not rejected at 5% level of significance.

In every respect we deduce though empirical computation that firms pay insignificant cost for presenting unreliable information. The cost is rooted in asymmetric information reflected in balance sheet bloat. Thus, we observe asymmetric information cost. However,  $F$ -statistic probability of 0.845525 ( $p - value = 84.55\% > 5\%$ ) shows that such cost is not substantial in the five firms analyzed.

Our *a priori* consideration based on significance conforms to expectation in the BSBLOAT hypothesis which supports findings of Hirvonen (2012). Like the author BSBLOAT is not significantly associated with SECD. Contrary to expectation based on sign BSBLOAT has a positive beta that renders predicted negative *a priori* expectation invalid. This could be the case that: the higher the balance sheet bloat which in real world situation is illusory and different from reality if representative faithfulness is imbibed, the higher the belief by debt holders of firm that the security of their debt is extraordinarily necessary given to the decorated information contained in the balance sheet of firms. In fact, we observe that bloat is a manipulation of company statement of financial position that hide material risky facts. The positive sign might as well imply that bloats raise the curiosity of debt instrument investing public (whether of short or long term debts) to thoroughly reassess their risk appetite which influence their demand for higher credit security. Balance sheet bloats make firms to be perceived as riskier: and that is what it is nonetheless. In other words, firms with higher balance sheet bloat reveals higher exposure, hence investor suspicion means that less credit would be available unlike for other counterpart firms in the same industry without bloat. Biasing of information through BLOAT is consistent with information asymmetry theory which leads to adverse selection problem. Moreover, it further defeats the objective of statutory annual reports preparation of public liability companies which is designed to mitigate information asymmetry between internal management and parties outside the firm (in this case investors, borrowers and lenders).

As regard to ACCRUAL (the deviation between earnings and cashflows scaled by average total assets), it is inconsistent with predicted outcome under a sign hypothesis. ACCRUAL is positive in every model. It is also not consistent with expectation based on significance. ACCRUAL variable is not statistically significant at 5% level in all the models. The statistical insignificance is consistent with Hirvonen (2012) results in the SECD model. The implied meaning of the result is that higher deviation of earnings from cashflow given total asset affects the quality of disclosed information. By this disparity lenders would demand larger proportion of secured debt in the total debt portfolio.

Our finding also shows that unit increase in the size of firms would lead to marginal increase in secured debt total debt. Adding  $LnASSET$  as control variable and lagged value of SECD did not alter the statistical insignificance and signs of other accounting quality measures in the model. In principle larger firms would have better reputation and investor confidence in their financial statement information than small firms. This would seem to suggest that opting for higher securitization of debt would be meaningless seeing the asset size. But in practice this is a matter of psychology. As our finding indicates, bigger firms may be condemned to moral hazard which could require lenders to demand for higher security of debt from protection against exposure and potential financial distress of borrower. Thus, the positive association with terms of debt conforms to expectation while it supports Hirvonen (2012).

As regard to the cost of debt (interest rate) the positive estimate shows that debt-holders are at serious advantage because increase in the accrual and balance sheet raise cost of debt which yields more premium to debt instrument. Consequently, where income-generating capacity of the borrower is in significant doubt raising interest rate above market rate is a risk management strategy to lower worth of unexpected losses arising from moral hazard and adverse selection. Our finding violates multivariate regression result of Spiceland, Yang and Zhang (2019) which adds to the inconsistencies associated in the evidence around accounting quality debt. Nevertheless our finding does not contravene the predominant role attached to accounting quality on information asymmetry and the cost of debt.

### Conclusion

Our general conclusive inference is that firms with accounting quality issues are not able to secure debt financing at better terms based on asymmetric effects. In addition, our beams light on another possible outcome of accounting quality issue assuming practice of asymmetric information: interest rate or cost of debt. The debt covenant would require higher cost attachment before it is successful. The cost is compensatory to debtholders in the event of unexpected capital losses. We argue that balances sheet bloat increases the information risk associated with screening borrowers for debt contracts. This is passed on as higher rate of interest

### Recommendations

Based on the findings the following policy suggestions might be relevant in linking accounting quality to terms of debt.

1. Lenders should consider borrowers' accounting quality when they determine the terms of debt contract. Where the means of consideration is not known to lenders, existing or

potential lender might resort to making comparison of financial statement of firms released by management and that of rating agencies. Management should ensure that rating agencies like Standard and Poor or Moody periodically grade their debt position in order to create a balance between internally reported statistics and external sources objective opinion.

2. The practice of balance sheet bloat makes firms to indirectly run into asymmetric cost. It could be more profitable if firms stick to the provisions in different IFRS frameworks guiding the preparation of financial statements. Professional bodies like Institute of Chartered Accountants of Nigeria (ICAN) and Financial Reporting Council of Nigeria (FRCN) might use moral suasion approach to achieve this result.
3. In the course of reporting items in the financial statement, external auditors who are usually the four majors (Deloitte, KPMG, PwC and Ernst & Young) might perform recalculations in their assurance engagement to detect existence of abnormal disparities between earnings and cashflow and further insist on their correction.
4. Firms can as well encourage their staff to attend annual professional seminars like the ICAN Mandatory Continuous Professional Education (MCPE) where it is likely that poor disclosure of vital financial statement would be discussed, and its cost consequence is communicated.

### **Limitation of Study**

Developing this empirical research did not occur in an ideal state. our findings are valid and reliable to the extent that other things are held constant. Out of the host of identified limiting variables is that we explicitly focused on the accrual aspect of accounting quality while voluntarily neglecting financial statement adjustment from rating agencies since they are not readily seen in manufacturing firms unlike in the banking industry. Bringing adjusted financial statement would create more information balance than relying on single source reports.

We also acknowledge that accounting quality impacts on three fundamental variables: (1) terms of debt (2) debt maturity (3) interest expense. The first is the outcome variable in this study; others are not analyzed due to the problem of availability.

It is also necessary to know that only 5 manufacturing firms are drawn from the population and the frequency of observation on individual firms which affects asymptotic properties of the sample distribution. We could not on case-by-case basis perform comparison using extended panel data from each firm. Our research is at best a generalization of finding. However, this is acceptable in empirical studies. Similarly, some of the firms like Dangote Plc are yet to make public their annual report for year 2020 as at the time of conducting analysis. Empty observations are covered with interpolations of which there is potential deviation of the actual data from what we computed. This can influence the size of the beta, standard error, and fatter residuals.

Further research is also required in developing accounting quality analysis. This is in respect to financial statement adjustments category of accounting quality. We think that if this is done accounting quality would have a likely impact on loan maturity and interest expense as adjusted by the rating agencies which could be fundamentally different from secured debt or support it.



### Contribution to Knowledge

This study is written to give answer to the question of whether firms with high accounting quality helps to mitigate asymmetric information problems between borrowing manufacturing firms and the lending public. Our demonstration arrives at a plausible conclusion that accrual aspect of accounting quality does not guarantee less securitization rather lenders insist on 'double' security of their invested wealth no matter the asset size of the borrowing firm.

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