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THE SIGNALING HYPOTHESIS: EVIDENCE FROM THE NAIROBI SECURITIES EXCHANGE

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Abstract
This study investigates the signaling hypothesis by testing the displacement property of dividends. The study uses Ohlson (1995; 2001) model and follows Hand and Landsman (2005) approach. The study however varies the methodology by using pooled Time Series Cross Section data and Panel Corrected Standard Error estimation and also control for size to take care of scale effects. The study's findings provide further empirical evidence that dividends are used as signals about future earnings prospects of the firm. After following Thakor (2003) approach in testing for the free cashflow hypothesis, the study's results do not provide evidence in favour of the cashflow hypothesis it is therefore ruled out. The study's results shed further insights on the controversy regarding the information content of dividend changes about future profitability.

Keywords: Signaling hypothesis, Dividend displacement property.

1 Introduction

The dividend irrelevance hypothesis set forth in the seminal work by Miller and Modigliani (1961) set in motion intensive theoretical modeling and empirical study on dividend policy for over half a century with divergent outcomes. The lack of convergence and closure on dividend policy has come to be referred to as the "dividend puzzle". Theorizing in dividend policy is divided into three schools of thought. One group considers dividends as attractive and as a positive influence on stock price. A second school believes that stock prices are negatively correlated with dividend payout levels. The third bloc maintains that firm dividend policy is irrelevant in stock price valuation.

The models supportive of the dividend irrelevance hypothesis are largely based on the assumption of full or complete information, see for instance Farrar and Selwyn (1967) and Masulis and Trueman (1988). However, Huberman (1990) develops a model based on information asymmetries and arrives at dividend irrelevance conclusion even after relaxing the assumption of transaction costs. Empirical finding by Penman and Siougiannis (1997) provide support for the dividend irrelevance view.

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The assumption of information symmetry has however been considered unrealistic and unlikely to hold in the real world. In view of this, several models on dividend policy based on the assumption of information asymmetry have been proposed. One explanation proposed on dividend policy is the signaling hypothesis. Spence (1974) generalization of Akerlof's (1970) model became the basis for all models of signaling. Models supportive of signaling hypothesis include Bhattacharya (1979), Hakansson (1982) John and Williams (1984), Miller and Rock (1985), Bar-Yosef and Huffman (1986), Makhija and Thompson (1986), Ofer and Takor (1987), Kumar (1988), Kale and Noe (1990) and Rodriguez (1992). Generally, the proponents of signaling theories argue that dividends carry important information content and the use of dividends as signals imply that alternative methods of signaling are not perfect substitutes. They contend that dividends announcements convey information over and above that contained in alternative announcements. Studies that provide empirical support for the signaling hypothesis include those of Friend and Puckett (1964), Fama, *et al.*, (1969), Higgins (1972), Petit (1972), Aharony and Swary (1980), Asquith and Mullins (1983), (1986), Vaughan and Williams (1998), Nissim and Ziv (2001), and Koch and Sun (2004). Watts (1973) and Gonedes (1978) on the other hand find evidence contrary to the signaling hypothesis.

Kose and Kalay (1982), Rozeff (1982), Fama and Jensen (1983), and Easterbrook (1984) on the other hand have theorized the dividend question along the agency-cost axis. The agency cost explanation posits that dividends set in motion mechanisms that reduce the agency costs of management and that prevent one group of investors from gaining, relative to another, by changes in the firm's fortunes after financial instruments have been issued. Jensen (1986) free cash flow hypothesis posits that funds remaining after financing all positive net present value projects cause conflicts of interest between managers and shareholders. In such an environment Jensen argues that dividend and debt interest payments decrease the free cash flow available to managers to invest in marginal net present value projects and manager perquisite consumption. The fact that Myers, (1987) contends that the combination of agency, and signaling theory should better explain dividend policy than either theory alone, has done little to quell the dividend policy discourse

Yet still, the argument by behavioral theorists that the dividend puzzle can be unraveled by the introduction of the behavioral perspective of managerial and investor decision making in traditional financial models have failed to bring out convergence. In fact the self control theory by Thaler (1980) and Shefrin and Statman (1984) and the prospect theory by Kahneman and Tversky (1982) fail to bring the dividend puzzle to closure.

Despite the divergent explanations on the dividend policy and despite contrary evidence, the signaling hypothesis continues to dominate dividend policy literature. It also continues to find more intuitive appeal and to attract empirical testing among financial researchers. The purpose of this paper is therefore to investigate the signaling property of dividend for firms listed in the Nairobi Securities Exchange (NSE). Our approach is different in that it uses pooled TSCS scaled data and Panel Corrected Standard Error (PCSE) estimation method over a longer period of time 13 years in total (1998 to 2010) for 40 firms providing a total of 512 firm observations

A general test of the signaling hypothesis has been proposed by Ohlson (1995 and 2001) residual income model. Hand and Landsman (2005) contend that the important feature in the Ohlson model is that it does not permit information asymmetry, which allows for a clean test of the dividend displacement property in which dividend payments are postulated to reduce future earnings dollar for dollar. It is also rigorously derived from a set of plausible economic and financial assumptions. They go on to argue that, in particular, the Ohlson model parameterizes the links between firms' net dividends, earnings, book values, other information and equity

market values by integrating the dividend discount model with clean surplus accounting, modified first-order autoregressive linear information dynamics, the assumption of no information asymmetry, and market efficiency.

Hands and landsman (2005) summarize Ohlson model as follows:

$$p_t = b_t \sum_{\tau=1}^{\infty} R^{-t} E_t(\tilde{x}^a_{t-\tau}) \quad \text{(i)}$$

where: P_t is equity market value at time t, b_t is equity book value at t, x_t is accounting earnings for period t, residual income or 'abnormal' earnings is given by $x^a_t \equiv x_t - rb_{t-1,}$ r is the one-period risk-free return, and R= 1+ r and E_t is the expectations operator at time t

Ohlson (1995 and 2001) introduced modified information dynamics as follows

$$\tilde{x}^a_{t-1} = \omega x^a_t + v_t + \tilde{\varepsilon}_{1,t+1} \quad \text{(ii)}$$

$$v_{t-1} = \gamma v_t + \tilde{\varepsilon}_{2,t+1} \quad \text{(iii)}$$

$$0 \leq \omega \leq 1; 0 \leq \gamma \leq 1.$$

Combining equations *(ii)* and *(iii)* yields a reduced form solution given by:

$$p_t = (1-k)b_t + k(\varphi x_t - d_t) + \alpha_2 v_t \quad \text{(iv)}$$

Where: $\varphi = \frac{R}{R-1}; k = \frac{(R-1)\omega}{R-\omega}; \alpha = \frac{R}{(R-\omega)(R-\gamma)}$

$$\varphi > 0, 0 \leq k \leq 1, \alpha > 0$$

Though equation *(iv)* is frequently applied in empirical testing by assuming that $v = 0$, Ohlson (2001) demonstrates from the assumed linear information dynamics that although v is not directly observable, it can be inferred from its influence on expectations. Thus, taking rational expectations at t of the first linear information dynamic equation *(ii)* yields:

$$v_t = E_t(\tilde{x}^a_{t-1}) - \omega x^a_t \quad \text{(v)}$$

That is, v is next period's full information expectation of abnormal earnings less the purely autoregressive forecast of next period's abnormal earnings.

In order to assess the extent to which the dividend displacement hypothesis holds, we can compare the sign of the estimated coefficient of the dividend term (d_t) of the linear equation in *(iv)* and compare it with its predicted value that is based on the information dynamics parameter ω. It is assumed that $v_t = 0$.
Consequently, a negative coefficient of the dividend term is expected i.e.

$$-k\frac{-(R-1)\omega}{R-\omega} < 0$$

Hand and Landsman (2005) suggest a more general test that involves the calculation of the partial derivative $\delta P_t/\delta d_t$ which can be calculated using Equation *(iv)* as a linear combination of the coefficients on the dividend variable less the coefficient of book value: $\delta P_t/\delta d_t = (-k)-(1- k)$ Under the hypothesis of dividend displacement property holds, the partial derivative $\delta Pt/\delta dt$ is expected to equal −1.

Methodology

This study uses a Time Series Cross Section (TSCS) research design, a quasi experimental research design. TSCS designs have long been considered one of the best designs for the study of causation, next to a purely random experiment (Stimson 1985). Campbell and Stanley (1967), for example, refer to TSCS designs as "excellent quasi-experimental designs", perhaps the best of the more feasible designs." Lempert (1966) states that TSCS designs are research designs "par excellence." In addition to their potential for detecting causal relationships, TSCS designs offer a number of distinct advantages. Pennings, *et al.*, (1999), contends TSCS designed are superior in capturing not only the variation of what emerges through time or space, but the variation of these two dimensions simultaneously. Hsiao (1986) adds that, by utilizing information on both the intertemporal dynamics and the individuality of the entities being investigated, one is better able to control in a more natural way for the effects of missing or unobserved variables.

Several complications have however been attributed to TSCS designs. Hicks (1994) contend that TSCS often violate the Standard Ordinary least Square (OLS) assumptions about the error process[2]; the OLS regression estimates are likely to be biased, inefficient and/or inconsistent when they are applied to pooled data[3]. In particular Hicks (1994) argues that errors tend to be serially and contemporaneously correlated[4]. The errors also tend to be heteroskedastic[5].

In view of these complications, it is not practical to use OLS regression for TSCS data. Parks (1967) and Kmenta (1986) recommend an application of the Generalized Least Squares (GLS) estimation on the assumption that the variance-covariance matrix is known. However since this assumption does not usually hold (Kmenta, 1986) recommend the use Feasible Generalized Least Squares (FGLS). Beck and Katz (1995; 1996) however review FGLS and claim the FGLS is not optimal[6], they recommend application of Panel Corrected Standard Errors (PCSE). In line with Beck and Katz's recommendation this study applied PCSE to TSCS data. Unlike previous studies that employ OLS regressions, this study is novel in this respect.

Data and Summary Statistics

[2] For OLS to be optimal it is necessary that all the errors have the same variance (homoskedasticity) and that all of the errors are independent of each other.

[3] An unbiased estimator is one that has a sampling distribution with a mean equal to the parameter to be estimated. An efficient estimator is one that has the smallest dispersion, (i.e., one that one whose sampling distribution has the smallest variance). An estimator is said to be consistent if its sampling distribution tends to become concentrated on the true value of the parameter as sample size increases to infinite (Kmenta 1986).

[4] Serially correlated errors tend to be independent form one period to the next

[5] Contemporaneously correlated errors tend across individual observations

[6] Beck and Katz (1995; 1996) claim that, although FGLS uses an estimate of the error process, the FGLS formula for standard errors assumes that the variance-covariance matrix of the errors is known, not estimated. This is a problem for TSCS models because the error process has a large number of parameters. This oversight causes estimates of standard errors of the estimated coefficients to understate their true variability

There are 58 listed firms in the NSE which form the population of the study, however based on the need to provide adequate data, to be included in the study, the firms must have been listed on or before the year 2006, and must not have been suspended from trading in the NSE for the period 1998 to 2010. Of the 58 listed firms, only 40 firms met these requirements, in total 512 firm observations were used in the study. Firms in the study come from the following sectors: Agricultural (17.5%), Automobiles and Accessories (10%), Banking (22.5%), Commercial (12.5%), Construction & Allied (12.5%), Energy & Petroleum (7.5%), Insurance (7.5%), Investment (2.5%) and Manufacturing & Allied (7.5%) the list of firms are given in appendix 1

Model specification

The study follows Hand and Landsman (2005) approach in testing the dividend displacement property. They contend that a more general test of the dividend displacement property involves the calculation as a linear combination of the coefficients on the dividend variable less the coefficient of book value. Adjaoud *et al.,* (2006) also adopt the same approach in testing the dividend displacement property. This study however differs from the two earlier studies in two respects, first they do not control for size. Pagano *et al.,* (2000) contend that size influences the dividend policy of firms. Baker *et al.,* (2002) contend that market capitalization may be used to control for size[7]. In fact Ruland and Zhou (2006) use market capitalization to control for size. Following Baker *et al.,* (2002), this study controls for size through the incorporation of market capitalization in the model. Secondly the study uses TSCS pooled panel data and control for its limitations using PCSE regressions
Accordingly the model to be tested is:

$$lnMPS_t = \alpha_0 + \alpha_1 DPS_t + \alpha_2 EPS_t + \alpha_3 BVPS_t + \alpha_4 lnMC_t + \varepsilon_t$$

Where:

lnMPS$_t$ is the natural log of market price per share of equity;
DPS$_t$ is the dividend per share;
EPS$_t$ is the accounting earning per share;
BVPS$_t$ is the book value per share;
lnMC$_t$ is the natural log of market capitalization.
ε_t is the error term.

The hypothesis of dividend displacement is true if α_1-α_3= -1 cannot be rejected at a 95 percent level of confidence.

Results and Discussion

The Pearson's correlations presented in table 1 reveal that apart from EPS, all the other independent variables are significantly correlated with the dependent variable and to a certain degree among each other. With this hindsight this study differs from previous studies in by

[7] Vaughan and Williams (1998) and Lang *et al.,* (2002) use total assets to control for firm size

acknowledging the limitation of OLS, GLS or FGLS estimation methods in dealing with autocorrelation and heteroskedasticity by adopting PCSE regression[8]

Table 1: Pearson's Correlations for model variables

	*ln*MPS	DPS	EPS	BVPS	*ln*MCap
*ln*MPS	1.000				
DPS	0.531***	1.000			
EPS	0.217	0.515***	1.000		
BVPS	0.404**	0.352*	0.423**	1.000	
*ln*MCap	0.595***	0.329*	0.416**	-0.011	1.000

Notes: ****, **, ***** *indicates significance at 10%, 5% and 1% levels respectively*

The Ohlson model is often applied by regressing stock price or equity market value on the current book value and net income. Hand and Landsman (2005) contend that to the extent that the dividend displacement property holds, the coefficient on dividends less the coefficient on book value of equity should equal to -1.

Table 2 presents PCSE regressions linking equity value to accounting information (DPS, EPS and BVPS), following Hand and Landsman (2005) MC is incorporated to control for scale effects[9]. The estimated coefficient of (0.0441) for the full sample Panel A is reliably positive (t = 4.52 and is significant at 1% level). The null hypothesis, H_0: dividend displacement is valid if $\propto_1 - \propto_3 = -1$ cannot be rejected at a 95 percent level of confidence[10]

The estimated $\propto_1 - \propto_3$ of 0.0431 i.e. (0.0441 - 0.001) for Panel A is reliably more positive than -1 (t = – 0.23) and significant at 1% level. Similar results are also found for dividend increases (Panel B) $\propto_1 - \propto_3 = 0.0546 - 0.002 = 0.0526$, for dividend stable (Panel C) $\propto_1 - \propto_3 = 0.0317 - 0.002 = 0.0297$ and for dividend decreases (Panel D) $\propto_1 - \propto_3 = 0.0217 - 0.003 = 0.0187$.

Contrary to Miller and Modigliani dividend displacement hypothesis but consistent with Fama and French (1998), Hand and Landsman (2005) and Adjaoud *et al.,* (2006) findings indicate that dividends are positively priced in a cross section of NSE firms' equity values. Our estimates of the dividend coefficient (0.0441) is significantly smaller than estimate of Hand and Landsman (3.47) and that of Adjaoud *et al.,* (2006) of 11.927. The differences in the estimates of the coefficients may be attributed to the following: The use of PCSE significantly reduced the estimates. The estimates of the coefficients using GLS fixed effects were (4.05) and the estimates of the other terms in the model revealing a confounding problem and lower R^2 scores. In this respect PCSE estimation approach provided more reliable estimates. Secondly a comparison of coefficients using scaled and unscaled data revealed that unscaled data produced higher estimates of the coefficients. The study used scaled data following Pagano *et al.,* (2002) who also believe scaled data provided more realistic results when dealing with dividends.

[8] Panel regressions conducted by this study using OLS and GLS revealed and confounding problem especially with the coefficients, and the R^2 scores were lower than those reported for PCSE. GLS, fixed effects coefficients were however less confounded and the R^2 higher than those estimated using OLS regressions.

[9] Barth and Kallapur (1996) argue that unscaled data is heteroskedastic.

[10] Following Adjaoud *et al.,* (2006) $\hat{t} = \frac{\hat{\alpha}_1 - \hat{\alpha}_3}{\sqrt{\text{Var}(\hat{\alpha}_1)+\text{Var}(\hat{\alpha}_3)-2\text{Cov}(\hat{\alpha}_1,\hat{\alpha}_3)}}$ since panel correlations are based on number of observations these may be considered large samples so that the critical t- statistic for n-2 degrees of freedom is 1.96

Table 2: Summary statistics from PCSE regressions linking equity value to accounting information Hand and Landsman (2005)

Coefficients	α_0	α_1	α_2	α_3	α_4	R^2	N
Panel A: Full Sample 1998-2010	1.661 4.33 ***	0.0441 4.52 ***	0.003 0.93	0.001 6.15 ***	0.315 7.43 ***	0.571	36
Panel B: Dividend (Increase) 1998-2010	1.941 3.58 ***	0.0546 2.64 ***	0.001 0.10	0.002 4.41 ***	0.3419 5.91 ***	0.640	10
Panel C: Dividend (Stable) 1998-2010	1.751 4.05 ***	0.0317 2.78 ***	0.006 1.43	0.002 5.93 ***	0.3245 6.71 ***	0.566	19
Panel D: Dividend (Decrease) 1998-2010	1.743 4.16 *	0.0217 1.94 ***	0.011 3.37 ***	0.003 6.27 ***	0.321 7.14 ***	0.639	7

Notes: *The model estimated is* $lnMPS_t = \alpha_0 + \alpha_1 DPS_t + \alpha_2 EPS_t + \alpha_3 BVPS_t + \alpha_4 lnMC_t + \varepsilon_t$. *Where: $lnMPS_t$ is the natural log of market price per share of equity; DPS_t is the dividend per share; EPS_t is the accounting earning per share; EPS_t is the book value per share; $lnMC_t$ is the natural log of market capitalization. All variables are indexed by time.*

For each PCSE regression, the first row reports the estimated coefficient, and the corresponding T/Z statistic is reported in second row.

*Corresponding levels of significance are in the third row, *, **, *** indicates significance at 10%, 5% and 1% levels respectively*

Though the hypothesis of dividends as signals of information about future earnings is shown to be valid, we cannot rule out the hypothesis that dividends may be also signals about mitigation of excess free cash flows along the lines of Jensen (1986) free cash flow hypothesis. Following Hand and Landsman (2005) and Fuller and Thakor (2003) EPS is taken as a proxy for free cash flows, they contend that dividends will be more credible signals of high future profitability when current earnings are negative than when current earnings are positive because as Altman (1968) argues when currents earnings are negative, the firm is more likely to be heading towards financial distress. Evidence in favour of the free cash flow hypothesis will therefore require that the coefficient of the dividend term is greater for profit firms (positive EPS) than for negative (EPS) contrary findings will be evidence in favor of the hypothesis of dividends as signals of information about future earnings.

The study therefore partitions the two- positive EPS and negative EPS and conducts PCSE regressions for panels A to D as in table 9. Table 3 reports summary statistics similar to those in table 2 but for partitioned data where EPS is positive the coefficients for the of the dividend term are 0.041, 0.043, 0.024 and 0.028 for panel A, B, C and D respectively. For panel D there were only two firms in the sample consequently the outputs for the t-test and the significance levels were not possible. The inference drawn by the study from the small number of firms in this panel compared to other panels in the table is along the lines dividends as signals

of future profitability in which case firms are unwilling to reduce dividends unless they are absolutely sure about poor future earnings prospects.

Table 3: Summary statistics from PCSE regressions linking equity value to accounting information Hand and Landsman (2005) for partitioned data where EPS is positive

Coefficients	α_0	α_1	α_2	α_3	α_4	R^2	N
Panel A: Full Sample 1998-2010	1.595 4.05 ***	0.041 3.93 ***	0.008 2.02 **	0.001 3.26 ***	0.308 7.19 ***	0.5632	30
Panel B: Dividend (Increase) 1998-2010	2.09 4.00 ***	0.043 2.26 **	0.012 2.05 **	0.001 2.18 **	0.357 6.38 ***	0.6693	10
Panel C: Dividend (Stable) 1998-2010	1.675 3.87 ***	0.024 1.77	0.016 1.53	0.001 2.66 ***	0.316 6.79 ***	0.5793	18
Panel D: Dividend (Decrease) 1998-2010	1.638 - -	0.028 - -	0.004 - -	0.003 - -	0.309 - -	0.6383	2

Notes: *The model estimated is* $lnMPS_t = \alpha_0 + \alpha_1 DPS_t + \alpha_2 EPS_t + \alpha_3 BVPS_t + \alpha_4 lnMC_t + \varepsilon_t$.
Variable definitions are similar to those on table 2
Panel D variance matrix is non-symmetric or highly singular thus no output for the t-test values or P values
For each PCSE regression, the first row reports the estimated coefficient, and the corresponding T/Z statistic is reported in second row.
*Corresponding levels of significance are in the third row, *, **, *** indicates significance at 10%, 5% and 1% levels respectively.*

Table 4 on the other hand reports summary statistics similar to those in table 2 but for partitioned data where EPS is negative the coefficients for the of the dividend term are 0.085, 0.472 and 0.251 for panel A, C and D respectively. Intuitively, no firms with negative EPS increased their dividend payments; one firm maintained the level of dividend payment (panel C) in the view of negative earnings for this firm it was not possible to report the t-scores and p-values.

Comparing the coefficient for the dividend term for Tables 3 and 4 reveals that those in Table 4 are marginally higher than those of Table 3. The dividend coefficients for table 4 are also higher than those of Table 2. We infer this to mean that is no evidence to support the free cash flow hypothesis for the study sample. We are therefore left with the hypothesis that dividends are used as signals for information about future earnings prospects. These findings are consistent with the findings of Hand and Landsman (2005) but inconsistent with those of Ruland and Zhou (2006)

Table 4: Summary statistics from PCSE regressions linking equity value to accounting information Hand and Landsman (2005) for partitioned data where EPS are negative.

Coefficients	α_0	α_1	α_2	α_3	α_4	R^2	N
Panel A: Full Sample 1998-2010	1.507 2.84 ***	0.085 0.34	0.005 1.47	0.003 9.43 ***	0.289 4.58 ***	0.5425	6
Panel B: Dividend (Increase) 1998-2010	-	-	-	-	-	-	0
Panel C: Dividend (Stable) 1998-2010	3.7 - -	0.572 - -	-0.077 - -	001 - -	0.618 - -	0.5137	1
Panel D: Dividend (Decrease) 1998-2010	1.115 1.67 *	0.251 2.80 ***	-0.001 -0.17	0.002 1.93 *	0.241 3.05 ***	0.6446	5

Notes: *The model estimated is* $lnMPS_t = \alpha_0 + \alpha_1 DPS_t + \alpha_2 EPS_t + \alpha_3 BVPS_t + \alpha_4 lnMC_t + \varepsilon_t$.

Variable definitions are similar to those on table 2

Panel C variance matrix is non-symmetric or highly singular thus no output for the t-test values or P values.

For each PCSE regression, the first row reports the estimated coefficient, and the corresponding T/Z statistic is reported in second row.

*Corresponding levels of significance are in the third row, *, **, *** indicates significance at 10%, 5% and 1% levels respectively*

Discussion

In the light of the divergent views and accompanying supportive empirical findings on dividend puzzle, the study's results provide further empirical evidence that dividends are used as signals about future earnings prospects of the firm. Using Fuller and Thakor (2003) approach of EPS as a proxy for free cash flows we do not find evidence in support of findings the free cash flow hypothesis. The coefficients of the dividend term for negative EPS firms are generally shown to be higher providing evidence in support of the signaling hypothesis rather than the free cash flow hypothesis. In fact firms with negative EPS in the sample did not increase dividend. One of the possible reasons which is in line with the signaling hypothesis, is that firms will only increase dividend if they are absolutely sure the future earnings prospects will allow them to maintain the higher payout. A caveat should however be given especially for the results from firms with negative EPS, the sample is too small to provide conclusive results. Ruland and Zhou (2006) find evidence supportive of the free cash flow hypothesis using growth opportunities as a proxy for free cashflows.

The caveat notwithstanding, the results provide support to the findings of among others Hand and Handsman (2005) Nissim and Ziv (2001), Vaughan and Williams (1998), Koch and Sun (2004) and Bose and Husain (2011) who use different methodologies, indifferent contexts,

periods and sample sizes to arrive at the similar findings. Our findings however contradict the Miller and Modigliani dividend irrelevance hypothesis and Watts (1973) contention that any information contained in dividends is trivial and that any value attributable to the trivial information is lost in the noise. They also further contradict those of Penman and Siougiannis (1997) who finds a negative relationship between dividends and future earnings and the substitutability of dividends with GAAP earnings

Conclusion

This study investigates the signaling hypothesis by testing the dividend displacement property of dividends using Ohlson (1995; 2001) model and following hand and Landsman 2005 approach. The study however varies the methodology by using TSCS data and controlling for autocorrelation and heteroskedasticity through PCSE estimation. The study also controls for size to take care of scale effects. Findings from the study provide further empirical evidence that dividends are used as signals about future earnings prospects of the firm. In line with the signaling explanation we do find any firm in our sample of firms with negative EPS that increases dividends. This supports the view that firms only increase dividend if they are absolutely sure the future earnings prospects will allow them to maintain the higher payout. Following Thakor (2003) approach in testing for the free cashflow hypothesis, results from the study do not provide evidence in favour of the cashflow hypothesis it is therefore ruled out. These results shed further insights on the controversy regarding the information content of dividend changes about future profitability

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Appendix 1: List of NSE firms included in the study sample

No.	Company name/ Sector
Agricultural (17.5%)	
1.	Kapchorua Tea Company
2.	Eaagads
3.	Limuru Tea Company
4.	Williamson Tea Kenya
5.	Kakuzi
6.	Rea Vipingo Plantations
7.	Sasini Tea and Coffee
Automobiles and Accessories (10%)	
8.	Car and General
9.	CMC Holdings
10.	Marshalls (East Africa)
11.	Sameer Africa Limited
Banking (22.5%)	
12.	Kenya Commercial Bank
13.	Equity Bank
14.	Barclays Bank of Kenya
15.	CFC Bank
16.	Diamond Trust Bank
17.	Housing Finance Company
18.	National Bank of Kenya
19.	NIC Bank
20.	Standard Chartered Bank
Commercial (12.5%)	
21.	Nation Media Group
22.	Standard Group
23.	Tourism Promotion Services
24.	Express Kenya
25.	Kenya Airways
Construction & Allied (12.5%)	
26.	Athi-River Mining
27.	Bamburi Cement
28.	Crown-Berger Kenya
29.	East African Cables
30.	East African Portland Cement
Energy & Petroleum (7.5%)	
31.	Kenya Oil Company
32.	Kenya Power and Lighting Company
33.	Total Kenya
Insurance (7.5%)	
34.	Jubilee Insurance
35.	Pan Africa Insurance
36.	British American Tobacco Kenya

Investment (2.5%)	
37.	Centum Investments
Manufacturing & Allied (7.5%)	
38.	East African Breweries
39.	BOC Kenya
40.	Unga Group