

Determination of Optimum Dividend Policy: Empirical Evidence from Listed Firms at the Nairobi Securities Exchange (NSE) 2000- 2010

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Abstract

Dividend decisions remain to be one of the most controversial subjects in corporate finance since the debate on its relevance was started by Lintner in the 1950s. Facts show that, while companies would prefer to pay dividends, they are more concerned with stability and growth of payout. Consequently, this study applied a simple linear regression model to determine stability of dividends for listed firms at the Nairobi Stock Exchange. The parameters estimated are adjustment rate and target payout ratio. Study objectives are: i) to determine the target dividend rate and adjustment rate for the market based on empirical data of listed companies for the period 2000-2010. ii) To determine the relationship between earnings and dividend policy of listed firms at the exchange. Empirical data of 40 listed companies at the Nairobi Securities Exchange was collected and analyzed statistically using a simple regression model (OLS) at the 5% level of significance for the period. Results of analysis from the empirical panel data indicate that overall, listed companies within the period had an average target payout rate of 3.5% of the changes in current earnings and an adjustment rate of 52%. The relationship between current earnings and dividend payout was positive and fairly strong (0.65) and was also statistically significant. Therefore data did not sufficiently justify dividend smoothing at the NSE. Optimum dividend policy for listed firms at the NSE is therefore determined by low target rate and moderately high adjustment rate. Consequently dividend payout is low and fairly unstable creating some uncertainty. Current earnings explained 42% of the variation in dividend payment from the sampled data.

Keywords: *Optimum Policy, Dividends, Earnings, Nairobi Securities Exchange*

Introduction

Dividend policy remains a controversial subject in corporate finance since the debate on its relevance was started by Lintner in the 1950's. Issues of dividend relevance or irrelevance have continued to be debated by various scholars in the field of finance. Modigliani and Miller (1961) posited that under perfect market conditions; where costs (taxes, transaction, agency cost) are zero and information asymmetry is nonexistent, dividend policy is irrelevant to firm value. These conditions are however unrealistic (Dhanani, 2005). As a result, dividend decisions indeed matter particularly because dividends are returns that are certain to investors. In his survey of managerial views and attitudes of corporate managers on dividend policy found that quite correctly - dividend policy serves to enhance corporate market value. It is said to take place through the stream of cash dividends that shareholders receive as interim dividend and or final/full dividend. Hence, this influences the value of a share and in turn shareholder wealth.

Dividend payment can only be possible if and when companies can afford and sustain the level of dividend payout. This means that profitability of a company should not be in doubt. Dividend payout is noted to act as a signal of confidence in the firm's future profitability and stability. Managers have all along been concerned with the stability of dividends. Dividend stability means that managers are able to maintain a given dividend trend line that is upward sloping. Investors it appears value stability possibly because this takes away any uncertainty they may have about their investment. Stability of dividends is also important to institutional investors that buy stocks of companies with a history of consistently paying dividends, like pension funds, insurance companies and savings banks. Besides, a number of companies have been observed to follow a policy of a target dividend payout ratio over the long run. This is the fraction of current earnings that is distributed to shareholders. It is given by dividends divided by earnings. Out of any targeted payout, the actual payment has also been observed to be reduced especially among publicly listed companies. This is an indication of a motive to smoothen dividend payouts by adjusting the rate by which any transitory earnings are distributed to stockholders. This rate has been termed speed of adjustment. Together with the target payout ratio, a company establishes its optimum dividend policy-either adjustment rate is significantly lower than target ratio indicating stabilization or vice versa for instability. Aivazian, Booth, and Cleary (2003) compared dividend policies between

developed and developing countries and concluded that emerging market corporations do not follow a stable dividend policy. This outcome is what motivated this study.

The paper is organized as follows; section one discusses the background and problem behind dividend payment by companies and particularly the issue of optimum dividend policy. Section two reviews literature on dividend relevance by examining the theories and concepts of dividend policy. Section three then describes the research plan and analysis carried out to determine numerical values for the coefficients for adjustment rate and target payout ratio. Finally, section four explores the results of empirical analysis and makes conclusion based on the objectives of the study.

Statement of the Problem

Several studies have been done on dividend policy with evidence suggesting that dividend policy for public companies vary from country to country. Lintner's (1956) study involving corporate managers established that paying dividends is critical for the creation of value for investors. Marsh and Marton cited in Stulz (2000) summarized Lintner's findings in four stylized facts: (i) that firms have long term target dividend layout ratio (ii) that managers focus more on dividend change than absolute levels, (iii) managers are reluctant to make changes in dividends that might have to be reversed (iv) managers increase dividends only when they feel they can maintain the increase in earnings. This study consequently intended to determine whether dividend —smoothing is a motivation for corporate managers of listed companies at the NSE. The purpose of the study was to establish the adjustment speed and target payout for dividends at the exchange. By establishing these values, stability of dividends would be apparent for investors to make appropriate decisions regarding their investments. Corporate managers may review their approach to dividend policy with a view of maximizing shareholder value.

The overall objective of this study was to establish the optimum dividend policy for firms listed at the stock exchange (NSE). Specifically it sought to determine values for targeted payout ratio and the adjustment speed for dividends among the listed firms at NSE and to determine the relationship between current earnings and dividend policy of firms listed at the stock exchange.

Research Hypothesis

1. H_0 : Optimum dividend policy by listed firms at the exchange does not indicate a smoothing motive.
2. H_0 : Current earnings are not significantly related to dividend policy.

Related Literature

Dividend Policy

Dividend policy can be described as a firm's strategy with regard to paying out earnings as dividends versus retaining them for reinvestment in the firm. Three policies emerge as most widely supported in finance literature. First, is the 'Smoothed Residual Dividend Policy' which argues that dividend payment is kept at minimum. Companies using this policy delay paying dividend and do not react to short term changes in earnings. Dividend per share is kept stable and only altered if long term profitability forecast of the firm has been adjusted (Kyle & Frank, 2013).

Second policy is the 'Pure Residual Dividend Policy'. This policy compares between a firm's return on equity and the rate of return that an investor could achieve if they invest their dividend in an alternative venture. By achieving a high return on equity than an equally risky investment in the market, a firm would rather reinvest dividends (plowback) rather than pay it out. Dividends can only be paid out as residual funds after the firm's capital needs have been met.

The third policy is the 'Constant Payout Residual Dividend Policy'. This policy advocates for constant dividend payout. Payout ratio is maintained constant by adjusting dividend paid out in relation to quarterly earnings results.

Theories of Dividend Policy

Dividend payout is explained by three schools of thought. First, those who believe that increasing dividends enhances firm value, second, paying out dividends reduces firm value and the middle of the road party championed by Modiglian and Miller (1961) who came up with the dividend irrelevance theory. It states that when other factors are considered fixed, an investor would be indifferent between receiving returns in form of dividends or capital gains from reinvestment. Particularly, in the absence of tax, the wealth of a shareholder remains constant regardless of payout policy as long as investment policy remains unchanged (Gordon and Shapiro, 1956). Those that subscribe to the relevance school have been categorized using different theories;

Al-Malkawi (2007) came up with the —bird in hand theory‖ stating that dividends are worth more than retained earnings to investors citing uncertainty of future cash flows. His theory assumes investors are risk averse preferring a predictable return on their capital.

Agency theory (Jensen and Mecklin, 1976) postulates that high payouts reduce internal resources and consequently the cost of monitoring managerial activities. The cost is transferred to lenders when capital is sourced from external sources particularly debt.

Signaling theory by Bhattacharya, (1980) posits that dividend payment bridges the information gap between management and investors. Due to information asymmetry between investors and managers on the financial strength of a firm, companies choose to payout a dividend to send a signal to investors that their firm is financially stable and remains profitable.

The pecking order theory argues for low payout. It states that internally generated resources are a priority when sourcing funds needed for capital projects (Bradley et al, 1975) cited in Bhattacharya (1980). Retained earnings are a cheaper source compared to external funding.

Miller and Scholes (1978) developed the tax preference theory which looks at effect of tax on clientele. He concluded that different tax rates on dividends and capital gain create different clientele. Life Cycle Theory explanation given by the Lease *et al.* (2000) and Fama and French (2001) is that the firms should follow a life cycle and reflect management's assessment of the importance of market imperfection and factors including taxes to equity holders, agency cost, asymmetric information, floating cost and transaction costs.

Catering theory given by Baker and Wurgler (2004) suggest that the managers should give incentives to the investors according to their needs and wants and in this way cater for the investors by paying smooth dividends when the investors put stock price premium on payers and by not paying when investors prefer non payers.

Dividend “Smoothing”

Lintner (1956) in his seminal paper questioned managers on their attitudes toward dividend policy and concluded that managers targeted long term payout ratio. Dividend payment was found to be sticky, tied to long term sustainable earnings paid by mature companies and smoothed from year to year. Other scholars have since supported this argument (Fama & Babiak, 1968; Brar *et al.*, 2005). While literature has not adequately explained why firms are reluctant to cut dividend or even appear to smooth dividends, one of the reasons that can be attributed to this occurrence is investors' reaction to such announcement. Share value has been observed to decline by an average of 6.4% immediately after dividend omission announcement (Michaely *et al.*, 1995).

Smoothing of dividends has been explained by agency issues or information asymmetry. That in order to reduce the agency-principal conflict, dividend stability is pursued so as not to cause unnecessary price volatility for publicly listed firms due to uncertainty. Therefore, reducing uncertainty stemming from unpredictable dividend payouts make managers opt to establish a stable growth path of dividend payments.

The aim of this paper is to show whether publicly quoted firms at the NSE smoothen dividend payout or not. Smoothing dividend payout is said to be priority for public firms because they care about the volatility of stock price movement. A high adjustment rate signifies absence of smoothing while low rate would mean presence of smoothing relative to target payout ratios.

Empirical Review

Michaely and Roberts (2012) investigated how firms grouped into private and public, responded to transitory earnings in the United Kingdom. They discovered that response of dividends to transitory earnings shocks vary significantly across the three groups of firms (private, dispersed, private and public firms). They concluded that private firm's dividend policies are significantly more sensitive to transitory earnings shocks in contrast to public firms. Empirical evidence provided by Michaely et al., (2012) show that public firms follow a unique strategy of relatively numerous but small increases in their dividend coupled with a strong aversion to any negative or large changes. In their findings public firms in the UK targeted a payout ratio of 21% of any transitory earnings shock followed by an adjustment speed of 41% to smoothen the trend. Aivazian et al., (2003) indicated that for emerging markets, dividend payout depend on profitability and stability of earnings for the year in question. This means stability of dividends is not observed in these markets.

Dividend Model

The following is an econometric dividend model by Lintner (1956) illustrating how the coefficients relating to the speed of adjustment and target payout can be determined for a given level of earnings.

Dividends_{it} = $\alpha + \sigma (\beta_i (\text{Profit}_{it}) - \text{Div}_{it-1}) + \varepsilon_{it}$ (i). This expression shows that Dividend_{it} is the change in dividend for firms from period t-1 to t, profit_{it} is operating profit/loss and ε_{it} random error term for firm i in time t. β_i is target payout ratio which is a fraction of current profits, σ is the fraction that reduces the differences between last period's dividend and the target level in each period. This parameter matches the response of firm's dividend policies to transitory earnings shocks and is sometimes referred to as the speed of adjustment. Large values for σ suggest an erratic dividend policy, characterized by large changes driven by transitory shocks (Michealy et al, 2012). Conversely, small values of σ suggest smooth, persistent dividend policy characterized by insensitivity to transitory earnings shocks and a motive to smooth such shocks overtime. The parameters (α , σ and β_i) can be estimated for each individual firm (Brar et al, 2005). However this study mainly focused on the performance of the market as a whole to provide an overall picture of market dividend behavior.

Among public firms, a dividend smoothing behavior is evident by low values of σ (speed of adjustment). High values indicate no smoothing and thus evidence of wide swings in dividend payment. The motivation to smooth out dividend may be attributed to the scrutiny by the capital market where agency conflict and information asymmetry is prevalent. Low values for adjustment speed (σ) mean that with higher earnings shock, more of the surplus funds are retained and vice versa for lower earnings shock.

Methods

The study was designed as a regression and correlation analysis of empirical panel data of listed firms for the period 2000-2010. It is based on Lintner (1956) dividend model. It was tested by Wolmoran (2003) to establish its efficiency compared to the percentage model in explaining dividend pay out behaviour of South African firms.

Modelling for Empirical Data

Dividend policy according to the theory by Lintner depends on current earnings and previous dividends already paid (E_1 & D_0)

His model was thus;

Div₁- D_0 = adjustment rate * Target Change.
= adjustment rate* {(target ratio* EPS)-

Div₀}..(i) Re-writting the equation,

$D_1 - D_0 = a * (T * E_1 - D_0) = a T E_1 - a D_0$ (ii)

Where; a=adjustment rate

T= Target rate.

D_1 = Current Dividend.

E_1 = Current earnings.

D_0 = previous dividends.

This equation was then fitted to empirical data by Wolmoran (2003) using OLS method in order to estimate values for adjustment rate 'a' and target rate 'T'. It was reconstructed to make it appear in linear form for the estimation of the parameters or coefficients. This attempt was achieved by first; dividing through by ($D_1 - D_0$) assuming ($D_1 - D_0$) $\neq 0$. The equation becomes;

$$1 = a T E_1 / (D_1 - D_0) - a D_0 / (D_1 - D_0) \dots\dots\dots(iii)$$

Then dividing through by 'a'

$$\frac{1}{a} = \frac{T E_1}{D_1 - D_0} - \frac{D_0}{D_1 - D_0}$$

.....Assuming a $\neq 0$... (iv)

Rearranging equation (iv)

$$D_0 / D_1 - D_0 = -1/a + T E_1 / D_1 - D_0 \dots\dots\dots(v)$$

Equation (iv) is in linear econometric form:

$$Y = \alpha + \beta X + \varepsilon_{it}$$

Where; $\alpha = -1/a$ (adjustment rate), β = Target rate, $Y = D_0 / D_1 - D_0$, and $X = E_1 / D_1 - D_0$,

ε_{it} = error term for firm i in period t. Using D_0 , D_1 , and E_1 , one can determine the values of α and β assuming $\alpha \neq 0$ and ($D_1 - D_0$) $\neq 0$.

Empirical Data and Analysis

Empirical panel data of 40 companies was collected from stock market and financial reports of quoted companies based on firm year dividends and earnings for the period 2000-2010. Editing of data was done to ensure incomplete data was excluded and that $D_1 > D_0 > 0$ was also upheld for the entire duration 2000-2010. The final data yielded 106 firm-year observations from 420. Nine industries are represented namely; Manufacturing, Commercial, Insurance, Banking, Investment, Agriculture, Automobile, Construction and Energy. Statistical software (SPSS 17) was used to carry out the regression and correlation test at 5% level.

Results and Discussions

The dependent variable was dividend change ($D_0/D_1 - D_0$), while independent variable was earnings change ($E_1/D_1 - D_0$). Results of descriptive analysis from Table 1 show that the change in dividends paid for the period had a mean of shs.1.016 while change in transitory earnings shock had a mean of shs. 14.8. In other words, for every shs.15.0 increase in earnings, additional dividends would be shs.1.00.

Table 1. Descriptive Statistics

	Mean	Std. Deviation	N
Dividend change	1.0461	1.17410	106
Change in Earnings	14.8143	21.71276	100

Table 2 below —correlations| between dividend change and change in transitory earnings shock indicate the coefficient as 0.653 which is significant. This means there is a fairly strong association between change in dividend payout and change in earnings.

Table 2. Correlations Table

		Change in Dividends
Pearson Correlation	Change in Dividends	1.000
	Change in Earnings	.653
Sig. (1-tailed)	Change in Dividends	.
	Change in earnings	.000
N	Change in dividends	106
	Change in earnings	100

The following Table (3) —Coefficients| show results of regression coefficients for the two variables under study-dividends and earnings.

Table 3. Coefficients Table

		95.0%											
		Unstandardized Coefficients	Standardized Coefficients	Confidence Interval for B		Correlations		Collinearity Statistics					
		Std. Error	Beta	t	Sig.	Lower Bound	Upper Bound	Zero-order	Partial	Part	Tolerance	VIF	
Model	B												
1 (Constant)	.523	.108		4.826	.000	.308	.738						
E1/ D1-D0	.035	.004	.653	8.536	.000	.027	.044	.653	.653	.653	1.000	1.000	

a. Dependent Variable: change in dividends.

Estimated Equation.

$$\hat{Y} = 0.523 + 0.035X_{it} \quad \dots \text{where } X_{it} \text{ is earnings for firm } i \text{ at time } t.$$

$$Se=0.108 \quad 0.004$$

$$T=4.826 \quad 8.536$$

$$P=0.000 \quad 0.000$$

The estimated regression equation above shows that the adjustment speed is 52%. Targeted payout is 3.5% of the transitory earnings shock. This is considered a large variation signifying increased volatility in payout. Both values are also statistically significant. A similar study by Lintner (1956)

involving US firms realized a dividend speed of adjustment of 30% and a target ratio of 50% (Ahmed & Javid, 2009). From the results shown it is apparent that dividend smoothing is not a motivation for firm managers of listed companies. Managers distribute 52% of the targeted transitory earnings change (3.5%). This is inconsistent with Lintners hypothesis of dividend smoothing for US firms which returned 30% adjustment speed. The model fit was good and adequate, $F = 72.86$ $P = 0.000$ (Table 4, ANOVA). Therefore, results from NSE support the hypothesis by Aivazian et al (2003) that dividends in emerging markets are unstable and are guided by earnings level and stability.

Table 4. ANOVA Table

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	58.196	1	58.196	72.860	.000 ^a
	Residual	78.277	98	.799		
	Total	136.473	99			

a. Predictors: (Constant), Change in earnings

b. Dependent Variable: change in dividends.

The Coefficient of determination (R^2) was 0.42, indicating current earnings and previous dividends explain 42% of changes in dividends payout (table 5 —Model summary). A similar study in Pakistan by Ahmed and Javid (2009) returned R^2 of 39% using a random effects model (REM). Result for autocorrelation of the residuals was 1.669 (Durbin Watson d statistic). This value when placed against the critical values of d , d_L and d_U with 100 observations and one explanatory variable, falls within the confidence interval 1.654 and 1.694 respectively at 5% significance level. This means there was no evidence of serial correlation of the disturbance term. The coefficients are thus not only unbiased and consistent but also efficient.

Table 5. Model Summary

Change Statistics									
Model	R	Adjusted R Square	Std. Error of the Estimate	R Square Change	F Change	Sig. F Change	Durbin-Watson		
1	.653 ^a	.426	.89372	.426	72.860	.000	1.669		

a. Predictors: (Constant) Change in Earnings

b. Dependent Variable: Change in dividends.

Conclusion

The findings appear to support a —pure residual dividend policy for NSE listed firms where payout is purely a residual decision as indicated by a high adjustment speed and low target ratio. From the statistical tests, there is no sufficient evidence to support dividend stability hence no smoothing motivation for dividend policy (accept hypothesis 1). Secondly, Current earnings indeed are statistically significant in explaining dividend decisions for firms at the NSE (reject hypothesis 2). The listed firms have a low target ratio but fairly high adjustment rates of dividends from any earnings shock indicating absence of smoothing. A low target ratio and fairly high adjustment rate mean that for investors at the NSE, returns in form of dividends are not quite stable and certain. This may be explained by external capital either being uncertain or too costly in terms of restrictions and monitoring. Investors' risk and return by way of dividends is therefore marginally higher at the NSE compared to results from developed stock markets.

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