Moderating Effect of Share Price on the Relationship Between Capital Structure and Dividend Payout of Quoted Agriculture Firms in Nigeria

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ARTICLE INFO	ABSTRACT
Published Online: 03 July 2024 **Corresponding Author:** **FAROUK, Musa Adeiza**	Scholars have attempted to analyze the capital structure and dividend payout interface to determine their extent, nature, and significance using different proxies with mixed results. However, the moderating effect of share price on the link has yet to be empirically assessed. Therefore, this study examined the moderating effect of share price on the relationship between capital structure and dividend payout of quoted agriculture firms in Nigeria. Debt-equity ratio and debt-assets were the proxies of capital structure, while dividend payout ratio measured dividend payout. Signaling Effect, Bird in Hand, and Efficient Market Theories underpinned the study. Adopting an ex-post facto research design, the panel data sourced from annual published accounts of the firms of analysis were analyzed, and hypotheses were tested using STATA 13 software. The findings showed that debt-equity ratio and debt-assets ratio each has an insignificant effect on the dividend payout ratio of quoted agriculture firms in Nigeria. Furthermore, market price has a positive and insignificant moderating effect on the relationship between debt-equity ratio and dividend payout ratio, while it has a negative and significant moderating effect on the relationship between debt-assets ratio and dividend payout ratio of quoted agriculture firms in Nigeria. It implied that market price is a major determinant in the interface between debt-asset ratio and dividend payout ratio of quoted agriculture firms in Nigeria. It is recommended that firms use an optimal debt-equity mix to finance strategic productive assets and consistently pay competitive dividends to shareholders. Additionally, quoted agriculture firms in Nigeria should consistently provide information that can fuel bullish market sentiments, thereby triggering a surge in the market price of shares, which attracts investors and maximizes shareholders' wealth.
KEYWORDS: Share price, Dividend Payout, Capitals Structure, Dividend-Asset Ratio, Dividend-Equity Ratio	

INTRODUCTION

Scholars have attempted to empirically analyze the effect of capital structure on dividend payout to determine its nature and degree of significance using different proxies with mixed results (Adeoye et al., 2021; Akinlo & Adebiyi, 2021; Adebiyi et al., 2020; Agwu et al., 2019). In the same vein, many scholars have examined the stock price and dividend payout interface with different outcomes (Fitriana, 2022; Hutasoit et al., 2022; Widati & Gunawan, 2021; Syofyan et al., 2020; Dang et al., 2020). Adding their voices to the discourse, Adebiyi et al. (2020) introduced firm size as a moderator in examining the relationship between capital structure and dividend payout at the local level. Eduard and Zulfa (2023) expanded the coverage by evaluating the moderating effect of free cash on the link between capital structure and dividend policy on the international scene. The variables considered by the scholars were all internally generated by the firms as reflected in their annual financial

statements. These scholars and others attempted to examine either the direct relationship or effect of capital structure on dividend payout ratio without considering whether share price has any moderating effect on the capital structure and dividend payout nexus, which presents a gap to be filled. Meanwhile, the share price is not internally generated by the firm, unlike the variables used by prior scholars. Also, this study focuses on quoted agriculture firms in Nigeria, using updated secondary data up to 2022, while prior studies preferred other sectors in the Nigerian Exchange (NGX). To the best of my knowledge, despite the prediction effect of share price on dividend payout, its moderating effect on capital structure and dividend payout nexus has yet to be empirically examined by scholars. The inability to analyze the overarching effect of share price in the link of discourse would make it difficult to generate scholarly input that supports the agribusiness investment initiative being championed by the government at both national and

subnational levels in Nigeria. Also, the present apparent gap in literature would linger as the scholarly discourse on capital structure and dividend payout may not be complete. Consequently, this study attempted to bridge the apparent gap by analyzing the moderating effect of share price on capital structure and dividend payout of quoted agriculture companies in Nigeria using current secondary data spanning 2012–2022, for the benefit of scholarship, policy initiatives in firms of analysis, and Nigeria at large.

The debt-equity and debt-asset ratios were the proxies of capital structure while dividend payout ratio was the proxy of dividend payout. Maintaining that thrust, the following research questions were formulated to guide the study: What is the effect of debt-equity ratio on dividend payout ratio of quoted agriculture firms in Nigeria? How does debt-assets ratio affect dividend payout ratio of quoted agriculture firms in Nigeria? What moderating effect does market price have on the relationship between debt-equity ratio and dividend payout ratio of quoted agriculture firms in Nigeria? And what is the moderating effect of market price on the relationship between debt-assets ratio and dividend payout ratio of quoted agriculture firms in Nigeria?

In line with the research questions, four (4) specific objectives were set. They are to: analyze the effect of debt-equity ratio on dividend payout ratio of quoted agriculture firms in Nigeria; examine the effect of debt-assets ratio on dividend payout ratio of quoted agriculture firms in Nigeria; assess the moderating effect of market price on the relationship between debt-equity ratio and dividend payout ratio of quoted agriculture firms in Nigeria, and evaluate the moderating effect of market price on the relationship between debt-asset ratio and dividend payout ratio of quoted agriculture firms in Nigeria.

In line with the research questions and the specific objectives of pursuit, four hypothesized relationships were formulated to be tested to determine the existence, nature, and significance as shown thus:

H01: Debt-equity ratio has no significant effect on dividend payout ratio of quoted agriculture firms in Nigeria.

H02: Debt-asset ratio has no significant effect on dividend payout ratio of quoted agriculture firms in Nigeria.

H03: Market price has no significant moderating effect on the relationship between debt-equity ratio and dividend payout ratio of quoted agriculture firms in Nigeria.

H04: Market price has no significant moderating effect on the relationship between debt-asset ratio and dividend payout ratio of quoted agriculture firms in Nigeria.

The study was carried out within the context of quoted agriculture firms on the Nigerian Exchange (NGX. The proxies of the capital structure in the study are the debt-equity ratio and the debt-assets ratio while the sole proxy of dividend payout is the dividend payout ratio. Share price, using market price as a proxy, was selected as the moderator. The market price of shares is externally determined by the invisible hands of demand and supply forces in the capital market, unlike the other variables that are firm-specific. Secondary data between 2012 and 2022 were obtained from annual published accounts of the firms for the analyses.

This study provides new insights into capital structure and dividend payout nexus, which will contribute to the existing literature on corporate finance and financial management. It will also provide useful insights to future scholars who might be interested in exploring the variables of study further. In the same vein, the study's findings will have practical implications for agriculture firms in Nigeria as it helps the management make informed decisions regarding capital structure and dividend payout policies, with special reference to the moderating effect of share price. It may lead to policy reviews in the firms as they have improved insight into the moderating role share price plays in the relationship between capital structure and dividend payout. Furthermore, the study will benefit investors (providers of long-term capital) who might be interested in agriculture as the government works assiduously to create a vibrant agribusiness ecosystem that will contribute significantly to the GDP while pursuing food supply levels that support the growing population.

CONCEPTUAL FRAMEWORK

To provide a guide for this study and to enhance a better understanding of the interaction among the variables of interest, a conceptual framework was developed in line with the related literature reviewed on the subject matter as a springboard for addressing the main concerns in the empirical survey. The model consists of two (2) measures of capital structure: the predicting variable, dividend pay-out (a dependent variable), and share price (a moderator). The model proposes that the link between capital structure and dividend pay-out is moderated by share price (mpr). The conceptual framework of the study is depicted in Figure 1.
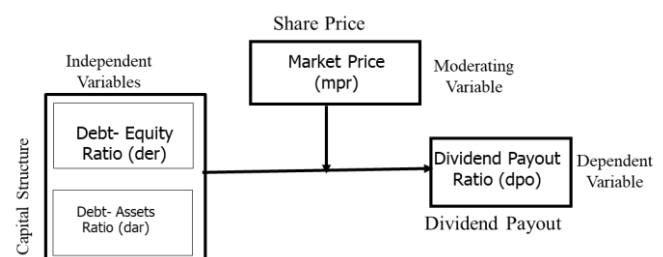
Figure 2.1: Conceptual framework

Dividend Payout

Business firms strive to generate net income above the total operating costs, which is utilized in the acquisition of new assets, repayment of outstanding debt, repurchase of outstanding securities, and distribution among shareholders. When a firm decides to distribute its net income (in part or in full) to shareholders, it is called a dividend (Heba & Rabab, 2021). Dividend payout is defined in the study as the portion of a firm's earnings that is distributed to its shareholders in the form of cash dividends. It is the amount of money that a

company pays out to its shareholders on a per-share basis (Sunday et al., 2022). Dividend payout is commonly expressed as a percentage of a company's earnings or as a specific amount per share. The decision to declare a dividend payout is typically made by the board of directors, and the amount of the payout may be influenced by various factors such as the company's share price, growth strategy, and cash reserves. A higher dividend payout can attract more investors, enhance a company's market reputation, and reward shareholders for their investment in the company. The dividend policy of a firm has a signaling effect, financing internal growth and equity through retained earnings in addition to its gearing and leverage (Ishaku, 2015; Andiema & Atieno, 2016). It also supports the bird-in-hand theory of Gordon (1963), which underpins investors' desire for current dividends to meet their socioeconomic needs, leading to a high interest in the organizational dividend policy. The quoted agriculture firms in Nigeria appear to be in a situation whereby the need to grow and expand drive the continuous plough back of profits that should have been distributed to shareholders as dividends.

Share Price

Generally referred to as the stock price, the market price of a share in the capital market refers to the current market value of a single share of a quoted company (Hutasoit et al., 2022, Barker et al., 2019). It is determined by the forces of demand and supply in the stock market, as investors buy and sell securities based on their expectations of the company's future performance and profitability, taking due cognizance of the present and previous health and wealth conditions. A firm's market price per share is crucial as it is a measure of its performance. In this studythe market price of a share is defined as the going rate of a company's share in the capital market at a given time. Movements in stock price that occur in the capital market are related to investors' reactions to the various relevant information consumed at a time (Sunday et al., 2022).

Capital Structure

The capital structure is the mix of debt and equity that a company uses to finance its operations and investments. Debt refers to borrowed money, while equity refers to funds provided by shareholders. A firm's capital structure refers to the mix of debt and equity finance in its long-term funding plan (Adeoye et al., 2021; Agarwal & Kyaw, 2010). The capital structure comprises debt, equity, or hybrid securities issued by the firm (Andiema & Atieno, 2016). The ideal capital structure is dependent on factors such as company size, risk, industry, and current market conditions. Companies strive for a balance in their capital structure to manage the benefits and risks of debt versus equity (Akmalia, 2023). Debt financing offers some advantages, such as a low cost of capital and tax benefits, but also increases financial risk. Equity financing provides flexibility, but it may also dilute

ownership and reduce earnings per share. A company's capital structure affects its creditworthiness and attractiveness to lenders and investors (Andiema & Atieno, 2016; Boudoukh et al., 2012). Over the years, there has been a growing trend toward the use of alternative forms of capital structure, such as hybrid securities and private equity financing (Liu et al., 2019). Hybrid securities combine features of debt and equity, such as convertible bonds or adjustable rate notes (Leland, 2015), and derivatives, which are financial instruments that derive their value from an underlying asset or security, such as options or futures contracts (Hull, 2017).

Debt-Equity Ratio

The debt-equity ratio is a financial ratio that helps companies measure the proportion of debt and equity financing in their capital structure. It is defined in the study as a financial metric that compares a company's total debt to its total equity (Adebiyi et al., 2020). The debt-equity ratio is a measure of the proportion of funding that comes from lenders (debt) compared to shareholders (equity). The ratio can be calculated by dividing a company's total debt by its total equity (Salim & Widoatmojo, 2023; Marpaung et al., 2023). The higher the value of the debt-equity ratio, the more debt funding there is in the firm, an indication that the capital structure of the business is more debts-oriented. The increase in the debt-equity ratio also suggests the value of equity capital is much smaller in comparison to debt sourced from external parties (Adesola et al., 2021). The ratio provides insights into a company's degree of leverage and the risks associated with its financing methods (Akinlo & Adebiyi, 2021). Investors and lenders of capital use the debt-equity ratio as a key element in the evaluation of a company's financial strength and the probability of its ability to meet its negotiated maturing reciprocal financial obligations.

Debt-Asset Ratio

The debt-asset ratio is a financial ratio that measures the amount of debt a company uses to finance its assets. The ratio is defined in this study as a financial metric that measures the level of a company's leverage by comparing its total debt to its total assets. It assesses the company's ability to meet its negotiated reciprocal debt obligations. This ratio is an important tool for investors and creditors to assess a company's financial health and creditworthiness (Romero, 2021). Investors and creditors can use the ratio to assess a firm's financial risk and determine the suitability of an investment or lending opportunity. The debt-asset ratio is a crucial financial metric for evaluating a company's financial strength and sustainability. The debt-assets ratio is calculated by dividing a company's total debt by its total assets (Aman et al., 2022). A high debt-assets ratio indicates that the company has a significant amount of debt relative to its assets. It may suggest that the company is highly leveraged and could experience difficulty meeting its debt obligations

when faced with financial difficulties or declining revenue (Dang et al., 2020). This could result in increased financial risk that makes lenders or investors hesitant to invest in or lend to the company. On the other hand, a low debt-assets ratio suggests that a company has a lower level of debt relative to its assets. This can signal that the company is less risky and more financially stable, which could be attractive to the investing and lending public (Syofyan et al., 2020). Companies should always strive to maintain an optimal debt-asset ratio that minimizes costs and maximizes revenue to ensure long-term growth and financial stability.

Empirical Review
In this section of the study, an attempt was made to review some relevant and related literature concerning the subsisting interface among the variables of the study to know the outcome of their empirical analyses. It also shows the extent of work done to enable the researcher to determine the existing gap(s) that warranted this empirical intervention.

Debt-Equity Ratio and Dividend Payout Ratio
Ishaku et al. (2020) attempted to evaluate the relationship between the capital structure and dividend policy of listed companies in Nigeria. It adopted an *ex post facto* research design. The measures of dividend policy were dividend payout ratio, while debt–equity ratio, debt–asset ratio, firm size, and firm age were the independent variables. Control variables are ROA, size, and age. Secondary data extracted from the annual audited accounts (2012 – 2019) of six companies listed on the Nigerian Exchange were used in the analysis. Robust GLS regression analysis was used to analyze the data. It was reported that debt-equity ratio has a negative and significant relationship with the dividend payout ratio. While the study considered capital structure and dividend policy in a direct relationship, it neither reviewed an indirect effect on the variables of the study nor focused on the moderating effect of the share price on the link under examination.

In the same vein, Oludare et al. (2020) conducted a study titled "The Relationship between Debt-Equity Ratio and Dividend Payout in Nigeria: Evidence from the Oil and Gas Industry." The study sought to investigate the impact of the debt-equity ratio on the dividend payout of firms in the Nigerian oil and gas industry. The authors collected data from the annual reports and financial statements of eleven (11) firms in the oil and gas industry for the period 2010-2018, which were analyzed using multiple regression analysis. The results showed a significant positive relationship between debt-equity ratio and dividend payout, indicating that firms with high debt-equity ratios tend to have higher dividend payouts. It was recommended that firms in the oil and gas industry maintain an optimum level of debt-to-equity ratio to ensure profitability and sustainability in dividend payout.

In addition, Nwankwo and Ogbonna (2021) examined the relationship between the debt-equity ratio and dividend

payout of Nigerian manufacturing firms. The study employed a panel data analysis using secondary data obtained from the annual reports and accounts of 15 manufacturing firms listed on the Nigerian Exchange from 2010 to 2019. They also carried out regression analysis through the use of STATA and conducted robustness tests to ensure the validity of the results and examine the impact of the debt-equity ratio on dividend payout, controlling for firm size and profitability. The study found a significant negative relationship between debt-equity ratio and dividend payout, indicating that as the debt-equity ratio increases, dividend payout decreases. The study also found a significant positive relationship between profitability and dividend payouts. The study recommended that manufacturing firms should maintain an optimal debt-equity ratio that does not negatively impact their ability to pay dividends to shareholders.

Building on previous surveys, Akinlo and Adebiyi (2021) assessed the effect of the debt-equity ratio on dividend payout of Nigerian banks. Using secondary data obtained from the audited financial reports of selected banks for a period of ten years (2011-2020), the study adopted panel regression analysis to explore the relationship between debt-equity ratio and dividend payout ratio. The results revealed there exists a significant negative relationship between debt-equity ratio and dividend payout ratio of Nigerian banks. This implies that Nigerian banks with high debt-equity ratios tend to pay lower dividends to their shareholders. Furthermore, the study found a positive relationship between profitability and dividend payout ratio, indicating that profitable banks are more likely to pay higher dividends. The study recommended that Nigerian banks should maintain a moderate level of debt-equity ratio in order to increase dividend payout and attract more investors.

Debt-Asset Ratio and Dividend Payout Ratio
Anyaeji (2020) explored the effect of the debt-asset ratio on the dividend payout of listed manufacturing firms in Nigeria. The research design adopted was *ex post facto,* and the population comprised of all 11 listed manufacturing firms in Nigeria. Data were collected from the audited annual reports of the firms for the period 2013-2018. The data were analyzed using a panel data regression analysis. The result of the analysis revealed a significant negative relationship between the debt-asset ratio and dividend payouts. The study concluded that the debt-asset ratio is a significant factor that affects dividend payout.

Also, Oluwatoyin and Koyenikan (2021) inquired into the effect of the debt-asset ratio on the dividend payout of banks listed on the Nigerian Exchange. The study used data from twelve (12) banks listed on the Nigerian Exchange from 2011 to 2019. The study utilized a panel regression analysis to test the relationship between debt-asset ratio and dividend payout ratio. The results of the study revealed that the debt-asset ratio has a significant negative effect on the dividend payout ratio

of banks listed on the Nigerian Exchange. The study, therefore, suggested that the banks of analysis should maintain an optimum level of debt-asset ratio that positions firms to pay sustainable, higher dividends to their shareholders.

Adding to the empirical discourse, Adesola et al. (2021) investigated the relationship between the debt-asset ratio and dividend payout policy in Nigerian agricultural firms. The research employed a quantitative research method, using secondary data obtained from the audited financial statements of agricultural firms listed on the Nigerian Exchange between 2015 and 2019. The study used descriptive statistics, correlation analysis, and multiple regression analysis to analyze the data. The findings revealed that the debt-asset ratio has a significant negative relationship with dividend payout policy, indicating that firms with a higher debt-asset ratio tend to have lower dividend payouts. The study concluded that Nigerian agricultural firms should maintain a moderate debt-asset ratio and a consistent dividend payout policy to increase investor confidence and attract more investors to the sector.

Market Price and Dividend Payout Ratio

Osakwe et al. (2019) examined the effect of dividend payout on share price of 10 selected quoted consumer goods companies on the Nigerian Exchange. Secondary data were sourced from the financial statements of the selected companies of analysis covering five years from 2011 to 2015. A panel least squares regression technique was used to analyze the panel data. The results showed that dividend payout has a significant positive effect on the market price of shares. Subsequently, Araoye et al (2019) analyzed the effect of dividend policy on stock price fluctuation within the context of actively traded stocks on the Nigerian Exchange using 10 years of panel data between 2005 and 2014. Of the 188 listed companies across 11 sectors, 5 sectors made up of 11 companies were selected for analysis using the systematic sampling technique. OLS regression analysis was carried out on the secondary data captured from the firms of interest. The result showed that the effect produced by dividend payout and market price is positive and insignificant. In their own contribution, Bajaj and Jain (2019) assessed the share price and dividend payout of automobile companies listed on the National Stock Exchange (NIFTY 50). The period covered was 10 years spanning 2009-2018. The sample of companies in the study consisted of Mahindra & Mahindra, Eicher Motors, Bajaj Auto, Hero MotoCorp, and Maruti Suzuki. The financial data of the companies analyzed were sourcjed from the websites of the National Stock Exchange and MoneyControl.com. Analysis of variance (ANOVA) was carried out. The study concluded that there existed a significant positive relationship between the dividend pay-out ratio and market value of certain companies while in some companies analyzed the relationship was negative.

Widati and Gunawan (2021) examined the effect of the dividend payout ratio on stock prices of nine automotive and component sub-sector manufacturing companies listed on IDX. The analysis companies were selected with the aid of the purposive sampling technique. Secondary data were sourced from the annual published accounts of the companies under review within the period 2017–2019. The data were analyzed using multiple linear regression analysis, while the hypothesis testing was done using t-statistics to test the partial regression coefficients and F-statistics to test the effect while simultaneously observing a 5% confidence level. The results of the statistical test indicated that the dividend payout ratio had a significant positive effect on the stock prices of the automotive and component sub-sector manufacturing companies listed on IDX.

Furthermore, Fitriana (2022) studied dividend payout and share price using 50 quoted non-financial companies on the Pakistan Stock Exchange and 5-year panel data. A panel regression model was employed in the analysis of the data acquired. It was reported that the share price and dividend payout interface is negative and significant.

Additionally, Hutasoit et al (2022) used interest rate as the moderating variable in assessing stock price and dividend payout ratio within the context of 18 listed banks on the Indonesia Stock Exchange (IDX). The selected firms were recruited with the aid of the purposive sampling technique. The study utilized secondary data from the published annual financial statements for the period 2017-2020. The data obtained were processed using the Partial Least Squares (PLS) algorithm, aided by SmartPLS software. The results showed that there is a negative and significant effect on the stock price and dividend payout nexus.

THEORETICAL FRAMEWORK

A theoretical framework may be viewed as a system of concepts, assumptions, and relationships that allows for the analysis and interpretation of data (Edokpa et al., 2023). The study was anchored by three (3) theories, namely the Bird in Hand Theory, Signaling Effect Theory and Efficient Market Theory, which were found to be relevant.

Bird-in-Hand Theory

The theory was proposed by Myron J. Gordon and John Lintner in their seminal paper "Dividend Policy, Growth, and the Valuation of Shares," published in The Review of Economics and Statistics in 1956. The theory holds that because shareholders are risk-averse, they prefer dividend payments to future capital gains. Shareholders consider dividend payments to be more certain than future indeterminable capital gains. This is against the backdrop of the saying, "A bird in hand is worth more than two in the bush." The payment of dividends due resolves investors' uncertainty (Gordon, 1963). Investors prefer a certain level of income now to the prospect of an uncertain higher income in

the future. The fundamental implication of the theory is that because of the less risky nature of dividends, shareholders will discount the firm's dividend stream at a lower rate of return. This would increase the value of the firm's shares. Gordon (1959) suggested there were three reasons why investors would buy a certain stock: to get dividends and earnings; to get dividends only, and to get earnings. The position was corroborated by Fisher (1961), who opined that share prices and retained earnings are heavily impacted by dividends. The Bird in Hand Theory has several critiques, and the empirical support for the Theory, as an explanation for paying dividends, is generally very limited.

Signaling Effect Theory
The signaling effect theory was developed by John Lintner and Myron Gordon in their research paper, "Dividends, earnings, and stock prices," which was published in the Journal of Finance in 1956. The theory got a boost from Stephen Ross in 1979, who observed from empirical studies that an increase in share price is preceded by a dividend increase and vice versa. In line with his argument, investors generally prefer dividends to capital gains. Other scholars supported the position that an announcement of an increase in dividends leads to an increase in stock prices while stock prices, tend to decrease when a decrease or omission is announced by the firm (Kiprono, 2012). Dividend signaling theory proposes a positive link between information asymmetry and dividend policy. The higher the asymmetric information level, the higher the sensitivity of the dividend to the prospects of the firm. Bhattacharya (1979) argued that a firm with a high degree of asymmetric information will have to pay a higher level of dividends to signal the same level of earnings as a firm with a lower level of asymmetric information. It is the company's ability to generate profits, and dividends are shared from the profit a company makes (Pucangan & Wirama, 2021). The higher the level of profit, the higher the rate of dividend payments distributed to shareholders. This aligns with the signal effect theory, where a company with high profitability has a high dividend policy to distribute its dividends, thereby sending positive signals to investors regarding the company's capacity to generate profits. This position was corroborated by other scholars (e.g., Pattiruhu & Paais, 2020), which shows that profitability has a positive effect on dividend policy.

Efficient Market Theory
Efficient Market Theory (EMT) is said to have originally been situated in the domain of information economics. EMT as a critical concept in finance was first introduced by Eugene Fama in his seminal paper titled, "Efficient Capital Markets: A Review of Theory and Empirical Work," published in the Journal of Finance in 1965. The theory proposes that financial markets are efficient in processing and pricing information, which means the prices of securities reflect all available information. And given such conditions, it is not possible for investors or other market players to consistently earn an abnormal return on investment. The theory further suggests that in an efficient market, prices adjust quickly to new information, thereby making it difficult for investors to earn abnormal returns through arbitrage activities. Critics of the efficient market hypothesis argue that markets may not always be efficient due to several issues such as behavioral preconceptions, market imperfection, and information asymmetry. Irrespective of the critics, the theory is a cornerstone of modern finance (Fama, 1970). The efficient market theory is a central concept in finance and investment. It remains a fundamental principle in financial theory and practice.

RESEARCH METHODOLOGY
A descriptive research design of *ex-post facto* research (after the fact) was adopted in the study in line with the specific research objectives and panel data for review. The study adopted a positivist research philosophy in examining the moderating effect of share price on the capital structure and dividend payout relationship of quoted agriculture firms in Nigeria, based on the belief that knowledge can be obtained only through objective and empirical observation, measurement, and experimentation, rather than subjective interpretation. The emphasis was placed on the accuracy and reliability of the findings, and the results were reported using statistical analyses carried out with the aid of the STATA 13 statistical software package.

The population comprises the five (5) agriculture firms quoted on the Nigerian Exchange (NGX). These are Ellah Lakes Plc, FTN Cocoa Processors Plc, Livestock Plc, Okomu Plc, and Presco Plc. The census sampling technique (a whole population study) was favored because of the size, accessibility, and availability of target secondary data in online financial data repositories for analysis. This approach generated 55 observations (5 firms with 11 years of data each) for examination, which spanned 2012-2022. Data were captured from the published audited financial statements of the companies of analysis, and annual closing share price of the quoted agriculture firms in Nigeria were sourced from the Nigerian Exchange (NGX) financial data repository. Thus, panel data were used in analyzing the moderating effect of share price on the relationship between capital structure and dividend payout relationship of quoted agriculture firms in Nigeria. The study adopted descriptive and inferential statistics in the analysis of the data. Furthermore, it made use of panel data regression analysis techniques with the aid of STATA 13 statistical software to evaluate the hypotheses developed in the study.

Table 1. Variables and Measurements

Variables	Type	Measurement	Sources
Debt-equity Ratio (der)	Independent	Total debt / Equity	Salim and Widoatmojo (2023); Marpaung et al. (2023).
Debt-assets Ratio (dar)	Independent	Total debt / Total Assets	Salim and Widoatmojo (2023); Aman et al. (2022)
Market Price (mpr)	Moderator	Closing Annual Market Price	NGX
Dividend Payout Ratio (dpo)	Dependent	Dividend / Net Income	Dewasiri et al. (2021); Heba and Rabab (2021); Marpaung et al. (2023).

Source: Author's compilation 2024.

Consistent with the report of previous scholars and the conceptual framework (Figure 2.1) developed for the study as shown below

a.　　　$dpo = f$ (der, dr) ----------------------------- Without Moderator.

Put econometrically-

$dpo_{it} = \beta_0 + \beta_1 der_{it} + \beta_2 dr_{it} + \varepsilon_{it}$ ----------------------- (1)

b.　　　$dpo = f$ (der, dar, der*mpr, dar*mpr) -----------------
(2) With Moderator

Put econometrically-

$dpo_{it} = \beta_0 + \beta_1 der_{it} + \beta_2 dar_{it} + \beta_3 der*mpr_{it} + \beta_4 dar*mpr_{it} + \varepsilon_{it}$ ----------------- (2)

Where:

B_0 is a constant

$\beta_1, \beta_2, \beta_3, \beta_4$ are the coefficients of der (debt-equity ratio), dar (debt-asset ratio), der*mpr, and dr*mpr respectively. mpr = market price. dpo = dividend payout ratio.

$\varepsilon =$ is the error term

i = firms

t = periods and

$f =$ Functional relationship

A-priori expectations: $\beta_1, \beta_2, \beta_3, \beta_4 > 0$

RESULTS AND DISCUSSION

The transformed data were processed using the relevant modules in STATA 13. The diagnostic analysis was carried out using descriptive statistics, the Shapiro-Wilk normality test, Pearson correlation, the Variance Inflation Factor (VIF), the heteroskedasticity test, and regression. Considering the nature of the data obtained after transformation natural logs of 'dpo', 'der', and 'dar were obtained for further processing using IBM SPSS 26. Taking cognizance of research Models One and Two as underpinned by the conceptual framework (Figure 1), the data diagnostic tests and regression were run for each model to arrive at an objective conclusion for generalization among the quoted agriculture firms in Nigeria.

Descriptive Statistics with Moderator

The second model (with a moderator) tested in the study is:

$dpo_{it} = \beta_0 + \beta_1 der_{it} + \beta_2 dar_{it} + \beta_3 der.mpr_{it} + \beta_4 dar.mpr_{it} + \varepsilon_{it}$ ---------- (2)

Descriptive statistics that summarize the entire transformed data set, based on Model Two above, are well depicted in Table 2.

Table 2. Descriptive Statistics with Moderator

Variable	Obs	Mean	Std. Dev.	Min	Max
Logndpo	55	1.33	1.669	0	4.82
Lognder	55	4.40	1.667	0	9.48
Logndar	55	3.90	0.572	1.61	4.87
Dermpr	55	12.16	19.25	0	78.04
Darmpr	55	10.23	15.72	0.92	65.50

Source: Author's STATA 13 Output

From Table 2, the minimum value of logndpo is 0, while the maximum value is 4.82 with a standard deviation of 1.67 and a mean of 1.33. The dispersion on both sides of the mean (1.33) is low with a standard deviation of 1.67%. The minimum value of lognder is 0 while the maximum value is 9.48 with standard deviation of 1.67 and mean of 4.4. It was reported earlier that FTN Cocoa Processors Plc had negative equity yearly from 2019 – 2022. The minimum value of logndar is 1.61 while the maximum value is 4.87 with a standard deviation of 0.57 and mean of 3.90. The minimum value of der.mpr is 0 while the maximum value is 78.04 with a standard deviation of 19.25 and mean of 12.16. The minimum value of dar.mpr is 0.92 while the maximum value is 65.50 with a standard deviation of 15.72 and mean of 10.23.

Test of Normality with Moderator

Thus, the Shapiro-Wilk Normality Test was carried out as indicated in Table 4.2.

Table 3. Shapiro-Wilk Normality Test with Moderator

Variable	Obs	W	V	z	Prob>z
logndpo	55	0.85318	7.446	4.306	0.00001
lognder	55	0.87764	6.205	3.915	0.00005
logndar	55	0.91077	4.525	3.237	0.00060
der.mpr	55	0.66625	16.925	6.067	0.00000
dar.mpr	55	0.68969	15.736	5.910	0.00000

Source: Author's STATA 13 Output

From Table 3, the p-value of each variable of interest is less than 0.05, or 5%. This shows the data are not normally distributed, thereby necessitating the need to normalize the data using the appropriate algorithm in STATA 13 statistical software.

Collinearity/Variance Inflator Factor (VIF) with Moderator

The VIF is used to assess the impact of multicollinearity on the regression model. VIF values were obtained to ensure that the data set has no collinearity problems that might impair the analysis to be run.

Table 4. Variance Inflator Factor (VIF) with Moderator

Variable	VIF	1/VIF
Dermpr	8.13	0.123
Darmpr	8.04	0.124
Logndar	1.18	0.847
Lognder	1.10	0.909
Mean VIF	4.61	

Source: Author's STATA 13 Output

The test results provided evidence of the absence of collinearity because the results of the VIF test range from a minimum of 1.04 to a maximum of 1.05 and a mean of 1.05.

Table 6. Multiple Regression with Moderator

logndpo	Coef.	Std. Err.	t	P>|t|	[95% Conf.	Interval]
lognder	0.016	0.095	0.17	0.869	-0.175	0.207
logndar	-0.354	0.287	-1.23	0.223	-0.930	0.222
der.mpr	-0.022	0.012	-1.87	0.067	-0.046	0.002
dar.mpr	0.035	0.015	2.39	0.021	0.006	0.064
_cons	1.800	1.173	1.53	0.131	-0.556	4.156

R-squared = 0.5890
Adj R-squared = 0.5561

Source: Author's Output of STATA 13

From the table, the result revealed an overall coefficient of determination (R^2) of 0.5890, or 58.9%. The outcome shows the combined effect of 'lognder' and 'logndar' moderated by 'mpr' will result in a 58.9% change in 'logndpo'. The outcome further shows the model was well-suited for the analysis.

Similarly, the tolerance value (1/VIF) is within the accepted range of less than 1.

Heteroskedasticity Breusch-Pagan Test with Moderator

Table 5 shows the diagnostic test ('hettest') results using heteroskedasticity Breusch-Pagan in the study.

Table 5. Heteroskedasticity Breusch-Pagan Test with Moderator

chi^2 (1)	2.33
Prob > chi^2	0.1272

Source: Author's STATA 13 Output

The test result has a p-value of 0.1272 or 12.72%, which is higher than the conventional significance level of 0.05. Thus, the analysis is concluded at this point without proceeding to obtain the Hausman test required, where the Breusch-Pagan/Cook-Weisberg test for heteroskedasticity results have a probability (p) value of less than 0.05 or 5%. Thus, the test of hypotheses formulated to guide the study was based on the regression Table 6.

Multiple Regression with Moderator

Based on the heteroskedasticity Breusch-Pagan Test result (Table 5), which showed a p- value of 12.72%, which is above 5%, the outcome of the regression analysis was obtained as shown in Table 6.

Test of Hypotheses

The tests were determined by the outcome of the multiple regression outcomes, as shown in Table 6 for Model Two (with moderator). The hypotheses were tested using a multiple regression outcome (see Table 6). The summary of the regression results obtained in Table 6 is shown in Table 7.

Table 7. Test of Hypotheses with Moderator

	Path	β Coefficient	Std. Err	t- value	p- value	Decision
$H_0 1$	der - > dpo	0.016	0.095	0.170	0.869	Supported
$H_0 2$	dar - > dpo	-0.354	0.287	-1.230	0.223	Supported
$H_0 3$	der.mpr -> dpo	0.022	0.012	-1.870	0.067	Supported
$H_0 4$	dar.mpr - > dpo	-0.035	0.015	2.390	0.021	Not Supported

Source: Author's STATA 13 Output

Based on Tables 6 and 7, Model Two can be restated as follows:

$$dpo_{it} = 1.800 + 0.016der_{it} - 0.354dar_{it} + 0.022der.mpr_{it} - 0.035dar.mpr_{it} + \varepsilon_{it}$$

Debt-Equity Ratio and Dividend Payout Ratio

The first hypothesis states that the debt-equity ratio has no significant effect on the dividend payout ratio of quoted agriculture firms in Nigeria. With regard to Model Two, and based on the analyses in Tables 6 and 7, the t-calculated value is 0.170 less than the critical value of 2.0000 while the p-value indicating a figure of 0.869, or 86.9% greater than 5%, which is the level of significance. This implies that debt-equity ratio (der) has an insignificant positive effect on the dividend payout ratio. This result implies that a unit increase in debt-equity ratio will lead to 1.6% increase in the dividend payout ratio of quoted agriculture firms in Nigeria. So, the researcher rejects the alternate hypothesis (H1) and accepts the null hypothesis (H0) of Hypothesis One. In consonance with the result, debt-equity ratio (der) is not the major determining factor for the dividend payout ratio of quoted agriculture firms in Nigeria. The outcome of the analysis aligns with the report of Nurhikwawaty et al. (2020). However, most of the recent scholars reported that the link between debt- equity ratio and dividend payout ratio is negative and significant (Ishaku et al., 2021; Akinlo & Adebiyi, 2021; Nwankwo & Ogbonna, 2021; Adebiyi et al., 2020). According to those scholars, the implication is that the debt-equity ratio has a significant inverse effect on dividend payout ratio such that an increase in the debt-equity ratio would lead to a decrease in the dividend payout ratio and vice versa. Nevertheless, Oguoma and Ezentu (2020) and Oludare et al. (2020) concluded that the relationship between the debt-equity ratio and the dividend payout ratio is positive and significant among the firms of study, but the position was yet to be largely supported by other scholars, to the best of my knowledge.

Debt-Asset Ratio and Dividend Payout Ratio

The second hypothesis states that the debt-asset ratio has no significant effect on the dividend payout ratio of quoted agriculture firms in Nigeria. Given Model two, the analyses in Tables 6 and 7 indicate that the t-calculated value of the debt-assets ratio (dar) is -1.870 less than the critical value of 2.000 while the p-value indicates a figure of 0.223, or 22.3%, greater than 5%, which is the level of significance. This indicates that debt-assets ratio (dar) has a negative and insignificant effect on the dividend payout ratio of quoted agriculture firms in Nigeria. The result implies that a unit increase in debt-assets ratio will lead to a 0.354, or 35.4% decrease in the dividend payout ratio of quoted agriculture firms in Nigeria and vice versa. Consequently, considering Model Two, the researcher rejects alternate hypothesis (H1) and accepts the null hypothesis (H0) of Hypothesis Two. In line with the result, debt-assets ratio (dar) is not the major

determining factor for the dividend payout ratio of quoted agriculture firms in Nigeria. The outcome of the study contradicts the findings of Agwu et al. (2019), who stated that the debt-asset ratio has a significant positive effect on dividend payout. However, the conclusion of the study is corroborated by Adeoye et al. (2021), who reported that the effect was negative and insignificant. In sympathy, Ishaku et al. (2020), Oluwatoyin & Koyenikan (2021), Adesola et al. (2021), and Anyaeji (2020) reported that the debt-assets ratio has a negative effect but added that the effect is significant on the dividend payout ratio. That means, with the inverse relationship, an increase in the debt-asset ratio impels a significant decrease in the dividend payout ratio, and conversely.

Debt-Equity Ratio and Dividend Payout Ratio Moderated by Market Price

The third hypothesis states that the market price has no significant moderating effect on the relationship between the debt-equity ratio and the dividend payout ratio of quoted agriculture firms in Nigeria. The analyses in Tables 6 and 7, underpinned by Model Two, revealed that the t-calculated value is -1.870 less than the critical value of 2.000 while the p-value indicating a figure of 0.067, or 6.7%, greater than 5%, which is the level of significance. This shows that the market price has an insignificant positive moderating effect on the relationship between the debt-equity ratio and dividend payout ratio. This result indicates is that a unit increase in market price will lead to a 0.022, or 2.2%, reinforcement in the relationship between debt-equity ratio and the dividend payout ratio of quoted agriculture firms in Nigeria and vice versa. Accordingly, the researcher accepts the null hypothesis (H0) of Hypothesis Three, and rejects the alternate hypothesis (H1). The outcome shows that market price is not the major determining factor in the relationship between the debt-equity ratio and the dividend payout ratio of quoted agriculture firms in Nigeria. The insignificant negative moderating effect of market price on the relationship between the debt-equity ratio and dividend payout ratio suggests that firms in the sector under analysis are not significantly influenced by share price in their capital structure decision and dividend policies. This relationship had not been examined by prior scholars, to the best of my knowledge.

Debt-Asset Ratio and Dividend Payout Ratio Moderated by Market Price

The fourth hypothesis states that market price has no significant moderating effect on the relationship between the debt-asset ratio and the dividend payout ratio of quoted agriculture firms in Nigeria. From Model Two, and the analyses in Tables 6 and 7, the t-calculated value is 2.390 greater than the critical value of 2.000, while the p-value indicating a figure of 0.021, or 2.1%, less than 5%, which is the level of significance. This displays that the market price has a significant negative moderating effect on the

relationship between the debt-assets ratio and the dividend payout ratio. The result portrays that a unit increase in market price will lead to a 0.035, or 3.5%, decrease or reverse effect on the relationship between the debt-assets ratio and the dividend payout ratio of quoted agriculture firms in Nigeria and vice versa. So, the researcher accepts the alternate hypothesis (H1) of Hypothesis Four, and rejects the null hypothesis (H0). Based on the result, market price is a major determining factor for the debt-assets ratio and dividend payout ratio of quoted agriculture firms in Nigeria. The relationship had not been assessed by previous scholars, as earlier stated.

CONCLUSION

Against the backdrop of the findings, the debt-equity and debt-asset ratios are not a major determining factor in the dividend payout ratio of quoted agriculture firms in Nigeria. Furthermore, the market price is not a major determining factor in the relationship between the debt-equity ratio and the dividend payout ratio of quoted agriculture firms in Nigeria. However, the market price is a major determining factor in the relationship between the debt-assets ratio and the dividend payout ratio of quoted agriculture firms in Nigeria.

RECOMMENDATIONS

In line with the conclusions drawn, the study recommended that the firms should use an optimal debt-equity mix to finance strategic productive assets and consistently pay competitive dividends to shareholders. Additionally, the firms should continue to strive for optimal performance levels that make for strong fundamentals and positive sentiments, which could cause an uptick in share price. Such performance levels would enable the firms to create a large pool of earnings from which to pay regular competitive dividends that attract more debt and equity investors.

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