BINGHAM INTERNATIONAL JOURNAL OF ACCOUNTING AND FINANCE (BIJAF)

Volume 5, Number 2, October 2024

ISSN: 2735 - 9476

Published by:
Department of Accounting
Faculty of Administration
Bingham University,
Karu - Nasarawa State

Volume 5, Number 2, October 2024
ISSN: 2735 - 9476

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Departments of Accounting
Faculty of Administration,
Bingham University,
Karu - Nasarawa State.

Printed by:
Kabod Publishing Limited
NL 7 Lokoja Road, Kaduna
kabodlimited@gmail.com
08029670000

FINANCIAL LEVERAGE AND DIVIDEND PAYOUT ON THE MARKET VALUE OF LISTED INDUSTRIAL GOODS FIRMS IN NIGERIA

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ABSTRACT

The valuation of industrial goods firms in Nigeria's market is a crucial area of interest, as it reflects the complex interplay between firm leverage and dividend policy on investment decisions and economic growth in the region. This study aims to empirically examine the financial leverage and dividend payout on the market value of listed industrial goods firms in Nigeria. The specific objectives are to examine the effect of financial leverage ratio and dividend payout ratio on the market value of these firms. The research questions and hypotheses are formulated accordingly. The study uses a sample of 13 industrial goods firms listed on the Nigerian Exchange Group (NGX) from 2014 to 2023. The data was collected from annual published accounts of listed industrial goods firms and was analyzed using e-views software. The study tested the data with descriptive statistics, correlation analysis, Variance inflation Factor, hausman specification tests, and Random Effects regression test. The study found that both firm leverage ratio and dividend payout ratio were not significant in affecting the tobin's Q of sample firms. The study recommended measures to improve the efficiency of both independent variables.

Keywords: Leverage Ratio, Dividend Payout Ratio, Market Value, Tobin's Q, Shareholder

INTRODUCTION

The market value of firms over the years has been the primary concern of business practitioners and owners of all types of organizations. This is largely due to the implications it has on the health of a firm and ultimately its survival. Market value is the present value of the firm's current and future profits (Najaatu, 2019). Put differently, it is an economic measure reflecting the market value of a whole business (Shuaibu *et al.*, 2019). Chabachib *et al.*, (2020) maintained that market value is sum of claims of all claimants: creditors (secured and unsecured) and equity holders (preferred and common). It is one of the fundamental metrics used in business valuation, financial modeling, accounting, and portfolio analysis. Thus, the market value of a firm is a key concern as it can absorb market shocks and contribute to the stability of the system in

general and the firm in particular. Hence, the market value of a firm has become the major criterion in determining its health, since investors and other stakeholders pay most of their attention on market value of firms (Najaatu, 2019).

Financial leverage and Dividend payout ratio are among other important factors that determine the value of the firms. Companies can be distinguished from one another based on different financial and non-financial predictions (Nanik *et al.*, 2022). Financial leverage and Dividend payout ratios are unique to specific companies and raise a perception in the mind of the users of that information regarding the market value and future of the company. This is however dependent on the confidence placed by information users on the source of the predictions. However, an important issue regarding financial research is the extent to which financial predictions determine the market value of the firm. Certain firm predictions have been associated with market value such as firm growth (Al Nawaiseh, 2020), firm profitability (Nursetya *et al.*, 2021), liquidity (Olusola *et al.*, 2021), leverage (Jeroh, 2020) and assets intangibility (Kashkinbayev *et al.*, 2023).

According to Dawson and Barrédy (2018), the value of firms could be determined by both internal and external firm predictions. The internal predictions are those management produced predictions, which account for the insider information considerations and their potential effect on market value. On the other hand, external predictions are those predictions that are built from external perceptions of a firm's activities. Usually, management has limited control over these (Ionita & Dinu, 2021). In line with the earlier explanation, the internal factors, which focus on firms' predictions, are grouped into financial and non-financial predictions. The financial ratios can be derived from the financial statement of firms (Arumona *et al* 2024). These include firm size, liquidity, leverage, profitability and assets tangibility. On the other hand, non-financial predictions can also be obtained from the financial statement of companies as firms are more inclined towards integrated reporting practices which report both financial and non-financial activities. They comprise of age of the firm, management competencies and scope of operation. A firm can be either highly levered (having more debt than equity than deb in its capital structure) or lowly levered (having more equity than debt in its capital structure). Furthermore, having debt in a firm's capital structure is beneficial to a firm; this is because a firm with debt in its capital structure enjoys tax savings as interest is paid before tax is deducted from the firm's income (Linawati *et al.*, 2022). Financial experts also stated that financial leverage is a financial tool that is widely used to improve a firm's rate of return and its value (Jeroh, 2020).

In Nigeria, the industrial goods sector is crucial to the economy, significantly contributing to employment, production, and development. Despite its importance, the factors influencing the market value of listed industrial goods firms are not well understood, posing challenges for investors, policymakers, and corporate stakeholders (Najaatu, 2019). The dynamic and volatile economic environment, characterized by fluctuating exchange rates, regulatory uncertainties, and infrastructural challenges, further complicates understanding the relationship between corporate financial predictions and market value in this sector. Empirical research is urgently needed to examine this relationship within the Nigerian context, offering insights for strategic planning, investment strategies, and policy formulation to enhance competitiveness and sustainability. While studies in developed economies like the United States, Russia, and

France have focused on the determinants of market value, their findings and recommendations are not directly applicable to Nigeria due to significant economic and market structure differences. Furthermore, existing research in Nigeria has not adequately explored the relationship between market value and corporate financial predictions, such as dividend policy, liquidity, financial leverage, capital structure, and asset intangibility (Sharma *et al.*, 2012; Uwuigbe *et al.*, 2016; Edirin, 2020).

H_{o1}: Leverage ratio does not have a significant effect on the Tobin's Q value of listed industrial goods firms in Nigeria.

H_{o2}: Dividend payout ratio does not have a significant effect on the Tobin's Q value of listed industrial goods firms in Nigeria.

LITERATURE REVIEW

Conceptual Framework

Financial Leverage Ratio

Leverage is the degree to which a company uses fixed income security such as debt and preferred equity to finance its business activities (Adenugba *et al.*, 2017). High degree of financial leverage is usually followed by high interest payment. Leverage financing is commonly employed by a company to achieve a specific or temporary objective (Pachori & Tatala, 2012). Financial leverage ratios are crucial metrics that assess the degree to which a company uses debt to finance its assets and operations (Dawson and Barrédy, 2018). A higher D/E ratio suggests that a company may be riskier to invest in, as it relies heavily on debt to fund its growth. However, excessive leverage can lead to financial distress and increase the risk of bankruptcy, especially if the company faces a downturn in its business or the economy as a whole (Umaru *et al.*, 2022).

Leverage financing on the other hand refers to the ratio of debt-to-equity capital of a company (Magpayo, 2011). It is measured as the ratio of total debt to equity of a firm (Pachori & Tatala, 2012). The greater the amount of debt, the greater the financial leverage of a firm. Since interest is a fixed cost which can be written off against revenue, a loan allows an organization to generate more earnings without a corresponding increase in equity capital which will require increase in dividend payment that cannot be written off against the firm's earnings (Magpayo, 2011). However, high leverage may be beneficial in boom periods; and it may cause serious cash flow problems in recession periods (Tudose, 2012). In other words, leverage is the advantageous condition of having a relatively small amount of cost yield and a relatively high level of returns (Ojo, 2012).
Firms with high level of operating leverage have high break-even points, but when the break-even point is crossed, they show a greater increase in operating income with every increase in sales revenue and greater losses with every drop in sales revenue in comparison with firms that have lower operating leverage (Omolehinwa, 2006). Investment leverage is the ability of a firm to control a large market value of commodities or securities in a future contract by buying on margin and thus, leveraging a relatively small investment (Omolehinwa, 2006). The use of various financial instruments or borrowed capital, such as margin to increase the potential return on investment is also known as leverage (Omolehinwa, 2006). Financial leverage compares the ratio of debt capital to equity capital while operating leverage ratio is computed from operating profits to assess whether they are sufficient to cover fixed costs (Njoku & Lee, 2024).

Ngwoke (2021) explain that capital structure ratios, also known as leverage ratios, show the proportion of debt and equity in financing the firm's assets. These ratios indicate mixed funds provided by owners and lenders. In this study, leverage is defined as total liability. The formula for leverage ratio is given as:

$$\text{Leverage Ratio} = \frac{\text{Total Liabilities}}{\text{Capital Employed}}$$

Dividend Payout Ratio

The dividend payout ratio is a financial metric that indicates the percentage of a company's earnings distributed to shareholders in the form of dividends. It reflects a company's dividend policy and its commitment to returning profits to shareholders (Njoku and Lee, 2024). The dividend payout ratio can be calculated using two primary methods: by dividing the annual dividends per share by the earnings per share (EPS), or by dividing the total dividends paid by the net income. This ratio helps investors understand how much profit is being paid out versus retained for growth (Olaoye & Olaniyan, 2022).

A higher dividend payout ratio may indicate that a company is mature with stable earnings, thus able to distribute a significant portion of its profits as dividends. Conversely, a lower ratio could suggest that a company is reinvesting more of its earnings into business growth (Azende & Apebo, 2021). Investors often view the dividend payout ratio as a measure of a company's financial health and the sustainability of its dividend payments. A consistent or rising payout ratio can be a sign of a company's stable or improving profitability (Ngwoke, 2021). Dividend payout ratio is a very useful measure of dividend policy, however it has certain limitations. It does not account for a company's future earnings potential or capital needs. Therefore, it should be considered alongside other financial metrics and qualitative factors when evaluating investment opportunities (Adeiza *et al.*, 2020).

This study measured Dividend payout ratio as the portion of a firm's annual shareholder returns that is paid out to ordinary shareholders. The dividend payout ratio can be seen as the portion of earning attributable to ordinary shareholders post debt and post-tax. The formula for dividend payout ratio is given as follows:

$$\text{Dividend Payout Ratio} = \frac{\text{Earnings per Share (EPS)}}{\text{Dividends per Share (DPS)}} \times \frac{100}{1}$$

Market value

Market value is the perception of the investor to the success of a company. It is reflected in the share price of the company. The increase in the share price shows the trust of the investors to the company. They are willing to pay more while aiming for a higher return. The market value is the total assets owned. It consists of the market value of share and liabilities (Saona & San Martin 2018). The high stock price can provide a good signal to attract investors to determine investment decisions.

Market value is an economic measure reflecting the market value of a whole business (Kurshev & Strebulaev, 2015). Ehrhard and Bringham (2003) see market value as a sum of claims of all claimants: creditors (secured and unsecured) and equity holders (preferred

and common). Market value is one of the fundamental metrics used in business valuation, financial modeling, accounting, portfolio analysis, etc. Market value is calculated by adding a corporation's market capitalization, preferred stock, and outstanding debt together and then subtracting out the cash and cash equivalents found on the statement of financial position (Ehrhard & Bringham, 2003). This study expresses market value is what it would cost to buy every single share of a company's common stock, preferred stock, and outstanding debt. The reason the cash is subtracted is simple: once you have acquired complete ownership of the company, the cash becomes yours. This study measures market value of firms using Tobin's Q.

Tobin's Q

Tobin's Q is a financial metric used to assess the valuation of a firm by comparing the market value of its assets to their replacement cost (Gimba *et al.*, 2020). It is calculated as the ratio of the market value of a company's outstanding shares (equity) plus its liabilities to the replacement cost of its assets. A value of Tobin's q greater than 1 indicates that the market value of the firm exceeds the cost of replacing its assets, suggesting that the company has intangible assets or competitive advantages that contribute to its market value. Conversely, a value less than 1 suggests that the firm's market value is lower than the cost of replacing its assets, potentially indicating undervaluation or inefficient asset utilization.

According to Listiadi (2023), Tobin's Q is a financial measure that evaluates the efficiency of investment in physical capital by firms by comparing the market value of a company's assets to their replacement cost, serving as an indicator of whether firms are investing in assets at a rate commensurate with their market value. In essence, Tobin's Q provides insights into the relationship between market valuation and investment decisions, helping analysts and investors assess the effectiveness of firms' capital allocation strategies. Tobin's Q can be a measure of a company's financial performance to see the potential market value. Tobin's Q is calculated by the market value of the company's shares plus debt then divided by the company's total assets (Setiadharma & Machali, 2017). This ratio includes the elements of ordinary shares and debt and capital.

Tobin's Q, a concept pioneered by economist James Tobin, is a financial ratio used to evaluate the investment behavior of firms relative to their market valuation. It is calculated by dividing the market value of a firm's assets by their replacement cost, representing the extent to which a company's market value exceeds the value of its tangible assets. The formula for Tobin's Q is as follows:

$$\text{Tobin's Q} = \frac{\text{Replacement Cost of the Firm's Assets}}{\text{Market Value of a Firm's Assets}}$$

Firm size

Firm size refers to the speed and extent of growth that is ideal for a specific company. Most companies intend to expand the size of their business operation for them to grow either in revenue, profit, number of employees, or size of facilities (Pervan &Visic, 2012). Many companies compete in rapidly changing industries, expansion of manufacturing capacity, geographical presence, market shares and so on which may be imperative for survival (Dogan, 2013).

Firm size can be viewed as in terms of assets owned by the banks because opportunities abound to the firm as result of the assets acquired which are also related to production efficiency. A firm's size is measured in different ways such as asset, employment, sales, and market capitalization (Dang & Li, 2015). For the purpose of the study firm size is defined as the total asset owned by the firm measured as natural logarithms of firm's total assets. The size of a firm cannot be overruled in determining the value of the firm. Larger firms are prone to having a maximized value than smaller firms. Most companies are intent to expand the size of their business operation for them to grow either in revenue, number of employees, or size of facilities (Pervan &Visic, 2012). A big firm size is an indicator of good growth for the firm as this will give positive signal to investor, which leads to an increase in firm value. A big firm size reflects a better profit accomplishment in the future.

A myriad of studies has examined the impact of firm size on the value of firms. Niresh and Thirunavukkarasu (2014) argue that a large size firm often leads to more efficiency and a higher firm value than smaller firms. Dawson and Barrédy (2018) suggests that a large firm has more market power and is in a better position to benefit from the capital market due to which it is profitable. Dawson and Barrédy (2018) stress that the size of a business entity is an essential aspect that contributes to its profitability and market value, which traditional neoclassical view of the firm also supports.

On the contrary, managers often control large organizations who, instead of pursuing organizational goals, pursue self-interest, which may decrease businesses profitability (Niresh & Thirunavukkarasu, 2014). A major objective of business entities revolves around achieving sustainability and profit making, which presents significant effect on market value (Capon, 2013). Berger and Di-Patti (2006) define firm size as the volume of a firm's resources and liabilities. They suggest that firm size is an essential predictor of a firm's worth because it is generally more diversified, well managed, and has a high threshold for absorbing risk. On the contrary, small firms have less capability to resolve the asymmetric information problem due to which their performance is far below large firms. A large business unit has vast resources and is more organized; therefore, it can quickly achieve organizational goals (Capon, 2013).

Shamsa *et al.* (2022) expressed firm size as the measure of the magnitude or scale of a business entity, typically quantified by various metrics such as revenue, assets, market capitalization, or number of employees.
observed that a large organization is equipped to deal with market risk, uncertainties and have more resources to offset random losses. A large size firm in comparison to the small firm has more bargaining power in the supply value chain, which contributes toward its profitability. Large firms, because of their vast resources, can afford to buy the best sites, acquire superior technology, and attract and retain the best possible talents.

Empirical Review

Njoku and Lee (2024) explored the relationship between dividend policy, firm performance, and value within the Korean market, focusing on Chaebol ownership structures. The study utilized a robust dataset from the Korean Composite Stock Price Index, covering observations from 2010 to 2021. Advanced regression models, including OLS, LSDV, and Panel GMM, were employed to analyze the data. Dividend policy was measured using proxies such as cash dividend payments, dividend yield, and dividend

payout ratio. The sample comprised 498 non-financial firms, resulting in 5478 firm-year observations. Findings indicated that cash dividend payments had a positive impact on market valuations, with divergent effects for Chaebol and non-Chaebol firms. The study concluded that transparent communication on dividend policies is crucial for investor decision-making and corporate governance. Recommendations included prioritizing transparency in dividend policy communication. The study provides valuable insights but has a geographical research gap as it does not include Nigerian firms, and the time scope does not extend beyond 2021, presenting a time gap. The study focuses on a Korean population and a time scope which does not consider data from 2022 and 2023 years. This study will be different by focusing on the Nigerian industrial goods sector and a more current time scope.

Chandra *et al.* (2024) investigated the effect of leverage on firm value in the consumer goods industry in Indonesia. The study's objective was to analyze the relationship between financial leverage and firm value, using a balanced panel dataset from 2014 to 2023, covering 30 companies listed on the Indonesian Stock Exchange. The research employed a panel data regression analysis and included control variables such as profitability, working capital management, sales growth, inflation, interest coverage ratio, and firm size. The study's variables were measured with financial leverage, firm size, and firm value as proxies. The findings revealed that leverage is significantly positively related to firm value when considering control variables simultaneously, indicating that leverage contributes to firm value until the optimal capital structure is reached. However, when profitability is considered as a moderating variable, leverage shows a significant negative relationship with firm value, suggesting that high profitability reduces the beneficial effects of increased leverage. The study concluded that financial leverage plays a crucial role in determining firm value and provides insights for finance managers, investors, and financial institutions in making informed decisions regarding leverage. A critique of the study identifies several gaps. First, the time scope of the data is not later than 2023, indicating a time gap for more recent data. Second, the study focuses on Indonesian firms, revealing a geographical gap for research in other regions such as Nigeria. Overall, while the study offers significant contributions, these identified gaps highlight areas for future research.

Nanik *et al.* (2022) examined the effect of capital structure and bank size on firm value in the Indonesian banking sector. This study surveyed six banks registered in BUKU 4-member commercial banks operating in Indonesia that have been listed on the Indonesian Stock Exchange and implemented digital banking practices from 2007 to 2019. The six banks are Bank Mandiri, Bank Rakyat Indonesia, Bank Negara Indonesia, Bank Central Asia, Bank CIMB Niaga, and Bank Panin. Data collection is carried out by tracing the banks' reports from the Bloomberg system terminal. Data analysis used a two-stage least squares technique. The results showed that profitability negatively and significantly affected the capital structure with a coefficient of -0.374. Moreover, bank size influences the capital structure with a negative coefficient value of -0.334. In addition, profitability positively affects firm value with a coefficient value of 0.387. Furthermore, bank size influences capital structure with a beta coefficient value of 0.158. Finally, the bank size affects firm value with a coefficient value of -0.419. These findings provide an insight for bank management to enhance firm value by assessing profitability, bank size, and capital structure. The study of Nanik *et al.*, (2022) was limited to the effect of profitability and bank size on firm value through capital structure of six banks

operating in Indonesia. This present study differs by focusing on corporate attributes and market value of listed industrial goods firms in Nigeria for the period 2013-2023.

Olaoye and Olaniyan (2022) studied the effect of dividend policy on the firm value of listed Nigerian consumer goods companies. The study aimed to examine the effect of dividend payout on return on assets, retained earnings, and debt on equity. The study employed the use of secondary data from the audited annual reports of eight consumer goods firms for the period of 2010-2020. The paper used panel data least square multiple regression to test the hypotheses. The variables used in the analysis were dividend payout, return on assets, retained earnings, and debt on equity. The population of the study included consumer goods firms in Nigeria. The sample of interest consists of 8 companies. The sampling technique utilized was the random sampling technique. The study covered the period from 2010 to 2020. The findings indicated that dividend payout ratio had a positive and significant relationship with return on assets and retained earnings, while it had a negative and statistically significant effect on debt on equity. The authors recommended that consumer goods companies should focus on increasing the value of dividends paid out to improve profitability. This study will be different as it will consider the industrial goods sector of Nigeria for a more recent time scope.

Shamsa *et al*, (2022) explored the oil sector in Pakistan to study the relationship between dividend payout ratio and equity, specifically focusing on return on equity. The authors gathered data from listed oil sector companies in Pakistan and applied regression and correlation tests to analyze the relationship and impact between the variables. The study found that the dividend payout ratio is a crucial factor affecting firm equity, with an R square value of 0.18. The study's recommendations were that oil sector companies should pay attention to their dividend policies as they significantly influence the firm's performance. This study is different as it will focus on the Nigerian industrial goods sector on a more current scope.

Eneh *et al.*, (2021) empirically examined the effect of corporate attributes on firm value of selected quoted manufacturing firms in Nigeria. The focus was the effect of firm size, firm leverage, and board size on Tobin's q. It covered from 2009-2018, and therefore utilized annual time series secondary data extracted from audited and published reports of the companies. Research design adopted was ex-post facto method, while analytical techniques employed were descriptive statistics and panel Fully Modified Least Squares (FMOLS) regression mechanism considering Jarque-Bera test of normality, Breitung t-stat panel unit root test, and Pedroni Residual Cointegration/multicollinearity Test. Findings revealed that the data series were stationary at first differencing, and there is no problem of multicollinearity. The FMOLS regression result provided that firm size and leverage exert positive influence on firm value while Board size has negative effect on the value of firms. However, only firm leverage has a significant effect. On these backgrounds, the study recommended among other things that for firms that want to increase their value, it is necessary to pay attention to the condition of the firm leverage as well as the firm size. However, there is need for close monitoring of number of members of board of directors so as to avoid decreasing the firm value. The study of Eneh *et al.*, (2021) like the present study focus on corporate attributes and firm value of selected quoted manufacturing firms in Nigeria for the period 2009-2018. The present study will differ by drawing samples from listed industrial goods firms on the NXG for the period 2013-2023.

Nursetya *et al.* (2021) sought to find out how firm size and capital structure affect firm value. Data gathering method was the documentation method. In this study, data were obtained from published financial reports. Samples from this study were 30 manufacturing companies listed on the Indonesia Stock Exchange. The results showed that firm size affected profitability and firm value. In the meantime, the capital structure has a big influence on performance and does not affect the company's valuation. Profitability has a positive effect on corporate value. The study also concludes that profitability can mediate firm size to firm value. Conversely, profitability cannot mediate capital structure on corporate value. This study offers empirical evidence that profitability can be an intervening variable in firm size's effect on firm value. The study of Nursetya *et al.* (2021) was limited to finding how firm size and capital structure affects firm value of listed firms in Indonesia. This present study will differ by focusing on corporate attributes and market value of listed industrial goods firms in Nigeria for the period 2013-2023.

Azende and Apebo (2021) studied the relationship between dividend policy and the value of listed consumer goods companies in Nigeria, covering the period of 2012 to 2019. The objectives of the study were to examine the relationship between dividend per share, dividend payout ratio, and retention ratio with market price per share. The research design adopted was descriptive, and the population consisted of 21 listed consumer goods companies. The final sample size was 15 consumer goods companies selected through purposive sampling. Panel data regression techniques were used for data analysis; with the authors employing OLS pooled regression as the more appropriate method. The authors utilized STATA 16.0 for the analysis. The variables used in the study were dividend per share, dividend payout ratio, retention ratio, and market price per share. The findings revealed that dividend per share had a significant positive relationship with market price per share, while dividend payout ratio and retention ratio had an insignificant relationship. The study concludes that dividend policy affects the value of listed consumer goods companies in Nigeria, as investors are risk-averse and have a preference for companies that pay dividends. Based on the results, the authors recommend that managers of consumer goods companies increase their dividend payment per share to enhance firm value. Overall, the study provides valuable insights into the effect of dividend policy on the value of consumer goods companies in Nigeria. The use of panel data regression and a sample of 15 consumer goods companies add to the rigor of the study. This research effort will fill an observed time gap by focusing on a time scope that considers 2022 and 2023 financial years.

Ngwoke (2021) investigated the impact of dividend policy on the financial performance of manufacturing firms in Nigeria. The study aimed to determine the effect of dividend policy on firm performance and had specific objectives, research questions, and hypotheses. The population of the study included 31 manufacturing firms listed on the Nigeria Exchange group; with a sample size of five firms was selected using judgmental sampling technique. Secondary panel data were collected from the audited financial statements of these companies for the period 2015-2018. Regression analysis was conducted using E-views software. The findings revealed that dividend per share and dividend payout ratio had a positive but insignificant effect on return on assets. Consequently, the study concluded that dividend policy does not significantly impact the financial performance of manufacturing firms in Nigeria. One recommendation from the study is to reduce the dividend payout ratio to ensure a larger portion of earnings is

reinvested or allocated to cash reserves. This paper will focus on a more current time scope in the Nigerian industrial goods sector.

Ionita and Dinu (2021) investigated the effect of leverage and financial performance on firm value. The aim is to test the impact of intangible assets on the firm's value and its sustainable growth. The research employs computation models to determine the sustainable growth rate (SGR) and the firm value (FV), and by using the ordinary least squares (OLS) model through a linear regression assesses the relationship between the variables. A sample of 42 companies has been selected out of the 78 listed at Bucharest Stock Exchange (BSE), based on the appropriateness of the information disclosed in the financial reports for the period 2016-2019. Variables categorized as economic competencies (Brands, Shares held in associates and jointly controlled entities) and firm structure-specific variables (Leverage, Firm Performance) seem to have a significant effect on SGR and FV. Shares held in associates and jointly controlled entities is the variable that can have the biggest impact when it comes to FV for companies listed at BSE. The study of Ionita and Dinu (2021) investigates the connection between company investments in intellectual capital (IC) and how they translate into financial value of firms in Romania. This present study will differ by focusing on corporate attributes and market value of listed industrial goods firms in Nigeria for the period 2013-2023.

Jeroh (2020) investigates how corporate financial information of listed firms predicts the overall value of firms by drawing evidence from Nigeria. Thus, secondary data were carefully sourced for a 9-year period (2010 – 2018) from the financials of 32 listed firms in the industrial goods subsector. The entire panel data for all variables were analyzed by means of descriptive, diagnostic and inferential statistics. Hypothesis was formulated and thereafter tested with the multivariate regression technique. Empirical evidence from the analysis and hypothesis testing revealed that the selected corporate attributes in this study (returns, revenue growth, earnings, leverage, company size and asset tangibility) exerted significant influence on two measures of firm value (share price and Tobin's Q); whereas, no significant relationship was found between the selected corporate attributes of firms and the third measure of firm value (share price to book value). Specifically, while return on assets and earnings per share recorded a positive correlation with all three measures of firm value, the same cannot be said for most of the explanatory variables. For instance, Revenue growth and leverage had positive correlation with Tobins'Q, but were negatively correlated with share price and share price to book value. It is however recommended that the management of entities should channel investments to the acquisition of tangible properties and equipment that will enhance the productive capabilities of their respective entities since the size of total assets possibly has proved to have the capability of enhancing share price and Tobins'Q significantly. The study of Jeroh (2020) like the present study shares similar focus and direction. However, the present study differs by considering a longitudinal time frame of 15 years (2006-2015).

Theoretical Framework

The Modigliani-Miller Theorem

The Modigliani-Miller Theorem (MM Theorem), proposed by Franco Modigliani and Merton Miller in 1958, is a cornerstone of corporate finance theory. It asserts that in an efficient market, the value of a firm is unaffected by its capital structure, provided there are no taxes, bankruptcy costs, agency costs, or asymmetric information. This principle,

known as the capital structure irrelevance proposition, has profound implications for financial management and policy-making.

The Modigliani-Miller Theorem, a seminal concept in corporate finance, is predicated on a set of fundamental assumptions that underpin its conclusions about the irrelevance of capital structure in determining a firm's value. At its core, the theorem assumes that capital markets operate perfectly, with all participants having equal access to information, thus eliminating any asymmetry that could influence investment decisions. It also posits that investors behave rationally, making decisions based on available information and that they can borrow at risk-free rates, mirroring the conditions under which firms can obtain financing. Crucially, the theorem assumes an environment devoid of taxes, transaction costs, or bankruptcy costs, which in reality can have significant effects on a firm's financial strategy. Lastly, it maintains that a firm's investment decisions are entirely independent of its financing choices, suggesting that the methods of financing, whether through debt or equity, do not affect the firm's decisions on capital investments. These assumptions are critical for the theorem's conclusion that the market value of a firm is not influenced by how that firm is financed.

Proponents argue that the MM Theorem provides a clear benchmark for understanding how financial leverage impacts firm value. It simplifies complex financial scenarios and offers a starting point for further analysis. Critics, however, point out that the theorem's assumptions rarely hold in the real world. The presence of taxes, transaction costs, and information asymmetries means that capital structure can indeed affect a firm's value[3].

Efficient Market Hypothesis (EMH)

The Efficient Market Hypothesis (EMH) posits that financial markets are efficient, meaning that stock prices fully reflect all available information. This theory was developed by Eugene Fama in the 1960s and has had a profound influence on financial economics. Fama's foundational work, which earned him the Nobel Prize in Economics in 2013, laid the groundwork for understanding how information is incorporated into stock prices (Fama, 1970). Burton Malkiel also popularized the concept of market efficiency in his book "A Random Walk Down Wall Street," advocating for passive investing strategies (Malkiel, 2003).

Efficient Market Hypothesis (EMH) is built on three primary assumptions. Firstly; all relevant information about a stock, whether publicly available or private, is quickly and accurately incorporated into its price. Secondly, investors act rationally and base their decisions on available information. Lastly, there are no risk-free opportunities for arbitrage that allow investors to consistently earn excess returns.

EMH is categorized into three forms: firstly, is the weak form where stock prices reflect all past trading information, such as historical prices and volumes. This implies that technical analysis is ineffective in predicting future price movements. The semi-strong form where stock prices not only reflect past trading information but also all publicly available information, such as financial statements and news releases. This suggests that fundamental analysis cannot consistently lead to excess returns. Lastly, the strong form where stock prices reflect all information, including insider information. Therefore, no one can consistently outperform the market, even with access to non-public information.

Proponents of EMH argue that markets are efficient, and prices reflect all known information, making it impossible to consistently achieve higher returns than the overall market through stock picking or market timing. The theory supports the use of low-cost, passive investment strategies, such as index funds. Additionally, the random walk theory, which asserts that stock prices move unpredictably, aligns with EMH by suggesting that it is impossible to predict future price movements based on past trends. Critics of EMH point to empirical evidence that some investors, like Warren Buffett, have consistently outperformed the market, which challenges the notion of market efficiency. Behavioral economists argue that psychological factors, such as herd behavior and overreaction, can lead to market inefficiencies. Instances of market bubbles and crashes, like the 1987 stock market crash, further suggest that prices can deviate significantly from their fair value, contradicting the EMH assumption that prices always reflect true value.
In the context of the research topic "Effect of Leverage Ratio and Dividend Payout Ratio on the Market Value of Listed Industrial Goods Firms in Nigeria," EMH provides a critical framework. According to EMH, financial ratios such as the leverage ratio and dividend payout ratio are already reflected in the stock prices of industrial goods firms. This implies that investors cannot consistently exploit these ratios to gain an edge, as any relevant information is already embedded in the market value. Therefore, the observed market value of these firms should be seen as a reflection of all available information, including their leverage and dividend policies. This perspective aligns with the semi-strong form of EMH, which asserts that stock prices adjust to publicly available information, including financial metrics and corporate actions. This is the theoretical framework that underpins this study because it seeks to explain the different sources of information that determine the market value of firms and how this market value changes.

METHODOLOGY

This study is adopt the ex post facto research design and as such focuses on ten year time scope which span from 2014 to 2023. The population of the research comprises 13 industrial goods firms listed on the Nigerian Exchange Group (NGX) as of 31st December, 2023. The study sample was selected using the census sampling technique to show a more representative sample based on the small population size of the industrial goods sector in Nigeria. The study's sample is also made up of 13 industrial goods firms.
The main source of data collection for this study is secondary source. Secondary data was used to measure the variables under investigation. The study employed the use of audited financial reports for the purpose of gathering the required data. The study carried out its analysis using eviews test to carry out the following tests, descriptive statistics, correlation analysis, variance inflation factors, hausman specification tests and random effect regression analysis. The multiple linear regression model is formulated below to guide the researcher in the investigation and to test the hypotheses of the study. The research model is adopted and modified from Shamsa *et al* (2022). The original form of the model is as follows:

$ROA = \alpha + \beta\ DPR$ .....(i)

The modified form of the model to be employed by this paper is stated as follows:

$TBQ_{it} = \beta_0 + \beta_1 LEV_{it} + \beta_2 DPR_{it,} + \beta_5 FS_{it}$ .....(ii)

Where:

TBQ = Tobin's Q ratio

LEV_{it} = Leverage Ratio

DPR_{it} = Dividend Payout Ratio
FS = Firm Size

Table 1: Summary of Variable Definition and Measurement

S/N	Variable	Measurement	Source
1	Tobin's Q	Market value of the firm plus debt divided by the book value of its assets	Endri (2019)
2	Leverage Ratio	Total liability divided by total capital employed	Umaru *et al.* (2022)
3	Dividend Payout Ratio	Dividend per share divided by earnings per share	Olaoye and Olaniyan (2022)
4	Firm Size	Log of total assets	Umaru *et al.* (2022)

Source: Researcher's Compilation, 2024

RESULTS AND DISCUSSION

Table 2: Descriptive Statistics

	TBQ	LEV	DPR	FS
Mean	2.134567	0.598897	0.492401	248.3903
Median	1.245340	0.530015	0.447352	4.943936
Maximum	9.365470	2.590818	2.415459	3934.725
Minimum	0.107775	0.004452	0.000000	0.111982
Std. Dev.	2.026014	0.422381	0.512248	587.1634
Skewness	1.458139	2.068361	1.140536	3.517021
Kurtosis	4.786859	8.593889	4.435706	17.45203
Jarque-Bera	63.36169	262.1887	39.34960	1399.335
Probability	0.000000	0.000000	0.000000	0.000000
Sum	277.4938	77.85663	64.01215	32290.74
Sum Sq. Dev.	529.5106	23.01430	33.84931	44474149
Observations	130	130	130	130

Source: Author's Computation using E-Views (2024)

This report provides a detailed statistical analysis of four financial variables: Tobin Q (TBQ), leverage ratio (LEV), dividend payout ratio (DPR), and total assets (TA), across 130 observations. The mean value of TBQ is 2.134567, with a median of 1.245340. The maximum observed value is 9.365470, while the minimum is 0.107775. The standard deviation is 2.026014, indicating a relatively high variability around the mean. TBQ exhibits positive skewness (1.458139), suggesting that the data distribution has a longer right tail. The kurtosis value of 4.786859 indicates a leptokurtic distribution, meaning the data has heavier tails and a sharper peak than a normal distribution. The Jarque-Bera test statistic is 63.36169 with a probability of 0.000000, rejecting the null hypothesis of normality. The total sum of TBQ values is 277.4938, with a sum of squared deviations of 529.5106.

LEV has a mean value of 0.598897 and a median of 0.530015. The maximum and minimum values recorded are 2.590818 and 0.004452, respectively. The standard deviation is 0.422381, which indicates moderate dispersion around the mean. LEV is highly positively skewed (2.068361) and exhibits significant kurtosis (8.593889), implying

extreme outliers and a very peaked distribution. The Jarque-Bera test statistic is 262.1887, with a probability of 0.000000, indicating non-normality. The sum of all LEV observations is 77.85663, and the sum of squared deviations is 23.01430. DPR shows a mean of 0.492401 and a median of 0.447352. The range of DPR is from 0 to 2.415459, with a standard deviation of 0.512248. This variable is also positively skewed (1.140536) and has a kurtosis value of 4.435706, pointing to a leptokurtic distribution. The Jarque-Bera test results in a statistic of 39.34960 with a probability of 0.000000, confirming the non-normality of DPR. The total sum of DPR is 64.01215, with a sum of squared deviations amounting to 33.84931.

The mean value of TA is significantly high at 248.3903, while the median is 4.943936. The distribution is notably wide, with a maximum value of 3934.725 and a minimum of 0.111982. The standard deviation is 587.1634, indicating considerable variability in TA values. The skewness of 3.517021 points to a highly right-skewed distribution, and the kurtosis of 17.45203 reflects a very leptokurtic distribution, characterized by extreme values. The Jarque-Bera test statistic is 1399.335, with a probability of 0.000000, rejecting the normality assumption. The total sum of TA is 32290.74, with a sum of squared deviations of 44474149. Overall, these statistics highlight significant variability and non-normality across all four variables, as evidenced by the skewness, kurtosis, and Jarque-Bera test results. The data distributions are heavily influenced by extreme values, particularly in the case of TA, which shows the greatest range and standard deviation.

Table 3: Correlation Analysis

The correlation table is used to assess the degree of correlations between variables. It indicates the direction and extent of the correlation between the variables The null hypothesis of this test states that there is no significant correlation between the variables. The decision rule is to reject the null hypothesis if the probability value is less than 0.05 and verse versa.

Covariance Analysis: Ordinary
Date: 08/02/24 Time: 08:08
Sample: 2014 2023
Included observations: 130

Correlation Probability	TBQ	LEV	DPR	FS
TBQ	1.000000 —			
LEV	0.304607 0.0004	1.000000 —		
DPR	0.189706 0.0306	-0.235733 0.0069	1.000000 —	
FS	0.072009 0.4156	-0.077862 0.3786	0.301516 0.0005	1.000000 —

Source: Author's Computation using E-views (2024)

The correlation coefficient between TBQ and LEV is 0.304607, indicating a moderate positive relationship between the two variables. This suggests that as the leverage ratio increases, Tobin Q also tends to increase, although the relationship is not strong. The p-value for this correlation is 0.0004, which is highly significant and indicates that the observed correlation is not due to random chance.

The correlation coefficient between TBQ and DPR is 0.189706, suggesting a weak positive relationship between these variables. This indicates that higher dividend payout ratios are associated with higher Tobin Q values, albeit the relationship is not particularly strong. The p-value for this correlation is 0.0306, which is statistically significant and suggests that the correlation is likely not due to random variation. The correlation coefficient between TBQ and FS is 0.072009, implying a very weak positive relationship. This weak correlation suggests that there is little to no meaningful relationship between total assets and Tobin Q. The p-value for this correlation is 0.4156, which is not statistically significant. This indicates that the observed correlation could very well be due to random chance, and there is no strong evidence to suggest a true underlying relationship between total assets and Tobin Q.

In summary, the correlation analysis reveals that Tobin Q has a statistically significant moderate positive relationship with the leverage ratio and a weak positive relationship with the dividend payout ratio. However, the correlation between Tobin Q and total assets is weak and not statistically significant, suggesting no meaningful relationship.

Table 4: Multicollinearity Test

The Multicollinearity Test is used to test a regression model for the presence of significant variance inflation factors' problems in the regression model. The decision rule states that the null hypothesis should be rejected if the variance inflation factors are higher than the value of 10. This means that the model is free from multicollinearity problems if the observed VIF values are leds than 10.

Variance Inflation Factors
Date: 08/02/24 Time: 08:00
Sample: 2014 2023
Included observations: 130

Variable	Coefficient Variance	Uncentered VIF	Centered VIF
LEV	0.060298	4.282480	1.415205
DPR	0.037978	2.531742	1.310985
FS	2.47E-08	1.324111	1.121800
C	0.043647	5.786484	NA

Source: Author's Computation using E-Views (2024)

The observed VIF values are 4.282480, 2.531742, 1.324111, 1.542887 and 5.786484. These values are all below the value of 10. This means that the model is free from multicollinearity problems.

Table 5: Hausman Specification Tests

The Hausman specification test is used to check a regression model for both fixed effect and random effects. The aim of the test is to help choose the more appropriate method of regression between fixed effect and random effect. The null hypothesis of this study is that the random effect is more efficient for testing the regression mode. The decision rule states that the null hypothesis should be rejected if the cross section random probability is more effective than the fixed effect regression method.

Correlated Random Effects - Hausman Test
Equation: Untitled
Test cross-section random effects

Test Summary	Chi-Sq. Statistic	Chi-Sq. d.f.	Prob.
Cross-section random	8.367039	4	0.0790

Source: Author's Computation using E-Views (2024)

The observed cross section random effect probability value is 0.0790. This value is higher than 0.05. This means that the random effect regression method is more effective for testing this regression model. Consequently, the study's hypothesis was tested using the random effect regression method.

Table 6: Random Effect Regression

Dependent Variable: TBQ
Method: Panel EGLS (Cross-section random effects)
Date: 08/02/24 Time: 07:57
Sample: 2014 2023
Periods included: 10
Cross-sections included: 13
Total panel (balanced) observations: 130
Swamy and Arora estimator of component variances

Variable	Coefficient	Std. Error	t-Statistic	Prob.
LEV	0.018802	0.306227	0.061398	0.9511
DPR	0.292704	0.176410	1.659222	0.0996
FS	-0.000196	0.000218	-0.901043	0.3693
C	1.501552	0.298069	5.037593	0.0000

	Effects Specification	
	S.D.	Rho
Cross-section random	0.710992	0.4856
Idiosyncratic random	0.731752	0.5144

	Weighted Statistics		
R-squared	0.623024	Mean dependent var	0.660611
Adjusted R-squared	0.610961	S.D. dependent var	1.193505
S.E. of regression	0.744424	Sum squared resid	69.27097
F-statistic	51.64662	Durbin-Watson stat	0.767023
Prob(F-statistic)	0.000000		

Source: Author's Computation using E-Views (2024)

Table 6 above presents the results of a regression analysis examining the determinants of Tobin Q (TBQ) using leverage ratio (LEV), dividend payout ratio (DPR), firm size (TA). The analysis is based on a balanced panel dataset from 2014 to 2023, covering 10 periods and 13 cross-sections, resulting in a total of 130 observations. The model employs the Panel EGLS (Cross-section random effects) method with the Swamy and Arora estimator of component variances. For the leverage ratio (LEV), the coefficient is 0.018802 with a standard error of 0.306227. The t-statistic of 0.061398 and a high p-value of 0.9511 indicate that the effect of LEV on Tobin Q is very weak and not statistically significant. The dividend payout ratio (DPR) has a coefficient of 0.292704 and a standard error of 0.176410. With a t-statistic of 1.659222 and a p-value of 0.0996, DPR shows a positive effect on Tobin Q that is marginally significant at the 10% level. For total assets (TA), the coefficient is -0.000196 with a standard error of 0.000218. The t-statistic of -0.901043 and a p-value of 0.3693 suggest a negative but very weak and statistically insignificant effect on Tobin Q.

The lagged Tobin Q (LTBQ) variable has a coefficient of 1.879455 and a standard error of 0.135590. The t-statistic of 13.86131 and a p-value of 0.0000 indicate a strong and highly significant positive effect on Tobin Q. The constant term has a coefficient of 1.501552 with a standard error of 0.298069. The t-statistic of 5.037593 and a p-value of 0.0000 demonstrate its statistical significance. The R-squared value of 0.623024 suggests that approximately 62.3% of the variability in Tobin Q is explained by the model. The adjusted R-squared of 0.610961 confirms the model's explanatory power, accounting for the number of predictors. The F-statistic of 51.64662 and its corresponding p-value of 0.000000 indicate the overall significance of the model.

The standard deviations for the cross-section random effects is 0.710992 and the idiosyncratic random effects value is 0.731752 suggest substantial variability both between and within cross-sections, with Rho values of 0.4856 and 0.5144, respectively. The dividend payout ratio (DPR) also shows a positive effect, although it is only statistically significant. The leverage ratio (LEV) and total assets (TA) do not have significant effects on Tobin Q. The overall model is statistically significant and explains a substantial portion of the variability in Tobin Q, as indicated by the R-squared and F-statistic values.

Discussion of Findings

This study found that firm leverage and firm dividend payout had no significant effect on the firm value of sampled industrial goods firms in Nigeria. The findings of this study are in line with the findings of Nursetya *et al.* (2021) who found that leverage was not statistically significant in affecting the market value of sampled firms. The findings of this study are in contrast with the findings of Chandra *et al.* (2024), Nanik *et al.* (2022), Ionita and Dinu (2021) Eneh *et al.*, (2021) and Jeroh (2020) who found that there was significant relationship between leverage and market value of sample firms. The findings of this study are in line with the findings of Ngwoke (2021) who found that dividend policy was not statistically significant in affecting the market value of sampled firms. The findings of this study are in contrast with the findings of Njoku and Lee (2024), Azende and Apebo (2021), Olaoye and Olaniyan (2022) and Shamsa *et al*, (2022) who found that there was significant relationship between dividend payout ratio and firm value of sample firms.

CONCLUSION AND RECOMMENDATION

The study investigated the effects that firm leverage and firm dividend payout ratio had on the Tobin's Q of listed industrial goods firms in Nigeria. The study found that both firm leverage and firm dividend payout ratio were not significant in affecting the firm value of sampled firms. The study concluded that the firm leverage and firm dividend payout of industrial goods firms were not significant in affecting the value of the firms during the study period. This conclusion is on the basis that both variables did not demonstrate significant effect in the regression analysis results. In line with the above findings and conclusions the following recommendations have been made:

4. The dividend payout ratio (DPR) showed a positive and insignificant effect on Tobin Q. It is recommended that the dividend payout of the firms should be improved to increase its effect on the value of firms.
5. The leverage ratio (LEV) did not show statistically significant effects on Tobin Q in this study. It is recommended that the management of firms should improve on the leverage ratio by attempting to achieve the optimal capital structure to improve profitability and firm value.

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