

Research article

# Dividend Payout Policy Determinants of Selected Listed Brewery Firms in Nigeria: A Meta-Analysis (2000 – 2013).

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## Abstract

The research examines the effects, causalities, cointegration, magnitude and strength of the relationships between dividend pay-out policies and other performance indicators in the Nigeria brewery sector. The research made use of secondary data obtained from annual report and accounts of the two market leaders in the sector, Nigeria Breweries Plc and Guinness Nigeria Plc, from year 2000 to 2013. The nature and magnitude of association between the dependent variable (DPS) and the independent variables were determined using the multiple regression model. Granger causality procedure was applied to determine causalities while Johansen Cointegration test was administered to verify sustainability of the short run relationships. The Augmented Dickey Fuller (ADF), Phillip-Perron's (PP) and Kwiatkowski-Phillip's-Schmidt-Shin(KPSS) tests were conducted on the data series. All the data series were found non-stationary but attained stationarity at first difference. Dividend Per Share(DPS) was found to be positively and significantly influenced by Earnings Per Share(EPS) and Market Price of Equity Shares(MPS), while Net Asset Value Per Share(NAVPS) and Total Assets(TA) exert a negative but insignificant influence on DPS. Retained Earnings(RETN) has a positive but insignificant effect on DPS. There is a strong relationship between DPS and EPS (68.4%), MPS (73.3%) and NAVPS (70%). There is a unidirectional granger causality running from NAVPS to DPS and also from DPS to MPS. The trace test result affirms the sustainability of these outcomes. In line with the signaling theory and consistent with the findings, it is implied that directors should strive to improve on net earnings and also closely monitor the determinants of share price movements in order to enhance share price as a determinant of dividend pay-out. **Copyright © FEARJ, all rights reserved.**

**Keywords:** Dividend, Total Assets, Earnings, Brewery, Cointegration, Correlations, Causality.

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## 1.0 Introduction

Dividend could be viewed as the share of profit of a firm by the stockholders on a pro rata basis that is determined by number of shares held by each shareholder. In some firms, several statutory deductions are made before the residue of the profit is appropriated to the ordinary members of the company. Declaration of proposed dividend by the directors at the Annual General Meeting is expected to serve as an indication that the firm is healthy and capable of sustaining and improving upon the current level of financial performance at both short and long run. This view is supported by the signaling theory.

To determine the proportion of net earnings to appropriate to shareholders as dividend is a major challenge faced by firms because of the alternative uses of such earnings. Nuredin (2012) stated that firms are faced with dilemma of sharing dividend to stockholders and retaining their earnings with a view to reinvesting it into the business so as to promote further growth. Retaining such earnings and reinvesting it for growth and expansion may seem to be a better option. However, dividend could be a means of financial performance red flag especially to investors who need to be assured that the future of the firm is bright and promises enhanced return on investment.

The onerous task on the side of the Directors as shareholders' fund managers is to be able to strike a balance between the proportion of net earnings to retain for investment purposes and the amount of earnings to appropriate as dividend to shareholders. The dividend policy is set to encourage retention for investment and at the same time, it canvasses for dividend pay-out. This is because, it is widely believed, against the position of Miller and Modigliani (1961), that payment of dividend to shareholders has a signaling and multiplier effect of pushing up the share price; though reducing available cash for investment.

There are other reasons as suggested by Gill, Biger and Tibrewala (2010) why dividend should be paid such as (i) dividends provide certainty about the company's financial well-being, (ii) dividends are attractive for investors looking to secure current income, and (iii) dividends help maintain market price of the share. This scenario might have informed Finnerty's (1986) advice that firms should establish its dividend policy with a view to maximizing shareholders wealth, set its pay-out policy to keep with its investment opportunities and internal funds need, taking cognizance of the relative preferences of its shareholders for capital gains and dividends; liquidity preferences and the relative costs to the firm and to shareholders of selling shares to meet socio-economic needs when there is no dividend; and legal or policy restrictions on substantial shareholders that may create a preference for dividend income.

The conventional wisdom is that a properly managed dividend policy had an impact on share prices and shareholders' wealth (Gill, Biger and Tibrewala, 2010). Nwidobie (2013) is of the opinion that the higher these dividends, the satisfied are these owners who see such financial investments as rewarding, and thus attractive to non-owners to invest in; as payment of the reward, dividend, signals good prospects for firms. He stated, while citing Park (2009) that dividend payments are associated with firms with good corporate governance, concluding that firms in "legal regimes that focus on protecting investors are more likely to pay" even "higher dividends than firms in legal regimes with less investor protection".

The survival of the brewery industry, which is one of the oldest economic institutions in Nigeria, is crucial to the growth and development of Nigerian economy considering its contribution to Gross Domestic Product. Inyiama (2014) while citing Okwo, Ugwunta and Agu (2012), stated that the industry contributes about a quarter of Manufactured Value Added in Nigeria. The industry has about four listed firms, amongst others, which produce beer and other non-alcoholic drinks in very large scale, namely Nigerian Breweries Plc, Guinness Nigeria Plc, Champion Breweries Plc and International Breweries Plc and which their ordinary shares are actively traded on the floor of

Nigerian Stock Exchange; at present. The industry is a capital intensive one as a result of the peculiar nature of the production lines and processes that is continuous; as well as in chain, requiring automation.

Consequently, the aim of this study is to examine the determining factors or financial performance indicators that tend to influence dividend pay-out decisions of listed firms in the Nigeria brewery industry. The study considers the nature and magnitude of the relationship between components of dividend payout policies and other indicators as well as the sustainability of such effects and associations in the long term. The rest of the research paper is organized into four sections as follows: Section 2 reviews existing literature in the area of study, section 3 enlists the methodology applied for analysis, section 4 discusses the empirical results/findings while section 5 summarizes and concludes.

## **2.0 Review of Related Literature**

### **• Theoretical Framework**

Dividend pay-out policy has an enlarged theoretical underpinning such as the bird-in-hand theory by Gordon (1959), dividend irrelevancy theory by Miller and Modigliani (1961), life cycle theory of dividends by Mueller (1972), agency theory by Jensen and Meckling (1976) and the signaling theory by Ross (1977).

The bird-in-hand theory argues that cash dividend received now, reduces the risk associated with the uncertainty surrounding deferred income; in form of capital gain. Hence, investors may prefer to purchase shares of companies with track record of dividend pay-out than companies that retain heavily for growth and expansion. The dividend irrelevancy theory opines that in a perfect market with independence of investment and dividend policies, perfect capital market information, no taxes, no agency, contracting, transaction or flotation costs, and complete market, dividend pay-outs may not influence firm value. In this scenario, investors create dividend by disposing their shares and usually at a minimal or no costs; thereby making dividend pay-out policy very irrelevant and unattractive.

The signaling theory by Ross (1977), who created a theoretical model, had its root from the information asymmetry existing between managers as fund users and shareholders as fund providers. The theory assumes that managers have access to more information relating to the value of the firm's assets than other outside agents and investors. Therefore managers seek to use dividend pay-out policies to signal to the shareholders about the financial performance of their firms. In addition, the firms could also reveal the strategies adopted in pursuing their vision and attaining their mission.

The life cycle theory of dividends by Mueller (1972) argued that a firm has a relatively well-defined life cycle, which is fundamental to the firm life cycle theory of dividends. However, as firms develop and age through its' life cycle, they tend to alter the dividend policy depending on the financial demands of a particular stage. By implication, firms at their early stages of growth are likely to retain more earnings for expansion, thereby paying lesser dividend than older firms. More matured and older firms are likely to pay more dividends as growth opportunities would have dwindled. Agency relationship is defined by Jensen and Meckling (1976) a contract under which one or more persons (the principal(s)) engage another person (the agent) to perform some service on their behalf which involves delegating some decision making authority to the agent. The theory stated that dividends act as a protection for investors because dividends reduce the excess cash available to managers after investment and operational activities.

### **• Empirical Review**

Adopting a mixed research approach, Nuredin (2012) undertook a study seeking to find the determinants of dividend policy such as profitability, growth, liquidity, size and leverage of insurance companies in Ethiopia, using panel data and an in-depth interview. The results show that profitability and liquidity positively and significantly influence

dividend policy of insurance companies in Ethiopia, whereas growth influences dividend policy negatively and significantly. Size and leverage were found to be insignificant in influencing the dividend policy of insurance companies in Ethiopia.

In a related study by Nwidobie (2013), he applied the multiple regression equation model to identify dividend policy determinants of quoted firms in Nigeria and found that solutions to agency problems' past dissatisfactory behaviors of shareholders is not a determinant of current and future dividend decisions. The study reveals that there exists an inverse relationship between the needs and desires of shareholders and the naira dividend paid by the firms, implying that dividend policies of quoted firms in Nigeria are not aimed at solving the existing agency problems in these firms.

Kowalewski, Stetsyuk and Talavera (2007) explored the determinants of the dividend policy in Poland, examining whether corporate governance practices determine the dividend policy in the non-financial companies listed on Warsaw Stock Exchange. The results suggest that large and more profitable companies have a higher dividend payout ratio. The other way round, concentrated share ownership as well as the deviation from the one-share-one-vote principle leads to a reduction of the payout dividend ratio, suggesting that dividends may signal the severity of conflicts between controlling owners and minority shareholders. The study found support for the free cash flow hypothesis implying that dividends in Poland have less of a signaling role than in the developed capital markets.

Gill, Biger and Tibrewala (2010) explored the determinants of dividend payout ratios for the American service and manufacturing firms. They found that dividend payout ratio is the function of profit margin, sales growth, debt-to-equity ratio, and tax. However, for firms in the Services industry, the dividend payout ratio is the function of profit margin, sales growth, and debt-to-equity ratio and for manufacturing firms, it was found that dividend payout ratio is the function of profit margin, tax, and market-to-book ratio.

The relationship between profitability and dividend payout in Korean banks during 1994 – 2005 was examined by Lee (2009) using panel data. He found that the banks with higher profitability or performance pay more dividends and very strong, significant, and consistent evidences that the safer banks pay more dividends.

Bank profitability, growth, and size were measured by Zaman (2013), using multiple regression and correlation, as potential determinants of dividend policy in Dhaka Stock Exchange of Bangladesh. The study reveals that while profitability appears to be a better determinant of bank dividend policy than a bank's growth and size, it may not be concluded that profitability alone is a strong indicator of bank dividend policy over time in the capital market of Bangladesh.

Alzomaia, and Al-Khadhiri (2013) examined the factors determining dividend represented by Dividends per share for non- financial companies in the Saudi Arabia stock exchanges (TASI), applying regression model and using panel data. The impact of Earnings per share (EPS), Previous Dividends represented by dividends per share for last year, Growth, Debt to Equity (D/E) ratio, Beta and Capital Size on Dividends per Share was considered. It was revealed that Saudi listed non-financial firms rely on current earnings per share and past dividend per share of the company to set their dividend payments.

The relationship between a number of company selected factors such as free cash flow, growth, leverage, profit, risk and size and the companies' dividend payout ratios were examined by Hellström and Inagambae (2012) using both an Ordinary least square (OLS) and a Tobit regression. Previous studies were reviewed as well as dividend theories in order to conclude which factors that potentially could have an impact on the companies' dividend payout ratios. The dividend payout ratios of large caps were found to have a significant relationship with free cash flow,

growth and risk, while the dividend payout ratios of medium caps have a significant relationship with free cash flow, leverage, risk and size.

Abu (2012) constructed an empirical model for selected commercial banks in Bangladesh which led to recommendations that further developed the dividend payout policy for banks and other industry listed in Dhaka and Chittagong Stock Exchange (DSE & CSE). The results reveal that current earnings and liquidity has potential roles for firms to determine payout policy. In an attempt to contribute to solving the dividend puzzle, Moscu (2010) carried out a study to determine the dividend policies for 209 companies listed on London Stock Exchange and Paris Stock Exchange in 2010 and to explain their dividend payment behavior. He estimated some models to examine the impact of firm profitability, return on assets, firm size, previous year's dividend, free cash-flow, total shareholder return, corporate tax, dividend yield and ownership structure on dividend payout ratios. The results show that UK companies pay high dividends if ownership is a more dispersed one and cash from basic activity (free cash flow) is enough to be allocated to equity holders. In France, the determinants of dividend policy were found to be earnings per share, dividend from the previous year and indebtedness.

The study of AL- Shubiri (2011) was aimed at determining the dividend policies of the 60 industrial firms listed on the Amman stock exchanges (ASE) for the period of 2005-2009, and to explain their dividend payment behavior. The study used the tobit regression analysis, and logit regression analysis, and hence the random effects tobit/logit models were found more favorable than the pooled models. It was revealed that the dividend policy in Jordan as a developing country is influenced by factors similar to those relating to developed countries like Nigeria.

Factors that motivate the dividend policy among the cement industry in Karachi Stock exchange and State bank of Pakistan was explored by Islam, Aamir, Ahmad and Saeed (2012). It was found that PE ratio, EPS growth and sale growth are positively associated with the dividend payout while profitability and debt to equity were found to have negative association with dividend payout.

An investigation of the factors that determine the dividend payout policy in the Lebanese banks listed on the Beirut Stock Exchange, which included profitability, liquidity, leverage, firm size, growth, firm risk and previous year's dividend payout, was carried out by Maladjian and Houry (2014). Using OLS and the dynamic panel regressions, it was found that the dividend payout policies are positively affected by the firm size, risk and previous year's dividends, but are negatively affected by the opportunity growth and profitability. This implies that firms pay dividends with the intention of reducing the agency conflicts and that Lebanese listed firms prefer to invest their earnings to grow rather than to pay more dividends.

Arif and Akbar (2013) made an attempt to evaluate profitability, size, tax, investment opportunities and life cycle stage of firm as determinants of dividend policy in non-financial and sub sectors of non-financial sector of Pakistan. Using panel data and regression analysis, it was revealed that profitability, tax, size and investment opportunities are the most influential determinants of dividend policy.

Collins, Saxena and Wansley (1996) examined the role of insiders in determining dividend policy for unregulated firms, utilities, and financial-services firms. The researchers developed a regression model that addresses whether the role of regulators and insiders are substitutes or complements for utilities and financial-services firms. It was revealed that fundamental differences in the relationship between insider holdings and dividend policy for unregulated firms and utilities actually exist, but suggest that the regulatory environment enhances -- rather than mitigates -- the importance of the insiders' role for utilities. The financial-services firms, do not support the

hypothesis that increased equity risk through fixed-rate deposit insurance enhances the role of insiders when determining dividend policy.

Adopting dividend model of Lintner (1956), Ahmed and Javid (2008) examined the dynamics and determinants of dividend payout policy of 320 non financial firms listed in Karachi Stock Exchange. The outcome of the analysis reveals that Pakistani listed non-financial firms depend on both current earning per share and past dividend per share to set their dividend payments. Though, dividend tends to be more sensitive to current earnings than prior dividends. It was also revealed that profitable firms with more stable net earnings can afford larger free cash flows and therefore pay larger dividends, while ownership concentration and market liquidity also have positive impact on dividend payout policy. Investment opportunities and leverage, capitalization and size of the firms exert negative impact on dividend payout policy.

Using a panel dataset of non-financial firms listed on the GCC country stock exchanges and a series of random effect Tobit models, Al-Kuwari (2009) investigates the determinants of dividend policies. Impact of government ownership, free cash flow, firm size, growth rate, growth opportunity, business risk, and firm profitability on dividend payout ratios were among the factors considered. It was revealed that the main characteristics of firm dividend payout policy were that dividend payments related strongly and directly to government ownership, firm size and firm profitability, but negatively to the leverage ratio. This implies that firms pay dividends with the intention of reducing the agency problem and maintaining firm reputation, since the legal protection for outside shareholders was limited.

Musiega, Alala, Musiega, Maokomba and Egessa (2013) examined the determinants among dividend payout of non-financial firms listed on Nairobi Securities Exchange which included profitability, growth, current earnings, liquidity, size and business risk. Using purposive sampling technique for sample selection of 30 non-financial companies and descriptive statistics and multiple regressions for analysis, it was found that return on equity, current earnings and firms' growth activities were positively correlated to dividend payout. Business risk and size were found to be among the major determinants of dividend payout.

An exploration of the determinants of the dividend policy of firms in the Japanese electrical appliances industry was conducted by Tsuji (2010). The research outcome reveals that corporate managers do not cater for investors' demands in both their dividend initiation and continuation decisions. The determinants of firm's dividend policies in the Japanese electrical appliances industry are value-weighted dividend yields, value weighted non-payers' size, and value-weighted after-tax earnings-to-total-asset ratios. It further reveals that dividend payments tend to decrease company earnings in the Japanese electrical appliances industry in contravention of the traditional signaling hypothesis.

Uwuigbe (2013) investigated the determinants of dividends policy in the Nigerian stock exchange market; using the judgmental sampling technique and regression analysis method.. The variables considered as determinants were financial performance of firms, firm size, financial leverage and board independence. The analysis reveals that there is a significant positive relationship between firms' financial performance, size of firms and board independence on the dividend payouts decisions of listed firms in Nigeria.

### **3.0 Methodology**

- **Data**

Annual data was obtained for market price of shares, total assets, retained earnings, net asset value per share and dividend per share from annual report and accounts of Nigerian Breweries Plc and Guinness Breweries Plc. The two companies were chosen for this study considering their position as market leaders in terms of product brands, total

assets, sales volume, branches and areas of coverage. Total assets and retained earnings were logged to reduce size effects in the analysis.

**Table 1: Description of Variables**

Title	Acronym	Mathematical Representation
Dividend Per Share	DPS	Proposed Dividend /Outstanding Shares
Market Price of Share	MPS	Share Price at Year end
Total Assets (Size)	LogTA	Fixed and Current Assets (logged value)
Net Asset Value Per Share	NAVPS	Net Asset/Outstanding Shares
Retained Earnings	LogRE	Net Earnings-Proposed Dividend
Earnings Per Share	EPS	Net Earnings/Outstanding Shares

Source: Author's Arrangement.

- **Technique and Procedure of Analysis**

1. The Graphical representations reveal the movements in the value of the variables during the period of the study.
2. The descriptive statistics indicate the values of measures of central tendency as well as the Durbin Watson, skewness, kurtosis and Jacque bera statistic of the variables.
3. Unit root test of time series data exhibits the order of stationarity of the series.
4. The coefficient of regression analysis at firm and industry levels exposes the nature and magnitude of the relationships of the variables.
5. The model summary tests the fitness of the multiple regression model for the analysis.
6. Coefficient of correlations establishes the strength of the relationship.
7. Granger Causality Test emphasis the cause and effect of each variable on the other variable.
8. Johansen Cointegration test confirms the sustainability of the short run interactions in the long run.

- **Model Specification**

The multiple regression (prediction) model is statistically written as,

$$DPS_t = \beta_0 + \beta_1 EPS_t + \beta_2 NAVPS_t + \beta_3 LogTA_t + \beta_4 LogRE_t + \beta_5 MPS_t + e_t \dots \dots (1)$$

Where,

- DPS = Dividend Per Share
- EPS = Earnings Per Share
- NAVPS = Net Asset Value Per Share
- LogTA = Log of Total Assets
- LogRE = Log of Retained Earnings
- MPS = Market Price of Shares
- $\beta_0$  = coefficient (constant) to be estimated

$\beta_1 - \beta_5$  = parameters of the independent variables to be estimated  
 t = current period  
 e = stochastic disturbance (error) term

#### 4.0 Discussion of Findings

The model summary indicates that the data representing the variables fits well into the regression model estimated for the analysis. This conclusion is based on the  $R^2$  value of (0.700), F- value of (10.266) and P-value of (0.000a) which implies significance at 0.05. When the value of  $R^2$  is higher than 0.60 (60%), it depicts that data is fitted reasonably well.

**Table 2: Model Summary**

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Change Statistics				
					R Square Change	F Change	df1	df2	Sig. F Change
1	.837 <sup>a</sup>	.700	.632	1.81558	.700	10.266	5	22	.000

a. Predictors: (Constant), logta, eps, mps, logretn, navps

b. Dependent Variable: dps

• **Pattern of Movement of Study Variables – Nigeria Breweries Plc**

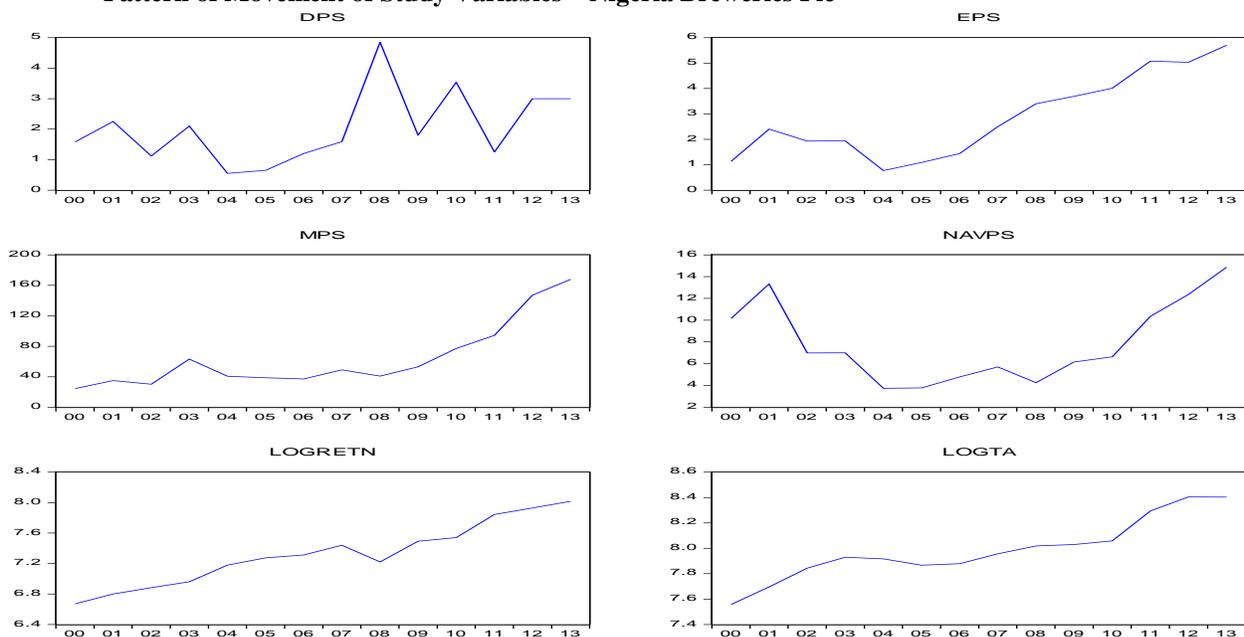


Figure 1: Graphical Representation of the Variables in Nigeria Breweries Plc

Source: Author's EView 8.0 Output.

• Pattern of Movement of Study Variables –Guinness Nigeria Plc

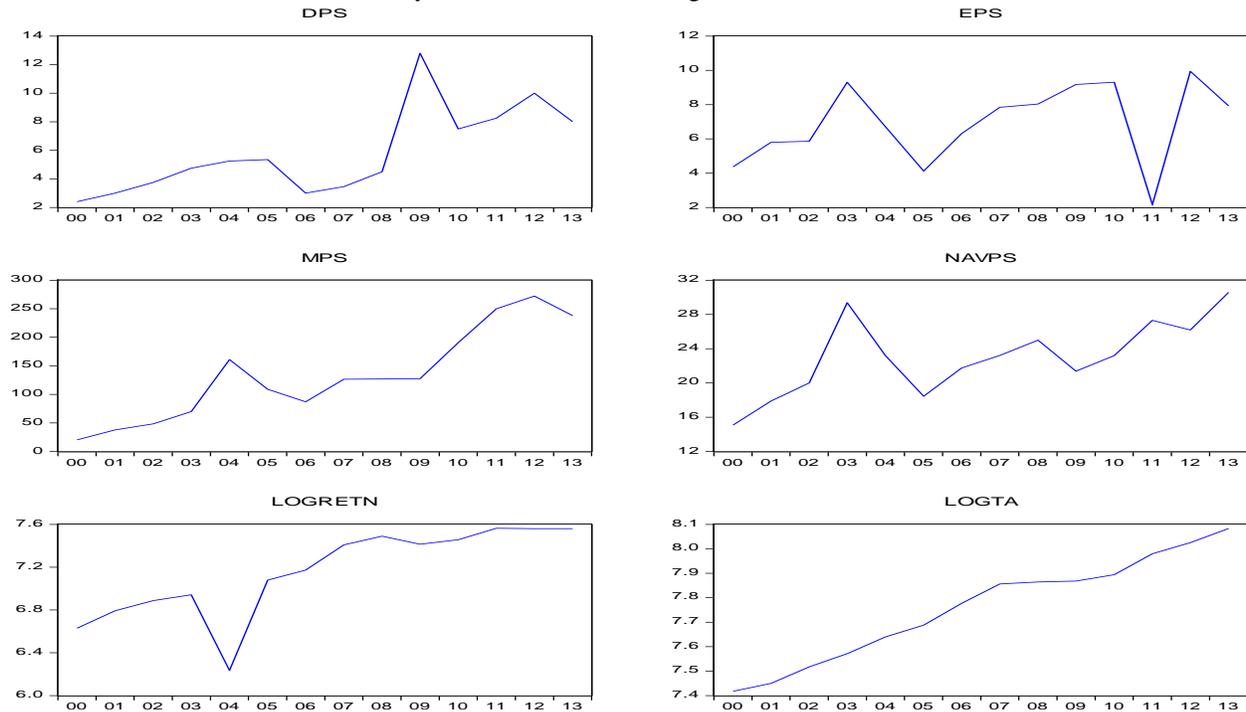


Figure 2: Graphical Representation of the Variables in Guinness Nigeria Plc

Source: Author's EView 8.0 Output.

Nigeria Breweries Plc and Guinness Nigeria Plc share similar trend with regards to dividend per share, total assets and market price of shares during the study period, with greater volatility in dividend per share. However, earning per share of Guinness Plc was highly unstable while that of Nigeria Breweries Plc had a smoother pattern. Apart from 2004 for Guinness Plc and 2008 for Nigeria Breweries Plc when the retained earnings were lowered probably to accommodate an increase in dividend payout as shown, both companies witnessed a steady increase in the amount of earnings retained for growth and expansion during the study period. Guinness Plc had a better net asset value per share which, however, experienced some gyrations during the period.

• Unit Root Test

Stationarity or otherwise of time series data can strongly influence the series behaviour and properties. Data series with unit root issues could lead to spurious regression if used for analysis, indicating fake, misleading and doubtful effects and relationships between the study variables. All the data series for the study variables were found non-stationary after applying the Augmented Dickey Fuller (ADF), Phillip-Perron's (PP) and Kwiatkowski-Phillip's-Schmidt-Shin(KPSS) unit root tests. The reason for applying the Phillips-Perron (PP) procedure is for reconfirmation because the ADF Test has been accused of low power in tackling unit root issues while the Kwiatkowski-Phillips-Schmidt-Shin (KPSS) test was for robustness check. The variables were integrated of the same order I(1), implying that they were found stationary at first difference and also cointegrated. New data series were generated and adopted for the analysis after differencing.

**Table 3: Augmented Dickey Fuller (ADF) Unit Root Test Result**

Null Hypothesis: Time Series Data are not Stationary

Variables	Test Critical Values	Test Statistics	Status
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	1 %	5 %	10 %	ADF	(Stationary)
DPS	-3.711457	-2.981038	-2.629906	-8.008190	I(1)
EPS	-3.769597	-3.004861	-2.642242	-5.065441	I(1)
NAVPS	-3.711457	-2.981038	-2.629906	-5.621229	I(1)
LogTA	-3.711457	-2.981038	-2.629906	-4.642272	I(1)
MPS	-3.711457	-2.981038	-2.629906	-5.199886	I(1)
LogRETN	-3.711457	-2.981038	-2.629906	-6.227849	I(1)

Source: Researcher's EView 8.0 Computation

**Table 4: Phillip-Perron's (PP) Test Results**

Null Hypothesis: Time Series Data are not Stationary

Variables	Test Critical Values			Test Statistics	Status
	1 %	5 %	10 %	PP	(Stationary)
DPS	-3.711457	-2.981038	-2.629906	-11.88040	I(1)
EPS	-3.711457	-2.981038	-2.629906	-25.83203	I(1)
NAVPS	-3.711457	-2.981038	-2.629906	-5.612309	I(1)
LogTA	-3.711457	-2.981038	-2.629906	-4.627562	I(1)
MPS	-3.711457	-2.981038	-2.629906	-5.906571	I(1)
LogRETN	-3.711457	-2.981038	-2.629906	-6.285560	I(1)

Source: Researcher's EView 8.0 Computation

**Table 5: Kwiatkowski-Phillip's-Schmidt-Shin(KPSS) Test Results**

Null Hypothesis: Time Series Data are Stationary

Variables	Test Critical Values			Test Statistics	Status
	1 %	5 %	10 %	KSS	(Stationary)
DPS	0.739000	0.463000	0.347000	0.209692	I(1)
EPS	0.739000	0.463000	0.347000	0.500000	I(1)
NAVPS	0.739000	0.463000	0.347000	0.213809	I(1)
LogTA	0.739000	0.463000	0.347000	0.075939	I(1)
MPS	0.739000	0.463000	0.347000	0.210343	I(1)
LogRETN	0.739000	0.463000	0.347000	0.082341	I(1)

Source: Researcher's EView 8.0 Computation

Table 6, indicates the mean, median, standard deviation, skewness and other relevant statistics which describe, in greater details, the dependent and independent variables under consideration. The skewness coefficient of earnings per share, market price of equity, net asset value per share, total assets and retained earnings are all less than 1.00. This indicates a normal frequency distribution while that of dividend per share reveals an abnormal distribution as a result of skewness coefficient that is greater than one. When the value of Kurtosis is between 1.00 and 3.00, it indicates a normal distribution while the Jarque-Bera statistic found to be significant, portends an abnormal frequency distribution. This confirms the results of the Kurtosis and skewness coefficients. The standard deviation of market price of shares is very volatile compared to the other variables.

**Table 6: Descriptive Statistics**

	DPS	EPS	MPS	NAVPS	LOGRETN	LOGTA

Mean	3.946071	4.892857	98.73714	15.45321	7.241228	7.874510
Median	3.000000	4.700000	73.55000	14.97500	7.294263	7.873655
Maximum	12.80000	9.950000	272.1200	30.57000	8.016865	8.404207
Minimum	0.550000	0.770000	20.40000	3.740000	6.235229	7.417598
Std. Dev.	2.992062	2.843693	72.58312	8.696517	0.416146	0.254291
Skewness	1.296965	0.244506	0.980963	0.123277	-0.292348	0.216599
Kurtosis	4.220158	1.854772	2.918437	1.648071	2.775426	2.836258
Jarque-Bera	9.586800	1.809126	4.498437	2.203250	0.457685	0.250217
Probability	0.008284	0.404719	0.105482	0.332331	0.795454	0.882401
Sum	110.4900	137.0000	2764.640	432.6900	202.7544	220.4863
Sum Sq. Dev	241.7157	218.3380	142244.3	2041.994	4.675796	1.745921
Observations	28	28	28	28	28	28

Source: Researcher's EView 8.0 Computation

The analysis on Table 7 reveals that Dividend Per Share is positively and significantly influenced by Earnings Per Share and Market Price of Shares. Net Asset Value Per Share and Total Assets exert a negative but insignificant influence on Dividend Per Share. Retained Earnings has a positive but insignificant effect on Dividend Per Share. This implies that an increase in net earnings and an appreciation of share prices could be a strong point for directors of brewery firms in Nigeria to recommend for payment of enhanced dividend to the shareholders and pursue its approval at the annual general meeting. This is logical and in line with our *a priori* expectations as dividend is not paid out of net loss but net earnings. Existing literatures also support the argument that earnings determine share prices. A management decision to increase asset base is also expected to negatively impact on rate of dividend payout.

**Table 7: Regression Analysis Results**

Dependent Variable: Dividend Per Share (DPS).

Variable	Coefficient	Std. Error	t-Statistic	Prob.
EPS	0.463623	0.219514	2.112047	0.0463
MPS	0.039276	0.012037	3.262899	0.0036
NAVPS	-0.148474	0.121741	-1.219591	0.2355
LOGRETN	1.264260	1.908232	0.662530	0.5145
LOGTA	-0.094701	4.111306	-1.725656	0.0984

C	06.80652	23.43216	1.997533	0.0583
R-squared	0.699982	Mean dependent var		3.946071
Adjusted R-squared	0.631796	S.D. dependent var		2.992062
S.E. of regression	1.815577	Akaike info criterion		4.218093
Sum squared resid	72.51905	Schwarz criterion		4.503566
Log likelihood	-53.05331	Hannan-Quinn criter.		4.305365
F-statistic	10.26579	Durbin-Watson stat		2.376611
Prob(F-statistic)	0.000035			

Source: Researcher's EView 8.0 Computation

**Regression Equation:**

$$DPS = 06.80652 + 0.463623(EPS) + 0.039276(MPS) - 0.148474(NAVPS) + 1.264260(LogRETN) - 0.094701(LogTA)$$

The coefficient of determination  $R^2$  is the proportion of variability in a data set that is accounted for by a statistical model. In this study,  $R^2$  measures the percentage of variations in dividend per share that could be explained by changes in the explanatory variables. The value of  $R^2$  is 70%. This implies that about 70% of the variations in dividend per share could be explained by changes in earnings per share, market price of shares, net asset value per share, total assets and retained earnings while about 30% could be accounted for by other unexplained factors, including the error term.

The ordinary least square estimator aims at improving the closeness between the line graph of the fitted observations and that of their corresponding observed values (Ita and Duke, 2013). In Figure 3, it is evident that the line graph of the fitted observations is as close as possible to the graph of the corresponding observed values.

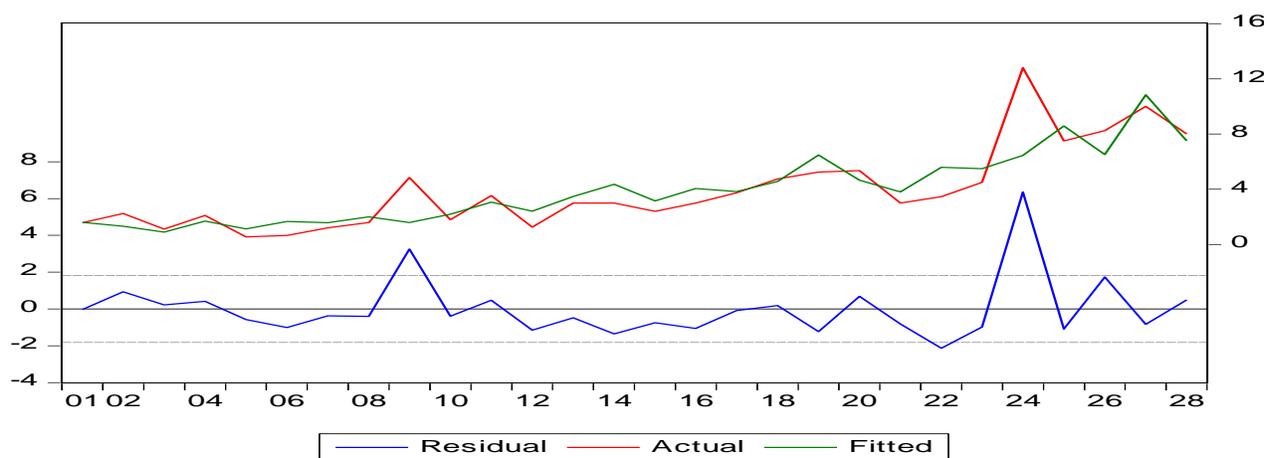


Figure 3: Residual graph of the parsimonious model

Source: Author's EView 8.0 Output.

Table 8 reveals that a positive association exists between dividend per share and earnings per share, market price of shares, net asset value per share, retained earnings and total assets. However, there is a strong relationship between dividend per share and earnings per share (68.4%), market price of shares (73.3%) and net asset value per share (70%). Total assets had the weakest association with dividend per share, followed by retained earnings.

**Table 8: Correlation Analysis Results**

	DPS	EPS	MPS	NAVPS	LOGRETN	LOGTA
DPS	1.000000					
EPS	0.684248	1.000000				
MPS	0.733085	0.583433	1.000000			
NAVPS	0.700731	0.795176	0.694519	1.000000		
LOGRETN	0.179985	0.186046	0.469006	-0.004027	1.000000	
LOGTA	0.048498	0.003036	0.430422	-0.200470	0.873064	1.000000

Source: Researcher's EView 8.0 Computation

Granger Causality Test as shown in Table 9 indicates that at lag 1, there is a unidirectional granger causality running from net asset value per share to dividend per share. There is also a unidirectional causality running from dividend per share to market price of shares. The implication of the findings is that net asset value per share granger causes dividend per share while dividend per share granger causes market price of shares in the short run.

**Table 9: Pairwise Granger Causality Tests**

Date: 11/03/14 Time: 05:39

Sample: 0001 0028

Lags: 1

Null Hypothesis	Obs	F-Statistic	Prob.
EPS does not Granger Cause DPS	27	3.03048	0.0945
DPS does not Granger Cause EPS		2.87482	0.1029
MPS does not Granger Cause DPS	27	3.33328	0.0804
DPS does not Granger Cause MPS		5.35892	0.0295
NAVPS does not Granger Cause DPS	27	10.4431	0.0036
DPS does not Granger Cause NAVPS		1.45288	0.2398
LOGRETN does not Granger Cause DPS	27	0.45354	0.5071
DPS does not Granger Cause LOGRETN		0.25078	0.6211

LOGTA does not Granger Cause DPS	27	0.07937	0.7806
DPS does not Granger Cause LOGTA		0.05709	0.8132

Source: Researcher's EView 8.0 Computation

At lag 2, Table 10 indicates that there is a unidirectional causality which runs from dividend per share to market price of shares. This implies that considering the independent variables of the study, only market price of shares is granger caused by dividend per share in line with the signaling theory. Net asset value per share was not a determinant of dividend pay-out at lag 2, implying that at the long term, some variables might lose their predictive powers as determinants of dividend pay-out.

**Table 10: Pairwise Granger Causality Tests**

Date: 11/03/14 Time: 05:39

Sample: 0001 0028

Lags: 2

Null Hypothesis	Obs	F-Statistic	Prob.
EPS does not Granger Cause DPS	26	2.57129	0.1003
DPS does not Granger Cause EPS		2.08989	0.1487
MPS does not Granger Cause DPS	26	0.57822	0.5696
DPS does not Granger Cause MPS		5.68333	0.0106
NAVPS does not Granger Cause DPS	26	3.31115	0.0562
DPS does not Granger Cause NAVPS		1.25266	0.3062
LOGRETN does not Granger Cause DPS	26	0.25468	0.7775
DPS does not Granger Cause LOGRETN		0.12030	0.8873
LOGTA does not Granger Cause DPS	26	0.06119	0.9408
DPS does not Granger Cause LOGTA		0.02532	0.9750

Source: Researcher's EView 8.0 Computation

Citing Hansen and Juselius (2002), Gunasekarage, Pisedtasalasai and Power (2005) submits that to find cointegration between non stationary variables, at least two out of the variables included in the cointegration system have to be in the order I(1). They argued that the existence of a cointegration reveals the existence of a long term relationship between some of the variables under study. In this case, all the variables under study were found to be integrated in the order I(1). Abraham (2012) opine, while citing Johansen (1988), Johansen and Juselius (1990) that the two basic test statistics involved in Johansen and Juselius's maximum likelihood test are the trace test and the maximal eigenvalue test. The trace test was conducted and the result indicates two (2) cointegrating equations at the

0.05 level. This result indicates that the short run relationships which they presently share is sustainable in the long-run.

**Table 11: Johansen Cointegration Test Results**

Trend assumption: Linear deterministic

trend

Series: DPS EPS MPS NAVPS

LOGRETN LOGTA

Hypothesized No. of CE(s)	Eigenvalue	Trace Statistic	0.05 Critical Value	Prob.**
None *	0.772751	112.6287	95.75366	0.0021
At most 1 *	0.720532	74.10426	69.81889	0.0218
At most 2	0.602311	40.95775	47.85613	0.1900
At most 3	0.356194	16.98352	29.79707	0.6413
At most 4	0.190610	5.534225	15.49471	0.7498
At most 5	0.001379	0.035890	3.841466	0.8497

Trace test indicates 2 cointegrating eqn(s) at the 0.05 level

\* denotes rejection of the hypothesis at the 0.05 level

## 5.0 Summary and Conclusion

The study aims at determining the extent to which dividend pay-out in Nigeria brewery firms is determined or influenced by retained earnings, earnings per share, market price of shares and total assets as well as the nature and magnitude of their granger causalities. The extent to which their short term relationships are sustainable at the long run were also on focus, using Johansen Cointegration. Dividend Per Share was found to be positively and significantly influenced by Earnings Per Share and Market Price of Shares in line with the bird-in-hand and signaling theory. Net Asset Value Per Share and Total Assets exert negative and insignificant influence on Dividend Per Share. Retained Earnings has a positive but insignificant effect on Dividend Per Share. This implies that an increase in net earnings and an appreciation of share prices could be a strong point for proposing the payment of enhanced dividend to the shareholders by directors to boost their agency relationship and still have alternative source of fund for investment.

The value of  $R^2$  is 0.700 which implies that about 70% of the variations in dividend per share could be explained by the independent variables while about 30% could be accounted for by other unexplained factors, including the error term. There is a strong relationship between dividend per share and earnings per share (68.4%), market price of shares (73.3%) and net asset value per share (70%). At lag 1, there is a unidirectional granger causality running from net asset value per share to dividend per share and also from dividend per share to market price of shares. The implication is that net asset value per share granger causes dividend per share while dividend per share granger

causes market price of shares in the short run. At lag 2, there is a unidirectional causality which runs from dividend per share to market price of shares, indicating a long run sustainability. The trace test result affirms this sustainability as it indicates two (2) cointegrating equations at the 0.05 level.

In line with the signaling theory and consistent with the findings of this study, directors are expected to propose the pay-out of reasonable portion of their net earnings as dividend if the target is to grow the share price; though mindful of the fact that the firm needs to grow and expand. Bird-in-hand and life cycle theories also support this position especially for older firms within the industry while agency theory prefers payment of more dividend when the firm is new so that the directors could win the acceptance of the shareholders who assembled them as faithful stewards.

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