Effect of Dividend Policy on the Value of Firms (Emperical Study of Quoted Firms in Nigeria Stock Exchange)

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Abstract
The study empirically investigated the effect of dividend policy on the value of firms as reflected on share holder's wealth maximization. The data employed in the study was computed as weighted average of five year summary extracted from the audited financial reports of firms selected at random from Nigeria stock exchange; in performing the analysis, rigorous econometric tools such as unit root stationary test, multiple OLS regression, granger causality test, impulse response innovation and variance decomposition test were all employed with the aid of econometric statistical packages version 8. The result of the study revealed that dividend per share is significant and inversely related to share value of the firm while earning per share is both positive and significant to share value of firms; this result is similar to that of Baker, H.K. 1989. Based on this, the study concluded that earning per share is the predominant variable to influence the share value of firms. It is therefore recommended that finance managers should play an important role in the debt-equity mix in the balance sheet in order to magnify the earning per share as will be reflected in the wealth of shareholders.
Keywords: earnings per share, dividend per share, internal rate of return, market value per share, impulse response, variance decomposition.

INTRODUCTION
Dividend policy is defined as a deliberate action of managers to distribute portion of earnings to shareholders in proportion of their holdings in the firm called dividend; the distribution of earnings to shareholders can be in form of cash dividend, bonus or script dividend, repurchased stock etc. the expected relationship between dividend paid out ratio and retention ratio is inversely related such that increase in retention ratio will bring about reduction in payout ratio of the firm, yet the duo work together for shareholder's wealth maximization, it is practically impossible to formulate one without affecting the other.

Dividend decision is extremely important to company's valuation which practically translate to capital gain in share prices; shareholder's wealth maximization is a paramount objective of a finance manager; which serve as return on investment outlay as reflected in the value of the firm. Return consist of two components: dividends and bullish stock (capital gain), despite the inverse relationship between dividend and earnings ratio, dividend and retained earnings have similar purpose towards maximizing shareholders interest (wealth); the unshared profit (retained earnings) are used to finance viable projects for expansion while dividend increases the bargaining power of stakeholders.

However, finance managers often strive to increase the basic fundamentals of their company; the fundamentals of companies as opined by the fundamentalist are: earnings, earnings per share, dividend yield, dividend payout ratio, and dividend cover among others. Good fundamentals of firms are reflected in share price movement in the stock market which ultimately translates to shareholders wealth maximization.

STATEMENT OF PROBLEM
Over the years, there have been conflicting goal regarding stakeholders' wealth maximization and market valuation of the firm; many scholars believed that stakeholder's interest and market value of the firm are reflected in the company's earnings per share and capital gain in share price respectively. Scholars have also argued that companies fundamentals does not impact positively on the value of the firm; the major proponent of this argument is Modgiliani and Miller's model which postulate that earnings is the predominant factor that affect the market value of a firm.

However, conflicting interest of shareholders regarding dividend policy cannot be over-emphasize; every rational shareholder will consistently required that higher dividend be paid regardless of the investment decisions of the firm. Finance managers are in dilemma in harmonizing the both decisions (dividend and investment) since both decisions are very crucial to the worth of companies as shown in the growth of stakeholder's worth. This research work seems to breach the gap by portraying the significant effect of dividend policy on share valuation.

SIGNIFICANT OF THE STUDY

The research work will bring about the relative significances of company's valuations and dividend decisions as reflected in share holder's wealth. Company's valuation is reflected in price movement in the capital market; the pay-out ratio is in consideration of the project financing policy of the firm. Though, fundamentals of companies such as earnings per share, dividend per share, dividend pay-out ratio and dividend cover among others; impact positively or negatively on the value of the firm as perceived by every rational investor in the stock market.

STATEMENT OF HYPOTHESIS

H_{01}: Significant relationship does not exist between earnings-per share and market price of a firm.
H_{02}: Significant relationship does not exist between dividend per share and share value of a firm.
H_{03}: there is no significant relationship between internal rate of return and share value of a firm.

THEORECTICAL REVIEW

There are several theories relating to dividend policies and the value of the firm, such theories among others include: professor walter's Model (Relevant theory), Gordon's Model, Bird in Hand theory, debt-equity substitution theory, MM theory (Irrelevant theory).

Debt-Equity substitution theory

This theory describes the relationship between debt-equity, after tax earnings and share prices of quoted companies; managers adjust the debt and equity structure in the balance sheet in order to increase the earnings per share. The resulting effect of debt- equity in a firm's balance sheet shows the reasons companies often adopt dividends payments and others do not. When distributing earnings to stakeholders in form of dividend, management typically choose between cash dividend or share repurchases; the theory explains the reasons why some firms repurchased agreement lead to a reduction in earnings, such companies prefer cash dividend over share repurchases.
Mathematical representation of debt-equity theory

$$\frac{K_D}{E_Q} > \frac{1 - T_C}{1 - T_D} - 1$$

Where:
K_D = total long term debt
Eq = total equity
Tc = tax rate on capital gain
Td = the tax rate on dividends

Walter's Model

Relevant theory argued that dividend policy is significant to the share price of a firm. The relevant theory shows clearly the significant relationship between the firm's internal rate of return (r) and its cost of capital (k) in computing the dividend yield as reflected in shareholders' wealth maximization.
Mathematical formula of Walter's theory to compute the current price per share is as follows

$$P_0 = \frac{D_1 + (r)(E - D_1)/K_c}{K_c}$$

Where,
P_0 = share value per share
D_1 = Dividend per share
r = internal rate of return on the firm's investment
K_e = Cost of equity
E = Earnings per share

Gordon's Model

The theory also known as relevant theory believes that consistent dividend's payment affect the value of the firm; the theory highlight the significant between dividend pay-out ratio, internal rate of return, cost of fund and the current value of the share price.
Mathematical formula of the model

$$P_0 = \frac{E(1 - Rt)}{K_f - g}$$

Where,
P_0 = Market price per share
E = Earnings per share
Rt = Retention ratio (1-payout ratio)
r = Rate of return

k_f = Cost of fund

g = Growth rate (g)

M&M THEORY

 Modigliani and Miller (M&M), postulates the irrelevancy of dividend in determining the share value of a firm as it does not impact on the shareholder's wealth. They argued that the worth of a firm is reflected by total earnings born out of the investment decisions of the firm.

Mathematical formula of M&M theory

$$r= \frac{D_1 + (P_1 + P_0)}{P_0}$$

Where,

D_1 = Current Dividend per share

P_1 = Market price per share

P_0 = Current market price per share

CONCEPTUAL FRAME WORK

 Functions of finance managers is to strike balance between dividend payout ratio and retained earnings; this is very difficult because of the conflicting interest of shareholders – heterogeneous expectation- some shareholders prefer consistent payment of dividend whereas others will prefer capital gains arising from increased share prices (Aivazian et al, 2002)

Finance manager will choose the type of dividend payment methods to adopt when making decisions regarding cash dividends or through stock repurchased. Various factors may be taken into consideration; where shareholders must pay tax on dividends, firms may elect to retain earnings or to perform a stock repurched in both cases increasing the value of shares outstanding,(Kothari, 2011).

Scholars have believed that dividend is relevant to the value of firms, the school of thought on this propositions are Myron J. Gordon and James E. Walter against the back drop of Modigliani and Miller (irrelevant theory). Different econometric tools are now formulated to assist firms analyze and come out with the best dividend policy. There has not been a compromise between the school of thought on the significant nexus between dividend and share price of firms.

There are various of forms of dividend payment; cash dividends seen as the payment of divided in cash usually via funds transfer or dividend warrant; such dividends are in form of return on investment and are usually taxable to the recipient in the year they are paid (Sullivan, 2003), script dividends are those paid out in the form of bonus stock of the issuing corporation, there are usually issued in pro-rata basis,(D'Souza, 1999).

EMPERICAL REVIEW

(Baskin, 1989) examine the relationship between share price and dividend yield of firms; five different explanatory variables were used against the dependent variable – share price. However, the result of the analysis indicates significant relationship between changes in share price and yield of quoted companies.

 (Nazir et al., 2010) the period for the study ranges from 2003 to 2008, 73 quoted firms in Karachi stock exchange (KSE) was used for the study. The method used was fixed effect and random effect models on panel data; the result shows that stock movement has significant and inverse relationship with yield and pay-out.

 (Suleman et al., 2011) examine the relationship between dividend policy and stock movement in Pakistan. The variables were extracted from Karachi Stock Exchange (KSE) on the relevant sectors for the period of 2005 - 2009. Ordinary least regression analysis was used for the study, Contrary to (Baskin, 1989)'s results, the analysis performed, show that market value has positive, direct and significant relationship with dividend yield of quoted firms.

 (Hussainey et al., 2011) examined the correlation between share price movement and dividend policy in UK. One hundred and three English quoted companies were used for the study and the time of the study ranges between 1998 - 2007. The analysis done was similar to that of (Baskin, 1989). Ordinary least square regression analysis was used to determine the relationship between market value with growth yield and payout ratio. It also included more three explanatory variables in their model. The result found an inverse but significant relationship between stock price movement and dividend payout ratio. Also, another empirical result shows an inverse but significant relationship existed between share price movement and dividend yield. The result findings show that dividend payout ratio remain the most important criteria of the share price movement.

METHODOLOGY

Various methods were used to determine the relationship between share price, earnings, rate of return and dividend policy of the firm; prominent among the methods used are: unit root test, Johansson co-integration test, ordinary least square, granger causality test, impulse response and variance decomposition.

However, sample size of 12 quoted firms in the Nigeria stock exchange (NSE) was selected from various sectors in the economy to test the validity of claim in the hypothesis. Data was extracted from audited annual financial reports of companies and necessary computations were done.

MODEL SPECIFICATION

The model shall be specified in three different forms; starting from the functional form to the econometric form.

Functional form of the model;

The functional form explains direct functions of the dependent variable on the explanatory variables:

$$Mvs = f (Eps, Dps, Irr) \ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots.eq (1)$$

Where, Mvs is the market value/share, Eps the earnings/share, Dps is dividend/share and Irr is internal rate of return of the company.

The **Mathematical Model** measures the exact relationships between the dependent and independent variables; a constant factor is added to the explanatory variable;

$$Mvs = \alpha_0 + \alpha_1 Eps + \alpha_2 Dps + \alpha_3 Irr \ldots\ldots\ldots\ldots\ldots\ldots.eq (2)$$

Where, α_1, α_2, α_3 are the parameters to be estimated; α_0 represent intercept in the model while α_1, α_2, α_3 are the slope or coefficients to be estimated.

The **Econometric Model** measure inexact relationship between the variables in the model; a stochastic error disturbance term is introduce into the model to account for other variables that are not included in the model that might affect the performance of the dependent variables.

$$Mvs = \alpha_0 + \alpha_1 Eps + \alpha_2 Dps + \alpha_3 Irr + \delta \ldots\ldots\ldots\ldots\ldots\ldots.eq (3)$$

Where, δ is the stochastic error disturbance term introduced into the model.

VARIABLES DESCRIPTION

The variables description explain the significant of the variable to the study, various variables was used in creating the above model such as: market value per share, earnings per share, dividend per share and internal rate of return and among others.

Earnings per Share: this is the sum total of the company profit after tax less preference dividend if any divided by the total shares outstanding as at the time of computation. The earnings per share are an integral part of a firm's fundamental used by investors to value the firm.

Dividend per Share: it is defined as the total amounts declare as dividend divided by the total shares outstanding. For the purpose of this research work, the total amounts declare as dividend was computed as 40% of profit after tax for the year.

Internal rate of return: the firm sets an internal rate of return that is used to bench mark the return perceived from the market. The firm decisions tend to favor proposed investments that have returns greater than the firm's fixed rate of return. The return of the firm was calculated as profit after tax divided by the shareholders equity.

Share price: also known as the market value of a company was computed as the 5 years average prices from the capital market.

APARORI EXPECTATION

We expect that the variables (except earnings per share) will be inversely and significant related to the dependent variable. Dividend per share and others should have stronger predictive ability on the dependent variable.

$\alpha > \alpha_1 < \alpha_2 > \alpha_3$

DATA PRESENTATION AND ANALYSIS OF RESULT

The data below shows the weighted average of five years summary result extracted from the audited annual financial reports of various quoted firm selected at random from different sectors in the economy.

S/n	Companies	Market value per share	Earnings per share	Dividend per share	Internal rate of return
1	DANGOTE CEM.	160	8.6	3.5	0.37
2.	DANGOTE SUGAR	6.25	0.9	0.6	0.23
3.	UNILEVER PLC	45.5	1.2	1.0	0.24
4.	FCMB PLC	1.84	0.52	0.4	0.13
5.	FBHN PLC	4.83	1.68	3.3	0.20
6.	FORTE OIL plc	236	6.8	0.37	0.32
7.	GSK NIGERIA	36	2.11	1.0	0.42
8.	MOBIL PLC	132.41	12.2	6.4	0.64
9.	NASCON PLC	7.00	0.8	0.6	0.2
10.	UBA PLC	3.78	0.15	0.2	0.15
11.	ZENITH PLC	15.25	2.9	1.75	0.28
12.	GTB PLC	18.59	2.5	0.8	0.25

Source: Audited annual financial reports & author's computation.

UNIT ROOT TEST
The above method shows the stationary behaviors of the data and subsequently leads the way for a long run analysis.

Variables	ADF STA	T-STA	Ranking	Remark
MVS	-6.271923	-3.212696	1(1)	Stationary
EPS	-5.647853	-3.212696	1(1)	Stationary
DPS	-4.771964	-3.259808	1(1)	Stationary
IRR	-3.315393	-3.212696	1(1)	Stationary

Source: Econometric View; Version 8
The result of the unit root test shows that the data was non stationary at level but became stationary at first differencing at 0.05% level of significant indicating the presence of co-integration among the variables.

MULTIPLE OLS REGRESSION ANALYSIS
Ordinary least square method also called the short run test; examine the significant relationship between the coefficients in the variables.

Dependent Variable: MVS
Method: Least Squares
Date: 12/10/15   Time: 18:42
Sample: 1 12
Included observations: 12

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	34.84074	26.57377	1.311095	0.2262
EPS	32.02913	5.278237	6.068149	0.0003
DPS	-29.98807	8.428388	-3.557984	0.0074
IRR	-130.0210	135.4540	-0.959890	0.3652
R-squared	0.883922	Mean dependent var		55.62083
Adjusted R-squared	0.840393	S.D. dependent var		77.32914
S.E. of regression	30.89360	Akaike info criterion		9.960177
Sum squared resid	7635.317	Schwarz criterion		10.12181
Log likelihood	-55.76106	Hannan-Quinn criter.		9.900334
F-statistic	20.30649	Durbin-Watson stat		1.763200
Prob(F-statistic)	0.000426			

The result of the analysis indicates that our model is a good fit with the R-squared adjusted value given as 84% which implies that there is a strong predictive ability of the explanatory variables on the dependent variable; that is changes in the dependent variable is accounted by variations in the explanatory variables. To determine the statistical significant of the variables, the T-Statistics is used, by interpretation, the constant is positive but insignificant; earnings per share is both positive and significant which implies that 1% change will bring about 32% changes in share prices while both dividend per share and internal rate of return are negative (except DPS showing

significant relationship with MVS) meaning, 1% change in DPS will bring about 29.9% decrease in share prices in the stock market. The Durbin- Watson statistics shows the present of serial correlation in the model.

GRANGER CAUSALITY TEST

The granger causality test examines the cause effect relationship between the variables.

Pairwise Granger Causality Tests

Date: 12/10/15   Time: 19:14

Sample: 1 12

Lags: 2

Null Hypothesis:	Obs	F-Statistic	Prob.
eps does not Granger Cause mvs	10	0.43513	0.6695
mvs does not Granger Cause eps		3.98604	0.0922
dps does not Granger Cause mvs	10	0.49092	0.6388
mvs does not Granger Cause dps		5.37208	0.0568
irr does not Granger Cause mvs	10	1.23264	0.3671
mvs does not Granger Cause irr		5.84041	0.0492
dps does not Granger Cause eps	10	2.41001	0.1850
eps does not Granger Cause dps		9.11485	0.0215
irr does not Granger Cause eps	10	7.21656	0.0336
eps does not Granger Cause irr		4.74176	0.0700
irr does not Granger Cause dps	10	2.38082	0.1878
dps does not Granger Cause irr		1.22562	0.3689

From the result, it was noticed that share prices granger cause dividend per share and internal rate of return, which implies that changes in the stock prices of the firm will have adverse effect on the dividend and internal rate of return of the firm. We also saw a causal flow from internal rate of return to earnings per share and that of earnings per share granger causing dividend per share, showing a significant relationship between the both.

IMPULSE RESPONSE TO ONE S.D

Impulse response analysis is practically used by policies makers to make decisions that will be projected into the future.

Response of DPS:				
Period	MVS	EPS	DPS	IRR
1	0.000000	0.000000	1.718322	0.000000
	(0.00000)	(0.00000)	(0.36635)	(0.00000)
2	0.131365	-0.418076	-0.402875	0.317751
	(0.55474)	(0.35853)	(0.57643)	(0.38849)
3	0.563164	0.060423	0.007597	0.532437
	(0.51552)	(0.37461)	(0.50522)	(0.38999)
4	0.499170	-0.335710	0.523501	-0.216677
	(0.48690)	(0.30706)	(0.45905)	(0.33471)
5	-0.379350	0.207661	-0.291008	-0.139236
	(0.39868)	(0.24387)	(0.42524)	(0.28476)
6	-0.137735	0.044691	0.005335	-0.041543
	(0.36792)	(0.20993)	(0.33810)	(0.20260)
7	-0.014681	-0.004650	-0.041411	0.048690
	(0.26342)	(0.13744)	(0.19850)	(0.16955)
8	0.078820	-0.023104	0.026100	0.047753
	(0.22601)	(0.11047)	(0.14262)	(0.12993)
9	0.045445	-0.021950	0.031003	-0.007766
	(0.16912)	(0.07994)	(0.09260)	(0.07472)
10	-0.021656	0.011255	-0.010254	-0.017223
	(0.10507)	(0.04489)	(0.05604)	(0.07031)

Source: Eview,8

The table above, shows the various projection of data into the future, from the result, accepting the fourth year for short run analysis, MVS impulse response to own shock is 49.9% while the impulse response to shocks emanating from other explanatory variables are -33.5%, 52.3% and -21.6% respectively. However, on the long run analysis, using the ninth year result, it was noticed that the impulse response own shock was negative, while the negative response to shock from EPS became positive leaving others negative. These indicate that the variables are randomly volatile and inconsistent for future decisions.

VARIANCE DECOMPOSITION

The variables are decomposed into the future, the future error of impulse response is expected to be corrected to allow for more realistic decisions making.

Variance Decomposition of MVS:					
Period	S.E.	DPS	IRR	EPS	MVS
1	1.718322	10.56476	59.07032	5.753309	24.61161
2	1.846063	21.63078	23.47837	18.74781	36.14305
3	2.003073	24.64947	21.05715	19.44261	34.85076
4	2.166835	25.46364	21.26811	19.13372	34.13452
5	2.232997	25.78607	20.86688	18.92419	34.42287
6	2.238079	25.76424	20.91895	18.89677	34.42004
7	2.239044	25.74483	20.88230	18.89776	34.47511
8	2.241211	25.74460	20.88230	18.89803	34.47507
9	2.242007	25.74258	20.88603	18.89633	34.47506
10	2.242230	25.74261	20.88350	18.89528	34.47861

Source:E-view

From the result, we noticed that the variables decomposed shows consistent result significantly erasing the future error committed by impulse response analysis, however, the variance decomposition of MVS to own shock is 2.24% (using the ninth year for estimation) while other shocks emanating from other variables were equally distributed in showing consistent pattern. Therefore, it is expected that future reliance of these variables for decision making will be realistic.

CONCLUSION AND RECOMMENDATION

Dividend is that portion of the after tax profit that is distributed to shareholders on a pro-rata basis (Agarwal, 1991); there are various factors that affect the payment of dividend such as: liquidity, government policy, investment decisions, taxation among others. Difference schools of thought have contributed to identify the relevance of dividend policy in determining the value of a firm.

The empirical result in our analysis revealed that dividend per share have an inverse relationship with the share price in the stock market; this result is in agreement with the empirical analysis done by so many scholars in the field of finance; though, earnings per share have shown a predominant features in enhancing the value of a firm. The ordinary least square result shows both positive and significant relationship between earnings per share and stock market prices while internal rate of return is both inverse and insignificant to the stock price movement in the stock market.

It is therefore recommended that financial managers should always implement decisions that will adjust the equity- debt structure in the balance sheet in order to enhance the earnings per share, as every rational investor tend to used the earnings per share as rationale in valuing the company which will be reflected in the share price of the firm. Consistency in dividend payment cannot be over-emphasis as a key factor used by investors and shareholders to determine the value of the company.

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