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A Test of Miller and Modigliani Dividend Policy Irrelevance Theory in Nigerian Stock Market

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Abstract

This study empirically tests for the validity of Miller and Modigliani's dividend irrelevance proposition in the Nigerian Stock Exchange (NSE). Secondary data were obtained from the Nigerian Stock Exchange fact book and firms' annual audited financial statements for fifteen years (2001-2015). Mediation Analyses, was used to measure the direct and indirect effects of dividend on stock price. Correction of the anomalous use of current dividend and current earnings by the use of naive expectation of dividend and earnings revealed that the direct effect of expected dividend on share price is significant but the indirect effect of expected dividend on share price through earnings is not significant. The implication of these results is that expected dividend has its unique (direct) effect on share price beyond the effect on share price which it shares with expected earnings (indirect effect). This conclusion suggests that dividend policy is relevant in valuation of shares in NSE. It was therefore recommended that company management should treat dividend as an active corporate finance decision-making variable and should employ dividend in information signalling to capital market investors.

Keywords: Expected dividend, Expected earnings, Share price, Mediation, Relevance, Irrelevance.

1. Introduction

Dividend policy is a major tool in decision making by corporate managers. It has received keen interest from scholars and researchers worldwide and this has led to the formulation of many theoretical models and testing of various variables. Huda and Farah (2011) affirmed that the development of theoretical models and variables has helped in determining the factors that assists managers in dividend policy decision making. Adesina, Uwuigbe, Uwuigbe, Asiriuwa and Oriabe (2017) suggested that corporate managers should use dividend as a vital tool in their firm's decision making. This suggestion is contrary to the finding of their study that dividend does not have influence on firm's value.

The dividend relevance theory posited by Lintner (1956) and dividend irrelevance theory posited by Miller and Modigliani (1961) are the major contending theories on dividend policy and its impact on share price. The arguments and assertions of these theories did not rule out the influence of earnings on firms' share prices. The dividend relevance theory agrees that despite the direct relationship between dividend and share price, there is still a possibility of an indirect effect of dividend on share price through earnings while the dividend irrelevance theory argues that the relationship that dividend tends to have on share price is as a result of its relationship with firms' future earnings. Thus, the impact of dividend on share price is not direct but only indirect.

In the light of the above arguments, various studies' all over the world's stock market has tried to test for the validity of dividend policy irrelevance with no consensus. Some of the challenges in the previous empirical tests of the effects of dividend on share price include the inaccurate measurement and definition of the earnings variable which is the unobservable but key variable in MM (1961) dividend irrelevance proposition. Amadasun, (2011); Toby, (2014) stated that the use of current dividend and current earnings in some previous tests of dividend irrelevance gave erroneous results that led to the conclusion that dividend is irrelevant in the valuation of share price. Udobi (2016) asserted that the use of current dividend and current earnings is flawed because share price is determined by

ex-ante (expected/future) information on determinant variables including dividend and earnings and not ex-post (current) information such as current dividend and current earnings.

Another limitation in previous studies is the methodology used and its inability to decompose the total effect of dividend on share price into direct and indirect effects. In particular, is the inability of a methodology to isolate the direct effect from the indirect effect which it shares with earnings? This study revisits the Miller and Modigliani's (1961) dividend irrelevance proposition. It objective is to overcome some of the limitations in previous studies and to determine if an M&M dividend irrelevance proposition is applicable in the Nigerian Stock Market.

2. Review of Existing Literature Dividend Relevance

Miller and Modigliani (1961) arguments emphasized that the impact that dividend has on share price is due to its information contents about future earnings which is the real determinant of share price. Black and Scholes (1974) investigated the impact of dividend policy on firm's value of companies listed in New York Stock Exchange. Capital Asset Pricing Model (CAPM) was used to analyze five years secondary data (Share prices and dividend) of twenty five quoted firms. They concluded that dividend policy of firms has no impact on their stock price. On the contrary, Aharony and Swary (1980) applied the Naïve Expectation model of quarterly dividend and earnings and found that share prices react to increase in dividend payment, coincident with earnings announcement. Their finding corroborates dividend relevance proposition. DE Angelo and DE Angelo (2006) also found that the information content of dividend is highly relevant.

Adefila, Oladipo and Adeoti (2004) examined the effect of dividend policy on the market price of shares. The methodology used was Pearson's product moment correlation of dividend with share price of fifteen companies. The study found that the correlation coefficients are statistically insignificant for most of the fifteen companies. It also found that the correlation between net profits (earnings) and share prices are statistically insignificant for all the companies analysed. The study concluded that there is no significant relationship between dividends and share prices, there is no significant relationship between net profits and share prices. This study was poorly designed and the use of correlation analyses to test dividend relevance is inadequate. Hence, the conclusion reached by this study is suspicious.

Abor (2008) found out that there is a relationship between corporate earnings and dividend payout and concluded that both past and current earnings have impact on a firms' dividend policy. Musa (2009) investigated the impact of dividend policy on the share prices of 53 quoted firms in Nigeria, applying parsimonious multiple regression model which employed five variables: current earnings, previous dividend, cash flow, investment and net current asset and three non-metric variables, growth, firm size and industry classification. The study found that the five metric variables have impact on dividend policy of firms in Nigeria.

Adesola and Okwong (2009) tested the relevance of dividend theories of share prices in Nigeria with cross sectional data on twenty-seven companies for the period 1996 to 2006. They commented that their finding of positive and significant effect of dividend on share prices for the sample of Nigerian companies indirectly cast some doubt on the empirical validity of dividend irrelevance.

Khalid, Chijioke and Aruoriwo (2010) investigated the impacts of dividend yield and dividend payout ratio on changes in share price of companies listed on the United Kingdom Stock Exchange. A regression model was used to analyze the data which revealed positive relationship between dividend yield and stock prices and revealed that dividend payout is statistically insignificant.

Amadasun (2011) attempted to test the hypothesis that dividend does not increase stock price in Nigeria, using First Bank (Nig) plc. as a case study. The study used a regression model that included Dividend Per Share, Earnings Per Share, Return on Capital Employed, Retained Earnings and Price Earnings Ratio as explanatory variables of price per share. The results of the study had statistically insignificant regression coefficients for both dividend per share and earnings per share. Though this study concluded that "dividend does not lead to increase in stock value", and thus purportedly lends support to Miller-Modigliani thesis of dividend irrelevance, the conclusion is consistent with the statistical insignificance of the dividend variables in the regression results. Furthermore, the study has the following deficiencies: - (1) it used a case study of a bank rather than cross sectional or panel data; and the regression model included four earnings variables; earning per share, return on capital employed, retained earnings and price earnings ratio. It therefore would have the problem of multi-collinearity. These observations indicate that the results and conclusion of the study are not reliable.

Khan (2012) sampled of twenty-nine companies to explicate the effect of dividend on stock prices for the period 2001 to 2010. The study used Fixed and Random Effect Model on panel data and found that dividend policy has positive effect on share prices after controlling for the effects of earnings per share, profit after tax, and return on equity and concluded that dividend irrelevance theory is not applicable in case of Pakistan Stock Market.

Abubakhar (2012) examined the influence of dividend pay-out ratio on the share prices of listed non-service firms in Nigeria with a probabilistic sample of twenty-six firms using multiple regression models. The study found a statistically significant relationship between dividend pay-out and share prices. It also found that the size of the listed non-service firms significantly explains share prices in Nigeria. Both dividend pay-out and size of the firms had positive impact on share prices. The findings of the study do not however constitute valid test of the dividend irrelevance proposition became it did not consider the effect of earnings and dividend in the model.

Rabindra (2012) examined the impact of dividend on stock price in Financial and non-Financial institutions of Nepal Stock Exchange, analyzing the secondary data with a regression model. Stock price being the dependent variable while Dividend Per Share (DPS), Retained Earnings Per Share, Lagged Price Earnings Ratio and Lagged Market Price Per Share are the explanatory variables. The result showed that dividend has impact on share prices more than retained earnings.

Kanwal (2012) studied the impact of dividend on stock prices of chemical and Pharmaceutical companies in Pakistan Stock Exchange for the period 2001-2010. Secondary data of five variables: Stock dividend, Earning Per Share (EPS), Profit After Tax (PAT), Retention Ratio and Return on Equity (ROE) were analyzed with panel regression model. The study showed that Stock dividend, (EPS), (PAT) are statistically significant. In other words, these variables have positive impact on stock prices while Retention Ratio and Return on Equity have negative impact on share prices. The study asserted that changes in dividend policy provide statistically significant information content which can be used to make predictions about future stock prices", and that the findings support the informational content of dividend hypothesis. These findings' assertions indicate that changes in dividend payment merely create occasions for changes in stock prices and that there was no sufficient evidence to suggest that stock price changes are caused by dividend payments. The study did not include earnings in its analyses. Hence, its findings cannot be quite conclusive as to the impact of dividend on share price given the effect of earnings.

Ozuomba, Okaro and Okoye (2013) carried out research to test the effect of dividend policy on shareholder's wealth of public firms in Nigeria for a period of twelve years (2000-2011). Secondary data of ten randomly selected firms out of two hundred and sixteen public limited firms were analysed with multiple regression model using dividend per share as the dependent variable while earning per share (EPS) and market price per share (MPS) are the independent variables. The results showed that the EPS and MPS of eight firms are both statistically significant and have impact on shareholder's wealth of the quoted firms while that of two firms are not statistically significant at 10% confidence interval. The model of this study is wrong as it used dividend as the dependent variable instead of share price to represent shareholders wealth as stated in its objective. The data on EPS, DPS and MPS are not synchronized. Data used is also scanty because instead of using panel data, it did the analyses as time series of individual companies, and therefore its findings are very misleading.

Ordu, Enekwe and Anyanwaokoro (2014) conducted a study to find out the effect of dividend payment on the market share prices in Nigeria. Seventeen quoted firms were considered for a period of twelve years (2000-2011). Using the Ordinary Least Squares technique, positive effect was found between Market Share Price (MPS) and Dividend per Share (DPS). This result supports the dividend relevance theory, confirming that dividend increase results to an increase in market share price. Dada, Malomo and Ojediran (2015) support this argument and concluded that investors prefer dividend payment to future growth.

Iqbal, Ahmed and Shafi (2014) looked at the effect of dividend bubble on share prices of thirty quoted firms in Karachi Stock Exchange for a time frame of eleven years. Time series data of the thirty listed firms were analysed with linear regression model. The result showed that Earning Per Share, Return on Equity, retention ratio are positively correlated with share price while Dividend yield and Price earnings ratio have a negative impact on share price. The study however concluded that dividend has a strong positive impact on share prices of KSE and thus, supports the dividend relevance theory. This study is faulted because of the use of time series of thirty firms for a period of eleven years. A panel data would have been more appropriate in order to get valid findings and conclusion.

Oyinlola and Ajeigbe (2014) examined the impact of dividend policy on stock prices of quoted firms in Nigeria, using 22 companies listed on the Nigerian Stock Exchange over the period 2009 – 2013. It used panel regression model to determine the impact of dividend per share and retained earnings per share on share price. The results indicate that both dividend and retained earnings significantly impact on share price. In addition, Granger causality tests indicate that dividend per share granger cause share price.

Toby (2014) studied the relevance of dividend policy in share price determination in the Nigerian Stock Market with a sample of twenty stocks within the period 2005-2012 with regression analyses of dividend and retained earnings time series data on individual companies. The study found that there is no significant relationship between change in dividend policy and change in share price. This surprising result differs from the extant literature on the impact of dividend on share price. The result carried out the analysis on company basis (separate regression analyses for each

stock in the sample) rather than use cross-sectional or panel data which will capture inter-company variations. Furthermore, the study did not include appropriately defined earnings variable in the analyses. It instead used retained earnings. In the results neither dividend nor retained earnings was a statistically significant determinant of share price. The conclusion of the study that "the results agree with the earlier research works which argue that dividend policy is irrelevant in determining enterprise value" is therefore very suspect and invalid.

Edward's (2014) investigated the effect of dividend on share price of some selected quoted firms in Ghana Stock Exchange for a period 2005-2009 using descriptive analyses on the primary data, found that dividend is highly correlated with share prices in Ghana. Ojeme, Mamidu and Ojo (2015) studied the impact of dividend policy on shareholders wealth in Nigerian quoted banks before and after the global financial meltdown within the period of four years (2007 – 2010). Secondary data of all 21 quoted banks during this period were gathered from NSE and firm's published annual reports. The study concluded that positive correlation between average market value of share and dividend paid by banks is an indication that payment of dividend is relevant and the amount paid affect the market value of banks' shares. This is not a valid test of dividend irrelevance theory. It used only correlation analysis and four years data. It did not consider the influence of earnings on share price as posited by the dividend irrelevance theory.

Oduwole (2015) evaluated and compared the predictive power of earnings and dividends in Nigeria for a period of fourteen years (2001-2014). The quarterly data of the variable used (EPS, interim and final dividends) were collected from the Nigerian stock market. The study used portfolio evaluation measures (Sharpe ratio and Jensen alpha) to assess the investment performance of portfolio based on dividend yield and earnings yield, respectively. The results indicate that a portfolio formed using a market capitalization weighted approach for the highest quartiles of dividend yield outperformed buy the market and hold policy while similar portfolio based on earnings yield did not outperform the market. This is not a test of dividend irrelevance theory.

Chirima (2015) investigated the impact of dividend pay-out on stock prices of quoted service firms of Zimbabwean Stock Exchange for a period of five years (2008-2012). The data were analysed with chi-square and regression model. The result showed a statistically significant relationship between dividend announcements and share prices.

Egbeonu, Edori and Edori (2016) examined the weighted average of five year financial summary data of twelve listed firms from the various sectors of the Nigerian Stock Exchange in order to measure the impact of dividend policy on firms' value. The study reported that internal rate of return is inversely insignificant, Dividend per share is inversely significant while earning per share is positively significant to share price.

Adesina, Uwuigbe, Uwuigbe, Asiriuwa and Oriabe (2017) examined the impact of dividend policy on share price valuation in Nigeria. Data of four out of twenty two banks were analysed during ten years' timeframe (2006-2016). They observed in their study that earning per share has a strong impact on share price while there is significant impact of dividend yield and retention ratio on share price. It was however concluded that there is need for Nigerian firms to consider dividend policy in other to increase the firm's earnings and future performance.

Iftikhar, Raja and Sehran (2017) established that dividend has a positive statistical influence on stock price after they investigated the impact of dividend policy on five state banks of the Karachi stock Exchange (KSE) for a period of ten years. They concluded that dividend is relevant in KSE. Budagaga's (2017) study supported the dividend relevance theory after observing the effect of dividend payment on forty-four firms' value of Istanbul Stock Exchange for duration of nine years.

Udobi, Iyiegbuniwe & Ezike (2018) examined the impact of current dividend on market shares prices of the Nigerian Stock Exchange. The study analysed fifteen years (15) secondary data of NSE quoted firms with mediation analysis. Stock prices is the dependent variable while current dividend, current earnings, Asset-growth, sales-growth, insider-shareholding and Leverage are the independent variables. The findings indicate that current dividend has a direct (Unique) effect on share price, and at the same time has indirect effect on share price through current earnings. It concluded that current earnings partially mediate the effect of current dividend on quoted Nigerian firms.

3. Research Methods

The purpose of this study is to test the validity of Miller and Modigliani dividend irrelevance theory in Nigeria by defining dividend and earnings as expected dividend and expected earnings. This study is based on all the shares listed on the Nigerian Stock Exchange (NSE). It covers a period of Fifteen years, (2001-2015). This time period is chosen because of the availability of data, to accommodate the pre and post consolidation of Nigerian's financial institutions. It was further reduced because of firms with incomplete data points were deleted. Stock price data were obtained from the daily official price list of the Nigerian Stock Exchange. Data on earnings per share, dividend per share, insider-shareholding, assets, and sales turnover were collected from the Nigerian Stock Exchange Fact Book and published annual reports of the listed companies that constitute the sample of this study. Assets-growth (Proxy

for investment opportunity), sales-growth (proxy for investment growth), and leverage (proxy for risk) variables were computed from the earnings, sales turnover, and total assets data. The study uses a panel study to measure the impact of expected dividend and expected earnings on share price in Nigeria.

3.1. Model Specification

Mediation analysis, a new methodology in finance adapted from the field of social psychology is used to determine the irrelevance of expected dividend on share price. it is imperative to estimate the direct effect of expected dividend on share price which is beyond the effect of expected dividend on share price that is due to the relationship between dividend and a mediator (such as earning).

Mediation refers to a situation when the relationship between a predictor variable (expected dividend) and an outcome variable (share price), can be explained by their relationship to a third variable called the mediator (for example, expected earnings). Mediation is said to have occurred, if the strength of the relationship between the predictor variable (expected dividend) and the outcome variable (share price) is reduced by including the mediator variable (expected earnings). In the case of perfect or complete mediation, the effect of the predictor is completely wiped out by including the mediator.

Baron and Kenny (1986), Judd and Kenny (1981), James and Brett (1984) discussed three models in establishing Mediation, These three models are needed in investigating the mediation of the effect of a predictor variable(dividend) on an outcome variable(share price) by a mediating variable(earnings):

→ Model 1 is to determine that the predictor (expected dividend) is correlated with the mediating variable (expected earnings). This step requires the regression of earnings on dividend to confirm that dividend is a significant predictor of earnings.

The regression model is:

$$M = \beta_1 + \beta_2 X_1 + e_i \quad (1)$$

Where:

β_1 = intercept

β_2 = Coefficient of the relationship between dividend and the mediating variable (earnings)

X = Dividend

M = Earnings

e_i = Error term

→ Model 2 is to determine that the predictor variable (expected dividend) is correlated with the outcome variable (share price). In other words, regress outcome variable (share price) on the predictor variable to confirm that dividend is a significant predictor of share price. The regression model is;

$$Y = \lambda_1 + \lambda_2 X_i + e_i \quad (2)$$

Where:

Y = outcome variable

λ_1 = intercept;

λ_2 = total effect of dividend on share price

X_i = predictor variable;

e_i = error term

The value of the coefficient "λ_2" is the total effect of expected dividend on share price. This step establishes that there is a dividend effect on share price that may be mediated.

→ Model 3 is to determine that the mediating variable (Expected earnings) affects Share Price. The regression model is

$$Y = \gamma_1 + \gamma_2 X + \gamma_3 M + e_i \quad (3)$$

Where:

γ_1 = intercept;

γ_2 = The direct effect of expected dividend on share price

γ_3 = The direct effect of expected earnings on share price

Y = Share price;

X = dividend;

M = Earnings;

e_i = error term,

Equation (3) produces the direct effect of expected dividend on share price, γ_2, and the direct effect of expected earnings on share price, "γ_3". The model controls for the influence of earnings on the effect of dividend on share price by establishing the effect of earnings on share price

As suggested by Baron and Kenny (1986), Judd and Kenny (1981), Mediation analysis can be done through a series of regression analyses which reflect the above conditions necessary to demonstrate mediation. Fields (2012),however affirmed that by far, the best way to tackle mediation analyses is to use the PROCESS custom dialog box written by Hayes (2012) to wrap the Preacher and Hayes(2004, 2008a) mediation and moderation tools in a convenient menu and dialog box interface in IBM Statistical Package for Social Sciences statistical software (SPSS). This software was employed to do mediation analysis in this study.

3.2. Estimation Technique

Field (2012) states that the three models discussed earlier (equations 1, 2 and 3) above test the four conditions of mediation:

- Expected dividend must significantly predict Expected earnings in model 1 (equation 1).
- Expected dividend must significantly predict share price in model 2 (equation 2).
- Expected earnings must significantly predict share price in model 3 (equation 3).
- Expected dividend must predict share price less strongly in model 3 than in model 2.

To establish that earnings completely mediates the dividend-share price relationship, in model 3 (equation 3), the effect of dividend on share price after controlling for earnings (coefficient γ_2) should not be significantly different from zero. Such result will uphold dividend irrelevance proposition. But if in model 3 (equation 3) the coefficient c' is significantly different from zero and the coefficient γ_3 is not significantly different from zero, dividend irrelevant proposition is refuted.

But if in model 3 (equation 3), the coefficient, γ_2, is significantly different from zero and coefficient "β_1" in model 1(equation 1) and "γ_3" in model 3(equation 3), are significantly different from zero, then earnings has partial mediation effect on dividend, suggesting that dividend has both indirect (mediation) effect (through earnings) and direct effect on share price.

Field (2012) further observed that although Baron and Kenny (1986) advocated looking at the size of the regression parameters, in practice, people tend to look for a change in significance. So mediation would occur, if the relationship between the predictor (dividend) and outcome (share price) was significant ($P< 0.05$) when looked at in isolation (model 1) but not significant ($P > 0.05$), when the mediator (for example, earnings) is included (Model 3).

Where the coefficient of the predictor (dividend) is significant in both models 1 and 2, mediation can exist, if there is a reduction in the size of the coefficient of relationship between the predictor(dividend) and outcome (share price) in model 3, as compared to model 1. In other words, the predictor variable (dividend) predicts the outcome variable (share price) less strongly in model 3 than in model 1. Field (2012) remarked that the problem with Baron and Kenny (1986) test of mediation is the question of how much of a reduction is necessary to intermediation.

4. Data Analysis and Interpretation

Descriptive Statistics and Correlation

Table 1. Descriptive Statistics

	N	Minimum	Maximum	Mean	Std.Deviation
Earnings	609	-20.000	28.000	2.065	3.724
Dividend	602	0.00	24.000	1.293	2.658
Share Price	608	0.50	1056.65	38.14	78.827
Insider -holdings (%)	612	5	88	54.44	20.317
Asset- Turnover (Nm)	592	57.04	3186128	34443	148532
Sales -Turnover (Nm)	596	93.17	673181	50580	84363
Change in Earnings	559	-20.00	25.00	0.133	2.287
Change in Dividend	548	-7.00	8.30	0.073	1.255
Change in Share Price	558	-214.02	483.43	4.115	32.254
Sales –Growth (%)	541	-97.44	3254.45	28.877	155.903
Leverage	423	-1460.01	803.67	-1.954	85.695
Asset Growth (%)	535	-3785.49	6091.16	40.546	332.678

Source: Author's Computation, 2016.

4.1. Correlation of Expected Dividend, Expected Earnings, and Share Price

A necessary condition for use of mediation analysis is that expected dividend is correlated with the mediator variables respectively (expected earnings, insider-shareholding, assets-growth, sales-growth, and leverage); and that the mediator variables are correlated with share price, respectively. The correlation matrix of expected dividend and the mediation variables (expected earnings, insider- shareholding, assets-growth, sales-growth, and leverage) and share price is presented in table 2.

Expected dividend is correlated with share price with a coefficient of 0.82 which is statistically significant at p value of 0.00. Expected dividend and expected earnings have a correlation coefficient of 0.89 which is statistically significant at p-value of 0.000.

The correlation of expected earnings with share price is 0.78, which is statistically significant at p-value of 0.000.These results indicate that expected earnings has the potential of mediating the impact of dividend on share price. These results confirm that mediation analysis is an appropriate technique to evaluate the influence of earnings on the impact of dividend on share price. The correlation coefficient of dividend and the other mediating variables (insider-shareholding, assets- growth, sales- growth, and leverage) are relatively low and suggestive that these variables may not be significant dividend signalling variables.

Table 2. Correlation Matrix of Variables

	Expected earnings	**Expected dividend**	**Share Price**	**Insider share Holding**	**Asset**	**Sales**	**Earnings Change**	**Div. Change**	**Share Price Change**	**Sales Growth %**	**Leverage**	**Asset Growth %**
Expected earnings	1											
Expected dividend p-value	0.89 .000	1										
Share Price p-value	0.78 .000	0.82 .000	1									
Insider share – Holding p-value	0.08 0.39	0.10 0.16	0.09 0.23	1								
Asset p-value	0.04 .338	0.01 .778	0.01 .844	-0.26 .000	1							
Sales p-value	0.31 .000	0.31 .000	0.27 .000	-0.16 .000	0.45 .000	1						
Expected earnings Change p-value	0.37 .000	0.17 .000	0.07 .000	0.02 .048	0.02 .575	-0.02 .000	1					
Expected dividend Change p-value	0.15 .000	0.31 .000	0.01 .000	0.03 .028	0.00 .830	0.00 3 .936	0.28 .000	1				
Share Price Change p-value	0.37 .000	0.41 .000	0.58 .000	0.04 .023	-0.02 .789	0.02 .600	0.07 .506	0.08 .496	1			
Sales Growth (%) p-value	-.02 .818	-.02 .956	-0.02 .496	0.03 .503	0.00 .998	0.00 .932	0.02 .504	0.03 .396	0.00 .786	1		
Leverage	0.02	0.05	0.03	0.05	0.00	0.03	0.00	0.02	0.02	0.01	1	

p-value	.666	.334	.520	.319	.973	.597	.949	.751	.660	.458		
Asset Growth (%)	0.02	0.02	0.00	-0.06	0.15	0.09	0.08	0.04	-0.03	0.12	0.01	1
p-value	.539	.883	.932	.000	.000	.000	.862	.520	.319	.597	.395	

Source: Author's computation, 2016

4.2. Relationship between Expected Dividend and Expected Earnings

Table 3 presents the regression of expected dividend on expected earnings. The regression coefficient is 0.4649 and it is statistically significant at p-value of 0.0000. This confirms that expected dividend is a significant predictor of expected earnings and that expected earnings is a possible mediator in the relationship between dividend and share price. The positive sign of the regression coefficient confirms that increase in dividend pay-out is a signal of increase in future earnings as posited by the dividend information signalling theories (Bhattacharya, 1980).

The estimated regression model is:

$M_i = \Theta_1 + \Theta_2 X_i + e_i$ (4)

$= 0.0686 + 0.4649 X_i + e_i$

Where:

Θ_1 = intercept

Θ_2 = the influence of expected dividend on expected earnings

X_i = Expected dividend

M_i = Expected earnings

e_i = Error term

The null hypothesis is:

$H_o: \Theta_2 = 0.$

Table 3. Relationship between Expected Dividend and Expected Earnings

Model Summary

R	R^2	MSE	F	df_1	df_2	p
0.2957	0.0875	4.2941	38.33	1	400	0.0000

Model

	coefficient	S.E	t	p
Constant	0.0686	0.1036	0.6627	0.5079
Expected Dividend	0.4649	0.0751	6.1913	0.0000

Source: Author's computation, 2016.

4.3. Total Effect of Expected Dividend on Change in Share Price

The total effect (without control of the effect of the moderators) of dividend on share price is shown in table 4. The regression coefficient of expected dividend is positive and statistically significant at p-value of 0.0018. This confirms that expected dividend is a significant predictor of changes in share price. The coefficient of determination (R^2), 3.13 per cent, is small and suggests that there are other variables that determine changes in share price other than expected dividend. The positive sign of the regression coefficient of dividend indicates that share price will increase with increase in expected dividend. The total effect of dividend on share price measures its influence without the mediating variables in the regression model.

The total effect of expected dividend on change in share price is obtained by the regression of expected dividend on change in share price as in the model below.

$Y_i = \alpha + b X_i + e_i$

$= 5.2943 + 3.8465 X_i + e_i$ (5)

Where;

α = intercept

b = Coefficient of expected dividend

Y = Change in share price

Table 4. Total effect of expected dividend on change in share price

Model Summary

R	R^2	MSE	F	df_1	df_2	p
0.1770	0.0313	1153.37	2.129	6	395	0.0492

Model: Outcome variable is Change in Share Price

	Coefficient	S.E	t	p
Constant	5.2943	1.6930	3.1273	0.0019
Expected Dividend	3.8645	1.2273	3.1489	0.0018

Source: Authors' computation, 2016.

As seen earlier, it is necessary to decompose the total effect of dividend into the direct and the indirect (mediated) effects of dividend on share price via the following mediating variables: expected earnings, insider- shareholding, assets-growth, sales-growth, and leverage.

4.4. Direct Effect of Expected Dividend and the mediators on Change in Share Price

The direct effect of expected dividend on change in share price is the influence of dividend on share price in the presence of the mediating variables in the regression model: The regression model is as follows:

$$Y_i = \alpha_1 + \alpha_2 X_i + \alpha_3 M_{1i} + \alpha_4 M_{2i} + \alpha_5 M_{3i} + \alpha_6 M_{4i} + \alpha_7 M_{5i} + e_i \quad (6)$$

$$Y_i = 0.59 + 3.5545X_i + 0.68M_{1i} + 0.09M_{2i} - 0.005M_{3i} - 0.005M_{4i} + 0.006M_{5i} + e_i$$

Where:

α_1 = Intercept
α_2 = direct effect of expected dividend on share price
α_3 = direct effect of expected earnings
α_4 = direct effect of insider-shareholding
α_5 = direct effect of assets-growth
α_6 = direct effect of sales-growth
α_7 = direct effect of leverage
Y = Change in share price
X = expected dividend
M_1 = expected earnings
M_2 = insider-shareholding
M_3 = assets-growth
M_4 = sales-growth;
M_5 = leverage; and
e_i = the error term.

The null hypothesis is that:

$$H_0 : \alpha_1 = \alpha_2 = \alpha_3 = \alpha_4 = \alpha_5 = \alpha_6 = 0$$

Table 5. Direct Effect of Expected Dividend on Change in Share Price

Model Summary: outcome variable is change in share price

R	R^2	MSE	F	df_1	df_2	p
0.1770	0.0313	1153.37	2.129	6	395	0.0492

Model

	Coefficient	S.E	t	p
Constant	0.5859	5.1726	0.1133	0.9099
Expected Earnings	0.6831	0.8255	0.8275	0.4084
Insider-Shareholding	0.0921	0.0881	1.0457	0.2963
Assets-Growth	-0.0047	0.0053	-0.8838	0.3773
Sales-Growth	-0.0054	0.0216	-0.2494	0.8032
Leverage	0.0064	0.0193	0.3286	0.7426
Expected Dividend	3.5545	1.2904	2.7545	0.0062

Source: Author's Computation, 2016.

The results in table 5 show that only the regression coefficient of expected dividend is statistically significant with a p-value of 0.0062. The regression coefficients of all the mediators, particularly expected earnings, are not statistically significant. These results indicate that dividend has unique effect on share price because the direct effect of expected dividend was estimated with control on the influence of the moderators (particularly expected earnings) on share price.

4.5. Indirect Effect of Expected Dividends on Change in Share Price

The verification of relevance or irrelevance of the influence of dividend on share price dictates that the respective indirect (mediated) effect of dividend on share price via the mediators (expected earnings, insider-shareholding, assets-growth, sales-growth, and leverage) are estimated and tested for statistical significance. The indirect effects of dividend on share price through earnings, insider-shareholding, assets-growth, sales-growth and leverage are shown in Table 6.

Table 6. Indirect Effect of Expected Dividend on Change in Share Price

Mediating Variable	Effect	Boot S.E	Boot LLCI	Boot ULCI
Total Indirect Effect	0.3100	0.5015	-0.4850	1.6731
Expected Earnings	0.3175	0.4823	-0.4697	1.5961
Insider Shareholding	0.0454	0.0388	-0.0061	0.1599
Asset Growth	-0.0382	0.0547	-0.1507	0.0312
Sales Growth	-0.0212	0.0878	-0.2666	0.0925
Leverage	0.0064	0.0375	-0.0749	0.0566

Source: Authors' Computation, 2016.

As shown in Table 6, none of the indirect effect of dividend on share price via the mediating variables is statistically significant, since their respective bootstrapped confidence interval contain zero value. Hence, the null hypothesis that the indirect effect is zero cannot be rejected for all the mediating variables. Of particular note is that the indirect effect of dividend on share price via expected earnings is not statistically significant. This indicates that while the direct effect of dividend on share price is significant, the indirect effect of dividend on share price via expected earnings is not significant. Further insight into the statistical significance of the indirect effects is done with the normal theory (Sobel) test of indirect effect, shown in Table 7. This ultimate test of indirect effect shows that none of the indirect effects of the mediating variables is statistically significant.

Table 7. Sobel Test of Indirect Effects of Expected Dividend on Change in Share Price

Variable	Effect	S.E	Z	p
Expected Earnings	0.3175	0.3921	0.8099	0.4180
Insider Shareholding	0.0454	0.0999	0.4543	0.6496
Asset Growth	-0.0382	0.0939	-0.4067	0.6843
Sales Growth	-0.0212	0.1060	-0.1997	0.8417
Leverage	0.0064	0.0677	0.0948	0.9244

Source: Authors' Computation, 2016.

Though none of the indirect effect of dividends on share price is statistically significant the relative importance of the mediating variable can be established by computing the completely standardized effect size of the mediating variables.

The completely standardized effect coefficients are not dependent on the units of the mediating variables. They are measured in standard deviation units and so are directly comparable (Field, 2012). Standardized coefficients represent the number of standard deviations that the outcome variable will change as a result of one standard deviation change in a predictor variable. The completely standardized indirect effect of dividend on share price is exhibited in table 8.

Table 8. Effect Size (Completely Standardized) Indirect Effect

Mediating Variable	Effect	Boot SE	Boot LLCI	Boot ULCI
Total	0.0125	0.0240	-0.0187	0.0815
Earnings	0.0128	0.0236	-0.0179	0.0787

Insider-shareholdings	0.0018	0.0016	-0.0004	0.0070
Investment-growth	-0.0015	0.0023	-0.0064	0.0013
Sales-growth	-0.0009	0.0037	-0.0099	0.0044
Leverage	0.0003	0.0016	-0.0032	0.0027

Source: Author's Computation, 2016.

As shown in Table 8, the most important mediating variable is expected earnings with a standardized effect size of 0.0128. Insider-shareholding variable comes a distant second with standardized effect size of 0.0018. Next are asset-growth, sales- growth and leverage in a descending order of importance.

The above findings are inconsistent with the dividend irrelevance proposition that the influence of dividend on share price is due to its relationship with expected earnings. Rather, the significance of the direct effect of dividend on share price suggests that dividend has unique influence on share price. The results of this study are therefore consistent with dividend relevance proposition.

5. Conclusion

The argument of Miller and Modigliani (1961) dividend irrelevance proposition implies that the effect of dividend on share price is fully mediated by earnings. Full mediation of the effect of dividend on share price by earnings means that the direct effect of dividend on share price will not be significantly different from zero and indirect effect of dividend on share price via earnings will be significantly positive. On the other hand, if the mediation effect is partial, then both the indirect and direct effect of dividend on share price will be significantly positive. In this case, there will be a reduction from the total effects of dividend on share price, which is accounted for by the indirect effect of expected dividend on share price. If the effect of expected dividend on share price is not mediated by expected earnings, the indirect effect of expected dividend on share price via expected earnings will not be significantly different from zero, while the direct effect will be significantly positive.

In this study,mediation analyses was applied to isolate and measure the direct, indirect and total impact of expected dividend on firm's share prices with the mediation of expected earnings,insider shareholdings. asstes-growth, sales-growth and leverage. The results shows that the direct effect of dividend on share price is positive and statistically significant while the indirect effect of expected dividend on share price, through expected earnings is insignificant. Furthermore, mediation of the effect of expected dividend on share price by insider-shareholding, assets-growth, sales-growth, and leverage (risk) were found to be statistically insignificant, respectively. While the total effect of dividend on share price is positive and statistically significant.

These results contradict dividend irrelevance proposition but are consistent with dividend relevance hypothesis. The conclusion following from these results is that earnings do not mediate the effect of dividend on share price. Dividend has significant direct effect on share price that is not due to the relationship between dividend and earnings and thus, the Miller and Modigliani's dividend irrelevance proposition do not hold in the Nigerian Stock Market. Dividend is relevant for the valuation of shares. The study has contributed to the resolution of the puzzle about the relevance or irrelevance of dividend for pricing of shares in the Nigerian Stock Market.

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