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# Micro Determinants of Dividend Policy in Quoted Manufacturing Companies in Nigeria

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## Abstract
This study examined the factors that determine dividend policy of quoted manufacturing firms in Nigeria. The general purpose is to examine factors that affect dividend policy of the quoted firms. After exhaustive literature review, cross sectional data was sourced from financial statement of twenty quoted manufacturing firms. Dividend payout rate was proxy for dividend policy while growth opportunities, liquidity, management efficiency, profit level, cost of capital, company size and debt equity ratio were proxy for independent variables. The study applied the Pooled Ordinary Least Square (OLS), fixed effect, and random effect regression models using the e-view statistical package. Findings reveal that growth opportunities, profit level, management efficiency and debt equity ratio have negative effect on dividend payout ratio while liquidity, cost of capital and company size have positive effect on dividend payout ratio of the manufacturing firms. We conclude that liquidity cost of capital and company size significantly determine dividend policy while growth opportunities, management efficiency, profit level and debt equity ratio have no significant effect on dividend policy. The study recommends among others, that managers/consultants should carefully examine the economic factors within a firm's operating environment when carrying out the functions of developing or designing dividend policy for the firm.

**Keywords:** Dividend Policy, Quoted Manufacturing Companies, Dividend payout ratio, Management efficiency.

## 1. Introduction
The primary goal of every corporate organization is to maximize shareholders wealth. This motivates management to formulate policies and make decisions that facilitates the achievement of the objectives. The policies and decisions will include (amongst others) investment, financing and dividend policy decisions. Dividend policy is a finance management function that determines the proportion of company's earnings that is to be distributed to the shareholders and the proportion that is to be retained for further investment. As in Bartlomej and Jack (2015), it is determined by micro factors of the firm such as profitability, liquidity, company size, capital structure, growth of the firm, and corporate governance.
Dividend – which is a reward for investment in equity can be made in the form of cash dividend, bond dividend, scrip dividend and or property dividend. It can also be in a combination of any of the listed forms. In the past some scholars such as Gordons (1959) as in Amidu and Abor (2006) opined that micro forces such as profitability level of a firm are the indicators that the firm is capable of declaring dividend. This is not entirely

true today as there are many objectives which an organization may pursue such as the growth opportunities of the firm –which could determine the dividend payout regime of a firm.

Understanding the behavioral aspect of dividend policy was first accredited to Lintner (1956), as in Brigham and Daves (2010), who split the reasons for dividend policy into two: Management sought to avoid making changes in their dividend rate that might reverse within a year which led to consistency of dividend policy and that dividend policy is based on earnings capacity of the firm. The finance profession has long struggled to develop a simple satisfactory model of dividend determination without much success. According to Eugene and Kenneth (2011), Modigliani and Miller (1961) show that in perfect capital market with no information asymmetry and predetermined investment decision, the value of the firms is independent of the financing decisions. Hence, a firm's financing decision including dividends, have no effect on the value of the firm, or the distribution of wealth between classes of security holders. However, in imperfect settings, dividend can influence shareholders wealth by providing information to investors or through wealth redistribution among claimants. It can be argued that dividends provide information about the firm's future cash flow and as such decision bothering on dividend can effect a change on a firm's value.

Knowledge of factors that determine dividend policy is crucial to the investors in the equity market as well as to the policy makers. For investors, discovering the economic variables could help them to appropriately forecast fluctuations in stock prices. Dividend policy was just concerned with selecting between payments of earnings to shareholder as cash dividend or retaining the profit in the firm. It only determined the incidence of dividend payments and the amount of dividends payable. However, in today's corporate finance, dividend policy addresses other issues such as how firms can attract investors in different tax brackets; how the firm's market value can be increased by this policy and share repurchases so as to reduce the incidence of paying out cash dividends.

Despite the various reforms, the performance of the corporate organizations remains abysmal and affects the dividend policy of listed firms in Nigerian Stock Exchange. As in Urhoghide and Ojeme (2016), there have been fluctuations in the dividend paid in the last three years and they also observed the drops in dividend payments, and that some have not declared dividend over the past three decades.

As mentioned earlier, dividend policy administration has metamorphose with the intent to attract investors, reduce further incidence of paying out cash, etc. Urhoghide and Ojeme (2016) also opined that most quoted firms in the Nigerian Stock Exchange have no consistent dividend policy over the past three decades. This observed inconsistency could be attributed to ignorance and or improper understanding of the dynamics in dividend policy administration and this may lead to loss of opportunities to the corporate managers, investors, governments, and the general public.

The factors that determinant corporate dividend policy in Nigeria has well been examined in literature as in (Abubakar, 2015; Urhoghide and Ojeme, 2016; Dada, 2015) to mention but a few; but the studies were on the banking industry. The only attempt by Oyinlola, Oyinlola and Adeniran (2014) on the manufacturing industry was limited in scope as it centered on the breweries. This creates a knowledge gap on factors that determine dividend policies in the manufacturing industry. From the above, this study intends to examine factors that determine dividend policy of quoted manufacturing firms in Nigeria. It has been observed that while some organizations pay dividend when they declare profit but some others do not consider profit as a necessary and sufficient indication for declaring dividend. This has kept a lot of investors wondering what really determines when an organization is likely to declare dividend.

### *1.1 Research Questions*

This study is provoked by the following questions.

- To what extent does profit level determine dividend policy of quoted manufacturing firms in Nigeria?
- To what extent does liquidity determine dividend policy of quoted manufacturing firms in Nigeria?
- To what extent does company size determine dividend policy of quoted manufacturing firms in Nigeria?
- To what extent do growth opportunities determine dividend policy of quoted manufacturing firms in Nigeria?
- To what extent does management efficiency determine dividend policy of quoted manufacturing firms in Nigeria?
- To what extent does cost of external financing determine dividend policy of quoted manufacturing firms in Nigeria?
- To what extent does debt equity ratio determine dividend policy of quoted manufacturing firms in Nigeria?

*1.2 Research Hypotheses*

- $H_{01:}$ There is no significant relationship between profit level and the dividend policy of quoted manufacturing firms in Nigeria
- $H_{02:}$ Liquidity does not affect the dividend policy of quoted manufacturing firms in Nigeria.
- $H_{03:}$ There is no significant relationship between company size and the dividend policy of quoted manufacturing firms in Nigeria.
- $H_{04:}$ Growth opportunities have no significant impact on the dividend policy of quoted manufacturing firms in Nigeria.
- $H_{05:}$ here is no significant relationship between management efficiency and the dividend policy of quoted manufacturing firms in Nigeria.
- $H_{06:}$ Cost of external financing do not affect the dividend policy of quoted manufacturing firms in Nigeria.
- $H_{07}$: Debt equity ratio does not affect the dividend policy of quoted manufacturing firms in Nigeria.

## 2. Literature Review

Dividend Policy refers to a company's policy which determines the amount of dividend payments and the amounts of retained earnings for reinvesting in new projects. This policy is related to dividing the firm's earning between payment to shareholders and reinvestment in new opportunities. Dividend policy involves the determination of the payout, method of payment and the aggregate retention of earnings policy that management follows in determining the size and pattern of cash distributions to shareholders over time.

Profit Level has long been regarded as the primary indicator for a company's capacity to pay dividends. Lintner (1956) surveyed corporate chief executive officers and chief financial officers and found out that dividends are a function of current and past profit levels. A firm's current and previous year's profit are an important factor in influencing the dividend policy. Dividends are a function of current and past profit levels and the future earnings and expected future earnings.

Liquidity and cash flow position of the firm is also a vital consideration. This arises from the fact that dividend payout entails huge cash flows. Hence, a firm encountering liquidity challenges would find it difficult to pay higher dividend. Empirical evidence from Ahmed, Imran, and Ali (2014) reveal that dividend payout depends more on cash flow, which reflect the company's ability to pay dividend rather than on earnings which are often influence by accounting practices. Liu and Hu (2005) in their study found out that cash dividend payment was higher than accounting profit. However they found out that fifty (50%) percent of the sampled companies had dividend cash payments higher than free cash flow.

Company Size is one of the major determinants of cash dividend payout. Larger sized firms have easier access to capital market. This reduces their rate of dependency on internally generated revenue and hence, fosters prompt payment of higher rate of dividend. Fama and French (2000) found out that payers and no payers differ in terms of profitability, investment opportunities and size. Three fundamentals were evident profitability, investment opportunity and size as the key factors in decision to pay dividends. Dividend players tend to be large, profitable firms with earnings on order of investment outlays. Small firms have no easy access to additional capital hence they retain a higher proportion of their earnings, while big firms pay high dividend to their shareholder than small firms. Young firms prefer to retain all internal resources and do not pay dividends.

Growth Opportunities of a firm determine the dividend payout ratio of a firm. Rapidly growing firms have a substantial need for funds to finance the abundance attractive investment opportunity instead of paying large amount as dividend and stand a chance of issuing new shares for investment capital. Firms with Higher dividend payout ratios tend to have low growth rates all things being equal.

Management Efficiency is an important aspect of corporate strategy. It refers to the manager ability to reduce cost. Corporate efficiency signifies a level of performance that describes a process that uses the lowest amount of inputs to create the greatest amount of output. In finance, the concept relates how well the Naira invested in alternative produces revenue to the firm. It is a measure that determines the present value of an investment. Management efficiency is determined by the quality of manpower, risk management and corporate strategy. Management efficiency encourages cost effectiveness and by extension increase in profitability and this can affect positively dividend policy of a quoted firm.

Transaction Costs of External Financing: A firm with a higher leverage has higher dependency on external finances. The smaller percentage of the company is held by outsiders, the higher the company's dividend payout. Dividend payout ratio is dependent on transactions of external financing, financial constraints created by the financial leverage and the agency cost of outside ownership. A highly leveraged firm pays low dividend to their shareholder due to cash flow obligations to their financiers.

Debt- to- Equity Ratio is a financial ratio that indicates the relative proportion of equity and debt used to finance a company's assets. This ratio is also known as risk, gearing or leverage. Some scholars have opined that risk affects firms' dividend policy. Firms with high growth rates and high dividend payout ratios utilize debt financing and firms with high leverage compared to their respective industry. However, conflicting evidence on the relationship between dividend payout ratios and leverage abound. In some industries payout and leverage ratios are positively related while in other industries the relationship is negative. There exist statistically significant and negative relationship between firm's risk and the dividend payout ratios. It is evident that firms having a higher level of risk will pay out dividends at lower rate. In summary, the literature review points out to the fact that corporate profitability, cash flow, tax, sales growth, market-to-book ratio, and debt-to-equity ratio may impact upon the dividend payout ratio. Previous researchers concentrated on the determinants of 'standard ratio of dividend to earnings, or the standard dividend payout ratio.

*Theoretical Framework*

Relevance Theory

Gordon (1962) stated that investors may prefer present dividend instead of future capital gains because the future situation is uncertain even if in perfect capital market. This theory further postulates that many investors may prefer dividend in hand in order to avoid risk related to future capital gain. Also in his work, he opined that there is a direct relationship between dividend policy and market value of share even if the internal rate of return and the required rate of return will be the same and that the share price of a firm is subordinate of discounted flow of future dividends. However, this theory may not be universally applicable as Diamond in 1967 selected 255 US based firms as a sample and studied the association of firm's value with dividends and retained earnings in 1961 and 1962; and reported that there is only weak evidence that investors prefer dividends to future capital gain. His findings also showed a negative association between growth of company and preference of dividend.

Bird in Hand Theory

The Gordon and Lintner (1959) bird-in-the-hand theory states that dividends are relevant. Those Investors have a preference for a certain level of income now rather than the prospect of a higher, but less certain, income at some time in the future. The bird-in-the-hand may sound familiar as it is taken from an old saying; a bird in the hand is worth two in the bush. In this theory the bird in the hand' is referring to dividends and the bush is referring to capital gains. They argued that investors value dividends more than capital gains when making decisions related to stocks. As a company increases its payout ratio, investors become concerned that the company's future capital gains will dissipate since the retained earnings that the company reinvests into the business will be less. The essence of the bird-in-the-hand theory of dividend policy is that shareholders are risk-averse and prefer to receive dividend payments rather than future capital gains. Shareholders consider dividend payments to be more certain that future capital gains thus a bird in the hand is worth more than two in the bush". Gordon contended that the payment of current dividends resolves investor uncertainty. Investors' value a Naira expected dividend more highly than a Naira expected capital gain because the dividend yields component is less risky than the expected return hence; it is believed that investors require and prefer high dividends to capital gains resulting to a generous dividend policy by a firm.

Tax Preference Theory

Taxes are important considerations for investors. This is because capital gains are taxed at a lower rate than dividends. This theory states that the reason why investors prefer low dividend payout to high payout as:

- Long term capital gained are less taxed as compared to dividend and
- Those taxes on capital gains are not paid unless the stock is sold.

*Signaling Hypothesis*

Dividends are information signals about the performance of a company which are necessary for the investors' decision making. It has been observed that the price of a firms stock generally rises when its dividend is increased and the price will fall when the dividend drops. Thus, firms are expected to raise dividends when the future earnings are expected to rise. This lead to the smoothening hypothesis of dividends by management which predicts that dividends are maintained at a constant rate and any increase are carried out rather cautiously by the firm to avoid significant dividend cuts even when the corporate earnings falls. This is because managers have better information of the firm's performance than the investors. However, some scholars argue that not all investors are the same as some regard dividend changes as a signal of management earnings forecasting. Therefore dividends act as a signal to investors on the current and future performance of the firm. Generally a rise in dividend payment is viewed as a positive signal, conveying positive information about a firm's future earnings prospects resulting in an increase in share price. Conversely a reduction in dividend payment is viewed as negative signal about future earnings prospects, resulting in a decrease in share price.

### Information Asymmetry and Dividend Signaling

This model was developed by Bhattacharya in 1979. The dividend signaling theory states that, a firm that increases its dividend payouts is signaling that it has expected future cash flows sufficient to meet expenses without increasing the probability of bankruptcy. Given information asymmetry as a market imperfection, the signaling concept of financial capital structure can be readily applied to dividend policy. Managers signal investors because financial managers have privileged information about the firm's expected cash flows that outside investors cannot know. This theory explains why firms pay dividends despite the apparent tax disadvantage. In Bhattacharya's (1979) dividend signaling model, investors believe that an unexpected dividend increase is a favorable signal. This assumes that the dividend contains information regarding firm value not conveyed in other public information, and that the dividend is a valid signal since it is expensive for less valuable firms to mimic. Then the signaling value of dividends is positive and can be traded off against the tax costs. The implication of such a dividend signaling model is that it suggests an optimal dividend policy where the signaling benefits of paying dividends offsets the tax disadvantages of paying dividends.

### Dividend Policy and Agency Costs

A wealth-maximizing firm will seek monitoring policies that minimize costs, and it is likely that dividend payments serve as a means of monitoring management performance. A greater dividend payment implies that the firm will need some costly external financing. Thus the fact that the firm must obtain external financing introduces outside suppliers of capital that help monitor management for the equity owners. Some rational firm would however propose an optimal dividend policy that is a trade-off between the flotation costs of raising external capital and the benefit of reduced agency costs. Several studies have shown that firms with higher growth potential have lower dividend payouts, while firms with diffuse outsider holdings have higher dividend payouts. Clearly, dividend policy is one way to reduce excessive cash from the firm, although Kahle (2002) indicates that share repurchases do not eliminate all agency costs.

### Dividend Relevance Theory

The Modigliani and Miller (1961) dividend-irrelevance theory says that investors can affect their return on a stock regardless of the stock's dividend. Investor could then buy more stock with the dividend that is over the investor's expectations. As such, the dividend is irrelevant to investors, and it can be further interpreted that investors care little about a company's dividend policy since they can simulate their own.

Their theory was built on a range of key assumptions, similar to those on which they based their theory of capital structure irrelevancy. Modigliani and Miller (1961) argue that the value of the firm in a perfect capital market depends only on the income produced by its assets not on how this income is split between dividends and the retained earnings. It is worthy of note here that in a Perfect Capital Markets, there are no taxes both corporate and personal taxes; no transaction costs on securities; investors are rational; information is symmetrical hence all investors have access to the same information and share the same expectations about the firm's future as its managers.

### Empirical Review

Kinfe (2011) investigated the factors determining dividend payout policy of banks in Ethiopia from 2006- 2010 using panel data set of their audited financial statement as a source of data and ordinary least square as a technique for data analysis. The finding reveal that the main characteristic of firm dividend payout policy were that dividend payment related strongly and directly to firm size and lagged dividend per share but negatively to liquidity ratio. However, the result further revealed that there is no relationship between profitability, leverage and growth with dividend payout. The study validates the use of panel data technique and the ordinary least square regression model as a tool appropriate to engage this study. The time scope is small and was conducted using the Ethiopia banking industry.

Hussainey, Mgbame and Mgbame (2011) examined the relationship between dividend policy and share price changes in the UK stock market. Multiple regression analyses were used to explore the association between share price changes and both dividend yield and dividend payout ratio. A positive relationship is found between dividend yield and dividend policy changes and a negative relation between dividend payout ratio and dividend policy changes. In addition, it is shown that a firm's growth rate, debt level, size and earnings explain dividend policy changes. The result of this study may not apply completely to the Nigerian environment.

Maniagi, Ondiek, Musiega, Maokomba, and Egessa (2013) examined the determinants among dividend payout of non-financial firms listed on Nairobi Securities Exchange. Dividend payout ratio was dependent variable while independent variables were profitability, Growth, current earnings, and liquidity. Size and business risk was taken as moderating variables. Return on equity current earnings and firms' growth activities were found to be positively correlated to dividend payout Business risk and size, both the two taken as moderating variables

increase the precision of significant variables from 95% to 99% hence among major determinants of dividend payout. Here again the result of this study may not fit properly to the Nigerian environment.

Dada (2015) evaluated the determinants of dividend policy of Nigerian banks. The study was based on panel data of selected Banks that are listed on the Nigerian Stock Exchange (NSE) having financial data for 2008 to 2013 that was covered in the study. The study revealed that Dividend payment is positively related with leverage, performance, corporate governance and last year dividend while it is negatively related with firm's liquidity. Most empirical studies on this subject in Nigeria bordered greatly on the Nigerian Banks. Just like others, this study was limited to the banking industry and its findings may not completely define what happens in other sectors of the economy such as the manufacturing industry.

King'wara (2015) investigated the determinants of dividend payout ratios in Kenya. He examined the effect of six factors including earnings of the firm, ratio of retained earnings to total assets, firm size, growth opportunities, leverage and market value on dividend policy. It was observed that dividend payout ratio is impacted negatively by the growth rate, debt ratios and firm size and positively by earnings, market-to-book ratio and retained earnings to total assets ratio. This study was done outside Nigeria and as such may not apply in the Nigerian situation.

Urhoghide and Ojeme (2016) examined the determinants of dividend payout by Nigerian quoted banks. They stated that they observed that dividend payout in the banking industry witnessed widespread drop during the 2008 financial melt-down and the 2011 bank reforms in Nigeria motivated this research. The study covered a period of seven years (2007 -2013) and the variables measured were liquidity, growth, leverage, profitability, firm size, and previous year's dividend with data collated from the final account of all the quoted banks in Nigeria. Panel data regression technique was used for the analysis of data and they reported that liquidity, firm size, profitability and the dividend paid in the previous year affected dividend payout positively, while growth and leverage in the capital structure affected it negatively. They recommended that firms and investors should consider the determinants of dividend payout in their dividend policy decision. This study like many others on this subject in Nigeria concentrated on the Banking industry.

## 3. Literature Gap

Existing literature on the subject (using the Nigerian business environment) has focused more on the banking industry, with limited studies of citable significance that incorporate other industries such as the manufacturing industry. Therefore this study examines the economic variables that affect dividend policy in the context of the Nigerian manufacturing industry.

The literature examined in this study did not investigate direction of causality between the independent and dependent variables that determine dividend policy. Studies that attempt to do so failed to establish exact and causal relationship between the variables (Anil and Kapoor, 2008; King'wara, 2015; Kinfe, 2011; Maniagiet at., 2013; Manigagi and El-Khoury, 2014, Ahmed et at, 2014).For this purpose, this study will enhance the analysis by establishing the causal dynamic relationship that exists between the independent and dependent variables and the extent to which it affect dividend policy of Nigeria quoted manufacturing firms. The existing studies also did not address the case of the developing financial market like Nigeria but dealt with the financial market of the developed countries where it is considered more perfect than in developing countries. In this study, we will examine the economic variables that determine dividend policy of Nigeria manufacturing firms.It is however note-worthy that this study will apply the Gordon relevance theory. Gordon found that dividend policy affects stocks even in the perfect capital market as opposed to irrelevance theory of Miller and Modigliani. He noted that investors may prefer present dividend instead of future capital gains because the future situation is uncertain even if in perfect capital market. Empirical evidence on dividend policy and capital structure has validated the relevance theory than the irrelevance. This is based on the fact that the assumptions of irrelevance theory such as the perfect market are not attainable most especially in the developing markets and the emerging financial markets like Nigeria.

## 4. Research Methodology

This study used quasi experimental research design approach and descriptive survey. The quasi experimental research design approach combines theoretical consideration (a prior criterion) with the empirical observation to extract maximum information from the available data. This study used published data for the 10 years period beginning from 2007 - 2016. The secondary data was obtained from the stock exchange fact-book, the Central Bank of Nigeria statistical bulletin (and other publications) and financial statement of the quoted firms. The population is the manufacturing concerns quoted in the Nigerian Stock Exchange. As at December 31, 2006; there were twenty five (25) publicly listed manufacturing concerns in Nigeria. There is however sixty three (63) publicly listed manufacturing concerns as at the end of October 2017 in Nigeria.

Apparently, 20 manufacturing firms that are listed on Nigeria Stock Exchange were used as our sample size. Panel data structure allows us to take into account the unobservable and constant heterogeneity, that is, the specific features of each quoted firm. The researcher also employed pooled Ordinary Least Square (OLS), Fixed Effects and Random Effects regression models to test the various hypotheses.

In addition, OLS method has been employed in a wide range of economic relationships with fairly satisfactory results. Fixed effects and random effects models will aid to observe variations among cross-sectional units simultaneously with variations within individual units over time. It assumes that variables are strictly time disparity or time invariant. This undermines an exploration of the effect of slow change within individual firms' factors. Hence, the rationale for adopting Fixed Effects and Random Effects models estimator as additional test was to enable the researcher control time contrast and time invariant variables, and thereby controls the effect of the unobserved heterogeneity in the dataset. It is worthy of note that, coefficient of estimations are reliable when regression parameters do not change over time and do not differ between various cross-sectional units, therefore, because the regression estimation differ widely between the two models (Fixed and Random Effects models), the Hausman test was adopted and the result formed the basis of the researcher's findings and recommendations. Panel data over the period from 2007 - 2016 was used. These analytical techniques enabled the researcher attain justifiable and robust results.

$$Y = \beta_0 + \beta_{1Xit} + \mu \quad \textbf{1}$$

Where Y = Dependent Variable

$\beta_{1Xit}$ = Independent variable

$\beta_0$ = Regression Intercept

$\mu$ = Error Term

Disaggregating Equation 3.1 to form the multiple regression models, we have

Model Specification

Pooled regression specification

$$DPR_{it} = \alpha o + \alpha_1 GOP_{1it} + \alpha_2 LIQ_{2it} + \alpha_3 ME_{3it} + \alpha_4 PL_{4it} + \alpha_5 CS_{5it} + \alpha_6 CC_{6it} + \alpha_7 DER_{7it} + \varepsilon 1_{it} \quad \textbf{2}$$

Fixed Effect Model Specification

$$DPR_{it} = \alpha o + \alpha_1 GOP_{1it} + \alpha_2 LIQ_{2it} + \alpha_3 ME_{3it} + \alpha_4 PL_{4it} + \alpha_5 CS_{5it} + \alpha_6 CC_{6it} + \alpha_7 DER_{7it} + \sum_i^9 = 1\, \alpha_i\, idum + \varepsilon 1_{it} \quad \textbf{3}$$

Random effect model specification

$$DPR_{it} = \alpha o + \alpha_1 GOP_{1it} + \alpha_2 LIQ_{2it} + \alpha_3 ME_{3it} + \alpha_4 PL_{4it} + \alpha_5 CS_{5it} + \alpha_6 CC_{6it} + \alpha_7 DER_{7it} + \mu i + \varepsilon 1_{it} \quad \textbf{4}$$

Where

DPR = Dividend Payout Rate

GOP = Growth opportunities measured by the percentage increase in stock turnover

LOQ = Liquidity measured by current asset less current liabilities

ME = Management Efficiency measured by Total Revenue to Total Expenditure

PL = Profit level measured by return on investment

CS = company size measured by total asset divided by total liabilities

CC = cost of capital using weighted average cost of capital

DER = debt equity ratio measured by total equity divided by total debt

et = Stochastic or disturbance/error term.

t = Time dimension of the variables

α 0 = Constant or intercept.

Table showing the proxy variables definition and expected result

| Proxy Variable | Definition | Expected Sign |
|---|---|---|
| Dividend Payout Ratio | DPS/EPS | Dependent Variable |
| Debt Equity Ratio | TD/TE | + |
| Company Size | LTA/TA | - |
| Return on Investment (Profitability) | PAT/TI | + |
| Growth Opportunity | % △ST | - |
| Liquidity | CA/CL | + |
| Cost of Capital | WACC | - |
| Management Efficiency | TR/TE | + |

## Estimation Techniques

### Panel unit root test result

The data were checked for the presence of unit root using the ADF Fisher Chi-Square and Philiperon Fisher Chi-Square, which is based on the well-known Dickey–Fuller procedure. The null hypothesis for these tests is that there is a presence of non-stationary series against the alternative hypothesis of stationary series. The unit root test is important because non-stationary series regression estimation leads to spurious regression estimations with the wrong magnitude and sign of the parameter of the regressors, with wrongly inferred implications. The study assumes an absence of a time trend; hence it is tested for stationarity allowing for constant only. Stationarity denotes the non existence of unit root. We shall therefore subject all the variables to unit root test using the augmented Dickey Fuller (ADF) test specified in Gujarati (2004) as follows.

$$\Delta y_t = \beta_1 + \beta_2 + \delta y_{t-1} + \alpha i \sum_{i-1}^{m} \Delta y_{t-1} + Et \quad \textbf{5}$$

**Where**:

$\Delta y_t$ = change time t

$\Delta y_{t-1}$ = the lagged value of the dependent variables

$\sum_t$ = White noise error term

If in the above $\delta$ =0, then we conclude that there is a unit root. Otherwise, there is no unit root, which means that it is stationary. The choice of lag will be determined by Akaike information criteria.

### Decision Rule

t-ADF (absolute value) > t-ADF (critical value) : Reject $H_o$ (otherwise accept $H_1$)

Note that each variable will have its own ADF test value. If the variables are stationary at level, then they are integrates of order zero i.e 1(0). The unit root problem earlier mentioned can be explained using the model:

$Y = Y_{t-1} + \mu_I$ **6**

Where Yt is the variable in question; $\mu_i$ is stochastic error term. Equation (a) is termed first order regression because we regress the value Y at time "t" on its value at time (t- 1). If the coefficient of $Y_{t-i}$ is equal to 1, then we have a unit root problem (non stationary situation). This means that if the regression.

$Y = Y_{t-1} + \mu_I$ **7**

Is run and L is found to be equal to 1 then the variable Yt has a unit root (random work in time series econometrics).If a time series has a unit root, the first difference of such time series are usually stationary. Therefore to salve the problem, take the first difference of the time series. The first difference operation is shown in the following model:

$\Delta Y = (L-1)\, Y_{t-1} + \mu_I$ **8**

$\delta Y_{t-1} + \mu_I$ **9**

(Note: $\delta$ =1-1= 0; where L =1; $\Delta Yt = Yt - Y_{t-i}$)

### Integrated Of Order 1 Or I(I)

Given that the original (random walk) series is differenced once and the differenced series becomes stationary, then the original series is said to be integrated of order I or I (1).

### Integrated of Order 2 Or I (2)

Given that the original series is differenced twice before it becomes stationary (the first difference of the first difference), then the original series is integrated of order 2 or 1(2).Therefore, given a time series has to be differenced Q times before becoming stationary it said to be integrated of order Q or I (q). Hence, non stationary time series are those that are integrated of order 1 or greater.The null hypothesis for the unit root is:

Ho: a = 1;

The alternative hypothesis is Hi: a <1.

We shall test the stationarity of our data using the ADF test.

### 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:

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

and

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

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 $\pi_1^x$ 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 $\pi_1^x$ and $dp_1^y$ are significant then causality is bi–directional.

## 5. Data Presentation, Analyses and Interpretations

*Presentation of Results*

Below are tables showing the results of the level series result, significance of the model (Hausman Test), Stability Test, Causality Test, and the Hypothesis Test.

Table 1: Presentation of Level Series Result

| Variable | Pooled Effect | | | Fixed effect | | | Random effect | | |
|---|---|---|---|---|---|---|---|---|---|
| | β coefficient | T. stat | p. value | β coefficient | T. stat | p. value | β coefficient | T. stat | p. value |
| GOP | -0.030499 | -0.182884 | 0.8551 | -0.009773 | -0.043160 | 0.9656 | -0.117053 | -0.569806 | 0.8550 |
| LIQ | 0.796832 | 3.299509 | 0.0004 | 1.544558 | 4.972520 | 0.0002 | 0.408731 | 1.117045 | 0.0050 |
| ME | 0.278481 | 4.802463 | 0.0000 | 0.113972 | 0.284487 | 0.7764 | 0.590341 | 0.631148 | 0.4229 |
| PL | -0.238385 | -0.683799 | 0.4950 | -0.080018 | -0.207835 | 0.8356 | -0.116753 | -0.008359 | 0.4946 |
| CS | 1.029037 | 4.526383 | 0.0000 | 2.301552 | 2.683141 | 0.0080 | 1.375980 | 2.551107 | 0.0003 |
| CC | -0.366100 | -3.490270 | 0.0079 | -0.364344 | -3.399826 | 0.0034 | -0.654290 | -2.094724 | 0.0075 |
| DER | -0.046870 | -0.537981 | 0.5912 | -0.021320 | -0.224931 | 0.8223 | -0.453289 | -0.692466 | 0.5909 |
| C | 44.10257 | 4.198639 | 0.0000 | 23.80438 | 1.886767 | 0.0609 | 34.76437 | 3.432767 | 0.0000 |
| $R^2$ | 0.443356 | | | 0.743071 | | | 0.343468 | | |
| Adj$R^2$ | 0.307158 | | | 0.408853 | | | 0.117158 | | |
| F-statistic | 3.197754 | | | 5.065960 | | | 1.568924 | | |
| F- Prob | 0.006071 | | | 0.000804 | | | 0.006071 | | |
| D W | 1.844330 | | | 2.000017 | | | 1.844330 | | |

Source: extract from E-view 9.0

From the table, the pooled effect model found that 44.33% and 30.7% variation on the dependent variable which is dividend payout ratio can be explained by variation on the independent variables. The F-statistics and the F-probability proved that the model is significant; the Durbin Watson statistics of 1.84 is less than 2.50 but greater than 2.00 which implies the absence of serial autocorrelation within the time series. The beta coefficient of the variables found that growth opportunities, profit level, cost of capital and debt equity ratio have negative effect on dividend policy while liquidity, management efficiency and cost of capital have positive effect on the dependent payout. The t-statistics and probability coefficient found that liquidity, management efficiency company size and cost of capital have significant impact on the dependent variable while growth opportunities, profit level and debt equity ratio have no significant impact on dividend payout rate of the manufacturing firms.

The fixed effect model found that the independent variables can explain 74.3% and 40.8% variation on the dependent variable. The F-statistics and the probability found that the model is statistically significant. The Durbin Watson statistics of 2.007 is greater than 2.00 but less than 2.00 which imply the absence of serial autocorrelation within the time series. While the beta coefficient also showed that liquidity, management efficiency, company size and cost of capital have significant impact on the dependent variable while growth opportunities, profit level and debt equity ratio have no significant impact on dividend payout rate of the manufacturing firms.

The results of the cross sectional random effect found that the independent variables can explain 34.3% and 11.7% variation on the dependent variable which is the dividend payout ratio, while the F-statistics and the F-probability found that the model is statistically not significant. The Durbin Watson statistics of 1.84 is less than 2.00 but greater than 1.50; this means the absence of serial autocorrelation within the time series. It shows that liquidity, management efficiency of the manufacturing firms.

Table 2: Testing the Significance of the Models

| **TEST: Redundant** | **CHI–SQ STAT** | **DF** | **PROB** |
|---|---|---|---|
| Cross-section F | 1.016650 | (19,166) | 0.4447 |
| Cross-section Chi-Square | 21.244787 | 19 | 0.3234 |
| **TEST: Hausman** | **CHI–SQ STAT** | **DF** | **PROB** |
| Cross-section random | 12.815882 | 7 | 0.0467 |

Source: Extract from E-view (9.0)

In testing the validity of the models, the fixed effects on the cross section Redundant Fixed Effect- Likelihood Ratio, the P- value is 0.000 indicating that the effects are significant. Select the random effect and perform the Correlated Random Effects- Hausman test, testing the random effects model against the fixed effects model. The null hypothesis in that case is that both tests are consistent estimators and the random effects model is efficient. Under the alternative hypothesis, only the fixed effect is consistent. Since the p- value is 0.000, the null hypothesis is rejected and, therefore, the fixed effects model is to be preferred.

Table 3: Test for Stability

| **Variables** | **ADF - Fisher Chi-square/ PP - Fisher Chi-square** | **Statistics** | **Probability** | **REMARK** | **DECISION** |
|---|---|---|---|---|---|
| DPR | ADF - Fisher Chi-square | 75.2451 | 0.0006 | Stationary | Reject H0 |
| | PP - Fisher Chi-square | 90.5138 | 0.0000 | Stationary | Reject H0 |
| DER | ADF - Fisher Chi-square | 73.4426 | 0.0010 | Stationary | Reject H0 |
| | PP - Fisher Chi-square | 178.549 | 0.0000 | Stationary | Reject H0 |
| CS | ADF - Fisher Chi-square | 62.9022 | 0.0119 | Stationary | Reject H0 |
| | PP - Fisher Chi-square | 88.9974 | 0.0000 | Stationary | Reject H0 |
| CC | ADF - Fisher Chi-square | 76.1090 | 0.0005 | Stationary | Reject H0 |
| | PP - Fisher Chi-square | 149.272 | 0.0000 | Stationary | Reject H0 |
| GOP | ADF - Fisher Chi-square | 52.0136 | 0.0066 | Stationary | Reject H0 |
| | PP - Fisher Chi-square | 70.7596 | 0.0019 | Stationary | Reject H0 |
| LIQ | ADF - Fisher Chi-square | 72.9358 | 0.0011 | Stationary | Reject H0 |
| | PP - Fisher Chi-square | 192.340 | 0.0000 | Stationary | Reject H0 |
| ME | ADF - Fisher Chi-square | 85.9849 | 0.0000 | Stationary | Reject H0 |
| | PP - Fisher Chi-square | 237.332 | 0.0000 | Stationary | Reject H0 |
| PL | ADF - Fisher Chi-square | 78.0410 | 0.0003 | Stationary | Reject H0 |
| | PP - Fisher Chi-square | 132.574 | 0.0000 | Stationary | Reject H0 |

Source: Extract from E-view 9.0

The table above presents the summary results of the ADF and PP panel unit root tests. The results show that the null hypotheses of a unit root test for first difference series for all the variables can be rejected at all the critical values indicating that the level series which is largely time-dependent and non-stationary can be made stationary at the first difference and maximum lag of one. Thus, the reduced form model follows an integrating

order of 1(1) process and is therefore a stationary process. It also reveals that the test of stability in the residuals from the level series regression is significant at all lags. Furthermore, this indicates that the regression is no more spurious but real. That is to say, all the variables are individually stationary and stable.

Table 4: Test for Causality

| Hypotheses | Obs | F. Stat | Prob. | DECISION |
|---|---|---|---|---|
| GOP does not Granger Cause DPR | 154 | 3.99117 | 0.0002 | Reject H0 |
| DPR does not Granger Cause GOP | | 1.88558 | 0.1553 | Accept H0 |
| LIQ does not Granger Cause DPR | 160 | 0.10405 | 0.9012 | Accept H0 |
| DPR does not Granger Cause LIQ | | 2.74547 | 0.0373 | Reject H0 |
| ME does not Granger Cause DPR | 160 | 1.29596 | 0.2766 | Accept H0 |
| DPR does not Granger Cause ME | | 2.28507 | 0.0052 | Reject H0 |
| PL does not Granger Cause DPR | 146 | 0.52234 | 0.5943 | Accept H0 |
| DPR does not Granger Cause PL | | 1.33544 | 0.2663 | Accept H0 |
| CS does not Granger Cause DPR | 160 | 1.29760 | 0.2761 | Accept H0 |
| CC does not Granger Cause DPR | 160 | 4.67673 | 0.0004 | Reject H0 |
| DPR does not Granger Cause CC | | 0.79315 | 0.4542 | Accept H0 |
| DER does not Granger Cause DPR | 160 | 0.41274 | 0.6626 | Accept H0 |
| DPR does not Granger Cause DER | | 3.61125 | 0.0293 | Reject H0 |

Source: extract from E-view 9.0

The objective of causality test is to examine if past variation on the variables can affect significantly the present condition. The study found that there is one way relationship between growth opportunity and dividend payout ratio but no causality between dividend payout ratio and growth opportunity. Liquidity granger cause dividend payout ratio but dividend payout ratio does not granger cause liquidity this implies acceptance of null hypotheses. Management efficiency does not granger cause dividend payout ratio but dividend payout ratio granger cause management efficiency. Profit level does not granger cause dividend payout ratio and dividend payout ratio does not granger cause profit level. Company size granger cause dividend payout ratio but dividend payout ratio does not granger cause company size. Cost of capital does not granger cause dividend payout ratio and dividend payout ratio does not granger cause cost of capital. Debt equity ratio grangers cause dividend payout ratio and dividend payout ratio granger cause debt equity ratio.

*Test of Hypotheses*

Table 5 :Showing the Test of Hypotheses and Results

| Variables | T-TEST | P-Value | CRITICAL VALUE | DECISION |
|---|---|---|---|---|
| GOP | -0.043160 | 0.9656 | 0.965>0.05 | Accept $H_0$ |
| LIQ | 4.972520 | 0.0002 | 0.0002<0.05 | Reject $H_0$ |
| ME | 0.284487 | 0.7764 | 0.7764>0.05 | Accept $H_0$ |
| PL | -0.207835 | 0.8356 | 0.8356>0.05 | Accept $H_0$ |
| CS | 2.683141 | 0.0080 | 0.0080<0.05 | Reject $H_0$ |
| CC | -3.399826 | 0.0034 | 0.0034<0.05 | Reject $H_0$ |
| DER | -0.224931 | 0.8223 | 0.8223> 0.05 | Accept $H_0$ |

Source: Computed by researcher from E-view 9.0

Table 6: Cross-Sectional Fixed Effect for Individual Firm

| S/N | Company | Coefficient |
|---|---|---|
| 1 | Champion breweries | 7.638369 |
| 2 | seven up bottling company | 2.885348 |
| 3 | Ashaka cement | 2.806344 |
| 4 | Cadbury | -3.388142 |
| 5 | UAC | 3.275649 |
| 6 | EVANS MEDICAL | 4.668036 |

| | | |
|---|---|---|
| 7 | PABOD BREWERIES | -0.239920 |
| 8 | FLOOR MILLS | -5.071780 |
| 9 | GUINNESS | -1.018345 |
| 10 | GLAXO | 0.716166 |
| 11 | LAFARAGE | 1.240728 |
| 12 | MAY and BAKER | -2.405355 |
| 13 | NESTLE | 1.744464 |
| 14 | NIGERIA BAG | -0.822705 |
| 15 | NIGERIA ROPES | 1.113366 |
| 16 | NIGERIA BREWERIES | 0.442032 |
| 17 | PZ CUSHION | 1.543388 |
| 18 | UNILEVER | -7.485542 |
| 19 | UNIVERSITY PRESS | -4.962050 |
| 20 | VITA FOAM | -3.027725 |

Source: extract from e-view 9.0

Coefficient from the individual companies shows that, champion breweries, seven up bottling company, Ashaka cement, UAC, Evans Medical, Glaxo, Lafarage, Nestle, Nigerian ropes and Nigerian breweries and PZ cushion have positive coefficient while Cadbury, pabod breweries, flour mills, Guinness, May and Baker Nigerian bags, Unilever, University press and Vita foam have negative effect. This implies that an increase in the independent variables on champion breweries, seven up bottling company, Ashaka cement, UAC, Evans Medical, Glaxo, Lafarage, Nestle, Nigerian ropes and Nigerian breweries and PZ cushion will have positive effect on their dividend payout ratio; while such increase will have a negative effect on the dividend payout ratio of Cadbury, pabod breweries, flour mills, Guinness, May and Baker Nigerian bags, Unilever, University press and Vita foam

## 6. Discussion of Findings

The objective of this study was to investigate economic variables that determine dividend policy of selected quoted manufacturing firms in Nigeria. After a cross examination of the validity of the models, the fixed effect model was adopted therefore discussion of this result is based on the fixed effect result.

Findings reveal that growth opportunities have negative and insignificant effect on the dividend policy of the manufacturing firms. This is not too surprising, as a company that has opportunity for growth is expected to retain more of its earnings for reinvestment on the growth areas rather than engaging in such growth venture with external funding. The negative effect of growth opportunity on dividend payout rate confirms the a priori expectation of the result. Growth companies have little incentive for dividend payout as the policy is geared toward reinvestment of the profits for better growth opportunity and greater future yield.

The study found that liquidity has positive and significant impact on dividend policy of the selected manufacturing firms. This finding confirms the expectation of the results and implies that management of the manufacturing firm has optimum liquidity management policy that increases the investment of the firms and also made the company meet its short term liabilities. It confirms the findings of Jensen et al. (1992), Rozeff (1982) and Easterbrook (1984). These scholars argued that companies liquidity have to pay higher dividends in order to reduce the agency conflict between managers and shareholders. The result shows that liquidity is a major determinant of dividend payout rate.

Management efficiency has positive but insignificant effect on dividend policy of the manufacturing firms. It implies that increase in management efficiency will increase dividend payment but not to a large extent. Management efficiency which measures the percentage of total costs to total revenue is expected to have a positive impact on dividend policy. The positive impact of management efficiency on dividend payout rate confirm and validates the empirical findings of Anyamaobi and Lucky (2017).The positive impact implies that management of the manufacturing firms are cost efficient, however the insignificant impact of the variables can be traced to high cost of operation and high operating leverage.

Company size have positive and significant impact on the profitability of the quoted manufacturing firms, this implies that increase in corporate size will significantly lead to increase on dividend policy of the quoted manufacturing firms. Again it can be understood that the bigger companies would want to operate a consistent dividend policy so as to maintain their goodwill and reputation. This decision also could assist them in wooing investors and stabilize the company share price at the capital market. The positive impact of corporate size implies a major determinant of dividend policy which is consistent with the findings of Fama and French (2001) that the probability of paying dividends increases with the firm size. Larger firms pay higher cash dividends for several reasons. First, large firms face high agency cost as a result of ownership dispersion. Secondly, large

firms have easier access to capital markets, and they are able to raise funds with lower issuance costs for external financing. Consequently, large firms are better able to pay dividend than small firms.

Cost of capital was found to have a negative impact on dividend payout ratio of the manufacturing firms. The negative impact of costs of capital confirms the expected result as cost of capital normally will bring the profit level down. The negative impact of cost of capital confirms the a-priori expectation of the result but invalidates the trade-off theory and market timing theory of capital structure. According to Pandey (2005), increase cost of capital exposes corporate organizations to financial risk such as leverage risk and credit risk. The negative impact on dividend payout rate implies that the companies are highly levered or have more debt than equity in the capital structure. It also implies that significant proportion of the company profits is used to settle external creditors than dividend payout rate.

Profit level was found to have a negative impact on dividend payout ratio of the manufacturing firms. The negative impact of profitability on dividend payout rate is contrary to the expectation of the result as profitability is expected to have a positive impact on dividend payout rate. The negative impact validates the findings of Okpara (2010), which concluded that when firms experience surplus earnings, they allocate most of them into retention for the plugging back and growth of the firm. Furthermore, Ferris, et al., (2013) found that firms in the United Kingdom pay dividends while they had negative earnings. The studies of Baker and Powell (2000), Aivizian et al., (2003) and Amindu and Abor (2006) also confirm this finding. The study found that corporate size and management efficiency have positive but insignificant impact on dividend payout rate. Debt equity ratio has significant impact on dividend payout rate. The positive impact of debt equity ratio on dividend payout rate implies that debt equity ratio have significant impact in determining dividend policy of the firm. The finding confirms and validates corporate strategies for optimal capital combination. The coefficient shows that company like champion breweries can add 7.6%, seven up can add 2.8% while ashaka cement will add 2.8% to achieve a positive impact on their dividend payout regime; while Cadbury will reduce the pooled coefficient by 3.38% to achieve same. This is contrary to expectation and can be blamed on dividend policy of the companies.

## 7. Conclusion

Dividend policy has been one of the areas of corporate finance that has attracted more works of empirical and theoretical research. This study was based on identifying the determinants of dividend policy of selected quoted manufacturing firms in Nigeria and applied Ordinary Least Square Regression Model, where the dependent variable was dividend payout ratio. In the researcher's opinion, distribution of profit in the form of dividends may have a mediating function of conflicts between investors and managers; it is a way of signaling the market and attracts investors.

## 8. Recommendation

In view of the findings of this research, the following recommendations are advanced.

- The manufacturing firms should formulate policies and device strategies of increasing profit level and the structure of corporate assets should be integrated with the objective of dividend policy and liquid asset of the firm should be optimal; this implies that the companies should not be too liquid because liquid assets such as cash do not add any profit to the firm and corporate tax should be integrated with the objective of dividend policy.
- Management of the manufacturing firms should ensure that adequate policies are formulated for the growth of the firms and the company size should be properly managed to achieve the objective of shareholders wealth maximization through dividend policy and all strategies should be devised to increase management efficiency by reducing operating cost as this will enhance profitability and dividend policy. This can be achieved by engaging the services of cost management accountants to study the operating system and develop strategies necessary to bring cost below the budget.
- The finance manager should ensure optimal capital combination and ensure lower cost of capital to enhance dividend policy and there is need to reduce risk both internal and external within the company's operating environment, all corporate governance codes should be properly articulated and adhered to and management should ensure that corporate governance is integrated as corporate philosophy of the manufacturing firms.
- Government should ensure hitch free environment for the manufacturing firms to operate that will encourage them to be more favourably disposed to dividend growth of their firm and managers/consultants should carefully examine the economic factors within a firm's operating environment in carrying out the function of developing or designing dividend policy for the firm or client.

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