

## Effect of Leverage on Earning Quality of Listed Manufacturing Firms in Nigeria

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**Abstract:** This study examines the impact of leverage on the earnings quality of listed manufacturing companies in Nigeria. The purpose of this study is to examine the effect of the equity ratio on the earnings per share (EPS) of listed manufacturing companies in Nigeria and to determine its impact on the dividend yield (DVY) of these companies. Using a balanced panel dataset from the annual reports of selected companies between 2013 and 2019, the study employs panel estimation techniques based on the Generalised Method of Moments (GMM) and analyses them in E-Views. The primary objective is to investigate how leverage indicators, such as the equity ratio (ER) and dividend yield (DVY), impact earnings per share (EPS), which serves as a proxy for earnings quality. The empirical results reveal that both the equity ratio and dividends have a significant impact on earnings per share for the surveyed manufacturing companies. Specifically, a higher equity ratio is associated with improved earnings quality, while the dividend yield also shows a positive correlation with earnings development. Based on these findings, the study recommends that policymakers take decisive action to improve Nigeria's macroeconomic environment. These measures are crucial for encouraging investment and maintaining profitability in the manufacturing sector.

**Keywords:** Earnings Quality; Manufacturing Firms; Annual Report; Dividend Yield; Generalised Method of Moments; Equity Ratio; Earnings Per Share; Encourage Investment; Maintain Profitability.

**Cite as:** B. Akpeekon and L. Paago, "Effect of Leverage on Earning Quality of Listed Manufacturing Firms in Nigeria," *AVE Trends in Intelligent Social Letters*, vol. 2, no. 1, pp. 13-26, 2025.

**Journal Homepage:** <https://avepubs.com/user/journals/details/ATISL>

**Received on:** 05/07/2024, **Revised on:** 22/09/2024, **Accepted on:** 02/11/2024, **Published on:** 03/03/2025

**DOI:** <https://doi.org/10.64091/ATISL.2025.000142>

### 1. Introduction

A company's or firm's existence depends on the level of investment it makes. An investment in a project may be short- or long-term, depending on the level of investment the firm wants to make. But what matters is the return on such an investment. Leverage is a means by which a firm finances a project. Financing an investment proposal or assets through leverage rather than any other financial instruments or measures is a matter of what you want, which depends on how much is expected to be generated as earnings or yields by the end of the day. Leverage is the use of external funds to finance an organisation's or firm's assets or operations to increase productivity and yield high returns. It is also a measure of how a firm can finance its assets using a combination of equity and debt. Thus, leverage is typically borrowed funds or other forms of borrowing used to finance an investment proposal, in which the proceeds of the loan are reinvested with the hope of earning a return or yield greater than the cost of the loan. Cotton [3] asserts that leverage involves borrowing to finance a project with the intention of earning a

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higher return in the long run. Such borrowing or loaning is a debt. But, if the firm's marginal rate of return on assets (ROA) is higher than the rate of interest payable on such a loan, then its overall returns on equity (ROE) will be higher than if it had not borrowed.

Enekwe et al. [4] argued that the primary motive of a company or firm in using leverage is to magnify the shareholders' returns under favourable economic conditions, as well as to increase the earnings quality of firms. Leverage, which magnifies shareholders' returns, is based on funds raised through loans from financial institutions or through debentures, which are normally obtained at a lower cost than the firm's net asset returns [11]. Firms take or obtain loans to finance their operations or projects, with the hope of increasing sales volume and improving earnings quality. The quality of earnings depends on the rate of return on the loan or borrowed funds. Thus, a fund borrowed by the firm to finance an operation or project indicates that leverage is measured by the ratio of total debt to the firm's assets. The leverage ratio reveals the extent to which a firm has borrowed to finance its capital structure. Thus, if a company or firm utilises more borrowed money to finance its capital structure, then the implication is that such a firm will pay charges in the form of interest on the money borrowed.

Damouri et al. [7] assert that the leverage ratio contributes most to measuring the risk associated with using equity costs. Therefore, there are various capital structure measurements, of which the most important is the book value-based measurement. The combined effects of two leverage ratios can be quite significant for earnings available to ordinary shareholders [13]. Miller [21] and Myers [36] argued that leverage reduces the cost of capital and improves firms' earnings quality. The trade-off theory of capital structure states that firms can benefit from debt to enjoy the tremendous positive returns, thereby improving their earnings quality. Leverage is beneficial to firms only if they achieve a super-normal profit, which can improve returns to shareholders and enhance earnings quality. Leverage has been identified as one of the most vital attributes influencing firms' earnings quality [37]. Thus, the more firms leveraged their investment proposals or assets, the higher their earnings. The implication is that a firm's financial growth and earnings quality depend on how it finances its investment proposals—through debt, equity, or leverage—and on how those funds are generated as earnings. The work of Hasanzadeh et al. [31] demonstrates that returns on assets are used as a measure of a firm's performance. This has a significant, positive relationship with earnings management, indicating that when the firm's performance increases, earnings quality also improves.

DeAngelo et al. [12] posit that firms with high investment and currently above their target leverage often issue substantial debt and sometimes issue a small amount of equity, thereby changing their future target leverage from that of those with low investment. These firms typically pay down debt, thereby renewing their future borrowing capacity. Ghosh and Moon [1] stated that debt can negatively affect earnings quality. This is because such firms can likely use accounting discretion to provide private information about the firm's prospects, thereby reducing financing costs. However, for highly indebted firms, accruals can negatively influence earnings quality, as they use them to manage earnings and avoid violating agreements. Leverage is one of the most important factors influencing firms' earnings and financial reporting quality [5]. Nelson and George [24] argued that financing an investment proposal with leverage is associated with earnings management, such that highly leveraged firms are more likely to engage in it, leading to better financial reports that attract more capital at a reasonable rate. The implication is that firms that finance their assets with leverage have good earnings management, which produces financial reports that are reasonable enough to attract capital at a reasonable rate. Leverage changes a firm's capital structure, increasing or decreasing its debt-to-equity ratio. Thus, when a firm includes debt as a proportion of funds employed to finance its projects, leverage is automatically created [38].

Butler et al. [2] stated in their studies that relative equity financing changes net financing activities, thereby providing greater explanatory power for future returns and earnings, and also analyse the explanatory power of the composition or influence of leverage on the earnings quality of firms. Earnings quality in this context refers to the earnings generated and reported in the company's income statement, which shows the firm's financial performance for the current period. In any investment proposal, a firm or company can finance its project or asset through debt, equity, and preference share capital to earn higher returns or improve the quality of its earnings. This implies that the interest rate on debt will be fixed, regardless of the company's return on assets. Thus, the firm's leverage is intended to earn more on the fixed-charge funds than their cost [4]. Leverage financing, therefore, enhances the earnings quality of firms in Nigeria. Therefore, several studies have examined the effect of leverage on the earnings quality of listed manufacturing firms in Nigeria. Still, little is known about the extent to which leverage affects earnings, thereby creating a gap in the accounting literature that this study intends to fill. The purpose of this study, therefore, is to investigate the effect of leverage and earnings quality of listed manufacturing firms in Nigeria. This, however, will form the basis of the study. The following specific objectives, therefore, guide this study:

- To investigate the effect of equity ratio on earnings per share of listed manufacturing firms in Nigeria.
- To ascertain the effect of equity ratio on dividend yield (DVY) of listed manufacturing firms in Nigeria.

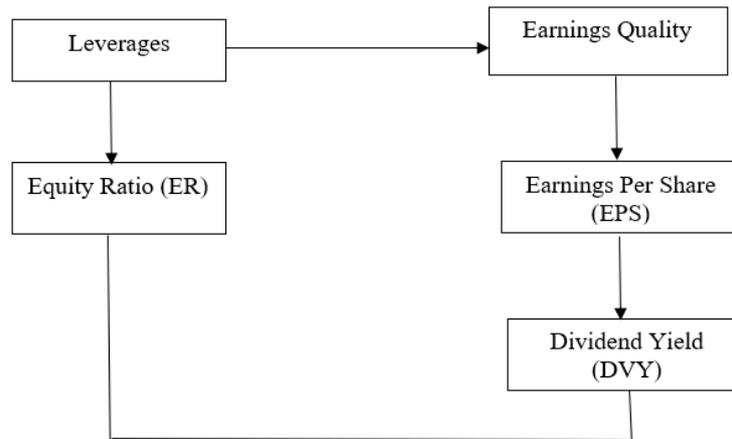
Therefore, the study's problem is to investigate the extent to which leverage affects the earnings quality of listed manufacturing firms in Nigeria. Thus, to answer the above questions, null hypotheses were formulated, viz:

- **H<sub>0i</sub>**: There is no significant effect of equity ratio on earnings per share of listed manufacturing firms in Nigeria.
- **H<sub>0ii</sub>**: There is no significant effect of equity ratio on dividend yield (DVY) of listed manufacturing firms in Nigeria.

## 2. Review of Related Literature

### 2.1. Conceptual Framework

Figure 1 illustrates the conceptual framework that explains how leverage affects the quality of profits of manufacturing companies in Nigeria that are listed on the stock exchange. It shows that leverage has a direct effect on earnings quality and an indirect effect through the equity ratio (ER). Additionally, the quality of earnings impacts earnings per share (EPS), which in turn affects the dividend yield (DVY).



**Figure 1:** Conceptual framework of the effect of leverage on earnings quality of listed manufacturing firms in Nigeria

### 2.2. Concept of Leverage

Leverage is the use of external funds to finance a firm's or company's activities. It is also defined as a measure of how much firms or companies use equity or debt to finance their asset projects or operations. Firms finance their operations through various sources, including internal funds and leveraged borrowing. Leverage is the various means by which a firm finances its operations with debt, equity capital, or a combination of both [43]. Eneke et al. [4] opined that a company can finance its investments through debt and equity financing, depending on which yields higher earnings. Thus, financing an investment proposal is a matter of choice and revolves around the returns expected at the end of the period. Thus, numerous internal and external factors influence the decision to select a suitable financing mix. These factors may include creditors' sensitivity to a company's high debt, the nature of the industry in terms of competition, growth, sales, and profit stability, as well as asset value, and the need to generate revenue [41]. Leverage in this context is used as a means or measurement to determine the extent to which a firm's investment has been financed by either debt or equity financing, such that greater returns on equity or earnings are achieved in the long run. Madan [16] stated that leverage is nothing but the process of using debt capital to increase the rate of return on equity.

Leverage not only shows shareholders' returns and returns on investment but also exposes shareholders to important aspects of a firm's capital structure, as it reduces the weighted average cost of capital (WACC) when used efficiently. Ujah and Brusa [44] argued that leverage and cash flow affect the extent to which firms manage their earnings; hence, earnings management depends on the economic group or industry to which a firm belongs and on the level of earnings generated. Firms use leverage financing to finance an investment proposal, aiming to earn more on fixed-charge funds than their costs, so that as debt increases, financial leverage also increases. Therefore, the primary reason for firms to use leverage is to maximise shareholders' funds and to improve earnings quality under both favourable and normal economic conditions. Shareholders' funds and earnings cannot be maximised when economic conditions are unfavourable; thus, the rate of return on investment will be low. The role of leverage, therefore, in magnifying shareholders' returns assumes that fixed-charge funds, such as loans and debentures, can be obtained at a cost below the firm's rate of return on assets [4]. Leverage financing is key to financing an investment proposal because it influences the decision maker in predicting the outcomes of current events or in confirming or correcting prior expectations [32]. Decision makers and policymakers use leverage to determine or predict the outcomes or expectations of their investments or operations, as well as the expected rate of return.

According to Nazir and Saita [23], leverage is the ratio of total debt to total assets for a firm or company during an accounting period. It shows the extent to which debts are financing total assets. A higher debt ratio indicates greater reliance on debt financing. The implication is that a higher debt ratio indicates greater debt financing, whereas a lower debt ratio indicates less debt financing. Leverage always yields sufficient earnings quality or greater returns on investment for prospective investors, beyond what it would have yielded without leverage. Investors use leverage to finance their investments, hoping to achieve maximum returns at the end of the period. Investors predict their possible outcomes through leverage financing. Therefore, leverage increases the rate of return on common equity when the asset return exceeds the after-tax cost of debt. It implies that the greater the proportion of debt in the capital structure, the greater the risk borne by the common shareholders [13]. Debt cannot, of course, be increased without limit. Thus, as more debt is added to the capital structure, the risk of insolvency increases. Lenders, including investors in a firm, will require a higher and higher return (interest rate) to compensate for this additional risk.

### 2.3. Concept of Equity Ratio

The equity ratio is simply a company's net worth divided by its capital employed. It is also defined as the owners' fund divided by the firm's or company's net total assets. Thus, the equity ratio is given by the formula:

$$\text{Equity ratio} = \frac{\text{Net worth}}{\text{Capital employed}}$$

It is also known as:  $\frac{\text{Net Owners' fund}}{\text{Net total assets}}$

The equity ratio indicates the relationship between a company's or firm's debt and equity financing in relation to its assets. Equity is also known as stockholders' equity. Thus, the equity ratio indicates the proportion of total assets or total equity provided by stockholders (i.e., owners) on any given date. The formula of the equity ratio is also seen as:

$$\text{Equity ratio} = \frac{\text{Stockholder equity}}{\text{Total assets (or total equity)}}$$

Equity ratio is also seen from two different perspectives, i.e from the creditors' point of view and the owner's viewpoint. From the creditor's point of view, a high proportion of stockholders' equity is considered good and desirable. But a high equity ratio indicates a large protective buffer for creditors in the event a company suffers a loss. But from the owner's perspective, a high equity ratio may or may not be desirable. If business operators use borrowed funds to generate income in excess of the net after-tax cost of those funds, a lower percentage of stockholders' equity may be desirable.

### 2.4. Concept of Earnings Quality

Earnings are simply the profit or earnings reported in the company's income statement, showing the financial performance of the firm or company during a particular period. It is the higher earnings or profit made by a firm from its operational activities or business transactions, which is normally the profit after tax for a specific period. FASB [10] defines earnings quality as the higher-quality earnings reported by a firm, which provide information about a firm's future performance. Dechow et al. [29] stated that earnings quality is the quality of earnings reported in a company's income statement, reflecting its financial performance during a specific period. Quality earnings reported allow firms to predict and make appropriate financial decisions at a given point in time. Bodie and Marcus [47] opined that earnings quality is the degree to which earnings are reported in the company's income statement as a direct result of sustainable and ongoing business operations. The amount of earnings reported in the income statement of a firm determines the net worth of the company from operational activities, business operations or transactions during a financial year. Thus, high earnings are normally associated with higher returns, while low earnings are linked to lower returns for firms [26]. Bushman et al. [32] define earnings as the balance of the reported net profit and operating cash flows, minus the difference between inflation earnings and reported earnings for the period.

### 2.5. Concept of Earnings Per Share (EPS)

Earnings per share refer to the portion of the earnings of a company allocated to each unit of outstanding shares. It is earnings per ordinary share, calculated by dividing earnings by the number of ordinary shares outstanding at the end of the financial year. Earnings per share are also the portion of the company's profit after tax that is distributed to each ordinary shareholder. It is also part of the firm's profit after tax, which is distributed to each ordinary shareholder [8]. Earnings per share are an indicator of a company's profitability and are considered the most important ratio in determining a share price. It is probably the measure used most widely to appraise a company's or firm's operations. Earnings per share (EPS) is also the part or portion of a

company's profit allocated to each outstanding shareholder of a common stock. It is primarily a performance indicator for potential shareholders to assess the profit attributable to each equity shareholder, typically based on the year's profit.

$$\text{Thus, earnings per share (EPS)} = \frac{\text{Earnings attributable to shareholders}}{\text{Number of outstanding equity}}$$

Earnings per share (EPS) are normally equal to the earnings available to common stockholders divided by the weighted average number of shares of common stock outstanding. Earnings per share may be fairly simple or highly complex, depending on the company's or firm's capital structure [25]. A company or firm has a simple capital structure if it has no outstanding securities, such as convertible bonds, convertible preferred stock, or warrants. But if the company or firm has such securities outstanding, it has a complex capital structure, unless the potential dilution is less than 3%. Therefore, a company or firm with a simple capital structure reports a single earnings per share.

$$\text{common stock} = \frac{\text{Net income available to common stockholders}}{\text{weighted – average number of common shares outstanding}}$$

Statement of accounting standards (SAS) No. 21 stated that earnings per share (Eps) should be calculated by dividing the operating profit after tax of a company for a financial year by the number of issued ordinary shares of the company, for the period under review. It also requires that listed companies publish earnings per share (Eps) statistics on the face of the profit and loss account. Thus, the basis for calculating earnings per share should be disclosed in a note to the account. In certain cases, companies are required to disclose their diluted earnings per share in addition to their basic earnings per share. International Accounting Standard (IAS) 33 states that all companies or entities whose ordinary shares or potential ordinary shares are publicly traded should calculate earnings per share (EPS) in accordance with the basic EPS principle to obtain a consistent, comparable ratio for measuring earnings [9].

## 2.6. Dividend Yield

Dividend yield is simply the net returns in percentage earned by each shareholder of a firm's or company's ordinary share. Dividend yield is otherwise referred to as the dividend-price ratio. It is the dividend per share divided by the share price. Thus, it is calculated by dividing a company's total annual dividend payments by its capitalisation. Assuming the number of shares is constant, it is often expressed as a percentage. Dividend yield is used to calculate the earnings on an investment (in shares), considering only the returns in the form of total dividends declared by the company during the year. It is also known as the ratio that indicates, as a percentage, the amount earned by each shareholder of the company's ordinary shares. The dividend yield on common stock is also the dividend per share, representing the interest paid to common stockholders. Thus, the current annual dividend per share is divided by the current share price. Dividend yield measures the return to a shareholder on their investment. For a quoted share, the yield is calculated based on the current market value.

$$\therefore \text{Dividend yield} = \frac{\text{Dividend per share}}{\text{Current market per share}}$$

It is essential to note that income is one of the most crucial aspects of any investment, and most investors seek it; therefore, dividend yield is a key criterion for evaluating an investment proposal.

## 2.7. Theoretical Review

This study is anchored on the net income theory.

## 2.8. Net Income Theory

The net income theory is used in this study. The theory states that there exists an optimal level of leverage at which the cost of capital is lowest, allowing firms to maximise their rate of return or earnings. Brealey and Myers [30] argued that the lower the cost of capital, the higher the firm's value is maximised at the optimal level of debt. Firms with a low debt ratio that increase their financial leverage will not increase the cost of debt; thus, they can be used as a substitute for equity and preserve the firm's value. The implication of this is that whether a firm is big, small or generates smaller or greater earnings, there exists an optimal debt ratio that it must maintain to maximise its return. This, however, contradicts the effect that a firm's earnings may have on its leverage. The net income theory is relevant to this study, as firms strive to achieve an optimal level of leverage—the point at which the cost of capital is at its minimum—thereby maximising returns. The theory enjoins firms to use leverage so that the cost of capital is as low as possible and the rate of return is maximised accordingly.

## 2.9. Empirical Review

Chesang and Ayuma [6] examined the relationship between financial leverage and firm profitability in Kenya. The study used regression analysis on seven (7) agricultural firms in Kenya. The study found that the equity ratio and current ratio have a statistically significant effect on firms' profitability. Akhtar et al. [35] investigated the relationship between financial leverage and financial performance in Pakistan's fuel and energy sector. The study employed a sample of twenty (20) listed public limited companies from the fuel and energy sector listed on the Karachi Stock Exchange. The study employed the equity ratio and gearing ratio as proxies for financial leverage. The study's results show that there is a general perception that financial leverage is associated with companies' performance. Lin and Lee [46] examined the effects of earnings quality and leverage on the deficit-financing policy of public firms in Taiwan. Regression analysis was performed on 12,940 publicly listed firms on the Taiwan Stock Exchange. The study's results showed that firms with a leverage deficit have higher earnings than those with a lower level of leverage. It was therefore concluded that leverage has a significant impact on the earnings quality of firms. Ali et al. [33] investigated the impact of financial leverage on the performance of non-financial firms in Kenya. Regression analysis was used for non-financial firms. The study finds that leverage has a significant impact on firms' earnings quality.

Rechman [40] studies the relationship between financial leverage and the financial performance of listed sugar companies in Pakistan. The study's results reveal a positive correlation between the debt-to-equity ratio and return on assets and sales growth, as well as a negative correlation between the debt-to-equity ratio and earnings per share, net profit margin, and return on equity. This negative relationship between the debt-to-equity ratio and earnings per share (EPS) supports the idea that as debt increases, interest payments also increase. Ramadan [14] examined the determinants of earnings quality for Jordanian manufacturing companies listed on the Amman Stock Exchange. Ordinary Least Squares (OLS) was used to analyse fifty-eight (58) listed companies. The study's results show that each of the firm's performance, financial leverage, and accounting conservatism has a statistically significant indirect effect on earnings quality. Ebiringa and Ezeji [28] examined the effect of leverage financing on corporate performance, using debt-to-equity and share price as proxies. The study employed F-ratios, Durbin-Watson statistics, Akaike and Schwarz information criteria, and log-likelihood parameters to draw its conclusions. Although results across banks are mixed, leverage financing has been established as a critical strategy for maximising shareholders' returns.

Akinmulegun [38] examined the effect of financial leverage on selected corporate performance indicators in Nigeria. Earnings per share and net assets per share of corporate firms were used. The results of the study revealed that leverage and (debt/equity ratio) have a significant effect on corporate performance, especially when the net assets per share (NAPS) is used as an indicator of corporate performance in Nigeria over the period covered by the study. Hassan and Faruk [42] investigated the influence of a firm's attributes and earnings quality of listed oil and gas companies in Nigeria. The study employed seven (7) oil and gas companies as the sample size. Panel data spanning 2007-2011 were used, and regression analysis was employed. The study's results show that leverage, liquidity, and a firm's growth have a positive and significant impact on earnings quality. Rajin [39] investigated the influence of financial leverage on shareholders' return and market capitalisation in India. The study finds that the nature of the relationship and the state of influence of the financial leverage on shareholders and market capitalisation individually indicate a positive relationship between financial leverage and shareholder return, but a negative relationship between financial leverage and market capitalisation.

Takhtaei et al. [27] examined the effects of financial leverage and investment diversification on income-increasing earnings management. The results of the study indicate that the financial leverage coefficient is statistically significant at the 95% confidence level; consequently, it can be concluded that financial leverage influences income-increasing earnings management. Akbarian [34] examines the effects of financial leverage and environmental risk on the performance of listed companies on the Tehran Stock Exchange. The study's results reveal negative relationships between financing leverage and cash flow per share, as well as between market risk, economic risk, and free cash flow per share. Gweyi and Karanja [22] investigated the determinants of leverage of saving and credit co-operative societies in Kenya. The study employed forty (40) Sacco-registered co-operative societies, as registered by the Sacco Society Regulatory Authority (SASRA), for the period 2010 to 2012. Data were analysed using a regression model; the explanatory variables comprised firm size, growth rate, liquidity, profitability, and tangibility, whereas the explained variable was the leverage ratio. The results of the study show that for Saccos, a statistically significant relationship was found. The study also found that firm size has a significant relationship with leverage at the 99% confidence level, whereas liquidity and tangibility have significant relationships with leverage at the 95% confidence level.

Ujah and Brusa [44] examine how financial leverage and cash flow impact the degree to which firms manage their earnings. The results of the study depend on the economic group or industry to which a firm belongs; the degree and extent of managed earnings vary accordingly. Enuju and Soocheong [45] examine the effect of financial leverage on profitability and risk of restaurant firms. The study's results indicate that financial leverage does not affect the restaurant firm's profitability. The result also shows that the sign of financial leverage is positive, indicating that more leveraged firms had higher average profits, though this difference was not statistically significant. Taani [17] investigates the impact of working capital management policy and financial leverage on the financial performance of firms. The study reveals that a firm's working capital management policy,

financial leverage, and firm size have a significant relationship with net income, but no significant impact on return on equity (ROE) and return on assets (ROA). Jelinek [15] examines the effect of financial leverage, free cash flow, and firm growth on earnings management. The results of the study indicate that firms that experienced gradual increases in financial leverage over five years, compared to those with high leverage during the same period, engaged in less earnings management [18]. Previous studies on the relationship between financial leverage and a firm's performance yield mixed results; however, they provide a basis for examining the impact of leverage on the earnings quality of listed consumer goods firms in Nigeria.

### 3. Methodology

The study uses an ex post facto design. This study was conducted to determine the extent to which leverage affects the earnings quality of listed manufacturing firms in Nigeria. Generalised moment panel estimation was used to determine the functional relationship between the variables used in the study and the model. An econometric view (E-views) was employed in the study to determine the significant effects of the variables on earnings.

#### 3.1. Model Specification

The model of the study was specified as follows:

$$EQ = f(ER) \tag{1}$$

This is further restated mathematically by using two (2) proxies (measures) of earnings quality, i.e earnings per share and dividend yield (DVY)

$$EPS = \beta_0 + \beta_1 ER + \beta_2 DVY + \varepsilon \tag{2}$$

Where:

- EPs = Earnings per share
- ER = Equity ratio
- DVY = Dividend yield
- $\beta_0$  = Intercept
- $\beta_1, \beta_2$  = Regression coefficient
- $\varepsilon$  = Error term

The a priori expectations are: Model 1 – 2 are  $\beta_1, \beta_2 > 0$

#### 3.2. Empirical Results and Discussion

The data employed for this study are presented in Table 1.

**Table 1:** Shows equity ratio, earnings per share, and dividend yield of selected manufacturing firms in Nigeria

Firms	Years	ER	EPS	DVY
PZ	2013	0.63	0.56	0.02
	2014	0.53	1.01	0.03
	2015	0.55	0.55	0.03
	2016	0.58	0.10	0.03
	2017	0.47	0.56	0.02
	2018	0.45	0.41	0.01
	2019	0.53	0.15	0.03
Guinness	2013	0.38	7.63	0.03
	2014	0.34	0.36	0.04
	2015	0.40	5.18	0.01
	2016	0.30	-1.34	0.01
	2017	0.29	1.28	0.06
	2018	0.57	3.30	0.05
	2019	0.55	2.50	0.06
Dangote sugar	2013	0.62	0.95	0.05
	2014	0.60	0.97	0.06

	2015	0.62	0.93	0.08
	2016	0.42	1.20	0.10
	2017	0.51	3.15	0.04
	2018	0.60	2.15	0.07
	2019	0.60	2.01	0.08
Cadbury	2013	0.56	1.92	0.01
	2014	0.40	0.75	0.03
	2015	0.43	0.61	0.04
	2016	0.39	-0.16	0.06
	2017	0.41	0.16	0.00
	2018	0.46	0.44	0.02
	2019	0.47	0.57	0.02
Unilever	2013	0.21	1.25	0.03
	2014	0.16	0.64	0.03
	2015	0.16	0.32	0.00
	2016	0.16	0.81	0.00
	2017	0.63	1.74	0.01
	2018	0.63	1.84	0.04
	2019	0.64	1.29	0.00
NB	2013	0.44	5.70	0.02
	2014	0.49	5.62	0.03
	2015	0.48	4.82	0.03
	2016	0.45	3.58	0.01
	2017	0.47	4.13	0.01
	2018	0.43	2.43	0.02
	2019	0.44	2.01	0.03
Nestle	2013	0.38	28.08	0.02
	2014	0.34	28.05	0.03
	2015	0.32	29.95	0.03
	2016	0.18	10.00	0.02
	2017	0.31	42.55	0.02
	2018	0.31	54.26	0.03
	2019	0.24	57.63	0.04
Menichols	2013	0.59	0.09	0.02
	2014	0.59	0.15	0.03
	2015	0.62	0.17	0.05
	2016	0.63	0.17	0.02
	2017	0.60	0.10	0.03
	2018	0.40	0.13	0.15
	2019	0.92	0.06	0.07
Vitafoam	2013	0.35	0.64	0.06
	2014	0.34	0.82	0.07
	2015	0.32	0.20	0.06
	2016	0.33	0.41	0.13
	2017	0.34	0.18	0.10
	2018	0.32	0.47	0.03
	2019	0.48	1.26	0.06
Champion	2013	-	-1.27	0.00
	2014	0.50	-0.24	0.00
	2015	0.61	0.01	0.00
	2016	0.69	0.07	0.00
	2017	0.77	0.07	0.00
	2018	0.81	-0.03	0.00
	2019	0.76	0.02	0.00
		0.73		
Nascom	2013	0.60	1.02	0.06
	2014	0.50	0.70	0.08
	2015	0.43	0.79	0.08

	2016	0.33	0.91	0.08
	2017	0.38	2.02	0.08
	2018	0.39	1.67	0.06
	2019	0.29	0.70	0.03
International Breweries	2013	0.44	1.26	0.02
	2014	0.54	1.31	0.02
	2015	0.61	-1.12	0.04
	2016	0.72	-1.11	0.00
	2017	0.29	-0.10	0.00
	2018	0.20	-0.34	0.00
	2019	0.23	0.18	0.00
FMN	2013	0.41	3.73	0.03
	2014	0.45	4.38	0.05
	2015	0.42	0.92	0.10
	2016	0.43	3.97	0.05
	2017	0.31	3.75	0.03
	2018	0.47	3.52	0.04
	2019	0.44	4.28	0.06
Honey	2013	0.33	0.36	0.04
	2014	0.32	0.42	0.05
	2015	0.30	0.14	0.02
	2016	0.22	-0.38	0.00
	2017	0.46	0.54	0.03
	2018	0.45	0.56	0.05
	2019	0.41	0.86	0.00
Int Brew	2013	0.41	0.71	0.01
	2014	0.46	0.64	0.01
	2015	0.40	0.57	0.02
	2016	0.42	0.81	0.01
	2017	0.17	0.16	0.00
	2018	0.11	-0.45	0.00
	2019	0.02	0.46	0.00
NNFM	2013	0.54	1.17	0.02
	2014	0.40	1.36	0.02
	2015	0.26	1.17	0.02
	2016	0.31	2.11	0.02
	2017	0.24	0.17	0.02
	2018	0.31	-0.04	0.00
	2019	0.27	-3.18	0.00

*Source: Computed from Firms' Annual Reports (2013 -2019)*

### 3.3. Data Analysis

The data presented above were analysed using different analytical tools, and the results obtained are presented below:

#### 3.3.1. Descriptive Statistics

This aims to determine the basic characteristics of the collected data, including the mean, skewness, kurtosis, and normality of the variables, to ensure they meet the underlying conditions for conducting regression analysis (Table 2).

**Table 2:** Descriptive statistics

	ER	EPS	DVY
Mean	0.428321	3.345357	0.032253
Median	0.429167	0.770000	0.025879
Maximum	0.922526	57.63000	0.147059
Minimum	-0.504326	-3.180000	0.000000
Std. Dev.	0.182195	9.419086	0.029312
Skewness	-0.963187	4.323030	1.234629

Kurtosis	8.104915	21.97217	4.725317
Tarque-Bera Probability	138.9317	2028.589	42.34513
Sum	0.000000	0.000000	0.000000
Sum Sq.Dev.	47.97200	374.6800	3.612314
Observations	3.684648	9847.830	0.095370
	112	112	112

*Source: Computed from Firms' Annual Reports (2013 -2019)*

Table 3 shows the association matrix for the Equity Ratio (ER), Earnings Per Share (EPS), and Dividend Yield (DVY). There is a weak negative connection between ER and EPS (-0.151976) and weak positive correlations between ER and DVY (0.102772) and EPS and DVY (0.002401). This means that there are very few linear relationships between the variables.

**Table 3:** Correlation matrix

	ER	EPS	DVY
ER	1.000000		
EPS	-0.151976	1.000000	
DVY	0.102772	0.002401	1.000000

*Source: Computed from Firms' Annual Reports (2013 -2019)*

### 3.3.2. Panel Generalised Method of Moments Test

The GMM is employed to determine the functional relationships existing between the variables in the model formulated in this study. Specifically, it seeks to determine whether any linear relationship(s) exist between one or more variable sets, given the likelihood of heterogeneity in the different sampled firms.

**Table 4:** Panel GMM test in model 1

Variable	Coefficient	Std. Error	t-Statistics	Prob.
EPS (-1)	0.421073	0.035158	11.97650	0.0000
ER	-9.881474	4.741899	-2.083864	0.0400
Effects Specification				
Cross-section fixed (orthogonal deviations)				
Mean dependent var	-0.730239	S.D. dependent var		4.582885
var	4.137468	Sum squared resid		1283.898
SE. of regression	11.38925	Instrument rank		16
J-statistic	0.411253			
Prob(J-statistic)				

*Source: Researcher's Computation using E-views*

- Dependent Variable: EPS
- Method: Panel Generalised Method of Moments
- Transformation: Orthogonal Deviations
- Date: 24/10/2024 Time: 10:01
- Sample (adjusted): 2015-2019
- Periods included: 4
- Cross-sections included: 16
- Total panel (balanced) observations: 80
- White period instrument weighting matrix
- White period standard errors and covariance (d.f. corrected)
- Instrument specification: @DYN (DVY, -2) ER(-1)
- Constant added to instrument list

The results in Table 4 show that a lag in EPS and ER has a significant effect on EPS at the 5% level of significance, with ER negative (Table 5).

**Table 5:** Panel GMM test in model 3

Variable	Coefficient	Std. Error	t-Statistics	Prob.
DVY(-1)	0.142377	0.033297	4.275914	0.0001
ER	0.082783	0.060363	1.371425	0.1743
Effects Specification				
Cross-section fixed (orthogonal deviations)				
Mean dependent var	0.002848	S.D. dependent var		0.021026
var	0.024732	Sum squared resid		0.045875
S.E. of regression	11.71213	Instrument rank		16
J-statistic	0.385666			
Prob(J-statistic)				

*Source:* Researcher's Computation using E-views

- Dependent Variable: DVY
- Method: Panel Generalised Method of Moments
- Transformation: Orthogonal Deviations
- Date: 24/10/2024 Time: 10:28
- Sample (adjusted): 2015-2019
- Periods included: 4
- Cross-sections included: 16
- Total panel (balanced) observations: 80
- White period instrument weighting matrix
- White period standard errors and covariance (d.f. corrected)
- Instrument specification: @DYN (DVY,-2) ER(-1) DER (-1)
- Constant added to instrument list

In contrast to the results in Tables 4 and 5, the results reveal that lagged values of DVY and ER have a significant effect on DVY at the 5% level of significance. However, ER has positive effects on DVY.

#### 4. Discussion of Results

The model estimate in Table 4 above revealed that ER has a positive effect on EPS, consistent with the a priori expectation, whereas ER (a deviation from the a priori expectation) significantly influences EPS, but only ER does so. From these results, an increase in ER will enhance EPS (consistent with the a priori expectation), but will lead to a reduction in DVY. This is because debt funding can enhance the firm's capital resources, leading to production expansion or increased investment and, consequently, higher returns to the firm. This result disagrees with Chesang and Ayuma [6], except for dividend yield, who examined the relationship between financial leverage and the profitability of firms in Kenya and found a statistically significant effect of the debt ratio on profitability. Similarly, a negative effect of the equity ratio is established, implying that higher equity levels will reduce earnings quality for consumer goods firms, except for DVY. This is probably because an increase in equity may reduce per-share earnings, except when earnings grow faster than equity.

In terms of the equity ratio, a negative effect is observed with EPS, but a positive effect is noted with DVY. The negative relationship between the debt-to-equity ratio and EPS implies that higher debt levels will reduce the quality of earnings [19]. The reason is probably that increased debt use will raise the bank's cost of funds, as higher interest payments will reduce the earnings available to shareholders. This would not only serve as a disincentive to firm owners but could also lead to a decrease in firm value, as most shareholders are likely to divest their shareholdings. Rechman [40] in his study on the relationship between financial leverage and financial performance of listed sugar companies in Pakistan, also found a negative relationship between the debt-to-equity ratio and EPS. The result also supports that of Lin and Lee [46], who found that leverage has a significant impact on firms' earnings quality. Barth et al. [20] investigated the influence of leverage and profitability on earnings quality in Jordan. Sixty-two (62) industrial companies listed on the Amman Stock Exchange showed that debt significantly influences the quality of listed firms in Jordan. Results also show that leverage and profitability have a significant impact on the firm's earnings quality.

#### 5. Summary of Findings

The study assessed the effect of leverage on the earnings quality of selected manufacturing firms in Nigeria. Specifically, the study aimed to determine the extent to which the equity ratio affects the earnings per share and dividend yield of the selected

firms. The study used balanced panel data from the annual reports of the selected firms for the 7 years from 2013 to 2019. Relevant conceptual, theoretical, and empirical literature was also reviewed. The panel GMM analytical technique was employed in analysing the data. The study's findings revealed that the equity ratio has a significant positive effect on EPS but a significant negative effect on dividend per share. Additionally, the equity ratio has a negative influence on EPS but a positive, albeit insignificant, effect on DVY.

## 6. Conclusion

Based on the findings, the study concludes that high levels of debt will result in lower returns on shareholders' funds, potentially leading to a decline in firm value. This will result in lower earnings accruing to shareholders and a significant portion of the firm's earnings going to creditors. Moreover, a moderate level of debt is good for the firm because it can enhance returns to shareholders and, in turn, improve the firm's earnings quality, thereby making it more attractive to investors.

### 6.1. Recommendations

Based on the findings and conclusions from the investigations into the subject of study, the following policy recommendations are proposed, as they could significantly contribute to strengthening the capital policy of firms in the banking industry.

- Managers and policymakers in the manufacturing subsector should ensure they adopt a financing mix that limits debt use to a moderate level, as high leverage would result in lower earnings for equity holders, with more of the firm's earnings channelled to banks' creditors.
- There is also a need for the government to take decisive steps to improve Nigeria's macroeconomic environment by addressing issues of insecurity and infrastructure development, especially in the power sector, to support a business environment that enables businesses to thrive. Such steps will also help reduce inflationary pressures, leading to lower interest rates and better earnings quality.

**Acknowledgement:** The authors gratefully acknowledge the support and resources provided by Ken Saro-Wiwa Polytechnic and Ignatius Ajuru University during the course of this research. Their valuable guidance and institutional assistance greatly contributed to the successful completion of this work.

**Data Availability Statement:** The data used in this study are available upon reasonable request to the corresponding author, ensuring transparency and reproducibility of the research.

**Funding Statement:** The authors declare that this research did not receive any specific grant or financial support from public, commercial, or not-for-profit funding agencies.

**Conflicts of Interest Statement:** The authors declare that there are no known financial or personal conflicts of interest that could have influenced the results or interpretation of this research.

**Ethics and Consent Statement:** All authors have reviewed and approved the final version of this manuscript and consent to its dissemination for academic and educational purposes.

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