ASSET COMPOSITION AND FIRM STABILITY: A PANEL STUDY OF SELECTED MANUFACTURING FIRMS AND CONGLOMERATES IN NIGERIA

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Abstract

This study examines the impact of asset structure on financial stability of manufacturing firms in Nigeria. Panel data set covering the period from 2011-2021were collected from a sample of 37 manufacturing firms listed on the Nigeria Exchange Group. The interest variables include Altman Z score (a proxy for corporate financial stability), while Property, Plants and Equipment, Current asset, Intangible assets and Financial asset were the proxies for Assets Structure. After the necessary pre-estimation test to ensure that the estimated model output was robust and valid for policy purposes, the Hausman test was further applied to enhance precision in selecting either the fixed effect or random effect. Based on the Hausman test, fixed effect regression output was found to be most appropriate hence, the fixed effect regression results for the two models was adopted. Accordingly, the first model equation revealed that Current asset (CAST) and Leverage (LVG) impacted significantly on Corporate stability (COPS) of manufacturing firms in Nigeria while Financial Assets (FAST) and Intangible Assets (INTA) had no significant impact on corporate stability of same firms. Furthermore, the result of equation (2) revealed that Property, Plant and Equipment (PPE) and leverage (LVG) impacted significantly on Corporate Stability of manufacturing firms. While LVG improved COPS, PPE deteriorated COPS. In conclusion the manufacturing firms in Nigeria are in the gray area-tilting to financial distress, as revealed by the average Altman z score of 1.3. However, these firms can rebuild/strategize by increasing Corporate financial stability and prevent bankruptcy through increasing their Current Assets and reducing leverage. Thus, the current study has unraveled the influence of assets structure (composition) on corporate stability of manufacturing firms in Nigeria.
Keywords: Asset Composition, Corporate Stability, Bankruptcy and Hausman Test.

Introduction

The prevailing economic activities experienced in Nigeria following the insecurity, high exchange rate, and economic recession have increase the level of uncertainty surrounding business operations, their ability to achieve high profit and long run survival. Corporate stability deals with the ability of a company to withstand temporary economic challenges. The stability plans of business include investment in assets with present and future value. According to Dun and Bradstreets (2011) a stable corporate system is capable of efficiently allocating resources, assessing and managing financial risks, maintaining its human capital as much as possible. Such system is built to absorb any adverse shocks primarily through its internal capabilities and developed mechanisms, thereby preventing or reducing adverse negative effects that could lead to disruption of the real economy. This financial risk occurs because firms operate as part of the larger system, they source raw material from the society and pushes finished product back into the society. They also comply with policies and reflect the changes in societal taste, demand pattern, income and government micro and macroeconomic policies that may sometimes be unfavorable. All of these are considered as risks that could cause shock to firms, leading to serious financial instability challenges.

In this regard, Temuhale, and Ighoroje, (2021) opined that firm's asset structure has to be designed with close attention, and with attainment of the main objective of the firm at the center. This is important, since it is related to the amount of funds needed for the firm long-term's goal. capable of enhancing corporate value and reducing risks (Xu & Xu, 2013). The risk

reduction is possible because of the assets ability to generate healthy profits, when properly structured, and possibly impact positively on firm's financial stability.

Research has shown that firm's stability is associated with assets composition. Ericson and Pakes (1995), cited in Kabiru, Ibrahim, and Ibrahim (2019), believe that corporate stability is a key factor in determining the resource distribution, which leads to standardization, coordination, and speeding up of operations. Stable firms are said to be effective in resource distribution than firm under distress. The quality of the assets can be a key factor considered by lender and investor. According to Mwaniki and Omagwa (2017), Glova and Mrázková (2018), Ocak, and Fındık (2019) having quality assets allows businesses to borrow at low rate using their assets as collateral in order to acquire loan facilities to meet obligations. This enhances the possibility of ensuring stability of the firm. As a result, the purpose of this research is to look at the link between corporate stability and firm assets structure /composition. The problem statement here is, what constitutes the appropriate mix and to what extent does it impact on the stability of manufacturing firms?

Numerous researchers have studied the impact of asset composition on performance of firms. For example, in Hong Kong, Li and Wang (2014) used descriptive methodology and regression for data analysis Okwo, Ugwunta and Nweze (2012) used ex-post facto design and multiple regression analysis for the pool data. Ngunya and Mwangi (2018) and Mwaniki and Omagwa (2017) utilised binary logit analysis, but Anas and Mohammad (2015) employed a descriptive design and used multiple regression without adjusting for

cross section or fixed effect in their work.

In achieving the above objective, the study will utilize the Altman Z score as the measure of the corporate stability of firms in Nigeria. The firms used in this study were selected from manufacturing firms and conglomerates listed on the Nigeria exchange group from a total of 172 quoted firms, Classified into 11 sectors. The selected sectors include industrial goods firms, consumer goods firms and conglomerates. This is reasonably necessary as no known study has been done to link asset structure and corporate stability in Nigeria. The previous study focused on the link between asset structure and performance using variables like Return on asset (ROA), Return on Equity (ROE) and etc. Thus, the use of the Altman z score will succinctly expose the financial position of the firms (i.e. whether they are bankrupt, tilting towards bankruptcy or non-bankrupt) and how their asset structure affects the financial position. This is the gap.

The subsections in this study include the reviews of related literature, the methodology that exposures the research approach utilized in this study, the presentation of findings and discussion, and the conclusions and recommendations.

Conceptual Literature
Corporate Stability

Corporate stability is the ability of companies to sustain the level of production and operation in the nearest future. Corporate stability strategy focuses on maintaining its present product and market in order to guarantee future performance and avoid risk. Corporate stability deals with the ability of a company to withstand temporary problems such as a decrease in sales, lack of capital or loss of key staff or customers. The stability plans of

a business include the investment in assets with present and future value. Assets like human resources, noncurrent assets and long-term financial security. Das, Quintyn and Chenard (2004) define financial stability as the ability of the company to withstand unsound market practices and occurrences of moral hazard, and thus improve the system-wide risk management capabilities.

According to Dun and Bradstreets (2011), a stable corporate system is one which is capable of efficiently allocating resources, assessing and managing risks, and maintaining employment. In a stable system, the company is able to absorb the shocks primarily through its internally developed mechanisms, preventing unfavourable events from having a disruptive effect on the real economy or on other financial systems. In accounting, financial stability refers to a company's ability to pay its monetary obligations and avoid default. In a stable state, however, the system will absorb shocks largely through self-corrective processes, avoiding severe events from having a negative influence on the natural economy. Financial stability ratios are methods for assessing whether a company or individual can fulfill long-term goals with the resources available. Liquidity, Safety and profitability are measures of financial stability. Liquidity is a company's ability to pay its bills on time. The quick ratio and the current ratio are the greatest indicators of a company's liquidity. Safety explains if a company has an escalated exhibition due to debt. There are three basic standards for checking safety: i. earnings before interest and taxes divided by interest. ii. Debt to Equity, iii Cash flow to current mature of long, iv Altman z score. In this study, the Atman Z score is used as the measure of firm corporate stability. In three separate studies Atman proposed

different but closely related index for measuring the corporate profitability of firms. In the first study the overall index, when the Z value is greater than 2.99, the firm is classified as non-bankrupt, when the index value ranges from 1.81 to 2.99, the firm is classified as in the grey area, and when the index value is less than 1.81, the firm is classified as bankrupt (Cındık and Armutlulu, 2021; Altman, 1968). The results of Altman's study revealed that the model has very high accuracy. The model was 95% accurate one year before bankruptcy and 72% accurate two years before the bankruptcy. In the second study, when the Z' value is greater than 2.90, such firms are classified as non-bankrupt firms, if the index value ranges between 1.23 and 2.90, they are classified as in the grey area, but if the index value is less than 1.23, they are classified as in the high risk of bankruptcy. This model's classification accuracy for bankrupt firms was 90.9%, while it was 97.0% for non-bankrupt firms (Cındık and Armutlulu, 2021; Altman, 1983). Finally, the third revision was made to the original Z score index, and a new model called Z'' is developed for both manufacturing and non-manufacturing companies, as well as private and public firms. If the Z value is greater than 2.60, the company is classified as non-bankrupt; if the index value ranges between 1.10 and 2.60, the company is classified as in the grey area; and if the index value is less than 1.10, the company is in a difficult situation and is classified as having a high risk of bankruptcy (Cındık and Armutlulu, 2021; Altman, 1983).

Asset Structure and Corporate Stability

The company's ownership and utilisation of numerous assets in its manufacturing process (Saleh, 2018). Based on their convertibility and physical substance, assets utilized in businesses can be divided into fixed and current assets, and tangible and intangible assets, (Ibam, 2013). The entire assets of the company are made up of physical and intangible assets, as well as current and noncurrent assets. The structure of a company's assets might disclose information about its investment strategy and long-term viability. The structure of assets, according to Campello and Giambona (2013), provides information, particularly when it is utilised as collateral. The outcome of the examination of the number, quality, and character of the assets used as collateral provides the lenders with further information about the borrower. Having the correct noncurrent allows businesses to borrow using their assets as collateral to acquire loan facilities for operational and investment needs. Using assets as security allows the lender to recoup its funds even if the company is liquidated. This gives the lender confidence, and they are more likely to provide the loan on favourable conditions.

In a highly competitive market, the intangible component of the assets ensures the firm's long-term existence and competitive advantage. Having a large amount of intangible assets may be a source of revenue for a company. For example, providing royalty rights, patents, and trade mark rights to other companies can be a source of revenue that improves the company's financial stability.

Property, Plant and Equipment and Firm Stability

Property, plant and equipment are immovable assets which cannot be easily converted into cash. They constitute major portion of the total assets of manufacturing firms. The quality of it can help determine

the quality of the product, ability to meet stakeholders' demand (goodwill), meet revenue projection, and long-run survival plan of the firm. Investment in Property, plant and equipment help build up a firm's statement of financial position and stripping them can be a veritable source of finance to the firm when all other source fails.

According to Amaland (2010), the main production assets in most production enterprises are the main production assets. They are indispensable when processing raw materials into finished products. In production plants, fixed assets are used to transform raw materials into finished products (Lani, 2009). Hence the investment in property, plant and equipment impact on the quality of the output, drive competitive edge and enable the firm meet revenue and profit target. This enable the firm attain high level of stability even in a volatile economy. Amaland (2010), believe that a company stability depends on the stakeholder's perception of the present level of performance and ability to meet obligations when fall due and the prospect of future performance of the company. The since firm stability is the market stability of its stock, high market stock price means high firm stability. Maximizing the firm stability can be important to the investor and the managers. In the study carried out by Okwo (2012) on the relationship between noncurrent assets investment and firm profitability found a positive significant relationship.

In the study of Ibam (2008), a company's investment in non-current asset is dependent to a large extent on its line of business. This hold true as some businesses operates in capital intensive industry like oil and gas while other are operating in industry with less capital concentration. The

finding from the study of Khalid (2012) reveals that poor or bad assets structure can negatively affect the survival and stability of firms.

Current Assets and Corporate Stability

A stable company is the one that is able to meet stakeholders' expectation, positive performance and guarantee of future performance. In the normal operation of business, current assets and liabilities are involved; their increase or decrease has effect on the corporate stability of the firm. For instance: Current Assets – trade debtor, bill receivable, prepared and stock: the change in the level of stock have a direct effect on corporate stability from operating activities. A decrease in stock increases the cash inflow from operating activities whereas an increase in stock will decrease the cash inflow from operating activities on the short run. An increase in current assets can enhance the stability as the firm liquidity level increase. A decrease in current liabilities leads to lower level of liquidity which may affect the ability of the firm to meet its short-term obligations.

According to Ogbadu, (2009), the management of inventory plays a significant role in the growth and survival of a firm, as inadequate management of inventory can cost the organization to loss valuable customers, sales decline and firm image. On the other hand, the adequate management of inventory can help in reducing depreciation, pilferage, and wastages while ensuring availability of the materials as at when required. This has made the management of inventories a critical factor to an organization's success in today's dynamic and competitive market. This situation can create panic among the stakeholders and negatively impact on the

goodwill of the firms. In the view of Akinlo (2010), stability of an entity has to do with how a firm invests its scarce resources and manages the investment to achieve a predetermined goal of increasing shareholder wealth.

Intangible Assets and Firm Stability

The non-physical character of intangible assets, as well as their lack of tradeability, distinguishes them from other types of assets. They are not permitted to be traded on a live and open market. For example, goodwill is difficult to sell in an active and open market. This might be owing to a lack of specific information that is typically not available to the public, resulting in information gaps between owners and investors/outsiders. In most businesses, the usage of intangible assets and their importance varies. Intangible assets have become one of the major drivers of competitive advantage and business stability in the current economic environment (Zambon, 2003). Intangible assets have been seen to contribute to economic growth in most nations, particularly in the service and technology sectors, outside of the private sector (Corrado, Hulten and Sichel 2006).

According to Corrado, Hulten, and Sichel (2006), the amount spent on intangible assets has an impact on the firm's current and future behaviour. Although certain empirical research claim that most businesses utilize intangible assets as their primary profit and transfer pricing shifting route. Intangible assets are broken down into various components in the study, including patents, brand names, trademarks, royalties, research and development, and copy rights. Patent citation has a positive and significant effect on firms, according to a study by Chin, Lee, and Chi (2006). Klock and Megna (2000) used the company in the communications sector to break intangible assets down into four key components: intellectual capital (proxied by R&D), advertising, customer base, and radio spectrum licensing.

According to the findings, radio spectrum licensing and advertising have a greater influence on a firm's stability in the communications business. Canibano, Garcia-Ayuso, and Sanchez (2000) demonstrate the presence of rising returns due to higher R&D investment in Lantz, et al. (2005). It was explained that investing in research and development can assist boost future earnings. However, Sundaram, John, and John (1996) found no positive link between R&D investment and stock market prices since market reaction is dependent on the amount of competition. IC is a scalable resource that may be used to gain a competitive edge, and it can also help a company's financial success. According to Ulum, Ghozali, and Chariri (2008), IC has a favourable and significant effect on the company. Mairesse and Siu (1984) also conducted research that found no short-term link between a company's R&D spending and its financial performance. Thus, we will investigate the relationship between a firm's previous year's R&D expenditure as an instrumental variable and the firm's current year financial results by using the 1-year lagged value of R&D expense to determine the long effect of research and development activities on a company's value in our research.

Financial Assets and Firm Stability

According to Cheptoo (2018), financial assets are company's investment in capital market instrument, stock, security of other companies and government bonds on the short term or long-term basis. They also

include investment in convertible security with the aim of maintaining high level of liquidity. Company invests in financial assets to achieve three benefits; cash benefit or capital gain or both. A firm can also invest in financial assets in other to generate some cash return instead as against holding the resource as balances especially in a inflationary economy like that of Nigeria. According to Simeyo, Bernard, Patrick and Francis (2013), the main reason for investment in financial assets is cash benefit or capital gain or both. These financial assets are acquired for the purpose of reselling to make positive margin, they can be held until maturity or until buyer indicates interest. Those financial assets like debt instrument are used to raise funds to meet short-term projects, provide privilege for the holder to control and have protect their interest in other companies with anticipation to getting capital gain and right to participate in the management of the company through the board.

The investment in financial assets can be one of the avenues for holding resources in a near liquid form to boast the liquidity position of the firm and also generate some profit for the firms. The use of idle resource (current assets) as investable fund can add to the stability of the firm since it enhances the possibility of meeting short term obligations. Investment in financial assets can be a veritable tool for spreading risk and enhances the possibility of making more wealth for the shareholders resulting from the return of the investment. Investing in financial assets with positive net inflow can have dual impact on the firm financial performance and enhances the liquidity position. Since the investment in financial assets will mean a better stability of the firm.

Empirical Review

The goal of this section is to access what has been done and what is left to be done based on existing literature. Thus, we present the previous studies, method used and possible findings. Adejoh (2015), evaluates intangible assets and performance of six quoted pharmaceutical firms in Nigeria for the period of ten years using ordinary least square (OLS) regression analysis. While Anichebe and Agu (2013) and Edwin and Florence (2015), used similar approach to investigate inventory management and firm performance among two hundred and forty-eight (248) in Enugu State and inventory management on profitability of cement manufacturing firms listed in Kenya, respectively. In these studies, significant relationship and impact were found to exist between the interest variables.

In Nairobi, Dennis (2014), evaluates the current asset management practices of small and medium enterprises selected from agriculture sector, the industry and manufacturing, technology, hospitality and from energy sector using descriptive research design. Grace and Mwangi (2018) and Irungu, et al. (2018), applied the panel regression method to study the manufacturing sector and 64 selected firms in their respective studies. Hatta, et al. (2015), evaluates the relationship between assets structure, company growth, profitability and value of 29 manufacturing companies quoted in Indonesia using OLS while Glova and Mrázková (2018), investigated the impact of intangibles assets on the stability of firms, applying similar research method for the period 2011 to 2015 for 1520 observation.

Khalid (2012) examined asset quality management and profitability nexus in banks for the period 2006-07 to 2010-011

using panel multiple regression and found that asset ratio has negative significant association with the interest variables. Furthermore, Martina (2015) who investigated tangible assets and the capital structure of Croatian small and medium-sized enterprises for the period 2005 to 2010 found that tangible asset negative significant impact on leverage in the short run while the long run impact positive and significant.

Mawih (2014) examined the effect of asset structure (fixed and liquid assets) on the financial performance of several listed manufacturing companies in South Africa for the period 2008 to 2012. The finding shows that asset structure has no significant impact on profitability in the sampled firms. The study of Murat and Derya (2019) on the impact of intangible assets, sustainable growth on stability of quoted Turkey firm, found that cumulative stability of tangible assets has a positive impact on firm growth rate for the period 2005 to 2013 using panel OLS. In a related study in the same country, Ocak, and Fındık (2019) using Heckman two-stage procedures and ordinary least square had a similar finding. While Mwaniki, and Job (2017) who examined asset structure and financial performance nexus in firms listed under service sector in Nairobi stock exchange in Kenya between 2010 and 2014, found that asset structure has financial performance. In a related study, Mwaniki and Omagwa (2017) found that asset structure has positive significant impact on firm stability.

Okwo (2012) assessed the impact of a company's investment in noncurrent assets on its operating profit margin and found that investment in fixed asset a positive but insignificant impact on operating profit. In similar study of Olatunji and Tajudeen (2014) which evaluates the relationship between investment in property, plant and equipment and profitability of quoted money deposit banks in Nigeria Stock Exchange. It was found that investing in non-current asset improved profitability in banks within the period of 2000 to 2012 using panel multiple regressions.

Saleh (2018), evaluated the impact of investment in assets on the stability of firm quoted under the manufacturing sector of the Indonesia Stock Exchange using panel dataset of 51 manufacturing firms between 2012 and 2016. In similarly, the direct and indirect impact of asset structure on the stability was investigated by Setiadharma and Machali (2017) with capital structure as moderating variable. The used 34 firms and covers the period 2010 to 2014 and used OLS to test the stated hypothesis. Ubesie and Ogbonna (2013) studied the effect of investment on non-current assets on the performance of cement manufacturing companies in the Nigeria stock exchange for data range of 2004-2013 and applied the OLS for estimation. Equally, Uwuigbe (2012) studied Asset Management and Corporate Profitability nexus in selected listed manufacturing firms on the Nigerian Stock Exchange between 2005 and 2009.

Most of the empirical studies both in Nigeria and abroad, focused on the impact of assets composition on firm performance and firm value with less focus on firm stability. This study fills the gap in knowledge, by providing literature and empirical evidence on the nexus between assets structure / composition and firm stability in Nigeria using Altman Z score which is a better measure of firm's financial status. The Altman Z score can be used to accurately predict when a firm is in good financial standing or tilting to bankruptcy, and when a firm is officially bankrupt.

Theoretical Framework

This study is majorly anchored on firm performance theory proposed by Benjamin Forler in 1954. According to the firm performance theory, in order to stay solvent, businesses must achieve cash equilibrium. A company's cash balance might be thrown off by a number of factors. According to the firm performance theory, losing cash equilibrium puts the company under financial strain. The theory is about re-establishing cash equilibrium, which will determine future company performance. The capacity to meet financial commitments on time, how much firm performance the company maintains, how the organisation acquires cash, and where it spends cash can all indicate if a company is financially healthy or not.

Information from the firm performance statement may indicate what stage of financial performance a firm is in and provide information about management actions to regain cash equilibrium. Therefore, companies must try to preserve cash balance in order to achieve their goals of maximising shareholder returns or investments. A positive firm performance indicates a cash payment by the firm to the shareholders, whereas a bad firm performance represents a cash payment by the shareholder to the firm, according to the idea. The conclusion is that businesses must try to maintain good operating results in order to pay dividends to shareholders.

Methodology and Data

This study investigated the asset composition and firm stability using secondary data covering the period of ten years between 2011 and 2020, from the published financial statement of quoted manufacturing and conglomerate companies in the Nigerian Exchange Group and the Nigerian Exchange Group Fact-book. The study used a total of 37 manufacturing firms and conglomerates. The firms are considered very important considering the value of their stocks in the capital market, their market capitalization, and contribution to the gross domestic product. The study used corporate stability (COPS) as the dependent variable which was proxied using the Altman Z score. Corporate stability deals with the ability of company to withstand temporary problem such as a decrease in sales, lack of capital or loss of a key staff or customer. The stability plans of business include the investment in assets with present and future value. On the other hand, the explanatory variables which are components of the firm asset includes Property, plant and equipment (PPE), Intangible assets (INTA), Financial assets (FAST) and Current assets (CAST).

Table 1: Operationalization of variables

Variables	Measurements/proxy
Dependent Variable	
Corporate stability (COPS)	Financial stability proxy by Altman Z score. In the current study a Z score > 2.60, implies the firm is classified as non-bankrupt; a Z score between 1.10 and 2.60, implies the firm is classified as in the gray area (in distress); and a Z score of < 1.10, implies the firm is classified as having a high risk of bankruptcy as used in Altman, et al. (2017).

Independent Variables	
Property, plant and equipment (PPE)	Total Property, Plant and Equipment, drawn from prior studies like Mwaniki and Omagwa (2017).
Intangible assets (INTA)	Total Intangible Asset (patent right+ copy right+ goodwill+ trade market, research and development) Mwaniki and Omagwa (2017).
Financial assets (FAST)	Total Financial assets/ Total assets. were drawn from prior studies like Mwaniki and Omagwa (2017).
Current assets (CAST)	Total of Current Assets were drawn from prior studies like Mwaniki and Omagwa (2017).
Leverage (LVG)	Measured as equity to total asset ratio drawn from prior studies such as Shamshur N (2009).

Model Specification

In studying asset composition and firm stability, this study adopted the model of Mwaniki and Omagwa (2017) on the Impact of asset structure on the firm performance, which is express as follows:

ROA = f(PPE, CA, ITA, LTI)

Where ROA is return on asset, PPE is Property Plant and Equipment, CA is Current assets, ITA is intangible assets, and LTI is Long term investment and funds.

The above model is modified to suit the variables to be used in the current study. Below is the functional form:

$$COPS = f(PPE, INTA, FAST, CAST) \qquad (1)$$

Equation (1) will be will be broken into two different equations. The first will consist of all the variables in equation (1) except PPE while the second will contain all the variables in equation (1) except CAST. These two equations can be expressed econometrically as

$$COPS_{it} = \beta_0 + \beta_1 CAST_{it} + \beta_2 INTA_{it} + \beta_3 FAST_{it} + \beta_4 LVG_{it} + \mu_{it} \qquad (2a)$$

$$COPS_{it} = \alpha_0 + \alpha_1 PPE_{it} + \alpha_2 INTA_{it} + \alpha_3 FAST_{it} + \alpha_4 LVG_{it} + \mu_{it} \qquad (2b)$$

Where the dependent variable (COPS) is Corporate stability proxied with Altman z score; INTA is Intangible Asset; PPE is Noncurrent asset; CAST is Current assets;

FAST is Financial Assets; and LVG is leverage which is used as control variable. β_0 and α_0 is Constant for equation 2a & 2b respectively; β_1 to β_4 is the coefficients of the explanatory variables in equation 2a and α_1 to α_4 is the coefficients of the explanatory variables in equation 2b. µ is the Error term in each model; i denote the cross section of firms used while t denote year (period).

Equation 2a and 2b are typical example of pooled OLS regression model which have been severally criticized for its inability to account for individual heterogeneity in the cross sections. This drawback associated with the pooled OLS, have necessitated the introduction of a more valid estimation method for panel dataset which will be able to account for individual heterogeneity in the panel. Thus, the fixed effect estimation procedure was introduced to solve this problem. The fixed effect model for this study is therefore, stated below for the two models:

$$COPS_{it} = \beta_0 + \beta_1 CAST_{it} + \beta_2 INTA_{it} + \beta_3 FAST_{it} + \beta_4 LVG_{it} + \varepsilon_i + \mu_{it} \qquad (3a)$$

$$COPS_{it} = \alpha_0 + \alpha_1 PPE_{it} + \alpha_2 INTA_{it} + \alpha_3 FAST_{it} + \alpha_4 LVG_{it} + \pi_i + \mu_{it} \qquad (3b)$$

With all the variables remaining as previously defined, ε_i and π_i are the fixed effects for equation 3a and 3b, which

accounts for the individual heterogeneity in the models.

Furthermore, it is worthy of note that the fixed effect also has its own drawback. This stern from the fact, that while the fixed effect accounts for individual heterogeneity in the panels it does not have the capacity to absorb time-invariant variables. Thus, when it is observed that fluctuations across entities are random in nature and uncorrelated with the explanatory variables, the random effect become the appropriate model to use because it can account for time-invariant properties in the model (Agubata, Okolo &Ogwu, 2022; Agubata, Emeka-Nwokedi & Ogwu, 2022). As a result, the random effect model is stated below as:

$$COPS_{it} = \beta_0 + \beta_1 CAST_{it} + \beta_2 INTA_{it} + \beta_3 FAST_{it} + \beta_4 LVG_{it} + \varepsilon_{it} + \mu_{it} \qquad (4a)$$

$$COPS_{it} = \alpha_0 + \alpha_1 PPE_{it} + \alpha_2 INTA_{it} + \alpha_3 FAST_{it} + \alpha_4 LVG_{it} + \pi_{it} + \mu_{it} \qquad (4b)$$

In equation 4a and 4b ε and π are the between error term in the respective models while theμ's are the within error term in the models. Equation 4a and 4b will be used to test the proposed hypothesis in this study.

Cross Sectional Dependence

According to Agubata, Okolo & Ogwu (2022) and Agubata, Emeka-Nwokedi & Ogwu (2022), Cross-sectional Dependence is a significant problem when dealing with a macro panel with period exceeding 20 years, as opposed to a micro panel with shorter time periods. The Breusch-Pagan (B-P) LM is used to test for cross-sectional dependence when the period is greater than the cross-section. Similarly, when the cross-section is bigger than the period, the Pesaran CD test is applied. The Pesaran CD test will be used in this study to check for cross-sectional dependence because the cross section is greater than the period, and if it is found that cross sectional dependence is present in the data set, the cross-sectional panel corrected standard error (PCSE) and covariance will be used to correct it.

Hausman Test

The Hausman test will be used to assess which between the fixed effect and random effect models is best. When applying the Hausman test, the Ho is that the difference in coefficients is not systematic; in other words, the error component is uncorrelated with the independent variables (Agubata, Okolo, & Ogwu, 2022; Agubata, Emeka-Nwokedi & Ogwu, 2022). The basic decision will be to accept the Ho and interpret the random effect model if the probability value is greater than 0.05; otherwise, reject and interpret the fixed effect model if the probability value is less than 0.05.

Data Presentation and Analysis, Discussion of Results
Table 2: Descriptive Statistics

	COPS	CAST	FAST	LVG	INTA	PPE
Mean	1.299865	0.471907	0.106482	40.31211	0.016740	0.528093
Median	1.290000	0.459121	0.058288	42.72500	0.000249	0.540879
Maximum	6.370000	1.000000	0.782771	80.64000	0.401430	0.957825
Minimum	-9.600000	0.042175	0.000000	-122.9700	0.000000	0.000000
Std. Dev.	1.313822	0.223658	0.133161	23.15531	0.053796	0.223658
Skewness	-1.155141	0.171453	2.312917	-2.261434	4.261948	-0.171453
Kurtosis	16.86217	1.943195	8.831681	13.30403	21.65162	1.943195
Jarque-Bera	3044.746	19.03067	854.1890	1952.201	6483.321	19.03067
Probability	0.000000	0.000074	0.000000	0.000000	0.000000	0.000074
Sum	480.9500	174.6057	39.39832	14915.48	6.193865	195.3943
Sum Sq. Dev.	636.9411	18.45848	6.543043	197846.1	1.067908	18.45848
Observations	370	370	370	370	370	370

Sources: Author's conceptualization (2022)

Table 2 presents the data description, which shows that corporate stability (COPS) has a mean value of 1.299, maximum value of 6.370 and minimum value of -9.600, which is an indication that many of the sampled firms are stable having the capacity to absorb shocks while some others are not, as we see them maintain negative values. However, the mean and median value which is approximately the same seems to point to the fact that the firms in the manufacturing sector are on the gray area which point to fact that they are tending towards the point of bankruptcy. Hence, there is the need to take pro-active steps to improve their stamina to absorb shocks (i.e become more stable). With a standard deviation of 1.313, there seems to be no much departure from the mean value hence, we can say that on the overall that the differences in corporate stability across the sampled firms over the study periods is not too reasonable. Thus, the negative minimum value suggests that for the majority of the periods most of the firm were bankrupt as the Altman Z score values indicated for each period for the various firms. The COPS is negatively skewed and having a very high peak just as the kurtosis value of 16.862 shows. Similarly, the mean, maximum and minimum current asset reveals variations across firms and period, indicating that the current asset for some firms is higher than the others. The median value of current asset when compared with mean value further indicated that there was no much increase in current asset. The standard deviation from the mean is reasonable, with positive skew and peak which is above the mean value, indicated by the kurtosis. Furthermore, financial asset (FAST) for all the sampled firms within the period under study stood at 0.106 with maximum and minimum values of 0.782 and 0.00, respectively.

This implies that some of the sampled firms recorded no financial asset in some of the years under study. The median value shows that there was reasonable increase in financial asset across firms within the study period. The descriptive statistics further shows positive skew for FAST with high kurtosis which is very much peaked far above the mean value. Intangible asset (INTA) and non- current asset (PPE) shows respectively, that variations exist across firm and period based on the mean, maximum and minimum values. The two variables also show reasonable changes according to the median values, but the changes are more in the case of intangible asset with a high kurtosis value and negative skew. Property, plant and equipment is positively skewed. The control variable, leverage (LVG) equally indicated that significant variations exist among the firms and across periods. Generally, it is remarkable that the firms vary in age and sizes giving the outcome of the descriptive statistics. This is why the response to shocks equally varied across firms in respect to the study variables.

Table 3: Correlation Matrix

Correlation	COPS	CAST	FAST	LVG	INTA
COPS	1.000000				
CAST	0.446189	1.000000			
FAST	0.383151	0.536015	1.000000		
LVG	0.497962	0.129594	0.170602	1.000000	
INTA	-0.026594	-0.220834	-0.098338	0.064387	1.000000

Correlation	COPS	FAST	LVG	INTA	PPE
COPS	1.000000				
FAST	0.383151	1.000000			
LVG	0.497962	0.170602	1.000000		
INTA	-0.026594	-0.098338	0.064387	1.000000	
PPE	-0.446189	-0.536015	-0.129594	0.220834	1.000000

Sources: Author's conceptualization (2022)

Table 3 is the result of the correlation matrix which is used to check is reasonable relationships exist between the dependent variable and various explanatory variables to ascertain the reliability of regressing them in a model specification. There are two set of correlation result in table 4.2 above, the first included all the study variables except property, plant and equipment (PPE) whereas, the second included property, plant and equipment (PPE) and dropped the variable current asset (CAST). The reason being that, the two variables are perfectly correlated and as a result they can't be regressed jointly thereby necessitating the need for two different regression equations. Accordingly, the correlation result shows that intangible asset (INTA) and property, plant and equipment (PPE) are negatively related with corporate stability (COPS) while current asset (CAST), financial asst (FAST) and leverage (LVG) are positively related to corporate stability (COPS). On the strength

of the relationship, the correlation result shows that that strength of the correlation between intangible asset (INTA) and corporate stability is weak; the strength of the correlation between financial asset (FAST) and corporate stability is moderate; and the strength of the correlation between the rest of the explanatory variables: property, plant and equipment (PPE), leverage (LVG), current asset (CAST) and the dependent variable, corporate stability (COPS) is reasonably strong. This outcome therefore guarantees the possibility of

estimating the impact relationship between the explanatory variables and the dependent variable. It can be equally inferred from the correlation results in table 3 that the relationships that exist among the explanatory variables are within the acceptable range i.e. ranging between weak, moderate to strong, and none is showing the presence of an outlier (multi-colinearity). This can further be verified using the variance inflation factor (VIF) test which is presented in the next sub-section.

Table 4: Variance Inflation Factor (VIF) test Result

Variable	Coefficient Variance	Uncentered VIF	Centered VIF
CAST	0.081743	8.019293	1.467673
FAST	0.223766	2.337289	1.424159
LVG	5.41E-06	4.206077	1.041339
INTA	1.021651	1.164298	1.061257
C	0.023439	8.435713	NA

Variable	Coefficient Variance	Uncentered VIF	Centered VIF
FAST	0.223766	2.337289	1.424159
LVG	5.41E-06	4.206077	1.041339
INTA	1.021651	1.164298	1.061257
PPE	0.081743	9.672235	1.467673
C	0.044381	15.97288	NA

Sources: Author's conceptualization (2022)

The results of the variance inflation factor (VIF) test which is used to check if multi-colinaerity exist in the models, indicate that the explanatory variables have reasonable relationships without any sign of an outlier being present. The yardstick is normally ten (10) on both the lower limit (centered vif) and upper limit (uncentered vif). Looking at the results from the two

models, the centered and uncentered VIF shows that with the exception of the constant in equation two (2), that none of the variables has a VIF value of ten (100 and above. With this outcome the researcher is confident that the resultant regression estimation from the stated model will be robust and reliable for policy prescription and forecasting purposes.

Table 5: Cross Sectional Dependence Test

Test	Statistic	d.f.	Prob.
Breusch-Pagan LM	1170.759	666	0.0000
Pesaran scaled LM	12.81651		0.0000
Bias-corrected scaled LM	10.76096		0.0000
Pesaran CD	7.325814		0.0000

Sources: Author's conceptualization (2022)

Table 5 present the results of the cross-sectional dependence test which is used to check is if correlations exist among the sampled firms. I n this case, since the cross section (i) is greater than the period (t), the Pesaran CD becomes the most appropriate test for check the presence of cross-sectional dependence. Accordingly, the two results from the two model equations indicate the acceptance of the null hypothesis which attests to the existence of cross-sectional dependence in the cross sections. This implies that a shock in one of the sampled firms will transmit to other firms in the cross section due to the relationship that exist amongst them. This if not remedied will render the estimated regression outcome unreliable for policy purposes. As a result, the cross-sectional weight Panel Corrected Standard Error (PCSE) and covariance will be applied to edge out the effects of the cross-sectional dependence in the current regression estimates to leave us with a robust and reliable regression results.

Table 6: Hausman Test

Test Summary	Chi-Sq. Statistic	Chi-Sq. d.f.	Prob.
Model 1	10.638206	4	0.0309
Model 2	10.638206	4	0.0309

Sources: Author's conceptualization (2022)

Table 6 above showcases the Hausman test result used to selection the most appropriate estimate between the fixed effect and random effect for the two model equations estimated. The results are similar for the two model equation estimates and depict the rejection of the null hypothesis which opines that random effect estimate is the most appropriate; hence, we accept and interpret the fixed effect estimates in both cases. For the sake emphasis, theory opined that decisions are made based on the 0.05 confidence interval. As can be seen from the results in table 4.5 above, the probability values is 0.0309 respectively, which is less than the conventional 0.05 significant interval, this is the brain behind the rejection of the H_0 and the acceptance of the H_1. As a result, the researcher will proceed to interpret and discuss the fixed effect regression outcome in line with the stated objectives of the study which will require the testing of the stated hypothesis.

Table 7. Fixed Effect Regression Results

(1) Variable	Coefficient	Prob.	(2) Variable	Coefficient	Prob.
CAST	2.190202	0.0000	FAST	-0.490767	0.5326
FAST	-0.490767	0.5326	LVG	0.031907	0.0000
LVG	0.031907	0.0000	INTA	1.337889	0.4013
INTA	1.337889	0.4013	PPE	-2.190202	0.0000
C	-0.990103	0.0002	C	1.200099	0.0018
R-squared	0.663937			0.663937	
Adjusted R-squared	0.623079			0.623079	
S.E. of regression	0.806607			0.806607	
F-statistic (Prob)	16.24(0.00)			16.24(0.00)	
Durbin-Watson stat	1.524118			1.524118	

Sources: Author's conceptualization (2022)

Table 7 above present the results of the regression estimates (1 & 2). It should be noted that the only difference between the two model estimates is that current asset was used for equation 1 while property, plant and equipment was used for equation 2, the rest of the explanatory variables were included in the both models and their results in each case is the same. The same is true for the statistics of the two model estimates. Again, it should be noted that due to the presence of cross-sectional dependence that the cross-sectional weight panel corrected standard errors (PCSE) and covariance was applied to off-set any abnormality that results from same (i.e. cross-sectional dependence).

Based on the results as shown in table 4.6 above, it can be seeing that R^2 which indicate the goodness of fit of the models i.e. the changes in the dependent variable that was caused by the explanatory variable, has a value of 0.66. This implies that 66% of the changes in corporate

stability where caused by financial asset (FAST), Current asset (CAST), intangible asset (INTA) and leverage (LVG) in equation one. The same goodness of fit was also noticed in model two which has financial asset (FAST), property, plant and equipment (PPE), intangible asset (INTA) and leverage (LVG) as explanatory variable. The remaining 34% was attributed to variables which were not included in the models but are captured by the error terms which are denoted in the model by the constant (C). The adjusted R^2 is 0.62 which is less than the R^2 and is in line with theoretical proposition and thus patenting that 62% of the changes in COPS were caused by the model variables after adjusting for any possible error. Similarly, the F-values in both models is 16.24 with a probability values of 0.00, which portent that the explanatory variables jointly have significant impact on the dependent variable hence, the explanatory variables are jointly responsible for the changes in

the dependent variable (COPS). Furthermore, the value of the Durbin Watson statistics which is used to check for serial correlation in the model is 1.524 in both models, thus, implying that there is no problem of serial correlation in the estimated regression models since their values tends to approximately 2 as proposed by econometrics theory.

According the result of model equation (2) in table 4.6, property, plant and equipment (PPE) has negative and significant impact on corporate stability of manufacturing firms in Nigeria. As indicated by the coefficient value of -2.190202, increasing PPE by a unit will decrease COPS by 2.190202 all other things being equal. The probability value further gave credence to this outcome by showing that at all level that this outcome is statistically significant. Suggesting the rejection of the null hypothesis that PPE does not have significant impact COPS of manufacturing firms in Nigeria. Furthermore, since PPE is shown to have negative influence on the firm's ability to absorb or withstand shocks, it should be used by investors to judge how stable a firm in the manufacturing sector is. Equally, firms in the manufacturing sector who wish to strengthen their corporate stability should not focus on growing their PPE as doing so will deteriorate the ability to withstand shocks instead of improving it.

This outcome is in agreement with Sweety and Kaur (2014) found in their study that property, plant and equipment exacts negative and insignificant impact on firm stability. More to this is the findings from Sweety and Kaur (2014) who opined based on their empirical result that younger firms are more unstable than the older firms. But disagreed with Olatunji and Tajudeen (2014) and Mwaniki and Omagwa (2017) in term of significance but agreed with same

in the manner of impact. Olatunji and Tajudeen (2014) and Mwaniki and Omagwa (2017) found that property, plant and equipment had a positive significant impact on stability of deposit money bank and with Grace and Mwangi (2018) and Ubesie and Ogbonna (2013) who found that property, plant and equipment have insignificant effect on stability of manufacturing firms in Nigeria.

Similarly, the result in table 7 shows that intangible asset (INTA) has positive and insignificant impact on corporate stability of manufacturing firms in Nigeria. This conforms to a priori in terms of the nature of the relationship but it however, insignificant. This is as indicated by the coefficient value of 1.337889 and probability value of 0.4013. The probability value is statistically insignificant at all levels of significance. This result suggests the acceptance of the null hypothesis that state that intangible asset has no significant impact on corporate stability. This implies intangible asset does not contribute to corporate stability of manufacturing firms in Nigeria. As a result, increasing intangible asset (INTA) will have no contribution to the growth of corporate stability of manufacturing firms in the Nigeria. Growth in INTA of manufacturing firms in Nigeria, therefore, does not show that the firms have the potential to absorb or withstand shocks.

Thus, investors within the manufacturing sector who wish to obtain information on firm corporate stability should not rely on intangible asset as an indicator. Similarly, firms in the manufacturing sector should not use intangible asset as a measure of their corporate stability. The finding of this study is in agreement with the work of Ocak, and Fındık (2019), Setiadharma and Machali

(2017), Mwaniki and Omagwa (2017), and Murat and Derya (2019) who indicated that intangible assets has strong positive impact on the growth and stability of firms. But disagreed with Grace and Mwangi (2018) and Saleh (2018) who found otherwise, that intangible asset has negative impact on firm stability. An area of disagreement with the previous studies that showed positive link between intangible asset and firm stability in on strength of the impact as in Ocak, and Fındık (2019) who found significant link between the two variables.

Furthermore, the result from the regression estimates in table 7 above reveals that financial asset (FAST) has negative and insignificant impact on corporate stability of manufacturing firms in Nigeria. This is indicated by the coefficient value of -0.490767 and probability value of0.5326. This outcome in all fronts fails to conform to a priori expectation, suggesting that the null hypothesis should be accepted. This decision is validated by the outcome of the probability value which shows statistical insignificance at all level of significance. Implying that, the growth in financial asset (FAST) of manufacturing firms in Nigeria does improve their ability to absorb shocks. Hence, investors who want to know how stable the manufacturing firms in Nigeria are should not consider financial asset as the measure of corporate stability. Equally, firms in the manufacturing sector in Nigeria should not measure their corporate stability on the bases of financial asset.

The result of equation (1) shows that current asset (CAST) has positive and significant impact on corporate stability (COPS) of manufacturing firms in Nigeria. This is validated by the coefficient and probability values of 2.190202 and 0.000 respectively, which is statistically significant

at all levels of significance. By implication this outcome suggests that a unit increase in CAST will increase COPS by 2.190202%. This outcome is in line with theoretical expectation. Prompting the rejection of the null hypothesis stating that current asset has no significant impact corporate stability of manufacturing firms in Nigeria. As a result, investors can judge how stability a firm in Nigeria's manufacturing sector is by considering their CAST. Similarly, firms who wish to improve on their ability to withstand shock (COPS) should work on improving their current asset (CAST). This finding is in line with the empirical findings of Grace and Mwangi (2018) and Setiadharma and Machali (2017) which indicated that current asset improved firm stability but disagreed with Mwaniki and Omagwa (2017) whose findings was otherwise.

The result further shows that leverage (LVG) which is used a control variable have positive and significant impact on corporate stability (COPS) of manufacturing firms in Nigeria. With a coefficient value of 0.031907 and probability value of 0.000, a unit increase in LVG will improve COPS by 0.031907%. This is valid as the probability value shows significance at all levels of significance. Thus, a growing LVG is a good pointer to how stable a firm in Nigeria's manufacturing sector is and should serve an indicator for prospective investors in the sector.

Furthermore, the constant term is statistically significant in both equation (1 & 2) although the nature of their impact on COPS varies. While equation (1) shows that the constant term has negative impact on COPS equation (2) shows the opposite. Hence, the above outcome implies that the variables not included in equation but are captured in the error term significantly

reduce the COPS of manufacturing firms in Nigeria. Similarly, the results in equation (2) shows that the variables captured in the error term significantly contribute to growth of COPS of manufacturing firms in Nigeria. These variables may potentially include the firm size, leverage and auditors' characteristics.

Conclusion and Recommendation

Understanding the financial status of a firm enables both the owners and investors to take the right decision. For the owners of the firm, they are to adopt appropriate measures to sustained to business and avoid plunging into bankruptcy. As a result, this study investigated the impact of asset structure on corporate stability of manufacturing firms in Nigeria. Panel dataset covering the period of ten (10) years was collected for the 37 sampled manufacturing firms listed on the Nigerian Stock Exchange (NSE) whose trading information were available at the time of this study. The data was collected for the interest variables which include Alman Z score (a proxy for corporate stability), property, plant and equipment, current asset, financial asset (proxied with cash and equivalent) and leverage (being a control variable). The linear panel regression estimation technique of fixed effect and random effect was applied for the model estimation. After the necessary pre-estimation test to ensure that the estimated model output was robust and valid for policy purposes, the Hausman test was further applied to select between the fixed effect and random effect regression output the most appropriate for discussion. Based on the Hausman test the fixed effect regression output was found to the most appropriate hence, the fixed effect regression results for the two models

were presented and discussed. Based on the outcome of the estimated regression models and the findings from the results, this study draws the following conclusions in line with the study objective. Firstly, that current asset (CAST) and Leverage (LVG) are potent in improving the ability of firms in Nigeria's manufacturing sector to withstand or absorb shocks that emanates from the daily business activities, either from external sources or internal sources. Secondly, it can be concluded in this study that property, plant and equipment deteriorate the capacity of firms in Nigeria's manufacturing sector to withstand shocks either from internal or external sources.

Finally, the financial status of the manufacturing firms in Nigeria is not encouraging with a Altman z score of 1.3, which indicates that they are tilting to bankruptcy. Based on the findings from the empirical results it recommended that Firms in the manufacturing sector who wish to strengthen their corporate stability should not focus on growing their PPE and intangible asset as doing so will deteriorate the ability to withstand shocks instead of improving it. Similarly, investors within the manufacturing sector who wish to obtain information on firm corporate stability should not rely on PPE and intangible asset as an indicator. Furthermore, firms in Nigeria's manufacturing sector should improve on their current asset (CAST), for it is more profitable to do so. The growth in current assets would significantly contribute to the ability of the firms to withstand and absorb shocks emanating from day-to-day business activities. Similarly, investors should look out for the CAST and LVG (the control variable) as a key indicator of corporate stability when they have the bid to invest in any of the manufacturing firms in Nigeria. The firm in

the manufacturing sector should as matter of urgency work towards improving boost their stability as the Altman z score value of 1.3 shows that they are in the gray area- this implies that they are tilting towards bankruptcy.

Future studies can incorporate variables such as firm size, share price and earnings per share when doing an investigation into the factors that influence corporate stability amongst manufacturing firms in Nigeria. There are other measures of firm financial status aside the Altman Z score such as the case-based reasoning model of Kolodner (1993), among others. Therefore, future study could adopt such measures to ascertain their soundness in estimating financial performance as compared to other measures which are extensively in use. Finally, the current study can equally be extended to other business sectors in Nigeria on comparative basis. This study have unraveled the impact relationship between firm asset composition and financial performance in Nigerian manufacturing sector using the Altman z score which efficient described when a firm is stable, at the verge of bankruptcy and when it is actually bankrupt; and that the Altman z score is the most idea for investigating the financial status of firms in Nigeria compare to the other performance measure like ROE, ROA and etc.

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