

# THE INTERNATIONAL JOURNAL OF BUSINESS & MANAGEMENT

## The Effect of Dividend Policy on Stock Price Volatility: A Kenyan Perspective

**Zipporah N. Onsomu**

Student, MBA (Finance), Bachelor of Commerce, CPA (K), PHD (Finance)

**Mosley O. Onchiri**

Student, MBA ( FINANCE), Bachelor of Science ( Mathematics)

### **Abstract:**

*The objective of the study was to determine the relationship between dividend policy and share price volatility and also to determine other factors which may have potential influence on share price volatility for firms listed at Nairobi securities exchange, Kenya. The study covered the period 2008-2012. Existing studies were carried out in the past under different economic conditions as compared to present economic position hence the findings of this research will add value to the existing pool of knowledge. A sample of 30 companies which were continuously listed and paid dividends continuously for the five year period was used to make generalization about population. The study employed correlation cross-sectional descriptive research design to deduce the relationship between dividend policy (measured by dividend yield and payout ratio) and share price volatility after controlling for long term debt, firm size and growth in assets. The study used the multiple linear regression model and from the analysis of the basic model, there was no evidence of significant relationship between dividend policy and share price volatility. After modifying the model to include the control variables, the result remained unchanged at 5% level of significance. None of the control variables used had a significant relationship with share price volatility. The findings of the basic regression model showed that dividend yield and payout ratio only accounted for 5.5% of the variations in stock price volatility while from the modified regression model, it was found that independent variables (dividend yield, payout ratio, long term debt, firm size and growth in assets) accounted for 20.8% of the variations on stock price volatility.*

**Keywords:** Dividends, stock price volatility, market efficiency

### **1. Introduction**

The effect of dividend policy on firm valuation has been debated for several decades since Modigliani and Miller (1961) seminal paper. They advocated that the value of a firm is determined by its investment policy and not how it distributed its earnings. This was based on several assumptions: that there exists perfect capital markets, taxes do not exist, firms have fixed investment policy and finally risk and uncertainty do not exist (all investors are able to forecast future prices and dividends with certainty). However Bhattacharya (1979), John and Williams (1985) and Miller and Rock (1985) reported that the above statement could be only true if shareholders have symmetric information about the company's financial position but normally managers pass positive information to the shareholders and retaining any negative information until any regulation or financial constraint force them to disclose that information.

However, contradicting theories emerged that supported the view that dividends have an effect on firm valuation. Ross (1977) advocated the signaling theory where he argued that issuance of dividends may convey positive information to the public which may cause prices to increase. Also the Bird in Hand Theory proposed by Gordon ( 1963), supported dividends due to the uncertainty in capital gains which will translate to a high discount rate being used. As a result, firms which issue dividends are likely to report high prices. This contrasts the Efficient Market Hypothesis (Fama, 1970) which advocates for capital market efficiency such that share prices should always reflect the prevailing information. This implies that issuance or non-issuance of dividends should not affect share prices.

Empirical studies have revealed diverse views. Khaled, Chijoke and Aruoriwo (2011) carried out a research on UK market with the objective of determining the relationship between dividend policy and stock price volatility. After applying a multiple regression analysis on the data, the research showed that there exists a positive relationship between dividend yield and stock price volatility. The research also showed evidence that debt level; firm's size and earning explain price volatility as well. Similarly, Allen and Rachim (1996) on their study of dividend policy on stock price volatility concluded that dividend yield is positively related to stock price volatility. The same results were equally found by Yasir, Zernigah and Muhammad (2012) who applied cross sectional regression analysis in their study on the relationship between dividend policy and share price volatility in Pakistan market. On the contrary, Baskin (1989) studied firms in U.S during the period 1967 to 1986 and found that the price volatility was

negatively related to dividend yield and payout ratio similarly to findings by Nazir et al. (2010) in their study of Karachi stock exchange in Pakistan during the period 2003 – 2008.

Rashid and Rahman, (2008) researched on relationship between dividend policy and share price volatility and found a positive insignificant relationship between share price volatility and dividend yield for nonfinancial firms listed in the Dhaka Stock exchange during the period of 1999 – 2006. The findings also depicted that debt and growth have positive insignificant relationship with share price volatility while payout ratio had a significant negative relationship with price volatility. On the other hand Zuriawati, Jorah and Abdul (2012) studied the effect of dividend policy and share price volatility on Malaysian construction and material companies and found a negative insignificant relationship between dividend yield and share price volatility.

Paul and David (1983) conducted a study on the Impact of Initiating Dividend Payments on Shareholders' Wealth on firms listed in NYSE and the ASE. The study considered 168 firms that either pay the first dividend in their corporate history or initiate dividends to shareholders. Data collected from companies listed in NYSE and the ASE for the period January 1954- December 1963. The dividend announcement dates and the amount of dividends paid by these companies were then collected. A dividend announcement date was the date when news of the forthcoming dividend first appeared in the Wall Street Journal. Dividend announcement dates and dividend amounts were collected not only for the initial dividend but also for the largest dividend increase that occurred during the following 12 quarters. This provided information on the dividend histories of the sample firms for the 3-year period following the initial dividend and also allowed a comparison of initial and subsequent dividends. Of the 168 initial firms, 114 increased their dividend within 3 years, seven decreased their dividend and the remaining 47 kept their dividend at the initial level. Finally, stock prices were collected for the month end before all dividend announcements to calculate changes in dividend yield, and earnings per share information was collected for the previous fiscal year to calculate changes in payout ratios. They concluded that initiating dividends increases shareholders' wealth.

Locally, Kuria (2001) carried a research on dividend policies in relation to company's growth in assets, return on assets and return on equity. A regression analysis showed a negative relationship between dividend payout ratios and growth in assets and concluded that managers used retained earnings to finance company's growth. The study concluded that an investor, especially the one interested in cash dividends rather than capital gains, will be able to distinguish these companies with high capital gains as reflected in increase in assets and increase in stock prices.

Bitok (2004) investigated the effect of dividend policy on value of firms listed in NSE using correlation and regression analysis and concluded that there was a weak positive relationship between payout and value of firm which he attributed to information signaling effect as advanced by Ross (1977). On the other hand Kalui (2004) analyzed the factors that cause stock price volatility for companies listed in NSE for period between 1998-2002. The results indicated that payout ratio, size, earning volatility and assets growth are some of the factors causing stock price volatility.

Maina (2009) carried a study on dividend payout patterns and share value at the Nairobi Securities Exchange. The study used secondary data which was obtained for the period 1998-2007 from 43 firms out of 49 listed companies. The data collected included; Earnings per share, dividend per share, market value of common stock, book value of equity, capital expenditure, total assets and long term debts for the entire period of study. The study used correlation and regression analysis to determine the relationship between share value and dividend payout and revealed a strong positive correlation between share value and dividend payout ratio.

Ngunjiri (2010) studied on the relationship between dividend payment policies and stock price volatility for the period 2004-2008. Secondary data was obtained from NSE of 40 companies and analyzed using regression analysis. The results showed that dividend payment policies have no impact on stock price volatility. Thiong'o (2011) investigated the relationship between dividend payment and stock prices for firms listed at NSE for the period 2006-2010. The study employed simple linear regression and came up with the findings that there exists a weak positive relationship between dividend payout ratio and stock prices. Ngobe et al. (2013) studied the relationship between dividend policy and stock price volatility for the period 1999-2008 at NSE using correlation and multiple regression analysis and concluded that dividend yield has a positive relationship with price volatility while payout ratio has a negative relationship with price volatility, contrary to the findings of Ngunjiri (2010).

## 2. Research Methodology

The study employed correlational cross-sectional descriptive research design to determine the relationship between dividend policy and share price volatility. The population of the study consisted of 60 firms listed at the Nairobi Securities Exchange (NSE) as at the end 2012. The sample constituted of firms that were continuously listed and paid dividends during the 5 year period: 2008-2012. A sample of 30 companies which met the criteria was used in the study.

The study used secondary data which was collected from NSE. Data relating to dividend yield, dividend payout ratio, firm size, earning volatility, long term debt and growth in assets were collected from financial statements of companies listed in Nairobi stock exchange. Data was analyzed using Statistical Package for Social Sciences (SPSS) program and presented using tables and figures that gave a clear picture of the research findings at a glance. Multiple linear regression analysis was used to determine the relationship between dividend policy and share price volatility and a correlation analysis was done between the variables. The basic model used price volatility (PV) as dependent variable against two independent variables, dividend yield (DY) and dividend payout ratio (POR). Firm size (Z), long term debt (DA) and growth in asset (AG) were used as control factors.

The study used a regression model similar to that used by Fama and French (1988), Baskin (1989) and Allen and Rachim (1996) stated as below;

$$PV_i = a_1 + a_2DY_i + a_3POR_i + e_i \quad (1)$$

The regression model will be modified to include the control variables as below;

$$PV_i = a_1 + a_2DY_i + a_3POR_i + a_4Z_i + a_5DA_i + a_6AG_i + e_i \quad (2)$$

Where;

PV<sub>i</sub> = Share price volatility for firm i

DY<sub>i</sub> = Dividend yield for firm i

POR<sub>i</sub> = Payout ratio for firm i

Z<sub>i</sub> = market value of firm i

DA<sub>i</sub> = Long term debt for firm i

AG<sub>i</sub> = Growth in assets for firm i

e<sub>i</sub> = Error term

a<sub>1</sub> is a constant and a<sub>2</sub>, a<sub>3</sub>, a<sub>4</sub>, a<sub>5</sub> and a<sub>6</sub> are coefficients of regression equation.

2.1. Hypothesis

- H<sub>0</sub>: β = 0 (Dividend policy has no effect on share price volatility)
- H<sub>1</sub>: β ≠ 0 (Dividend policy has an effect on share price volatility)

3. Data Analysis, Findings and Discussion

Data analysis was in two models; basic regression model and the modified regression model. The basic model refers to the model with dividend yield and dividend payout ratio (dividend policy measures) as predictor variables and share price volatility as the response variable. The modified model refers to the model with Dividend yield, Dividend payout ratio, and the control variables (firm size, long term debt and asset growth) as predictor variables and share price volatility as the response variable.

3.1. Nature and strength of the Relationship (Basic Model)

		Share price volatility	Dividend Yield	Payout Ratio
Pearson Correlation	Share price volatility	1.000	-.226	-.154
	Dividend Yield	-.226	1.000	.435
	Payout Ratio	-.154	.435	1.000
Sig. (2-tailed)	Share price volatility	.	.115	.208
	Dividend Yield	.115	.	.008
	Payout Ratio	.208	.008	.
N	Share price volatility	30	30	30
	Dividend Yield	30	30	30
	Payout Ratio	30	30	30

Table 1: Correlations of Basic Model

Source: Research data (2013)

From the results in table 1, there exists a negative correlation between share price volatility and dividend yield (r = -0.226). Also share price volatility was found to be negatively correlated to payout ratio (r = -0.154). The correlation between dividend yield and share price volatility was not significant at 5% significance level. Also the correlation between payout ratio and share price volatility was not significant since its p-value of 0.208 was more than 0.05.

3.2. Regression Analysis (Basic Model)

The result of regression equation for the basic model based on the results of table 2 was expressed as;

$$PV = 0.184 - 0.893DY - 0.190POR$$

From the above equation, it was found that for every one unit increase in dividend yield, share price volatility decreases by 0.893 units, other factors kept constant. Also for every one unit increase in dividend payout ratio, share price volatility decreases by 0.190 units, other factors kept constant. Finally 0.184 in the model indicates that share price volatility stands at 0.184 when all predictor variables are equal to zero.

Model		Unstandardized Coefficients		Standardized Coefficients	T	Sig.	95.0% Confidence Interval for B		Zero-order	VIF
		B	Std. Error	Beta			Lower Bound	Upper Bound		
1	(Constant)	.184	.043		4.277	.000	.096	.272		
	Dividend Yield	-.893	.945	-.196	-.945	.353	-2.832	1.046	-.226	1.233
	Payout Ratio	-.019	.058	-.069	-.332	.743	-.138	.099	-.154	1.233

Table 2: Coefficients of the Basic Model  
Source: Research data (2013)

The regression coefficients (0.353 and 0.743) were found to be insignificant at 5% level of significance.

### 3.3. Test of Significance (Basic Model)

F-test was used to test the significance of the whole model. The relationship between dependent variable and independent variables is said to be statistically significant if the P-value is less than 0.05 (at 5% level of significance). From Table 3 below, the P-value for the model was 0.466 which was greater than 0.05, hence the research found that the relationship between share price volatility dividend policy (measured by dividend yield and dividend payout ratio) was not significant at 5% significance level.

Model		Sum of Squares	Df	Mean Square	F	Sig.
1	Regression	.011	2	.005	.786	.466 <sup>b</sup>
	Residual	.189	27	.007		
	Total	.200	29			

Table 3: ANOVA of the basic model  
Source: Research data (2013)

R<sup>2</sup> was found to be 0.055 (check table 4) meaning that 5.50% variations in share price volatility were explained by changes in dividend policy. This means the reliability of the model is low as 94.50% of variations remain unexplained by the model.

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Change Statistics				Durbin-Watson	
					R Square Change	F Change	df1	df2		Sig. F Change
1	.235 <sup>a</sup>	.055	-.015	.08361436	.055	.786	2	27	.466	2.240

Table 4: Regression statistics (basic model)  
Source: Research data (2013)

The value of Durbin- Watson of 2.320 which proved that there was no autocorrelation as the value was less than 7.0(threshold for autocorrelation).

### 3.4. Regression Analysis (Modified model)

Model	Unstandardized Coefficients		Standardized Coefficients	T	Sig.	95.0% Confidence Interval for B		Collinearity Statistics	
	B	Std. Error	Beta			Lower Bound	Upper Bound	Tolerance	VIF
(Constant)	-.002	.215		-.010	.992	-.445	.441		
Dividend Yield	-1.09	.968	-.240	-1.13	.270	-3.090	.903	.730	1.370
Payout Ratio	-.040	.057	-.142	-.691	.496	-.158	.079	.779	1.284
Firm Size	.009	.009	.195	1.001	.327	-.009	.027	.874	1.145
Long term Debt	.184	.150	.243	1.228	.232	-.125	.493	.841	1.189
Growth in Assets	-.087	.129	-.134	-.674	.507	-.354	.180	.837	1.195

Table 5: Coefficients of the modified model  
Source: Research data (2013)

The result of regression equation for the modified model based on the results in table 6 was expressed as;  
 $PV = -0.020 - 1.090DY - 0.040POR + 0.009Z + 0.184D - 0.087G$

From the above equation, share price volatility stands at -0.02 when all predictor variables are equal to zero. When dividend yield increases by one unit, share price volatility decreases by 1.09 units. When payout ratio increases by one unit, share price volatility decreases by 0.040 units. When the size of the firm increases by one unit, share price volatility also increases by 0.009 units. When long term Debt increases by one unit, share price volatility increases by 0.184 units. Finally when asset growth increases by one unit, share price volatility decreases by 0.087 units.

Firm size and long term debt exhibited an insignificant positive correlation with share price volatility with P-values of 0.327 and 0.232 respectively. However, there existed an insignificant negative correlation between share price volatility and growth in assets ( $r = -0.082$ ) since its p-value of 0.333 was greater than 0.05.

### 3.5. Testing the Significance (Modified Model)

F-test was used to test the significance of the whole model. The results depicted that the relationship between stock price volatility and all predictor variables was statistically insignificant at 5% level of significance since the p-value of 0.314 was greater than 0.05.

	Model	Sum of Squares	Df	Mean Square	F	Sig.
1	Regression	.041	5	.008	1.258	.314
	Residual	.158	24	.007		
	Total	.200	29			

Table 6: ANOVA of the modified model

Source: Research data (2013)

The coefficient of determination,  $R^2$  was found to be 0.208 meaning that 20.8% variations in share price volatility were explained by changes in predictor variables. The degree of variation in share price volatility due to dividend policy was not significant as the p-value was 0.314.

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Durbin- Watson
1	.456 <sup>a</sup>	.208	.043	.08121216	2.320

Table7: Regression statistics (modified model)

Source: Research data (2013)

The coefficient of correlation was 0.456 implying a weak relationship between share price volatility and dividend policy

### 3.6. Discussion of the Regression Analysis Results

The research used two models of regression equations in interpreting the findings, the basic model and the modified model. The coefficient of determination,  $R^2$  for the basic model was 0.055 while that of the modified model improved to 0.208. Meaning that the predictor variables of basic model accounted for only 5.5% of the variations in share price volatility while predictor variables of modified model accounted for 20.8% of variations in share price volatility. This implies that size of the firm, long term debt and asset growth exert more pressure on share price volatility has compared to dividend policy measures (dividend yield and dividend payout ratio).

The gradient of dividend yield in the basic model was -0.893 while in the modified model it was -1.090. This meant that the slope for the dividend yield was slightly steeper in the modified model as compared to basic model. The gradient for payout ratio in the basic model was -0.190 while in the modified model was found to be -0.040. Therefore the slope for the payout ratio was steeper in the basic model as compared to the modified model.

## 4. Summary of Findings, and Conclusion

### 4.1. Summary of the Findings

From the basic model which analyzed the relationship between share price volatility and dividend policy, the research found an insignificant negative relationship between share price volatility and dividend policy. The modified regression model which included the control variables also found that there was an insignificant negative relationship between share price volatility and dividend policy. The control variables which include firm size, long term debt and growth in assets were also found to have insignificant impact on share price volatility at 5% level of significance.

The Basic regression model had an R of 0.235 and  $R^2$  of 0.055 while the modified regression model had an R of 0.456 and  $R^2$  of 0.208. From the basic regression model, the correlation matrix showed that there exists insignificant negative correlation between price volatility and dividend yield ( $r = -0.226$ ). Also share price volatility was found to have negative insignificant correlation with dividend payout ratio ( $r = -0.154$ ). From the modified regression model, the correlation matrix showed that share price volatility (PV) had insignificant negative correlation with DY, POR and Growth with  $r = -0.226$ ,  $r = -0.154$  and  $r = -0.82$  respectively. Also share price volatility showed insignificant positive correlation with Size ( $r = 0.279$ ) and Long term debt ( $r = 0.271$ ).

## 5. Conclusion

The objective of the study was to establish the relationship between dividend policy and share price volatility and also to determine if there are other factors which impact share price volatility, for companies listed at Nairobi securities exchange. The research findings depict that there was no significant relationship between dividend policy and share price volatility. The control variables which included firm size, long term debt and growth in assets were found to have no significant relationship with share price volatility.

The study failed to reject the null hypothesis at 5% significance because the P-values were falling on the rejection region (0.353 and 0.743). This implies that dividend policy as measured by dividend yield and dividend payout ratio has no effect on share price volatility in the Kenyan context.

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