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THE ESTIMATED EFFECT OF DIVIDEND POLICY ON TOBIN'S Q VALUE: A PANEL DATA EVIDENCE FROM NIGERIA QUOTED FIRMS

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ABSTRACT

This study examined the effect of dividend policy on the Tobin's Q value of on quoted manufacturing firms in Nigeria. Panel data were collected from annual reports of 22 manufacturing firms from 2011- 2020. Tobin's Q value was modeled as a linear function of dividend payout ratio, retention ratio, dividend yield and dividend per share. Ordinary least square method of multiple regressions was used as data analysis method. After cross examination of the models, the fixed and the random effect model was adopted. Findings of the study proved that 50 percent variation on Tobin's Q value of the quoted manufacturing firms can be attributed to changes on the dividend policy variables. It was evidenced that retained earnings and dividend payout ratio has positive effect on Tobin's Q value of the quoted manufacturing firms while dividend per share dividend yield has positive effect on Tobin's Q value. From findings, it concludes that dividend policy has significant relationship with Tobin's Q value of the quoted manufacturing firms. It was recommended that dividend payment affect the firm's Tobin's Q value, therefore that manager of listed firms should develop effective dividend payout policies to ensure that their firms pay out dividends to enhance the value of their companies. There is need for the regulatory and policy making organizations like the security and exchange commission to come up with policies on dividend payout by listed firms so that they can enhance their value. Managers of listed firms should come up with effective policies on declaration of final and interim dividends and employ cash payment of dividends, as this would enhance the value of the listed firms.

Keywords: *Dividend Policy, Tobin's Q value, Panel Data, Nigeria Quoted Firms*

INTRODUCTION

James Tobin, a professor at Yale University, who is a winner of Nobel Prize, 1981 in economics who developed an idea of Q Ratio or also known Tobin's Q Ratio. The Q ratio is calculating firm value based on the formula of company's stock market value and total book value of liabilities divided by the replacement value of the firm's assets (Tobin, 1969). Basically Tobin's idea is built on portfolio theory hypothesis that combined market value of company should be equal to replacement costs of company assets. The formula calculation result is a ratio which will lead the investor's evaluation on firm value (Jim & Tri, 2018).

The ratio result is ranging from value of 1 to over than 1 or less than 1; when firm's value equal to 1, it means equal to investment (value = 1), when firm's value bigger than 1, it means more than investment (value >1) and when firm's value smaller than 1, it means less than investment (value < 1). Even though, Q ratio has difference evaluation bases with other investment theories, but it readily observable by the marginal efficiency while the cost of capital is not (Oulton, 1981). Tobin's Q theory has been used in wide range and variety of phenomena, such as for measuring business performance (Chen and Lee, 1995). Many researchers have used the Q ratio to study the effects of market power on performance (Anandhi et al., 1999). Wernerfelt and Montgomery (1988) used Tobin's Q as a measure of performance and firm success. The size of Tobin's Q is the function of internal policies such as dividend policy and capital structure policy (Jim & Tri, 2018).

Modigliani and Miller (1968) introduced dividend irrelevance theory which means that with no charge of tax or default cost, dividend policy is unimportant. They argue that dividend policy has no effect on firm's share value. Dividend irrelevance theory further explains that the investor could influence the return on a stock regardless of the stock's dividend. For instance, from an investor's point of view, if an organization's profit is too enormous then the investor can purchase more stock with the dividend as he desires. The theory presented by Miller and Modigliani suggested that the shareholders wealth is not increased by the dividend policy of the firm. Shareholders wealth depends upon solely on the earning capacity of the firm. By giving dividends to shareholders the company is adding more risk as they increase the amounts of debt so the gain for shareholders is offset by the added amount of risk (Miller & Modigliani, 1961).There are different strands of studies on the effect of dividend policy, some authors examined the effect of dividend policy on profitability (Ansar, Butt and Shah, 2015; Ehikioya, 2015, Anandasayanan and Velnampy, 2016). Findings on the effect of dividend policy on Tobin's Q of quoted firms are lacking. Therefore, this study examined the effect of dividend policy on the Tobin's Q value of quoted manufacturing firms in Nigeria.

LITERATURE REVIEW

Dividend Policy

Dividend Policy refers to a company's policy which determines the amount of dividend payments and the amount of retained earnings for reinvesting in new projects. This policy is related to dividing the firm's earnings between payments to shareholders and reinvestment in new opportunities. Dividend policy involves the determination of the payout policy that management follows in determining the size and pattern of cash distributions to shareholders over time (Lease *et al.,* 2000)

In corporate finance, one of the most important decisions is concerned with the answer of this question that should the profits of firm be distributed to the shareholders as dividend or it must be reinvested in new opportunities and if it must be distributed, what proportion of profit must be paid to shareholder and what proportion must be returned to the business? For answering this question, managers must consider which dividend policy will lead to

maximization of shareholder's wealth and they should not only concentrate on this question that how much of firm's income are required for investment. Instead, they also must consider the impact of their decision on stock's price. Dividend policy is also related to capital structure indirectly and different dividend policies may require different capital structures. Since both capital structure and dividend policy can have impact on the wealth of shareholders and dividend policy can affect capital structure too, it makes decision about dividend policy is more complex and sensitive.

Dividend Payout Ratio

Company should reinvest its earnings if the prospective returns are greater than its shareholders' cost of capital or required rate of return. Changes in dividend policy should reflect the company's investment opportunities. However, dividend policy can change in this way only if shareholders are indifferent to distinctions between dividends and capital gains. If capital markets are competitive, and there are no taxes, no transaction or flotation costs, then investors would be indifferent to the level of dividend payout. Any reduction in dividends would lead to a greater reinvestment of retained earnings and an equivalent increase in capital gains (Rafiu, Taiwo and Dauda, 2012).

Company operations in this situation would not be affected by the dividend payout ratio, because if retentions were insufficient to finance the company's investment programme, a rights issue could be made. If the dividend paid was insufficient for the shareholder's income requirements, then he could sell a proportion of his holding to compensate for inadequate income. Similarity, if the dividend paid was in excess of his income requirements; he could reinvest the surplus in the company's shares. This argument has been given rigorous support by Modigliani and Miller. The claim that in competitive capital market shareholders could always reinvest surplus income or sell part of their capital in order to consume, whether such income was received in the form of dividends or capital gains was mere packaging (Serrasqueiro and Caetano, 2015).

If a company has had a stable dividend payment policy and this policy is altered, shareholders could interpret this as a change in management's expectations of the future and the share price may adjust accordingly: for example, a reduction may be construed by the shareholders as indicating management's pessimistic view of the future, rather than greater investment opportunities. If there is stability in the dividend payment, investors may rely upon dividends as predictors of what is to come (Serrasqueiro and Caetano, 2015). However, it can be argued strongly that management should be able to persuade shareholders that lower dividends - that is, greater retention will lead to a more .profitable investment policy and will benefit future earnings and dividends. If shareholders accept this, the share price will not fall as a result of such a change in dividend policy.

Dividend Payout Policy

Dividend policy means the payout policy that managers follow in deciding the size and pattern of cash distribution to shareholders overtime (Baker et al, 2011; Lee, 2009). The term policy rejects the possibility of randomness and arbitrariness in determining its pattern and size and implies some consistency and predictability (Allen and Michealy, 2003). It is important to understand how the firm's profits are divided between dividend payment and retained earnings. Corporate managers in their daily routine of life are exposed to a number of crucial decisions regarding finance of a company. Among all such decision dividend payout policy is the one of the most important financial decision that came across (Baker and Powell, 1999). The firm's dividend policy and its capital structure are interrelated.

The dividend payout policy is one of the most debated topics within corporate finance and many academics have been trying to find the missing pieces in the dividend puzzle for more than a half century (Baker, 2009). However, some of the most successful companies during the last years such as Apple and Google have chosen not to pay dividends (Ciaccia, 2012). This indicates that it is possible to be successful without paying dividends, so why do firms pay dividends at all? Since the publication of the original Miller and Modigliani (1961) irrelevance propositions, this question has puzzled financial economists. Traditionally, finance scholars emphasize explanations for dividends that are based on the desire to communicate information to shareholders or to satisfy the demand for payouts from heterogeneous dividend clienteles (Allen and Michaely, 2003).According to Forte (2007) although there is a polyphony of literature on the subject, researchers have merely contributed to the multiple paradoxes of corporate dividend policy, thereby adding more pieces to an enlarged puzzle rather than finding the final matching piece that would provide a more precise and complete understanding of the determinants of dividend policy.

Retained Earnings

Retained earnings are the earnings ploughed back into the company for the purpose of expansion programme. The price at which equity shares are traded in the stock market is their market value. Generally the earnings and their distribution have positive reflection on the share prices. Every year a company retains a part of its earnings (Nunkoo and Boateng, 2009). The level of earnings before interest and tax, the rate of tax payable and the volume of dividend distributed influence the amount of retained earnings. This amount of retained earnings gets accumulated to form a significant source of internal finance. The amount of earnings retained represents a source of fund, which is relatively cheaper. Whenever there is requirement for fund, the company can safely bank upon the retained earnings.

The amount retained by the company acts as a cushion that absorbs the adverse effects of the business. It also enables a company to maintain a stable dividend policy. Profit refers to the earnings of a company. The amount of earnings a company can generate depends not only on its efficient use of funds but also on factors like market for the product manufactured, state of competition, its quality, company's after sales service, government regulations, etc. The earning capacity of a company is an indicator of its continuity of existence (Nunkoo and Boateng, 2009). Higher the level of earnings, higher would be the value that the market attaches to the company. Sufficient amount of earnings enable a company to tide over adverse business conditions (Drobetz, Gruninger, 2007). A company that earns more can maintain a dividend policy that can satisfy the shareholders. Further, by capitalizing the earnings, expansion programme may also be taken up.

Theoretical Review

Dividend Irrelevance Theory

Modigliani and Miller introduced dividend irrelevance theory which means that with no charge of tax or default cost, dividend policy is unimportant. They argue that dividend policy has no effect on firm's share value. Dividend irrelevance theory further explains that the investor could influence the return on a stock regardless of the stock's dividend. For instance, from an investor's point of view, if an organization's profit is too enormous then the investor can purchase more stock with the dividend as he desires. On the other hand, if an organization's profit is too limited then a potential investor can sell some of the organization's stock to reproduce the cash as he wants. In short, investor doesn't care about a firm's dividend policy which means that dividend is unnecessary from investor's perspective.

The theory presented by Miller and Modigliani (M &M) suggested that the shareholders wealth is not increased by the dividend policy of the firm. Shareholders wealth depends upon solely on the earning capacity of the firm. By giving dividends to shareholders the company is adding more risk as they increase the amounts of debt so the gain for shareholders is offset by the added amount of risk (Miller & Modigliani, 1961). M&M demonstrated that under certain assumptions about perfect capital markets, dividend policy would be irrelevant. Given that in a perfect market dividend policy has no effect on either the price of a firm's stock or its cost of capital, shareholders wealth is not affected by the dividend decision and therefore they would be indifferent between dividends and capital gains. In other words, investors calculate the value of companies based on the capitalized value of their future earnings, and this is not affected by whether firms pay dividends or not and how firms set their dividend policies. M&M go further and suggest that, to an investor, all dividend policies are effectively the same since investors can create homemade dividends by adjusting their portfolios in a way that matches their preferences.

Dividend Relevance theory

Relevance theory explains that dividend policy has significant effect on shareholders wealth as well as firms' values. The proponents of this theory consider dividend decision to be an active variable in influencing shareholders' wealth. Examples of such proponents are Gordon and Lintner. The main idea of their theory is that even in perfect markets, the uncertainty of future situation is a sufficient reason to change the price of a share. Gordon (1959) argues that investors are generally risk averse and attach less risk to current as opposed to future dividends or capital gains. Therefore investors prefer to receive certain money today than to wait for gains from a questionable future investment. Hence, the dividend policy does matter. This forms the basis for the Bird in Hand theory propounded by Lintner (1956) and Gordon (1959).

The Bird in hand theory also referred to as the traditional view of the theory of dividends emphasized that dividends are the singular determinant of the value of shares and that the receipt of the share of profits now, in form of income rather than in the future, in form of capital appreciation, enhances the value of the share (ICAN, 2009). The payment of dividend helps to resolve the uncertainty in the mind of investors about the future earning potentials of the company. Investors place greater reliance on the ability of the firm to earn profits in the future and pay dividends, reduce the risk perception of the company and this increases the value of the company's shares, all things being equal. Linked to the present study, this theory presupposes that dividend payout impacts on shareholders' wealth because it reduces the uncertainty in the mind of the investors making them to discount the firm's return at a lower rate, thereby resulting into higher market values.

Empirical Review

Adesola and Okwong (2009) tested the relevance of Nigeria stock price dividend theories with cross-sectional data from twenty-seven companies over the period 1996-2006. They commented that they have discovered the positive and significant impact of dividends on stock prices. The A-sample activities of Nigerian companies indirectly call into question the empirical validity of the dividend insignificance.

Adeleke and Obademi (2013) showed that a positive relationship exist between the dividend policy mechanisms (DPS, PAYR, and EPS) and market price per share. The study in essence investigated the impact of dividend policy mechanisms on shareholder's value using 13 firms quoted on Nigerian Stock Exchange (NSE) from the banking and oil industries from 2008 to

2012. The variables included dividend payout, dividend per share and earnings per share as the independent variables and Market price per share as the dependent variable analyzed using on panel methodology that is based on OLS estimation.

Adesina, Uwuigbe, Uwuigbe, Asiriuwa and Oriabe (2017) investigated the impact of dividend policy on Nigeria stock price valuation. During ten years (2006-2016) four of the twenty-two banks were analyzed. In their study, they noted that earnings per share have a strong impact on stock prices, while dividend yields and a percentage of stock price stability have a significant impact. However, it was concluded that Nigerian companies need to consider other companies' dividend policies in order to increase their profits and future performance.

Al- Hasan, Asaduzzaman and Al Karim (2013) examined the effect of dividend policy on market price per share using 28 companies selected from 4 four industries in Bangladesh from 2005 to 2009. The analyses of the study involved descriptive statistics, correlation and multiple regression techniques. Market price per share was used as the dependent variable while dividend per share and retained earnings per share were the independent variables. The result showed that dividend policy has significant effect on market share price.

Amadasun (2011) tried to test the hypothesis that dividend would not increase the price of Nigerian equities using First Bank (Nig) plc as a case study. The study used a regression model that included share price per share as the explanatory variables, earnings per share, return on capital employed, retained earnings, and price-earnings ratio. The results of the study showed a statistically insignificant regression coefficient for both per-share dividend and earnings per share.

Emeni and Ogbulu (2015) conducted a study on the relationship between dividend policy and market value of firms in the financial services sector of the Nigerian economy. The study used panel data constructed from the financial statements of firms listed on the NSE for a period of 10 years, from 2002-2011. These financial statements were obtained from the NSE Fact Book. The Ordinary Least Square (OLS) statistical technique was used for the data analysis. From the results of the study, cash dividend, stock dividend and investment policy have a negative but not significant relationship with the market value of firms in the financial services sector of Nigeria, while earnings was found to have a positive and insignificant relationship with market value (though significant at 10% level of significance). Generally, the result is in tandem with the dividend irrelevant hypothesis of Miller and Modigliani, that dividend policy has no effect on market value of firms.

Iqbal, Ahmed and Shafi (2014) analyzed the effect of the dividend bubble on the stock prices of thirty Karachi listed companies over a period of eleven years. The time series of the thirty listed companies were analyzed using a linear regression model. The result showed that earnings per share, return on equity, holding ratio are positively correlated with share price, while dividend yield and price to earnings ratio have a negative impact on price activities. However, the study concluded that the dividend has a strong positive impact on KSE stock prices and therefore supports the theory of dividend significance. There are failures in the study resulting from the use of thirty company time series over eleven years. The data obtained by the panel would have been more accurate in reaching its conclusions and conclusions.

Jakata and Nyamugure (2014) employed data from selected firms on the Stock Exchange (ZSE) to investigate the effects of dividend policy on the share price of a firm. Share price served as dependent and dividend policy, earnings per share, turnover and net profit as independent variable. The study used Pearson's Correlation Coefficient and Linear Regression Analysis from a time serial data covering 2003 to 2011 and found that Dividend policy does not affect share price.

Lucky and Uzokwe (2019) tested Miller and Modigliani dividend policy irrelevant hypothesis in Nigeria. The objective was to examine the validity of the irrelevant hypothesis. Tobins Q measure of market value was modeled as the function of dividend payout ratio, retention ratio, dividend per share and dividend yield. 20 firms were selected on the basis of availability of information necessary for conducting the study and the readiness of annual financial reports for the period of 10 years from 2008-2017. Cross sectional data was sourced from financial statement and annual reports of the firms. Based on the analysis of fixed and random effect results, random effect was used. The study revealed that 75 percent variation on the market value can be predicted by variation on independent variables in the regression model. The beta coefficient of the variables found that all the independent variables have positive and significant relationship with market value of the selected quoted firms. The study concludes that dividend policy is relevant as oppose to the irrelevant hypothesis of Miller and Modigliani.

Literature Gap

The issue of adopting an adequate measurement of dividend policy remains controversial in the literature. The literature has focused more on the classical classification of dividend that can affect shareholders return which are dividend payout ratio and retention ratio. In this study, we disaggregate the various measures of dividend policy to include dividend yield and dividend per share to see the component that will be more robust and significant for quoted firms. This robustness check allows us to establish the effect of dividend policy on market value.

METHODOLOGY

This study examined the effect of dividend policy on Tobins Q Value of quoted manufacturing firms in Nigeria. Secondary data were used. Ex-post facto research design was employed in obtaining, analyzing and interpreting the relevant data for hypotheses testing. The rationale for the variety is that ex-post facto research design allows the researcher the opportunity of observing one or more variables over a period of time (Uzoagulu, 1998). Specifically, panel data were adopted in data analysis. The population of the study comprises all the quoted manufacturing firms in the Nigeria Stock Exchange. The study adopted stratified random sampling techniques to select 22 quoted manufacturing firms classified as consumer goods manufacturing firms. Panel data used in this study were collected from financial statement of the quoted firms and Stock Exchange Factsheet.

Model Specification
Pooled regression specification

$$TQ = \alpha o + \alpha_1 DPR_{1i} + \alpha_2 RR_{2i} + DY_{3it} + \alpha_3 DPS_{4it\ 6} + \varepsilon 1_{it} \quad \mathbf{1}$$

Fixed Effect Model Specification

$$TQ = \alpha o + \alpha_1\ DPR_{1i} + \alpha_2\ RR_{2i} + DY_{3\,it} + \alpha_3 DPS_{4it\ 6} + \varepsilon 1_{it} \quad \sum_{i}^{9} = 1\ \alpha_i\ idum + \varepsilon 1_{it} \qquad 2$$

Random effect model specification

$$TQ = \alpha o + \alpha_1\ DPR_{1i} + \alpha_2\ RR_{2i} + DY_{3\,it} + \alpha_3 DPS_{4it\ 6} + \varepsilon 1_{it} \quad + \mu i\ + \varepsilon 1_{it} \qquad 3$$

Where:

TQ = Tobin's Q Value
DPR= Dividend payout ratio
RR = Retention Ratio
DY = Dividend Yield
DPS = Dividend per Share
μ = Error Term

$\beta_1 - \beta_4$
β_0 = Coefficient of Independent Variables to the Dependent Variables
= Regression Intercept

Method of Data Analysis

To obtain the observed values on the expectation of the effect of dividend policy and market value, panel data survey over a ten year period was employed. Panel data structure allows us to take into account the unobservable and constant heterogeneity, that is, the specific features of each quoted firm. In addition the pooled Ordinary Least Square (OLS), Fixed Effects and Random Effects regression models were employed to test the various hypotheses. Pooled OLS regression technique is popular in financial studies owing to its ease of application and precision in prediction (Alma, 2011). These analytical techniques will enable the researcher attain justifiable and robust results.

$$Y = \beta_0 + \beta_{1Xit} + \mu \qquad (4)$$

Where,

Y = Dependent Variable
β_{1Xit} = Independent variable
β_0 = Regression Intercept
μ = Error Term

Table 1**: Analysis of Variables and A-Priori Expectation**

Variable	Measurement	Notation	Expected relationship
Tobin's Q Value	(TA–BVE) + MVE(2) / TA	TQ	Dependent variable
Dividend payout ratio	**Annual Dividend Paid per Share ÷ Earnings per Share**	DPR	+
Retention Ratio	1- DPR	RR	+
Dividend Yield	Dividend per share /market value per share	DY	+
Dividend per Share	Annual dividend / number of shares	DPS	+

Source: Author's Research Desk, 2021

Hausman Test

Since random effects model is invalid when heterogeneity exist, meaning that error term is correlated with explanatory variables, Hausman test is often used to test whether a variable can be treated as exogenous or whether that variable needs a separate structural equation. Hausman test refers to a test for whether a random effects approach to panel regression is valid or whether a fixed effects model is necessary (Brooks, 2014). We exercise Hausman test by E-views, with the null hypothesis that random effects model can be applied.

Panel Data Unit Root Tests

To introduce panel data unit root tests, consider the autoregressive model

$$y_{it} = \alpha_i + \gamma_i y_i t - 1 + \varepsilon_{it} \quad (5)$$

Which we can rewrite as

$$\Delta y_{it} = \alpha_i + \pi_i y_i t - 1 + \varepsilon_{it} \quad (6)$$

Where $\pi_i = \gamma_i - 1$. The null hypothesis that all series have a unit root then becomes $H_0 : \pi_i = 0$ for all *i*. a first choice for the alternative hypothesis is that all series are stationary with the same mean-reversion parameter, that is, $H_1 : \pi_i = \pi < 0$ for each country *i*, and is used in the approaches of Levin and Lin (1992) Quah (1994) and Harris and Tzavalis (1999). The combined test statistics is given by:

$$P = -2\sum_{i=1}^{N} \log\, p_i \quad (7)$$

For fixed *N*, this test statistics will have a Chi-squared distribution with 2*N* degrees of freedom as $T \to \infty$, so that large values of P lead us t reject the null hypothesis, while this test (sometimes referred to as the Fisher test) is attractive because it allows the use of different ADF test and different time-series length per unit.

Panel Data Co-integration Tests

A wide range of alternative test is available to test for co-integration in a dynamic panel data setting, and research in this area is evolving rapidly. A substantial number of these tests are based on testing for a unit root in the residuals of a panel co-integrating regression. The drawbacks and complexities associated with the panel unit root tests are also relevant in the

co- integration case. Several additional issues are of potential importance when testing for co-integration: heterogeneity in the parameter of the co- integrating relationships, heterogeneity in the number of co-integrating relationship across countries and the possibility of co-integration between the series from different alternative estimators are available. With different small and large sample properties (depending upon the type of asymptotic that is chosen).

$$y_{it} = \alpha_i + \beta_i x_{it} + \varepsilon_{it} \tag{8}$$

y_{it} Where both and x_{it} are integrated or order one. Co-integration implies that ε_{it} is stationary for each i. Homogeneous co-integration. In addition Requires that $\beta_I = \beta$If the co-integrating parameter is heterogeneous. And homogeneity is imposed. One estimate

$$y_{it} = \alpha_i + \beta_i x_{it} + \left[(\beta_i - \beta)x_{it} + \varepsilon_{it}\right] \tag{9}$$

And in general the composite error term is integrated of order one even if ε_{it} is stationary.

Granger Causality Test

Thus, Granger causality test helps in adequate specification of model. In Granger causality, test, the null hypothesis is that no causality between two variables. The null hypotheses is rejected if the probability of F* statistics given in the Granger causality result is less than 0.05. The pair-wise granger causality test is mathematically expressed as:

$$Y_t \pi_o + \sum_{i=1}^{n} x_1^{\,y}\, Y_{t-1} \sum_{i=1}^{n} \pi_1^{\,x}\, x_{t-1} + u_1 \tag{10}$$

and

$$\mathrm{x_t dp_o} + \sum_{i=1}^{n} \mathrm{dp_1^y\, Yt{-}1} \sum_{i=1}^{n} \mathrm{dp1^x x_{y-1}} + \mathrm{V_1} \tag{11}$$

Where x_t and y_t are the variables to be tested white u_t and v_t are the white noise disturbance terms. The null hypothesis $\pi_1^y = dp_1^y = 0$, for all I's is tested against the alternative hypothesis $\pi_1^x \neq 0$ and $dp_1^y \neq 0$. if the co-efficient of π_1^x are statistically significant but that of $dp1y$ are not, then x causes y. If the reverse is true then y causes x. however, where both co-efficient of π_1^x and dp_1^y are significant then causality is bi –directional.

The Fixed Effects Model

The fixed effects model is simply a linear regression model in which the intercept terms vary over the individual units i.e.

$$y_{tt} = \alpha_j + x_{it}^{\,1}\beta + \varepsilon_{it} \quad \varepsilon_{it} \approx HD\left(0.\sigma^2\right) \tag{12}$$

Where it is usually assumed that all x_{it} are independent of all ε_{it} . We can write this in the usual regression framework by including a dummy variable for each unit *i* in the model. That is

$$y_{tt} = \sum_{j=1}^{N} \alpha_j d_{ij} + x_{ij}\beta + \varepsilon_{it} \quad \varepsilon_{it} \tag{3.26}$$

Where d_{ij} = 1 if *i*= j and 0 elsewhere. We thus have a set of *N*. dummy variables in the model. Essentially, this implies that we eliminate the individual effects α_I first by transforming the data. To see this, first note that

$$\bar{y}_{tt} + \alpha_1 + \bar{x}_{ij}^{-1}\beta + \varepsilon_{it} \quad \bar{\varepsilon}_{it} \tag{13}$$

Where

$\bar{y}_{tt} = T^{-1}\sum_t y_{it}$ and similarly for the other variables. Consequently, we can write

$$y_{it} - \bar{y}_{it}\left(x_{it} - \bar{x}_{it}\right)^1\beta + \left(\varepsilon_{it} - \bar{\varepsilon}_{it}\right) \tag{3.28}$$

The OLS estimator or fixed effects estimator, and it is exactly identical to the LSDV estimator described above. It is given by

$$\hat{\beta}_{FE} = \left(\sum_{i=1}^{N}\sum_{i=1}^{T}\left(x_{it} - \bar{x}_i\right)\left(x_{it} - \bar{x}_i\right)^t\right)^{-1}\sum_{i=1}^{N}\sum_{i=1}^{T}\left(x_{it} - \bar{x}_i\right)\left(x_{it} - \bar{y}_i\right) \tag{14}$$

If it is assumed that all X*it* are independent of all ε_{it} (compare assumption (A2) from chapter 2), the fixed effects estimator can be shown to be unbiased for β.

The Random Effects Model

It is commonly assumed in regression analysis that all factors that affect the dependent variable, but that have not been included as repressors, can be appropriately summarized by a random error term. In our case, this leads to the assumption that the α_t are random factors, independently and identically distributed over individuals. Thus we write the random effects model as

$$y_{it} = \mu + x_{it}\beta + x_{it}\beta + \alpha_i + \varepsilon_{it} \tag{15}$$

Where α_t + ε_{it} is treated as an error term consisting of two components: an individual specific component, which does not vary over time, and a remainder component, which is assumed to be uncorrelated over time.

RESULTS AND DISCUSSION OF FINDINGS

This section deals with the presentation, analyses and interpretation of data obtained from annual reports of the quoted manufacturing firms.

Table 2: Analysis of Panel Unit Root

Method: **Series: D(TQ,2)**	Statistic	Prob.**	**Cross**-sections	Obs
Null: Unit root (assumes common unit root process)				
Levin, Lin & Chu t*	-34.21933	0.0000	22	132
Null: Unit root (assumes individual unit root process)				
Im, Pesaran and Shin W-stat	-3.24583	0.0006	22	132
ADF - Fisher Chi-square	86.9622	0.0001	22	132
PP - Fisher Chi-square	318.044	0.0000	22	154
Series: D(RR)				
Null: Unit root (assumes common unit root process)				
Levin, Lin & Chu t*	-12.9823	0.0000	22	154
Null: Unit root (assumes individual unit root process)				
Im, Pesaran and Shin W-stat	-7.99880	0.0000	22	154
ADF - Fisher Chi-square	151.413	0.0000	22	154
PP - Fisher Chi-square	337.691	0.0000	22	176
Series: D(DY,2)				
Null: Unit root (assumes common unit root process)				
Levin, Lin & Chu t*	-6.82213	0.0000	22	132
Null: Unit root (assumes individual unit root process)				
Im, Pesaran and Shin W-stat	-5.60784	0.0000	22	132
ADF - Fisher Chi-square	120.304	0.0000	22	132
PP - Fisher Chi-square	351.324	0.0000	22	154
Series: D(DPS)				
Null: Unit root (assumes common unit root process)				
Levin, Lin & Chu t*	-11.5810	0.0000	22	154
Null: Unit root (assumes individual unit root process)				
Im, Pesaran and Shin W-stat	-5.12390	0.0000	22	154
ADF - Fisher Chi-square	111.302	0.0000	22	154
PP - Fisher Chi-square	219.108	0.0000	22	176
Series: D(DPR)				
Null: Unit root (assumes common unit root process)				
Levin, Lin & Chu t*	-11.7519	0.0000	22	154
Null: Unit root (assumes individual unit root process)				
Im, Pesaran and Shin W-stat	-7.26747	0.0000	22	154
ADF - Fisher Chi-square	145.752	0.0000	22	154
PP - Fisher Chi-square	361.464	0.0000	22	176

Source: Computed From E-View Statistical Package 9.0

We firstly check the stationarity properties of the variables by employing panel unit root tests. Panel unit root tests results are presented in table 2. The outcomes clearly demonstrate that the order of integration of is not I (1) at levels. At the first difference, indicates that all investigated variables are I(1). These results allowed us to perform the Pedroni and Kao panel cointegration tests to check whether there is a cointegration equation among the variables or not.

Table 3: Regression Results

Variable	Coefficient	Std. Error	t-Statistic	Prob.
Pooled Regression Results for the Study				
RR	0.201362	0.424810	0.474005	0.6360
DY	-0.039042	0.046196	-0.845124	0.3990
DPS	-0.052148	0.029186	-1.786767	0.0754
DPR	0.199317	0.398907	0.499658	0.6178
C	1.215276	0.261868	4.640792	0.0000
R-squared	0.017370	Mean dependent var		1.031865
Adjusted R-squared	-0.000912	S.D. dependent var		0.107557
S.E. of regression	0.107606	Akaike info criterion		-1.598220
Sum squared resid	2.489486	Schwarz criterion		-1.521092
Log likelihood	180.8042	Hannan-Quinn criter.		-1.567073
F-statistic	0.950119	Durbin-Watson stat		1.456570
Prob(F-statistic)	0.435922			
Fixed Regression Results for the Study				
Variable	Coefficient	Std. Error	t-Statistic	Prob.
RR	0.267938	0.457995	0.585025	0.5592
DY	-0.063575	0.066245	-0.959685	0.3384
DPS	-0.076206	0.036516	-2.086884	0.0382
DPR	0.246740	0.427168	0.577618	0.5642
C	1.281680	0.285504	4.489176	0.0000
Effects Specification				
Cross-section fixed (dummy variables)				
R-squared	0.337349	Mean dependent var		1.031865
Adjusted R-squared	0.186704	S.D. dependent var		0.107557
S.E. of regression	0.112123	Akaike info criterion		-1.427853
Sum squared resid	2.438868	Schwarz criterion		-1.026788
Log likelihood	183.0638	Hannan-Quinn criter.		-1.265892
F-statistic	0.301076	Durbin-Watson stat		1.462054
Prob(F-statistic)	0.999590			
Random Regression Results for the Study				
Variable	Coefficient	Std. Error	t-Statistic	Prob.
RR	0.201362	0.442641	0.454910	0.6496
DY	-0.039042	0.048136	-0.811078	0.4182
DPS	-0.052148	0.030411	-1.714788	0.0378
DPR	0.199317	0.415651	0.479530	0.6320
C	1.215276	0.272860	4.453838	0.0000
Effects Specification				
			S.D.	Rho
Cross-section random			0.000000	0.0000
Idiosyncratic random			0.112123	1.0000
Weighted Statistics				
R-squared	0.717370	Mean dependent var		1.031865
Adjusted R-squared	0.500912	S.D. dependent var		0.107557
S.E. of regression	0.107606	Sum squared resid		2.489486
F-statistic	0.950119	Durbin-Watson stat		1.456570
Prob(F-statistic)	0.435922			
Unweighted Statistics				
R-squared	0.517370	Mean dependent var		1.031865
Sum squared resid	2.489486	Durbin-Watson stat		1.456570
Correlated Random Effects - Hausman Test				
Test Summary		Chi-Sq. Statistic	Chi-Sq. d.f.	Prob.
Cross-section random		2.131225	4	0.7116

Source: Computed From E-View Statistical Package 9.0

The table above presents results on the relationship between dividend policy and Tobins Q value of selected manufacturing firms in Nigeria. The random effects model is more

appropriate than the fixed effects model. As the result found that the results of this test were not significant (p-value = 0.7116). Hence, we reject the null hypothesis and conclude that the random effects model is the most appropriate of the three models.

Further result in Table 3above, presents the effect of the dividend policy on the Tobin's Q value of quoted manufacturing firms in Nigeria. The regression summary produced adjusted R^2 of 0.500912 from the fixed effect regression model which implies that 50 percent variation on Tobin's Q value of the quoted manufacturing firms can be attributed to changes on the dividend policy variables as formulated in the regression model while the model is statistically significant by the value of F-statistics and F-probability. The Durbin Watson statistics is less than 1.5which means the absence of serial autocorrelation. The effect of the dividend policy variables found that retained earnings and dividend payout ratio has positive effect on Tobin's Q value of the quoted manufacturing firms while dividend per share dividend yield has positive effect on Tobin's Q value. Furthermore, the p-value of the variables indicate that retained earnings, dividend yield and dividend payout ratio have no significant relationship with Tobin's Q value of the quoted firms as the probability coefficient of the variables are greater than 0.05 while dividend per share have significant relationship with market value of the quoted manufacturing firms. The above enables us to test the long run relationship among the variables using panel cointegration test.

Table 4: Analysis of Cointegration Test

			Statistic	Prob.	Weighted Statistic	Prob.
Panel v-Statistic			-2.366117	0.0010	-3.107569	0.0091
Panel rho-Statistic			3.306582	0.0095	3.388918	0.0096
Panel PP-Statistic			-3.474942	0.0003	-3.210449	0.0007
Panel ADF-Statistic			2.378534	0.9913	2.833284	0.9977
			Statistic	Prob.		
Group rho-Statistic			5.418973	0.0000		
Group PP-Statistic			-4.900284	0.0000		
Group ADF-Statistic			3.269595	0.9995		
Cross section specific results						
Phillips-Peron results (non-parametric)						
Cross ID	AR(1)	Variance	HAC	Bandwidth	Obs	
Seven Bottling Co. Plc	-0.424	0.006699	0.002688	5.00	9	
Cadbury Nig. Plc	0.187	0.003414	0.002606	4.00	9	
Champion Breweries Plc	0.091	0.006998	0.007126	1.00	9	
Dangote Flour Plc	-0.411	0.006380	0.006380	0.00	9	
Dangote Sugar RefinPlc	-0.054	0.005261	0.004090	1.00	9	
DN Tyre&Rubbe	-0.258	0.004357	0.004214	1.00	9	
Flour Mills	-0.436	0.002516	0.001054	3.00	9	
Golden Guinea Brew. Plc	-0.171	0.006282	0.006282	0.00	9	
Guinness Nig. Plc	-0.317	0.003567	0.002250	3.00	9	
Honeywell Flour Mills Plc	0.154	0.007271	0.007271	0.00	9	
Int'l Breweries Plc	-0.473	0.003540	0.004349	1.00	9	
MC Nichols Plc	-0.245	0.002224	0.000997	8.00	9	
Mlti-Trex Integrated Food Plc	0.133	0.002489	0.002489	0.00	9	
Northern Nig. Flour Mills Plc	-0.338	0.001166	0.000993	1.00	9	
Nascon Allied Ind. Plc	-0.427	0.003610	0.001575	5.00	9	
Nestle Nig. Plc	-0.097	0.007435	0.005192	1.00	9	
Nigerian BrewriesPlc	-0.077	0.006265	0.002690	4.00	9	
PZ Cussons Nig. Plc	-0.260	0.003449	0.003449	0.00	9	
UTC Nigeria Plc	-0.147	0.003924	0.003924	0.00	9	
Union Dicon Salt Plc	0.176	0.008497	0.008497	0.00	9	
Unilever Nigeria Plc	0.163	0.005853	0.006757	1.00	9	
Vita Foam Nigeria Plc	0.513	0.005817	0.006280	2.00	9	

Source: Computed From E-View Statistical Package 9.0

In this test, the null hypothesis of a unit root in the residuals (no cointegration) for all three cross sections is set against the alternative hypothesis of some cross sections without a unit root (cointegration). The p-values reported in the table for each cross section suggest that no unit root can be rejected at least at the 5 percent level for models.

Table 5: Pairwise Granger Causality Tests

Null Hypothesis:	Obs	F-Statistic	Prob.
RR does not Granger Cause TQ	176	1.43474	0.2410
TQ does not Granger Cause RR		0.16159	0.8509
DY does not Granger Cause TQ	176	0.47926	0.6201
TQ does not Granger Cause DY		0.42391	0.6552
DPS does not Granger Cause TQ	176	0.09941	0.9054
TQ does not Granger Cause DPS		0.09243	0.9118
DPR does not Granger Cause TQ	176	1.49002	0.2283
TQ does not Granger Cause DPR		0.25759	0.7732

Source: Computed From E-View Statistical Package 9.0

From the causality test presented in the above table, there is independent relationship from dividend policy variables and Tobin's Q value of the quoted manufacturing firms over the periods covered in this stud. This implies that there is no causal relationship among the variables in the stud, we therefore accept null hypothesis.

Discussion of Findings

The study examined the effect of the dividend policy variables found that retained earnings and dividend payout ratio has positive effect on Tobin's Q value of the quoted manufacturing firms while dividend per share dividend yield has positive effect on Tobin's Q value. The positive effect of the variables confirms the a-priori expectation of the result and validates theories such as shareholders theory. It also validates the operational objective of corporate organization which is to maximize shareholders wealth. It is in line with the findings of Dwita Ayu Rizqia, Siti Aisjah Simiati (2013) that most of the firms tend to pay dividend to the investors that believe will increase the firm share price as shareholder believe only a firm with good profit is able to payout dividend, Nwannamka and Ezeabsili (2017) shows the relevance of dividend, dividend as a signaling model and proves that firm value is greatly influenced by dividend policy as far as public limited companies are concerned, Peter and Lyndon (2016) that dividend payout policy enhances firm performance in Nigeria. While earning per share (EPS) had a negative influence on dividend payout policy of firms in Nigeria for the period the study covered and Ojeme, Mamid and Ojo, (2015) revealed the effects of policy decisions as it affects dividend payout and dividend retained for further growth on shareholders' wealth. Oyinlola and Ajeigbe (2013) whose finding revealed that both dividend payout and retained earnings are significantly relevant to the market per share of the firms, the findings of Oyinlola, Oyinlola and Adeniran (2014) that dividend policy is relevant and that a firm's dividend policy is seen as a major determinant for a firm's performance. Positive relationship exists between the dividend policy and performance and the findings of Yusuf (2015) that dividend payout ratio is positively related to banks' leverage and profitability. However, the negative effect of the variables is contrary to expectation of the result and validates the agency theory. It could be traced to inability of the management to formulate policies that will guarantee steady dividend policy. This is contrary to the findings of Simon, Oke and Ologdinwa (2016) that dividend policy in Nigeria still remains a function of strong dynamic variables such as return on investment (ROI), earnings per share (EPS) and dividend per share (DPS), but confirm the findings of Osegbu, Ifurueze and Ifurueze (2014) that there is no significant relationship between dividend payout of banks in Nigeria and the explanatory variables.

CONCLUSION AND RECOMMENDATION

Conclusion

The study found that 50percent variation on Tobin's Q value of the quoted manufacturing firms can be attributed to changes on the dividend policy variables while the model is statistically significant by the value of F-statistics and F-probability. It was evidenced that retained earnings and dividend payout ratio has positive effect on Tobin's Q value of the quoted manufacturing firms while dividend per share dividend yield has positive effect on Tobin's Q value. From the above, we conclude that dividend policy has significant relationship with Tobin's Q value of the quoted manufacturing firms.

Recommendations

1. The study found out the dividend payment affect the firm's Tobin's Q value, therefore that manager of listed firms should develop effective dividend payout policies to ensure that their firms pay out dividends to enhance the value of their companies.
2. There is need for the regulatory and policy making organizations like the security and exchange commission to come up with policies on dividend payout by listed firms so that they can enhance their value.
3. Managers of listed firms should come up with effective policies on declaration of final and interim dividends and employ cash payment of dividends, as this would enhance the value of the listed firms.
4. Retention forms should be properly invested and the investment environment should be well managed to increase value of the quoted manufacturing firms through the dividend policy channel.

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