The Interaction Effect of Leverage and Dividend Policy on Firm Value: Empirical Evidence from Nigerian Firms

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Article

The Interaction Effect of Leverage and Dividend Policy on Firm Value: Empirical Evidence from Nigerian Firms

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Abstract: This study investigates the dynamic relationship between leverage and dividend policy in Nigerian manufacturing enterprises. Utilizing panel data from 26 firms between 2016 and 2020, our findings reveal that while dividend payments boost firm value, leverage typically diminishes it. Intriguingly, when leverage interacts with dividend policy, the combined effect on firm value becomes significantly positive. This observation, despite Nigeria's institutional differences from advanced economies, supports modern capital structure theories such as the pecking order and static trade-off theories. Our results suggest that for mature Nigerian companies with limited growth opportunities, high leverage and dividends effectively mitigate the "free cash flow" problem, curbing managerial tendencies to overinvest or underinvest. Thus, leverage and dividends serve as complementary mechanisms for monitoring and controlling managerial discretion. Consequently, firms with high leverage ratios can leverage dividend policies as disciplinary tools, and vice versa. This underscores the necessity for Nigerian manufacturing firms to carefully balance debt and equity to sustain market confidence and investment potential.

Keywords: leverage; dividend policy; firm value

1. Introduction

This paper returns to the well-studied question about the positive and negative effects of debt capital on firm performance. Our goal is to find empirical evidence to support the intervening role of dividend policy in the relationship between leverage and firm value. Choosing how much debt to use in a firm's capital structure and what percentage of net income to pay out as dividends in order to maximize firm value remain two of the most fundamental policy decisions that financial managers face. The scholarly finance body should bear the burden of offering direction on these concerns.

Extant literature have developed extensive capital structure and dividend policy theories to describe the effects of a firm's leverage and dividend policies on performance (Modigliani and Miller 1958; 1961). Existing studies have investigated various factors that may be crucial in determining the firm's capital structure and dividend decisions, such as profitability, taxation, size, investment opportunities, the signalling effects of new equity listing, and dividend policy changes. These studies, which were mostly conducted in advanced economies, sought to provide empirical evidence to aid in determining the relative explanatory power of each of these factors (Barclay et al., 1997). Some have claimed that corporate taxes represent the sole component that systematically influence the capital structure and dividend decisions, despite the fact that this impact may be trivial. Some other group of scholars holds that corporate financing decisions reflect an effort by managers to reconcile the tax advantages of higher leverage with the increased likelihood and costs of financial distress, dubbed "bankruptcy costs" (Merton Miller, 1977). Others contend that in cases where such costs are relatively low, high leverage and dividends can even have substantial advantages in limiting an instinctual corporate tendency to over-invest, also known as the "free cash flow" hypothesis (Jensen, 1986). Others contend that corporate executives who make financing and dividend policies are

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mainly focused on the "signalling" impacts of these kinds of choices, such as the tendency of stock prices to fall significantly as a consequence of dividend slashing and common stock offerings. Extending on this signalling debate, some have proposed that actual corporate capital structures are simply the aggregate result of a series of individual financing decisions in which managers adhere to a financial "pecking order" in which retained earnings are preferred to external financing and debt is preferred to equity when outside financing becomes almost inevitable (Ross, 1977). Although each of these theories describes at least some important aspect of corporate financial decision-making, the findings are mixed, since none has accomplished the best possible task of concurrently explaining any perceptible valuation impact of an interaction between leverage and dividend policies of the firm.

There are two conflicting hypotheses arguing that leverage impacts firm performance either positively or negatively. Those who suggest that leverage is disadvantageous to firm performance have commonly argued that highly leveraged firms whose debt-capital financed investments did not turn a profit will be hard-pressed and vulnerable to bankruptcy. They argue that financial distress is costly and a significant predictor of a company's capital structure. According to Andrade and Kaplan (1998), troubled businesses decrease capital investments, sell off assets, and defer filing for Chapter 11(A bankruptcy provision used by businesses to help them restructure their loans and repay creditors while continuing their operations) in an apparent wasteful and exaggerated manner. Financial distress is also costly because it may provide an incentive to make decisions that are detrimental to debt holders as well as other relevant parties such as consumers, employees, and distributors. Furthermore, it assumes that competitors may engage in hostile behavior in order to gain a greater market share. Debt, according to theorists of the positive effect hypothesis, tends to boost a firm's value by pressurizing management to make value-maximizing decisions. Jensen (1986) and Stulz (1990) both emphasize debt's disciplinary function. Debt reduces the agency costs of free cash flow by restricting the cash flow available for managers' discretionary spending. According to Gilson (1989; 1997), top management in financially struggling businesses is more likely to be laid off than their peers in non-financially distressed firms. As a result, while relatively low financial leverage may decrease the costs of financial distress, inefficient application of debt financing results in considerable setbacks. Opler and Titman (1994) investigated this construct in US firms. Their findings suggest that highly leveraged businesses lose market worth and have lower profitability than their competitors. This assumes that the negative effects of debt and the associated costs of financial distress outweigh the advantages of debt for US businesses (Gonzalez, 2012).

However, constructing wide-ranging experiments of a perfect corporate decision-choice that would enable us to differentiate between these theories in the case of leverage and dividend policy has proven to be extremely challenging. As a result of the dearth of reliable empirical evidence on the interaction effect of leverage and dividend policy on firm value, the proponents of each theory have had to rely heavily on anecdotes to reinforce their arguments. Previous empirical findings are, at best, mixed. The findings of some researchers led to the conclusion that leverage has a positive effect on a firm's value, while others suggest a negative relationship. Similarly, some researchers' findings led to the conclusion that dividend payout predicts positive firm performance, whereas others show a negative relationship between dividend payout and firm value.

To the best of our knowledge, no research has been conducted in the Nigerian context on the interaction effect of leverage and dividend policy on firm value. Given such gaps in empirical support and the contextual background of a developing market like Nigeria, it appears unarguable and plausible that more research on this subject is conducted. Furthermore, because the study period coincided with a credit crunch, Nigeria serves as an outstanding testing laboratory to evaluate this effect. Consequently, to probe the interaction effect of leverage and dividend policy on the firm value of Nigerian firms, a robust and contemporaneous quantitative (panel data analysis) technique is employed. This motivation is to build on previous empirical research on the relationship between leverage and firm value by introducing dividend policy as an intervening variable. The panel data approach enables us to generate unbiased and reliable estimates since this mechanism avoids the diminishing of degrees of freedom. This paper examines, the interaction effect of leverage and dividend policy for 26 firms listed on the Nigerian Stock Exchange from 2016 to 2020. Our empirical

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analysis aims to provide a foundation for evaluating the relative importance of a leverage-dividend-interaction in improving firm value while controlling for a variety of factors such as profitability, taxes, firm size, and signalling effects.

The key finding of this study is that, in models without the interaction term, leverage is inversely associated with firm value, but when dividend policy interacts with leverage, the effect on firm value becomes significantly positive. Our contribution to the existing literature will have provided new insight into how the interaction effect of dividend policy played a positive role in the relationship between leverage and firm value in support of both the pecking order theory and statitic trade-off theory. This result can be used to help corporate executives weigh the advantages and disadvantages of various leverage and dividend alternatives. Another policy implication for financial managers is that sustaining optimal levels of leverage and dividends is a relevant consideration to avoid the vicissitudes of the market when assessing the worth of Nigerian firms and their investment potential.

The remainder of this paper is divided into four chapters: review of literature in chapter two, research methodology in chapter three, results and discussion in chapter four, and conclusion of the study in chapter five.

2. Literature Review and Theoretical Framework

Miller and Modigliani established the groundwork for our contemporary knowledge of the drivers of leverage and dividend policies in two research studies in 1958 and 1961. They offered rigorous evidence for their well-known M & M "irrelevance" theory, which argues that, under predefined conditions, neither a firm's financing policy nor its dividend policy could perhaps be presumed to impact its present market value. The said worth is decided primarily by managers' decisions impacting the asset side of the balance sheet through the whole spectrum of a company's business strategy and operational decision-making. This activity is referred to unanimously by finance scholars as "investment policy" (Barclay et al., 1997).

All whilst, the M & M irrelevance claims are intended to hold only under a purposely ephemeral set of circumstances, that included: (i)• no corporate or personal taxes; (ii)• no contracting costs - notably those linked with restructuring financially distressed businesses; (iii)• company investment policy is fixed, and therefore investment and operating choices are not swayed by financing or dividend alternatives; and (iv)• there are no information costs (such that, accurate knowledge regarding the firm's earning power is openly accessible to shareholders) and therefore no information "asymmetries" to the extent that how much management fully understands about the long term is not dissimilar from what shareholders think. (Ross et-al.,2019).

Through flipping of the M&M propositions, the value concept did well by channeling our inquiry into the critical variables required to establish the firm's leverage and dividend policies. That way, if leverage and dividend decisions have a relatively observable impact on firm value, they can be presumed to have this effect for these stated reasons: (i)• there is an impact on the taxes paid by firms or shareholders (ii)• they influence the likelihood as well as affiliated expenses to become insolvent (or going bankrupt); (iii) • they have an impact on the manager's motivation to pursue a value-maximizing policy of investing across all projects with a positive net present value but more importantly, dismissing the rest. or (iv) • They convey to shareholders a reliable "signal" of management's optimism or pessimism in the company's prospects of future income(Miller,1977)

The irrelevance theory, which holds that capital structure has no bearing on a company's value, could be applied to dividend policy. Adjustments in capital structure or financial policy based on the irrelevance theory are related to dividend policy because the theory implies that getting funding from debt would result in compensating just in equity, or inversely. As a result, the debt-equity ratio has no effect on a firm's value, and dividend policy ought to be irrelevant as well. The value of a firm should equate to the assets captured on the left portion of the balance sheet when viewed through the lens of a financial statement. So, for any adjustments that occur in the debt-equity ratio captured on the right portion of the balance sheet, the firm value on the opposite direction is invariant inasmuch as those modifications are applied in either equity, such as dividend payouts, or borrowing, such as loan repayments. Then again, when we consider that markets are imperfect, there

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is bound to be an avalanche of tax effects, contract costs, asymmetric information, and ethical risk or moral hazard (Myers 1984; Harris and Raviv,1991; Michaelas et al., 1999; and Beyasrisawat and Basiruddin, 2012)

Leverage is important, according to the static trade-off theory and pecking order theory. Businesses that assume a significant degree of leverage in their capital structure typically distribute reduced dividends because they are compelled to reimburse a high rate of principal or interest charges whereas they are not mandated to distribute dividends. Firms that obey static trade-off theory and attain their own debt limit will not employ as much leverage for dividend payout because the uptick in financing distress costs would then outweigh the incremental gains associated with a debt tax shield. Conversely, the firm could indeed, through the issuance of additional shares, finance equity so as to pay dividends. Typically firms struggling to remain financially solvent might finance equity as a last-ditch effort to pay dividends. In that case, there may be no growth prospects in sight or the business is not capable of generating sufficient cash flows (Myers,1977; Frank et al., 2011).

The sources of financing for firms are ranked from lowest to highest risk, according to the Pecking order theory. According to this theory, taxes are not necessary for making financial policy choices. Due to information asymmetry and transaction costs, equity financing is regarded as a riskier source of funding than financial leverage. Since shareholders obtain a fixed income, such as dividends, equity financing is volatile. Although firms are not forced to distribute dividends annually, however, firms generally try to keep dividend rates stable. When firms start taking advantage of fresh investment options that result in additional cash inflows, they overcome financial distress costs orchestrated by debt capital (Frank et al., 2011).

Rational investors suspect that when businesses start issuing securities to raise cash, managers stand at an advantage with insider information over the investors. As a result, when the firm sells shares, logical investors might indeed conclude that share prices are overvalued, and they will discount the offering prices, causing a dip in cumulative share market prices. As a result of the preceding debate, Myers (1984) claims that firms that pursue the pecking order theory will utilize leverage prior to equity financing.

According to Fama and French (2002) while the Pecking order theory provided insights into the timing of dividend payout, the theory failed to specify the reason behind firms paying dividends. According to these researchers, if all other factors stay unchanged, profit-making firms distribute greater net income in dividends.

Other scholars have different opinions about the impact of dividends on growth prospects and the leverage of the firm. Some have argued on the one hand, that dividend policy is negatively associated with investment potential and leverage. Consequently, in the short term, firms in a profit-making position should distribute lower dividends in order to make room for investment opportunities but ought to pay higher dividends in the long term. (Adedeji,1998, Aggarwal and Kyaw, 2003, Amidu, 2007 Benyasrisawat and Basiruddin, 2012; Olokoyo, 2013 Atanassov and Mandell,2018, Yeo, 2018, Syamsudin et al., 2020; Yan and Quinghui,2022). Furthermore, some scholars maintain that companies with low profit-yielding assets, large present and potential investment opportunities, and rising leverage may not choose dividend payouts since funding investment with fresh security issues is not only risky but also costly. Therefore adjustments in net income could be absorbed primarily by debt in the near run (Myers, 1984; Fama & French, 2002; Akhmadi and Robiyanto, 2020).

The implication of these theoretical frameworks discussed is that there is an interaction between elements of a firm's capital structure (debt and retained earnings). The impact of leverage on the firm value could manifest not only in the ability of the firm to utilize cash flow such as in paying interest, but it could also limit a firm's participation in certain operations like capacity to make huge dividend payouts. Debt capital can equally drive a business towards the maintenance of a certain degree of financial ratios. Leverage, in essence, can impact a company's dividend payout. However, we conjecture that critical variables such as retained earnings, which are associated with dividend payouts, should be kept at a certain threshold of financial ratios. As a result, retained earnings, dividends, and leverage should all be interconnected. The interaction of dividend policy and a firm's

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leverage could have an impact on its value as well as that of her shareholders. In essence, a firm's dividend payout can be driven by leverage and their joint effect could affect the value of the firm either positively or negatively. However, the explanatory power and direction of this effect is subject to empirical investigation.

2.1. Hypothesis Development

Leverage and firm value:

According to De Angelo and Masulis (1980), the impact of leverage on firm value in the optimal capital structure is decided at the juncture at which marginal tax benefits of debt equate with the marginal costs of financial distress, to maximize the firm's market value. According to Myers and Majluf (1984), when new stockholders are not fully aware as much as the existing investors about the firm's quality, issuing new shares may end up causing the company's value to erode since the market might well insinuate the share price is overvalued. Accordingly, because new stock issues are construed by the market as "negative information," it compels managers to finance new projects with debt capital rather than equity, thereby enforcing a positive correlation between leverage level and the value of the firm. Alternatively, a negative relationship between the firm's financial leverage and the price-to-book value ratio has been reported (Zingales and Rajan,1995; Frank and Goyal, 2002).

In the setting of emerging markets, literature has broadly reported positive, negative or neutral associations between leverage and firm value according to empirical evidence. For instance, Singh (1995) unearthed that the predictors of business capital structure in emerging regions obey an opposite pecking order principle because businesses fall back to external funding, the vast bulk of it is short-term finances. The study also finds that firms in emerging markets depend on equity quite extensively than firms in advanced markets. Several investigations have reported a negative association between leverage and firm value (Phung and Le 2013; Ivashkovskaya and Stepanova 2011; Ruan, Tian, and Shiguan, 2011; and Tian and Zeitun 2007) while other researchers have reported a positive correlation between leverage and firm value (Zavala and Salgados; 2019; Ibhagui and Olokoyo 2018; Mansourlakoraj 2015; Priya et al. 2015; Javeed & Azeem 2014; Olokoyo 2013; Chowdhury & Chowdhury 2010;)

Ultimately, some research findings report contradictory results. The apparent mix-up could be attributed to differences in assessments of the firm's value and leverage, or by the existence of a limit on leverage's impact on firm value. (Jawad et al.,2015; Cheng & Tzeng, 2014; Sheikh & Wang, 2013; Lin & Chang,2011; and Iturriaga & Crisostomo,2011. In line with the pecking order theory and trade-off framework, as well as the submission of DeAngelo and Masulis (1980), we argue that the optimal leverage would be achieved by taking into account the financial distress cost. The advantages of issuing debt stem from both tax and non-tax shield effects. The former is the tax savings benefit of debt interest, whereas the latter is the tax reduction resulting from non-debt related elements such as depreciation and investment tax credit. The greater a firm's leverage, the greater the cost of bankruptcy, and thus creditors will charge a higher interest rate. Furthermore, the risk for a creditor in this situation is relatively high, which will result in agency issues. When a company's leverage is low, the tax benefits outweigh the costs; however, as debt accumulates, the costs rise rapidly. As a result, leverage generally has a negative impact on firm value. In this study, we state the following hypothesis of the nexus between leverage and firm value:

H_1(a): Leverage has a negative effect on the value of the firm.

H_1(b): Leverage has a positive effect on the value of the firm.

2.2. Dividend Policy and Firm Value

Premised on the signaling theory, Agyei and Marfo-yiadom (2011) discovered that dividend policy is positively associated with firm performance. Dividend policy and firm performance of 92 ASE-listed companies have a strong relationship, according to Kankriyah's (2020) research. Similarly, the findings show that the leverage ratio has a negative and significant relationship with performance. According to the study's findings, dividend policy explains a significant portion of the

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financial performance of the companies studied, implying that dividend policy has a statistically significant impact on company's financial performance. Scholars accept the explanation that dividends are used to forecast a company's future profitability (Bhattacharya, 1979; Miller and Kevin, 1985; Ambarish et-al.,1987; Lee and Lee,2019). More specifically, they convey to the market positive insider information about the company's prospective success. Dividends are indeed a good predictor since they are pricey to the corporation and possess the possibility of jeopardizing the long-term worth. Dividends enable the stockholder to build wealth in much less time than it would take for future retained earnings to accumulate (Bhattacharya, 1979). The above concept was initially assumed to be valid, because the sustained and incremental dividend payouts causes the market to react with as well by raising the company's share price, whereas firms that lower or discontinue dividend payment encounter a share fall in prices (Asquith and David 1983). Subsequent research, nevertheless, discovered that adjustments in dividend payments do not forecast a company's future income viability,thereby weakening the hypothesis (DeAngelo et al., 1996; Benartzi et al., 1997; Lee and Lee, 2019). We propose the following hypothesis:

H_2(a): Dividend policy has a positive effect on firm value.

H_2(b): Dividend policy has a negative effect on firm value.

2.3. Leverage Interaction with Dividend Policy

Within the trade-off theory of corporate capital structure it is documented that a variety of leverage levels where debt financing has a beneficial effect on firm value exists. Ince and Owers (2009) provide insight into the nature of the interaction between dividend policy and financial leverage. They observed that the prevailing tax rates have a significant influence on the interactive effects of both decisions. The valuation effect of leverage in the payout ratio is linear and positive when the tax disparity is positive. This means that firms with a high payout ratio have a higher level of leverage when the tax differential is large. When the tax differential is small, firms with low payout ratios have low leverage. The mentioned pattern of financing and dividend choices could be explained by Barclay et al., (1997). Both policies have the potency to be expensive for large businesses due to the underinvestment problem caused by excessive debt financing, in addition to the flotation costs of high dividends. In established firms having limited expansion prospects, high leverage and dividends can have major advantages in limiting the "free cash flow" problem which is the instinctual inclination of management to overinvest or end up making diversification investments. On the other hand taxes might as well cause this pattern in low-growth businesses because they are likely to produce taxable income and therefore use interest tax savings more frequently(Adedeji,1998, Aggarwal and Kyaw, 2003, Amidu, 2007 Benyasrisawat and Basiruddin, 2012; Olokoyo, 2013; Atanassov and Mandell,2018, Yeo, 2018, Syamsudin et al., 2020; Yan and Quinghui,2022).

As a matter of fact, whenever the manager decides whether to fund investments with debt or equity, the firm's financial decisions on leverage and the dividend policy are entangled. Each option affects the firm's valuation. As a result, the eventual aim of firm management would be to establish the best possible debt-equity ratio that guarantees the firm's profitability. Also Jensen, 1986; and Gomes, 2000; suggest that dividend policies can assist in reducing asymmetric information between stockholders and the firm's management. This explains why external investors favour dividends to retained earnings. Although various theories about how stockholders can compel corporations to divide up cash exists, the underlying concept is that when businesses are unwilling or struggling to pay dividends, their investors worry that the firm's earnings may also be frittered away. Dividend payments are effective mechanisms for resolving principal-agent conflicts (Easterbrook,1984; Myers, 1984; Fama & French, 2002; Akhmadi and Robiyanto, 2020). Investors will conjecture that retained earnings may never be converted into future dividends hence the payment of dividends to shareholders restricts management's inclination to mismanage investment returns. The value implication for the firm and investors will be that managers are forced to source external finance (debt capital) from the financial markets. This move according to Easterbrook (1984) not only gives

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outside shareholders leverage over company managers but also engenders efficiency when the disciplinary role of external debt capital plays out.

As a result, investors will value the firm more because this interaction between dividend policy and leverage might orchestrate a more cost-effective signaling mechanism for businesses that have already considered themselves to be nearer to the allowable target leverage ratios (**B**acklay et-al., 1997; Brealey et-al., 2011). The signal's trustworthiness is due to the fact that if managers keep increasing normal dividend payments without expecting increased future cash flows, the firm will struggle to uphold these higher payouts. Managers will finally face the discomfort of having to reduce the dividend or discontinue payouts entirely, and the market would then react by lowering the stock price. According Michael (et-al 1997), the dividend-signaling theory predicts that high-quality firms whose management believes that the company shares are grossly undervalued will have higher dividend payouts than firms whose management believe their firm's stocks are overvalued and/or justly priced. Bhattacharya (1979) maintains that dividend models, like the capital-structure signaling models, offer less guidance on what threshold of dividend will be optimal and so paying dividends may signal to shareholders that projects returning at the least WACC have not been identified (Laux, 2011; Ali et al, 2018). This study argues that dividend payments moderate leverage in the firm's implicit choice of debt and equity. Consistent dividend payments would send out positive signals to investors, who assume the company is profitable and thus valuable. As a result, we expect firm value to rise when dividend payout interacts with leverage. We hypothesize as follows:

H 3(a): Dividend policy interaction with Leverage moderates the effect of leverage on firm value.

H3(b): Dividend policy interaction with leverage does not moderate the effect leverage on firm value.

3. Research Methodology

In this section, we present our data sources and methods of data analysis. Firstly, we performed a battery of descriptive statistics (mean, median, standard deviation, minimum and maximum) and correlation analysis of our data set. Secondly, we specified an econometric model to ascertain the relationship between our dependent variable and independent variables. Finally, we present and discuss our results.

3.1. Research Design and Sources of Data

This study makes use of the causal comparative study design. This design is suitable for this study because it estimates the causation between the dependent and independent variable to ascertain their relationship. The analysis relied entirely on secondary data acquired from annual reports of companies listed on the Nigerian Stock Exchange between 2016 and 2020. The study's population comprises of all publicly traded manufacturing enterprises on the Nigerian Stock Exchange. At first stage, 61 non-financial firms, whose financial secondary data are available for the study period of 2016-2020, were selected. However, a sample of 26 publicly traded manufacturing firms that have consistently published their annual reports were chosen. The following firms were disqualified from the sample: (i) Firms whose capital structure are different from the non-financial sector firms which may possibly distort the analysis. (ii). Firms with incomplete data for study period. (iii) Firms that were suspended or delisted during the study period. (iv). Firms with negative equity share capital and negative profitability.(v) Firms that are not paying dividend during study period. After the trimming process, the study sample size was reduced to 26 non-financial firms and utilized in the study.

3.2. Model Specification and Justification of Variables

This study utilized the panel regression model to achieve the objective of this study. A standard panel data model can be specified as

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$$y_{it} = x'_{it}\beta + u_i + e_{it} \quad (1)$$

where $\{y_{it}, x_{it}\}: = t = 1, \dots T; i = 1, \dots, n$ and u_i is unobserved individual-specific effect, e_{it} represent the error term. We assume that the individuals i are mutually independent, u_i and e_{it} are independent (Hansen,2016). e_{it} is independent and identically distributed across individuals and time and it is uncorrelated with x_{it}. The above model can be estimated using the ordinary least square (OLS) method if $E(x_{it}, u_i) = 0$. When this condition fails, OLS becomes inconsistent. This implies that the unobserved individual-specific effect u_i is correlated with x_{it}. This condition can be regarded as a random effect and the generalized least square (GLS) method can be used to estimate the model in place of OLS. However, random effect model has very strong assumptions and it is seldom used in applied research (Hansen, 2016).

To overcome this, a fixed effect model can be estimated as follows

$$y_{it} = x'_{it}\beta + d'_i u_i + e_{it} \quad (2)$$

where d_i is a vector of dummy variables and OLS estimation of equation (2) will be consistent because $E(e_{it}|x_{it}, d_i) = 0$.

This study defines a multivariate regression model in which the firm value proxies (TOB_Q and PBV) are affected by leverage, dividend payout ratio, and control variables as follows:

$$TOB\_Q_{it} = \beta_0 + \beta_1 TDTA_{it} + \beta_2 DPR_{it} + \beta_3 ROA_{it} + \beta_4 SIZE_{it} + \beta_5 TAX_{it} + n_i + n_t + \varepsilon_{it} \quad (3)$$

where **i** refers to firm and **t** refers to time.

Utilizing panel data methodology makes it possible to control for any constant and unobservable heterogeneity or individual differences (Arellano 2003; Hsiao 2004; Iturriaga and Crisostomo, 2010; Olokoyo, 2013) as well as fixed effects, notably, the unique characteristics of each firm that stayed constant over time, symbolized by the fixed-effects term, n_i. This fixed-effects term is unobservable and therefore would become part of the random element in the proposed model. We also control for the impact of macroeconomic variables using a time effect, n_t. The random error term, ε_{it}, accounts for both estimation errors and the omission of some important causal variables(Iturriaga and Crisostomo, 2010).

Following the standard panel regression model $y_{it} = x'_{it}\beta + u_i + e_{it}$ (1) we specify four additional models to be estimated in our study. The essence of specifying four models is to capture the individual explanatory power and effect of each of our key explanatory variables on the dependent variable namely: (i) firm value and leverage; (ii) firm value and dividend policy;(iii) firm value, leverage and dividend policy;(iv) firm value and interaction term of leverage and dividend policy) before the final regression model that captures both the individual explanatory variables and the interaction term in a separate model.

3.2.1. Relationship between Firm Value, Leverage and Dividend Policy Can Be Expressed as

$TOB\_Q_{it} = f(TDTA_{it}, DPR_{it}, ROA_{it}, SIZE_{it}, TAX_{it})$ where:

$y_{it} = (TOB\_Q_{it})$, $x'_{it} = (TDTA_{it}, DPR_{it}, ROA_{it}, SIZE_{it}, TAX_{it})$

$$TOB\_Q_{it} = \beta_i + \beta_1 TDTA_{it} + \beta_2 DPR_{it} + \beta_3 TDTA * DPR + \beta_4 ROA_{it} + \beta_5 SIZE_{it} + \beta_6 TAX_{it} + \sum_{j=1}^{n} Firm_{it} + \sum_{k=1}^{f} Year_{it}\varepsilon_{it} \quad (4)$$

The variables in the model are defined as follows:

TOB_Q = Market value of equity plus total debt to total assets(proxy for firm value)

PBV_{it}= Price to book value (proxy for firm value)

ROA_{it}= Return on assets (proxy for firm's profitability)

DPR_{it}= Dividend payout ratio (proxy for dividend policy)

$TDTA_{it}$= Total Debt to Total Assets (proxy for leverage/capital structure)

$SIZE_{it}$= Natural log of total asset (proxy for firm size)

TAX_{it}= corporate tax (proxy for tax)

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We included firm size ($SIZE_{it}$) and corporate tax (TAX_{it}) as control variables. We equally created the interaction variable (DPR*TDTA) to capture the combined effect of dividend policy and capital structure on firm value. $Firm_{it}$ and $Year_{it}$ represent fixed cross sectional and period dummy variables respectively.

In models 1 – 4, (not written here to conserve space), β_i represent the unobserved individual effect or individual heterogeneity arising from individual firms in our sample. ε_{it} represent time-variant idiosyncratic errors across time. β_i can be treated as a random effect or a fixed effect model. If β_i is a parameter to be estimated for each cross section observation i, fixed effect model is the appropriate model unless we viewed β_i as random variable with random effects. The models can be estimated via pooled ordinary least squares method. The shortcoming of Pooled OLS estimation is that it neglects the panel structure and individual heterogeneity in the panel. In this study, we select the firm fixed effect model to allow β_i to be correlated with the observed explanatory variables. So we estimated cross sectional and period fixed effect model (FEM) that captures the panel structure and individual heterogeneity in the panel.

3.3. Variable Definition

3.3.1. Dependent Variable

Tobin's Q (TOB_Q) is the dependent variable and the first proxy for firm value in this study. The Q ratio, widely recognized as Tobin's Q, is the same as the company's market value divided by the replacement cost of its assets. As a result, equilibrium occurs when the market value equals the replacement cost. Tobin's Q expresses the relationship between market valuation and intrinsic value at the most basic level. It is akin to a method of determining whether a particular company or market is overvalued or undervalued. The simplistic expression of Tobin's Q is the equity market value divided by the equity book value. It is composed of the market value and accounting value. Notable scholars have employed Tobins Q as a measure of firm value(McConnel and Serveas, 1990; Zhou, 2001; and Tian and Zeitun, 2007; Olokoyo 2013; Anton,2016; Ibhagui,2018; Lee and Lee 2019; Pham et-al.,2021).

Price to book value (**PBV)** is the dependent variable. PBV is the ratio of the market value of a company's shares (share price) over its book value of equity. The book value of equity, in turn, is the value of a company's assets expressed on the balance sheet. It is the second proxy for the firm value in this study. The investor's perception of the success of a company is reflected in the company's share prices. Investors frequently inquire about the appropriate price to pay for a firm's equity shares. If the objective is to locate high-growth firms offering at low-growth prices, the price-to-book value (PBV) can assist stockholders to find underpriced companies. The PBV can also assist investors in identifying and avoiding overpriced companies. However, this ratio has limitations, and in some cases, it might not be the most effective metric for valuation. Thus, the increase in the share price of a firm indicate investor confidence in the firm. Therefore, investors will be willing to pay higher given the expected yield increase. Ifada et al (2019) stated that high stock prices can provide a good signal to attract investors' interest in making investment decisions.

3.3.2. Independent Variables:

Total Debt to Total Asset (TDTA):

This ratio demonstrates the degree of financial risk or solvency. This show the leverage ratio of the firm. It is a ratio that measures a company's ability to meet its long-term liabilities. This ratio gives an indication of the amount of leverage (funds which the firm must payback with interests) used by a company for investment purposes (Ullah *et al*., 2012). A low ratio is an indication that the company has a strong equity position whereas a higher ratio indicates that the company is highly geared to invest. Leverage magnifies gains and losses in the capital structure and the company may face financial difficulties if their profits fall or interest rates rises. The ratio of leverage or solvency is a tool to measure how big the company depends on the creditors and bond holders to finance the firm's assets. Firms with high leverage rates rely mainly on external facilities to finance their assets. While

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companies with lower rate of leverage more or less finance their assets with their internal funds. A firm that is able to offset all of its liabilities with her own assets are believed to be solvent. In addition to total debt to total assets, we specified two more measures of leverage namely:(i) the ratio of long-term debt to total assets (LTDTA) and (ii) the ratio of short term debts to total assets (STDTA).

Return on assets (ROA):

This variable measures the profitability ratio of the firm. This ratio is measured relative to costs and expenses and analyzed in comparison to assets to see how effective a company is in deploying available assets to generate sales and profits**.** The use of the term "return" in the ROA measurement typically refers to net profit or net income accruing from the value of earnings from sales after all costs, expenses, and taxes. ROA is net income divided by total assets. The more assets a company has accumulated, the more sales and potential profits the firm may generate. As economies of scale help lower costs and improve margins, returns may grow at a faster rate than assets, ultimately increasing ROA. It is widely regarded as the most useful accounting measure to test firm performance (Abdel Shahid, 2003; Zeitun et al., 2007).

Dividend Payout Ratio (**DPR**): is the ratio of Dividend per Share /Earnings per Share. The dividend policy in this study is measured using Dividend Payout Ratio (DPR). The target payout ratio is defined as the proportion of the net income to be paid out as cash dividends (Chen et al,2005). The dividend policy is part of the firm's spending decisions, when it comes to internal spending of the company (Elfakhani, 1995). If dividend paid out by the company is not well appropriated, it will shock the source of internal funds of the company also known as the retained earnings. According to Brigham *et. al.*, (2009), the optimal dividend policy results in a balance between current dividends, future growth and maximizing stock prices. In determining the optimal dividend policy, companies must define the amount of earnings to be paid-out to shareholders

Firm Size (SIZE) has also been linked to the value of the firm. Given that the size of the company is a significant factor that determine dividend payout, investors perceive a high dividend paying firm as a large firm. This is because large and mature firms are most likely to make huge profit which can be paid to shareholders as dividends. Unlike the large companies, small companies utilize the net profit to invest in new projects which reduces the amount of dividend to pay (Sierpinska, 2016). More so, large firms are more likely to obtain cheaper external capital than small firms as they enjoy relative easy access to capital market (DeAngelo, DeAngelo and Stulz 2006). This sends positive signal to investors on the value of the firm. In this study, SIZE is measured as the natural logarithm of total assets which serves as proxy to firm size. Thus, we assume that firm size is positively related to firm value.

Corporate Tax (TAX) moderates the effect of leverage and dividend payout policy on firm value. Ince and Owers (2009) support the existence of relationship between different types of taxes on financial leverage and income to investors. Using their model, Ince and Owers (2009) provided insights into the nature of the relevance of the interaction effect of dividend payout ratios and leverage under differential tax regimes. They argued that when tax differential is positive, the valuation effect of leverage is linear and positive in the payout ratio. This implies that when the tax differential is large, firms with high payout ratios carry higher leverage. Similarly, when tax differential is small, firms with low payout ratios carry low leverage. However, a positive tax differential of any level of leverage that increases the dividend payout will always decrease the firm value. Ince and Owers (2009) emphasize that stockholders are taxed at the same rate on their dividend income as bondholders are on their interest income. Therefore, taxes are deducted only for interest payments of the firm which makes dividend payment to be costlier than interest payments. This effect disappears when the tax differential is zero since it is then equally costly for the shareholders to realize capital gains income and receive dividend income. This indifference makes the payout decision irrelevant. Thus, we assume that corporate tax is negatively related to firm value.

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4. Results and Discussion

This section of the study presents result and analysis of the estimated model. In order to ensure the plausibility of the model variables, we deployed descriptive statistical analysis. We estimated the mean, median, standard deviation, minimum and maximum as well as the correlation matrix.

4.1. Descriptive Statistics

Table 1 provides summary statistics for the study variables. A close review of the descriptive statistics for the dependent variables (TOB_Q) and (PBV) and explanatory variables(ROA, TDTA, LTDTA, STDTA and DPR) reveals that TOB_Q and PBV provide excellent proxies for company value. Accounting for approximately 124 and 86 percent averagely and respectively, TOB_Q and PBV show a higher percentage of performance relative to the accounting measure of firm performance, ROA at 23 percent. TOB_Q and PBV showing a high ratio of market performance measure could be as a result of the increase in firm's share prices and this could be a good signal to investors' on the value of the firms. The mean of the Dividend Payout Ratio (DPR) is 66 percent. This implies a high propensity of Nigerian firms to make dividend payments. According to the leverage indicators, the total liabilities of the firms averaged 527 percent of the total asset worth.When the second dimension of leverage, long-term debt to total assets (LTDTA), is examined, the observed mean value of 168% for Nigerian enterprises is larger than those documented by Salawu (2007) and Olokoyo (2013). The average value of short-term debt to total assets (STDTA) of 359 percent compared to 168 percent for long-term debt indicates that debt financing for listed companies in the sample is primarily of a short-run in essence. By contrasting the leverage metrics used in this study, which reveal that the liabilities of the firms, as proxied by TDTA, LTDTA, and STDTA, on average stood at 527, 168, and 359 percent of combined assets value, one can deduce that there is key evidence that Nigerian firms were highly leveraged throughout the investigation time frame and may necessitate that firms adopt an optimal combination of equity capital, long-term debt, and short-term borrowing.

Table 1. Descriptive Statistics for the variables.

Variables	Mean	Std. Dev.	Median	Minimum	Maximum
TOB Q	1.2382	0.5551	1.1137	0.5130	3.2625
PBV	0.8591	0.5550	0.7476	0.1570	2.8950
ROA	0.2267	0.2097	0.1474	0.0230	1.0460
DPR	0.6593	0.4653	0.5464	0.1150	2.3410
TDTA	5.2706	5.6219	3.1109	0.0050	26.3600
LTDTA	1.6766	1.6242	1.1215	0.0043	7.7089
STDTA	3.5940	4.0245	2.0778	-0.1570	18.6511
TAX	6.5490	0.9449	6.5711	2.3560	8.0120
SIZE	0.1646	0.3897	0.1384	1.7450	2.1230

Note: TB_Q: Tobin's Q; PBV: Price to book value; ROA: Return on assets; DPR: Dividend payout ratio; TDTA: Total debt to total assets; LTDTA: Long-term debt to total assets; STDTA: Short-term debt to total assets; Size: Ln of total assets.; Tax: Corporate tax. Source: Research results.

4.2. Correlation Analysis

The correlation matrix of the dependent and independent variables is shown in Table 2. This is the first line of evidence for the degree of association between the dependent and independent variables in this study. The correlation coefficient between the dividend payout ratio (DPR) and the firm value proxies, Tobin's Q (TOB_ Q) and Price to Book Value (PBV), is positive and statistically significant. This implies that the firm's value rises as dividends are paid out. The correlation between leverage (TDTA) and the firm value proxies TOB Q and PBV, on the other hand, is negative and statistically significant. This result is supported by the LTDTA and STDTA variables as well. This implies that leverage is inversely related to firm value in Nigerian firms. DPR and TDTA as well as LTDTA have a positive but statistically insignificant relationship, whereas it is negative and statistically significant for short term leverage (STDTA). This means that, while debt allows the firm

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to leverage its equity investments, more financial leverage reduces both equity and firm value. Furthermore, the correlation coefficients for all variables show that there is no multicollinearity in our sample.

Table 2. Correlation Matrix of the Variables.

Variables	TOBQ	PBV	ROA	DPR	TDTA	LTDTA	STDTA	TAX	SIZE
TOBQ	1								
PBV	0.9869***	1							
	(0.0000)								
ROA	0.5030***	0.5135***	1						
	(0.0000)	(0.0000)							
DPR	0.9335***	0.9348***	0.4346***	1					
	(0.0000)	(0.0000)	(0.0000)						
TDTA	-0.1364**	-0.1780**	0.0221	0.0040	1				
	(0.0416)	(0.0428)	(0.8029)	(0.9639)					
LTDTA	-0.0200	-0.0594	0.1054	0.1295	0.9882***	1			
	(0.4933)	(0.5018)	(0.2325)	(0.1421)	(0.0000)				
STDTA	-0.1825***	-0.2246***	-0.0117	-0.0467	0.9981***	0.9769***	1		
	(0.0377)	(0.0102)	(0.8951)	(0.5982)	(0.0000)	(0.0000)			
TAX	-0.2546***	-0.2359***	0.0930	-0.1294	0.3965***	0.3925***	0.3955***	1	
	(0.0035)	(0.0069)	(0.2925)	(0.1423)	(0.0000)	(0.0000)	(0.0000)		
SIZE	0.3303***	0.3399***	0.2208***	0.3505***	-0.0104	0.0449	-0.0327	-0.0437	1
	(0.0001)	(0.0001)	(0.0116)	(0.0000)	(0.9062)	(0.6116)	(0.7117)	(0.6213)	

We reported the correlation matrix of all the firms in our sample to save space.***, **, and * denote significance of correlation coefficient at 1% 5% and 10% respectively. p-value in bracket. **Source: Research results**.

4.3. Panel Regression Analysis

Tables 3–6 present the results of the panel regression model used in this study. We estimated the model using pooled OLS and fixed effect models in order to select the best model for capturing the relationship between the dependent and independent variables in this study.

4.3.1. Relationship between Firm Value and Dividend Payout Policy

Table 3 shows the results of Model 2 which captures the relationship between the proxies of firm value, TOB_Q and PBV and the dividend payout ratio. We reported the result of the Pooled OLS as well as the result of the fixed effect model. The essence of doing this is to compare the results of the two estimators and verify if there was improvement in the result by estimating the fixed effect model. We confirm the existence of a significant positive relationship between PBV and DPR for both POLS and fixed effect result at 1%, 5% and 10 % level. This implies that dividend payment policy positively affects firm value in our sample. We accept the earlier stated hypothesis that dividend payment policy is positively related to firm value. The F-statistics are statistically significant for the models showing that the variables in the linear regression model are jointly significant. The R^2 value of 98 percent showed an improvement in the fixed effect model.

Table 3. Relationship between Firm value and Payout policy.

Dependent Variable: TOB_Q				
	POLS		Fixed Effect	
	Coefficient	p-value	Coefficient	p-value
DPR	1.0146***	0.0000	0.9512***	0.0000
ROA	0.3969***	0.0000	0.5043***	0.0000
SIZE	0.0111	0.7893	0.0628*	0.1035
TAX	-0.0933***	0.0000	-0.1045***	0.0000

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Intercept	1.0925***	0.0000	1.1915***	0.0000
Year-fixed effects	No	-	Yes	-
Firm-fixed effects	No	-	Yes	-
R-squared	0.9072	-	0.9709	-
Adjusted R-squared	0.9042	-	0.9608	-
F-statistic	305.5265***	0.0000	96.9309***	0.0000

Dependent Variable: PBV				
	POLS		Fixed Effect	
	Coefficient	p-value	Coefficient	p-value
DPR	1.0106***	0.0000	0.9537***	0.0000
ROA	0.4182***	0.0000	0.4595***	0.0000
SIZE	0.0027	0.9478	0.0669***	0.0156
TAX	-0.0828 ***	0.0000	-0.0860***	0.0000
Intercept	0.6395***	0.0000	0.7004***	0.0000
Year-fixed effects	No	-	Yes	-
Firm-fixed effects	No	-	Yes	-
R-squared	0.907	-	0.9852	-
Adjusted R-squared	0.904	-	0.9802	-
F-statistic	304.7743***	0.0000	194.1918	0.0000

Note: ***Significant at 1% level; **Significant at 5% level and *Significant at 10% level. **Source: Research results.**

This result is in line with the hypothesis that dividend policy has a positive effect on firm value. Firms that pay dividend seldom have agency problems because stockholders interest are protected by managers. This signals to the market that the value of the firm is high when managers sustain earnings per share. Agyei and Marfo-yiadom (2011) found that dividend policy is positively related to firm performance based on the signaling theory which posits that investors perceive sustained dividend payment as an indication of financial strength and better management. Laux (2011) explains that managers would have financed all projects before paying dividend. Even though managers have the tendency to pay dividend due to agency issues and signaling, Lease et al (2000) argues that there should balance in dividend decision. This balance ensures that optimal dividend policy is adhered to and the right market valuation of the firm is achieved. However, dividend payout can give a negative signal to the investors when information asymmetry exist between managers and stockholders. When managers pay dividends in the presence of worthy projects, it represents an error. The investors expect managers to identify good projects that earn returns and make the firm grow over time. Therefore, paying dividends could signal to shareholders that projects returning at least the WACC have not been found. This yields a negative effect on firm value. (Laux, 2011; Ali et al, 2018).

Two of the control variables are positively related to firm value while one is negatively related to firm value. Specifically, ROA and SIZE are significantly positively related to PBV in the fixed effect model which indicate that profitability and size of the firm is important in firm valuation. This conforms to the findings of Justyna (2019), Fama and French (2001), that size and profitability are significantly positively related to dividend payment. Large firms are more likely to make more profits than small sized firms. Corporate tax is significantly negatively related to firm value. This confirms that taxes deducted only for interest payments of the firm makes dividend payment to be costlier than interest payments. This indifference makes the payout decision irrelevant. This is in line with Ince and Owers (2009) who found that corporate tax is negatively related to firm value.

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4.3.2. Relationship between Firm Value Leverage

Table 4 shows the result of Model 1, which captures the relationship between the firm value proxies TOB_Q and PBV and the leverage proxies TDTA, LTDTA, and STDTA respectively. The coefficients of leverage proxies of TDTA and LTDTA are significantly and negatively associated with TOB_Q and PBV. This indicates that increased leverage has a negative effect on firm value. Moreover, it could provide evidence for the concept that firms could overleverage their capital structure as a result of agency conflicts, thereby negatively impacting the firm's worth. These research results are congruent to those of prior studies such as Tian and Zeitun (2007), Salawu (2007), Chen (2004), Tzelepsis and Skuras (2004), Gleason et al. (2000), and Olokoyo (2013), among others. The F-statistics are statistically significant, and the R^2 value of 90% demonstrated an improvement in the fixed effect model.

Table 4. Relationship between Firm value and Leverage.

Dependent Variable: TOB_Q				
	POLS		Fixed Effect	
	Coefficient	p-value	Coefficient	p-value
TDTA	-0.6075***	0.0000	-0.3236***	0.0001
LTDTA	-1.0206***	0.0000	-0.5309***	0.0001
STDTA	0.4131***	0.0000	0.2073***	0.0001
ROA	0.4390***	0.0103	0.6564***	0.0016
SIZE	0.0716	0.3788	0.2322***	0.0006
TAX	-0.1501***	0.0000	-0.1698***	0.0000
Intercept	1.8835***	0.0000	2.0946***	0.0000
Year-fixed effects	No	-	Yes	-
Firm-fixed effects	No	-	Yes	-
R-squared	0.6519	-	0.9104	-
Adjusted R-squared	0.6378	-	0.8783	-
F-statistic	46.4399***	0.0000	28.3767***	0.0000
Dependent Variable: PBV				
	POLS		Fixed Effect	
	Coefficient	p-value	Coefficient	p-value
TDTA	-0.6019***	0.0000	-0.3388***	0.0000
LTDTA	-1.0246***	0.0000	-0.5683***	0.0000
STDTA	0.4227***	0.0000	0.2295***	0.0000
ROA	0.4462***	0.0077	0.6053***	0.0013
SIZE	0.0830	0.2974	0.2243***	0.0003
TAX	-0.1255***	0.0003	-0.1429***	0.0000
Intercept	1.3676***	0.0000	1.5668***	0.0000
Year-fixed effects	No	-	Yes	-
Firm-fixed effects	No	-	Yes	-
R-squared	0.6671	-	0.9268	-
Adjusted R-squared	0.6537	-	0.9005	-
F-statistic	49.6913***	0.0000	35.3534***	0.0000

Note: ***Significant at 1% level; **Significant at 5% level and *Significant at 10% level. **Source: Research results.**

The result implies that an overleverage situation (more debt than equity) affect firm value negatively. We accept the hypothesis that leverage is negatively related to firm value. This finding contradicts the irrelevance theory of Modigliani and Miller (1958) that leverage does not affect firm value. The negative and significant coefficient of LTDTA contradicts Brick and Ravid's (1985) position that long–term leverage increases a company's value. In the Nigerian situation, companies tend to carry less long-term financial leverage in their capital structure. These results supported the pecking order theory of capital structure, which proposes that profitable businesses should first rely on less expensive internal financing before seeking external funds. As a result, highly valuable Nigerian businesses are not expected to have excessive debt capital. The significant negative association

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indicates that the Nigerian debt market may be untapped, which is coherent with symptoms of a stunted debt market in all economies. This result could be attributed to a firms choice or mechanism of mitigating the mispricing of fresh projects as well as underinvestment challenges. (Olokoyo 2013). Additionally, due to significant capital gains in the stock exchange, companies listed on NSE are frequently drawn to equity finance. As a result, there may be some departure from explanations provided by the pecking order theory. DeAngelo and Masulis (1980) advocated an optimum combination of debt and equity that guarantees the growth in the firms' performance. An over-leveraged firm has the greater chance of bankruptcy. This attracts high interest charges as creditors view such loans as being very risky. This affects investors assurance in the company which in turn affect the firm's worth. When a company's leverage is low, the tax benefits outweigh the costs; however, as debt accumulates, the costs rise rapidly. Therefore, leverage generally has a negative impact on firm value.

Surprisingly, the highly significant positive association between STDTA and Tobin's Q suggests that a greater level of short-term debt in the capital structure of listed Nigerian firms is related to increased market performance. As a result, the hypothesis that leverage has a positive effect on firm value is accepted and the study adds that short-term debt improves Nigerian firms' market performance.This finding demonstrates that the effect of leverage tends to vary across distinct performance measures for Nigerian businesses. The positive association also implies that debt enhances the market performance of Nigerian businesses, that might or might not represent their earnings. This statistical finding of a significant relationship between firm's short-term leverage and Tobin's Q as a market performance metric reinforces the static trade-off capital structure theory. It is congruent to the position of Jensen and Meckling (1976), Myers (1977) and Harris and Raviv (1990) arguments that an optimal optimal capital structure can yield a positive relationship with firms' worth when the marginal benefit equals the marginal cost of the capital. Our findings supports Setiadharma and Machali (2017) and Hirdinis (2019) who found a positive relationship between capital structure and firm value.

4.3.3. Relationship between Firm Value, Dividend Payment an Leverage

Table 5 shows the results of Model 3, which depicts the relationship between the firm value proxies TOB_Q and PBV and the explanatory variables DPR, TDTA, LTDTA, and STDTA. In both the POLS and Fixed effect model, the findings indicate a significant positive relationship between DPR and the firm value proxies, TOB_Q and PBV.

Table 5. Relationship between Firm value, Payout policy and Leverage.

Dependent Variable: TOB_Q				
	POLS		Fixed Effect	
	Coefficient	p-value	Coefficient	p-value
DPR	1.1168***	0.0000	0.9949***	0.0001
TDTA	-0.1237**	0.0214	-0.0595	0.2378
LTDTA	-0.1828**	0.0227	-0.0927	0.2755
STDTA	0.0591*	0.0625	0.0332	0.3261
ROA	0.4449***	0.0000	0.5554***	0.0000
SIZE	0.0023	0.9546	0.0531	0.1802
TAX	-0.0639***	0.0003	-0.0994***	0.0000
Intercept	0.9140***	0.0000	1.1519***	0.0000
Year-fixed effects	No		Yes	
Firm-fixed effects	No		Yes	
R-squared	0.9181		0.9714	
Adjusted R-squared	0.9141		0.9607	
F-statistic	229.7620***	0.0000	91.1075	0.0000***
Dependent Variable: PBV				
	POLS		Fixed Effect	
	Coefficient	p-value	Coefficient	p-value

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DPR	1.1085***	0.0000	0.9869***	0.0000
TDTA	-0.1239**	0.0218	-0.0412	0.3516
LTDTA	-0.1698**	0.0226	-0.0503	0.3831
STDTA	0.0460	0.1179	0.0091	0.6920
ROA	0.4521***	0.0000	0.5052***	0.0000
SIZE	0.0096	0.7940	0.0466*	0.0846
TAX	-0.0399***	0.0136	-0.0730***	0.0000
Intercept	0.4053***	0.0002	0.6315***	0.0000
Year-fixed effects	No	-	Yes	-
Firm-fixed effects	No	-	Yes	-
R-squared	0.9294	-	0.9868	-
Adjusted R-squared	0.9260	-	0.9819	-
F-statistic	269.8800***	0.0000	200.6951***	0.0000

Note: ***Significant at 1% level; **Significant at 5% level and *Significant at 10% level. **Source: Research results.**

Equally, this study observes a significant negative relationship between firm proxies of leverage, TDTA and LTDTA, and firm value proxies. This finding supports our proposed hypothesis that dividends should be positively related to firm value whereas leverage impacts firm worth inversely. This finding implies that dividends have a significant disciplinary effect on managers in firms lacking growth opportunities, where the free cash flow problem is more severe. This result agree with the findings of Iturriaga and Crisostomo (2010). However, the short-term leverage proxy STDTA shows a positive but insignificant relation with firm value in the fixed effect model. In contrast to the results in Table 4, the addition of DPR and leverage proxies of TDTA, LTDTA, and STDTA significantly improved the fitness of the model. This confirms that leverage and dividend payments should be considered concurrently. Due to principal-agent problems and information asymmetry issues, managers pay dividends to investors as a positive signal to outsiders that the firm is profitable in order to maintain the firm's value. This attracts new investors, enabling managers to use equity financing to supplement debt for project financing. In the fixed effect model, ROA and SIZE are significantly and positively related to the firm value proxies TOB Q and PBV, whereas corporate tax is significantly negatively related to firm value. Anton (2016) found that dividend payout, leverage, and firm size are positively related to firm value.

4.3.4. Relationship between Firm Value and Leverage & Payout Interaction Term

Table 6 shows the result of Model 4 which captures the relationship between firm value proxies and the interaction term, DPR*TDTA. From the result, all the estimated parameters of both models (POLS and fixed effect) are statistically significant which shows an improvement due to the interaction term.This result further confirm the evidence in Table 5 that firms' managers must simultaneously consider capital structure and dividend payment to investors. We accept our proposed hypothesis as this result confirm that even though leverage is negatively related to firms' value, its impact on firm value becomes significantly positive when it interacts with dividend policy.

Table 6. Relationship between Firm value and Leverage - Payout Interaction.

Dependent Variable: TOB_Q				
	POLS		Fixed Effect	
	Coefficient	p-value	Coefficient	p-value
DPR*TDTA	0.1281	0.1277	0.1806**	0.0383
DPR	0.9623***	0.0000	0.8542***	0.0000
TDTA	-0.3077***	0.0000	-0.6280***	0.0000
LTDTA	-0.4910**	0.0316	-1.0525***	0.0004
STDTA	0.1833**	0.0457	0.4245***	0.0004
ROA	0.4314***	0.0000	0.5986***	0.0000
SIZE	0.0056	0.8896	0.0493	0.2060
TAX	-0.0664***	0.0002	-0.0986***	0.0000
Intercept	0.9432***	0.0000	1.1355***	0.0000

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Year-fixed effects	No		Yes	
Firm-fixed effects	No		Yes	
R-squared	0.9165		0.9723	
Adjusted R-squared	0.9124		0.9620	
F-statistic	224.9845***	0.0000	94.3341***	0.0000

Dependent Variable: PBV				
	POLS		Fixed Effect	
	Coefficient	p-value	Coefficient	p-value
DPR*TDTA	0.0851	0.2757	0.1378**	0.0192
DPR	0.9847***	0.0000	0.8909***	0.0000
TDTA	-0.4166***	0.0001	-0.6820***	0.0000
LTDTA	-0.6601***	0.0017	-1.1544***	0.0000
STDTA	0.2435***	0.0039	0.4724***	0.0000
ROA	0.4293***	0.0000	0.5506***	0.0000
SIZE	0.0051	0.8915	0.0426*	0.1049
TAX	-0.0431***	0.0085	-0.0722***	0.0000
Intercept	0.4414***	0.0001	0.6131***	0.0000
Year-fixed effects	No	-	Yes	-
Firm-fixed effects	No	-	Yes	-
R-squared	0.9276	-	0.9875	-
Adjusted R-squared	0.9240	-	0.9828	-
F-statistic	262.5250***	0.0000	211.7303***	0.0000

Note: ***Significant at 1% level; **Significant at 5% level and *Significant at 10% level. **Source: Research results.**

The empirical results in table 6 support our argument that dividends and leverage are both significant determinants of firm value. We reasoned that in established firms with limited expansion prospects, high leverage and dividends can have significant benefits in restricting the "free cash flow" challenge, which is management's instinctual inclination to overinvest or eventually make misprice investments. In other words, leverage and dividends are complementary strategies for dealing with management discretionary behavior, rather than substitute monitoring and control mechanisms. That is, a firm with a large leverage ratio utilizes the dividend policy as a disciplinary mechanism, and a corporation that enforces a dividend policy might also have a high leverage ratio. Our findings are supported by Iturriaga and Crisostomo's (2010) research of Brazilian firms, which found that leverage has a dual effect of negatively affecting firm value with growth opportunities (underinvestment theory) and positively affecting firm value without growth opportunities (static trade-off theory). They also discover that dividends play a disciplinary role in businesses with lesser opportunities for growth by limiting free cash flow under management control. Brealey et al (2011) argues that aligning the capital structure and dividend policy with the firm's corporate objective is a critical process that requires a thoughtful consideration. Elfakhani (1995) argues that poor debt-equity combination can result in a loss of strategic asset value. Thus, decisions geared towards increasing the value of the firm, requires the managers to cautiously align the firm leverage and dividend policy because it can impinge on firm value and market perception of the firm. Again, ROA is significantly and positively related to firm value proxies in the POLS and Fixed effect models, SIZE is postive but did not show any statistical significance while corporate tax is significantly negatively related to firm value

4.4. Limitation

Given that Nigeria was experiencing an economic downturn during the study period, the impact of the downturn may have influenced firms' profitability and dividend policy decisions. As a result, we limited our selection to firms that provided complete data on profitability, dividends, and leverage. Our firm year observations were few in number. More firm year observations are possible to see if the results obtained here will be robust in future studies. Also It could also explain why many businesses appeared to be over-levered. As a result, it is critical to remember that the findings of this type of causal research should be interpreted with caution because, while there is a relationship

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between the two variables studied, this does not necessarily imply that the variable influences or is the primary factor influencing the dependent variables. Other factors such as growth, ownership structure, and corporate governance may be included. Future studies should also observe and compare periods of economic prosperity and the incorporation of a larger number of firms in other sectors.

5. Conclusions

Our goal is to find empirical evidence to support dividend policy's intervening role in the relationship between leverage and firm value. In recent years, finance scholars have questioned the significance of financial decisions, particularly those concerning leverage and dividend policy, and their effects on firm value. Two opposing hypotheses contend that leverage has a positive or negative impact on firm value. However, to construct a wide-ranging experiment of perfect corporate decision-making that would allow us to distinguish between these hypotheses in the case of leverage and dividend policy has proven extremely difficult. Because of the insufficiency of reliable empirical evidence on the interaction effect of leverage and dividend policy on firm value, proponents of each theory have had to rely heavily on anecdotal examples to back up their claims.

The results of this study support the different effects of leverage and dividends on firm value for a sample of 26 firms listed on the Nigeria Stock Exchange between 2016 and 2020. Initially, in both the POLs and Fixed effect models of regression, the proxies for the total leverage TDTA and long-term leverage LTDTA ratios reported a negative relationship to firm value. Remarkably, the short-term leverage proxy STDTA had a positive effect on firm value. This unique finding indicates that Nigerian firms, contrary to what is observed in advanced economies, favour short-term leverage over long-term financing. However, a key finding of this study is that while leverage is negatively related to firm value in models without the interaction term, the effect on firm value becomes significantly positive when dividend policy interacts with firm leverage. Despite the significant institutional differences between Nigeria and advanced economies, our empirical findings provide support for modern capital structure theories such as pecking order and static trade-off theories. This implies that for Nigerian established companies that have limited growth prospects, high leverage and dividends can have significant benefits in limiting the "free cash flow" challenge, which is management's instinctual proclivity to overinvest or, eventually, make mispriced investments. In other words, leverage and dividends are complementary rather than substitute monitoring and control mechanisms for dealing with management discretionary conduct. Thus, a company with a high leverage ratio may use the dividend policy as a disciplinary mechanism, and a company that enforces a dividend policy may also have a high leverage ratio.

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