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FINANCIAL ECONOMICS | RESEARCH ARTICLE

Does earnings distribution policy influence corporate stock price instability? Empirical evidence from Tanzanian listed industrial firms

Josephat Lotto^{1*}

Abstract: This paper primarily aims at examining the impact of dividend policy on stock price volatility of industrial firms listed in the Dar es Salaam Stock Exchange employing data collected from audited published financial statements for the period 2009–2019. The paper utilized a panel data regression estimation method, and the results show that both measures of dividend policy—dividend yield and dividend payout ratios—have negative significant relationship with stock price volatility. This may indicate that the increase in firm’s dividend yield and dividend payout lowers the stock price volatility, which in return, improves corporate stock price stability. The results, therefore, provide important implications for risk management practices, financial securities valuation and government policy towards stock market development. Also, since both management and investors are concerned about the volatility of stock price, the findings of this paper shed light on the path way to discovering what moves stock price and important factors to be considered by investors before making investment decisions, and managements by establishing their ability to utilize dividend policy as a mechanism of controlling the stock price volatility.



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Josephat Lotto is a Senior Lecturer in Finance and Corporate Governance at the Institute of Finance Management in Tanzania. He graduated with a PhD in Corporate Governance and Financial Strategies from the UK in 2012. He also holds MSc in Finance, MBA and CPA (T). Josephat’s research interest lies at the heart of Corporate Governance and Financial strategies where the current paper forms a part of the research agendas around the broad theme. He has published over 30 research papers in various academic journals and he is a reviewer of several academic journals published by some reputable publishing houses such as Wiley & Sons, Inc., Taylor & Francis Group which publishes quality peer-reviewed journals under the Routledge; Multidisciplinary Digital Publishing Institute (MDPI), Elsevier, IEEE Access and Springer Nature. Such Journals include; *International Journal of Finance and Economics*, *African Journal of Economics and Management Studies*, *Development Policy Review*, *The European Journal of Finance, Sustainability Journal* and *International Advances in Economics, Risks*, etc.

PUBLIC INTEREST STATEMENT

Volatility often refers to the amount of uncertainty or risk related to the size of changes in a stock’s value. A higher volatility means that a stock’s value can potentially be spread out over a larger range of values, and a lower volatility means that a stock’s value does not fluctuate dramatically, and tends to be steadier. A firm’s dividend decision may serve as a signaling device which gives clues about a firm’s future stock prices. Studies have shown that stock prices tend to increase when an increase in dividends is announced and tend to decrease when a decrease or omission is announced. Managers have more information than investors about the firm, and such information may inform their dividend decisions. When managers lack confidence in the firm’s ability to generate cash flows in the future, they may keep dividends constant or possibly even reduce dividend payable.

Subjects: Economics; Finance; Business Management and Accounting

Keywords: Dividend policy; dividend yield; dividend payout; stock price; volatility

1. Introduction

Dividend policy is conceivably one of the most discussed issues amongst economics and finance researchers, yet no consensus is reached. Literature considers dividend yield as one of the measures of corporate dividend. Berk and DeMarzo (2017) define dividend yield as the percentage return an investor expects to earn from the dividend paid by the stock. Literature further agrees that dividend paid by the stock has an impact in share price fluctuation, and that the two are imperative aspects within the field of corporate finance because they are of interest for shareholders and investors. According to Green (2020), stock price volatility explains how the stock market fluctuates or change over time. To cement view Baskin, Policy Baskin (1989) insists that investors are interested in less volatile stocks with a stable or increasing dividend yield as it decreases the risk.

Literatures such as Asquith and Mullins (1983) pronounce the informational role of dividend policy on influencing corporate value. Miller and Rock (1985) associate dividend payout with an informational content that offers positive signals of the firm's future earnings to investors. In a practical context, dividend payout decisions are unique and are interlinked to other management decisions such as capital planning, capital structure, mergers and acquisitions, and asset pricing. In view of the importance of corporate dividend policy, the relevance of dividend decisions on stock prices remains to be of concern to researchers since the past several decades, particularly in the context of developing markets.

In a famous study of the US public-listed firms, Baskin (Policy Baskin, 1989) proposed a fundamental theory relating dividend policy to stock price volatility. Using the arbitrage realization effect, the author suggests that dividends tend to pull back a firm's stock from its fair price. He further stresses that dividends are not just a set of information flow into the market, but are also an indication of market confidence towards the firm's performance. Following these two arguments, dividend policy may suggestively affect the volatility of a firm's stock price. While a number of studies have been conducted in developed economies (Allen and Rachim, 1996; Hussainey et al., 2011; Profflet & Bacon, 2013), few have focused on the developing countries such as Tanzania. Capital markets in developing countries display very unique behaviors. More specifically, they are smaller in size, less efficient and have been considered as riskier and more volatile compared to their developed counterparts (Kumar & Tsetsekos, 1999). Even when, at the moment, it is believed that rapid globalization over the past few decades has glued economies closer together, capital markets from developing countries are still yet to have been fully integrated within global capital markets (Bekaert & Harvey, 2017).

Even so, the importance of stock markets towards the growth of the real economy should not be discounted due to its crucial contribution in wealth generation and corporate liquidity growth. A number of empirical results on the relationship between stock price volatility and corporate dividend policy are built on the foundation of the arbitrage realization effect as proposed by Baskin (Policy Baskin, 1989), and their results remain controversial.

While some studies report direct relationships (e.g., Zakaria et al., 2012), some report indirect relationships (e.g., Baskin, Policy Baskin, 1989; Allen & Rachim, 1996; Hussainey et al., 2011). Moreover, other studies such as Rashid and Rahman (2008) report insignificant relationships between stock price volatility and dividend policy. Such inconsistent results have been associated with contextual differences of each study, and the literature suggests that industry-specific analyses are vital to overcome industry variations of dividend payout in order to get a better understanding of the impact of dividend policies on stock market variations, particularly in the context of emerging economies (Zainudin et al., 2018).

Tanzania Development Vision 2025 recognizes the leading role of the industrial sector in the process of transforming its economy to a self-sustainable semi-industrial one. The industrial sector plays a significant role in the country's transformation from a commodity-based to an industry-based economy. The improvement and sustainability of industrial firms' value—determined by how volatile the stock prices are—becomes a key focus of the country towards fulfilling its 2025 development vision. It is from the aforementioned country's vision that this paper focuses on industrial firms listed in DSE by examining how stock price volatility is influenced by corporate dividend policy. Most of previous studies focused on developed economies, and little is known in emerging economy like Tanzania. The Tanzanian stock market is one of the emerging markets with distinct characteristics—often relatively smaller in size, more volatile and have less information efficiency, Kumar and Tsetsekos (1999). Studying the relationship between stock price volatility, which is the measure of the information environment of the stock market, is imperative for investors because volatility is a publicly available measure and investors can use it to determine which firms are more likely to disgorge more cash in the form of dividends to shareholders, and focusing on this emerging market is an eye-opener towards understanding the role of dividend policy as a mechanism of controlling the stock price volatility. Additionally, the paper is of interest and important for managers of organizations since they have to be mindful of keeping the liquidity stable for daily corporate operations and maintaining financial health for future capital investments, in order to augment operational capacity, capture a large market share as well as generate additional revenue to the firm as advocated by Hakeem and Bambale (2016).

The results of the paper will further provide important implications for risk management practices, financial securities valuation and government policy towards stock market development and ultimately economic growth.

2. Related literature

2.1. Theoretical underpinning

One of the most controversial management decisions is that of splitting corporate earnings into dividend and retained earnings, and this has attracted researchers' attention for a couple of decades now. This decision is known as dividend decision which should be made in line with value maximization principle measured as the growth of firm's stock price.

In general, payment of dividend may either hurt the firm value or improves it. Dividend decision is, therefore, built on the foundation of three schools of thought in regards to its relationship with firm value. The first school of thought is the *dividend irrelevance school of thought* which suggests that dividend policy has no effect on stock price; hence the value of the firm in a perfect capital market will not be affected (Black, 2006; Miller & Modigliani, 1961). The second school of thought claims that payment of dividend is a threat to average stockholders due to tax disadvantage attached to dividends which, of course, reduces value (Brennan, 1970; Litzenberger & Ramaswamy, 1979). Finally, the bird-in-the-hand school of thought argues that dividends are favorable and will lead to an increase in the wealth of the shareholders through its influence on stock price (Pettit, 1972).

In addition to these three theories, the signaling theory describes how the increase of dividend payout sends good signals to the market participants in relation to company's future profits (Miller & Rock, 1985), and this further translates into improvement of the share price (vice versa).

In the context of the agency cost theory, dividend payments minimize agency costs between the shareholders and managers (Moh'd et al., 1995). Dividend payment displays the manager's commitment in maximizing the shareholder's investment fund without having to invest the funds into risky and/or unprofitable projects. According to information asymmetry theory, dividend carries information which may signal increase or decrease of stock price, and cause stock prices volatility. Roll (1988) defines volatility as the extent to which stock prices co-move with the market depending on the relative amounts of firm-specific and market-level information bundled altogether into the stock prices, and the informativeness, according to Gelb and Zarowin (2002), means the

changes in stock prices due to potential changes in future earnings. Therefore, in efficient stock markets, stock prices show low volatility because of high firm-specific return variation, which signals more firm-specific information included in stock price.

2.2. Empirical literature

Built on the understanding presented in the preceding section, a handful literature links the relationship between stock price volatility and the amount of firm-specific information incorporated in the stock prices (Durnev et al., 2003; Morck et al., 2000; Piotroski & Roulstone, 2004). In the emerging markets context, Al-Yahyaee et al. (2011) show empirical evidence that stock prices in Oman respond positively (negatively) to increase (decrease) in dividends, whereas firms with no change in their dividends have negative returns. Their findings are consistent with the dividend information content hypothesis. Many other studies report high stock volatility in emerging countries (Fernandes & Ferreira, 2008; Morck et al., 2000) attributing this to various factors that cause lack of firm-specific information. Emerging stock markets are known to be less liquid and more volatile than developed stock markets (ElBannan, 2017; Peranginangin et al., 2016). Furthermore, Morck et al. (2000) argue that poor protection of property rights, political events and corporate insiders' problems in emerging countries hinder the capitalization of firm-specific information in stock prices and restrict informed trading, thus decreasing firm-specific stock price variation and increase market information variation, and hence increasing stock return synchronicity.

Plenty of literature has examined the relationship between dividend policy and share price volatility, and the results remain inconsistent. Some of the literature reports a statistically positive relationship while others report a negative relationship. Studies have spread across the globe from emerging markets to developed ones. For instance, Nazir et al. (2010) report that, in Pakistan, share price volatility has a significant negative association with dividend yield and dividend payout. Also, Shetty and Rao (2020) report the effect of dividend announcements on stock prices in emerging market. They reveal that cash dividend; retention ratio and return on equity had a significant positive relation with stock market prices and significantly explain the variations in the stock prices. Furthermore, Dalyop (2010) conducted a study to analyse dividend policy and share price volatility in Nigeria, and the results of their study show that, the general effect of dividend yield on price volatility observed at a higher significance level. Also, Allen and Rachim (1996) examined the relationship between stock price volatility and dividend policy, and the results reveal that dividend yield is correlated with stock price volatility and consistent with expectations.

Accordingly, the negative impact of dividend policy on share price volatility could be explained by signaling effect and Bird-in-hand theory. Consequently, it is argued that the investors enable to predict the potential growth and investment opportunities of the firms by referring dividend payout. In other words, a higher dividend payout will reduce the risk associated with future capital

gains (Diamond, 1967). Thus, the higher payout ratio is, the lesser volatile the share price is. In the context of emerging market like Tanzania where the information asymmetry is unmatched the following hypothesis can be proposed;

H1: There is a significantly negative impact of dividend payout on share price volatility

Meanwhile, as advocated by Baskin, (Policy Baskin, 1989), the negative correlation between dividend yield and share price volatility can be well explained by duration effect and arbitrage effect. According to Baskin (Policy Baskin, 1989), the fluctuation of discount rate of a given stock has less impact on dividend yield when a such a stock has a high dividend yield, and indeed, the higher dividend yield probably sends a signal of near-term cashflows, so it is expected to have a less volatility in share price (Gordon, 1959). Additionally, in an inefficient financial market, like Tanzania the investors with superior information can enjoy the benefits from mispricing unlike

those investors who are heavily affected by the problem of information asymmetry. In the same line of argument, we may propose the following hypothesis:

H2: There is a significantly negative impact of dividend yield on share price volatility

3. Empirical design

3.1. Data and variable measurement

Data used in this paper is hand-collected from the published audited financial statements of listed industrial companies for a period 2009–2019. For a firm to qualify entering the sample it had to fulfill two screening criteria; it should be continuously listed on DSE throughout the sample period; and it also should have a complete financial data for the entire period of study. Most companies lacked some information required prior to 2009 so the period before 2009 would not be useful for this purpose. Out of the total 29 firms listed in Dar es Salaam Stock Exchange, 13 non-industrial firms were excluded from the study. Out of the remaining sample of 16 firms, 5 of them were removed from the sample as they either did not have complete information or they were not listed in the exchange market continuously for the period of the study. In general, only 11 industrial firms form a composition of the sample. These firms are continuously listed for the period of the study and none of them exited during the period under study and no new firm joined the sample during the period. Also, firms in the sample are considered to have had substantial variation in terms of size, earnings, leverage, growth and payout.

3.2. Model specification

As in Baskin's (Policy Baskin, 1989), we estimate our model which explains the impact of dividend policy on corporate stock price volatility. Our model is a panel regression with DPR and DY as independent variables and Stock Price Volatility (SPV) as the dependent variable. The model utilizes the panel data of firms listed in DSE for a period of 10 years. Firm's size (SZ), Leverage (LEV), Earnings Per Share (EPS) and Firm Growth (GRTH) are included as control variables, and the ultimate regression equation reads as follows;

$$SPV_{it} = \beta_0 + \beta_1DPR_{it} + \beta_2DY_{it} + \beta_3SZ_{it} + \beta_4LEV_{it} + \beta_5GRTH_{it} + \alpha_{it}$$

Where;

SPV_{it} = Stock Price Volatility of the i th firm at time t ;

DPR_{it} = Dividend Payout Ratio of the i th firm at time t ;

DY_{it} = Dividend Yield of the i th firm at time t ;

SZ_{it} = Firm Size of the i th firm at time t ;

LEV_{it} = Leverage of the i th firm at time t ;

$GRTH_{it}$ = Asset Growth of the i th firm at time t ;

α_{it} = Error term.

According to Lotto (2020), and Wooldridge (2005), there is a possibility of omitting some unobservable individual effect in our model, and if the omitted unobservable individual effect is correlated with our independent variables the difference across groups can be captured in differences in the constant term of our model (β_0), and in this case our model will be a *fixed effect model*. On the other hand, if the individual effects have no correlation with independent variables,

then it might be appropriate to model the individual specific constant term as randomly distributed across cross-sectional units, and the model is then a random effect model.

To decide between fixed or random effects a Hausman test was conducted and Chi-squared was found to be 0.091, which is greater than 0.05, and, hence, random effect regression model is preferred over fixed effect model. Random effects model considers the differences between individual firm effects. The rationale behind random effects model is that, unlike the fixed effects model, the variation across firms is assumed to be random and uncorrelated with the predictor or independent variables included in the model. The result of the Hausman test is found in [Table 1 and 2](#).

3.3. Regression diagnostic tests

To confirm that the explanatory variables are virtually linear dependent multicollinearity test was conducted as previously advocated by Omáš (2012). The results of the multicollinearity test are presented in [Table 3](#). In [Table 3](#) the highest correlation among all the variables is observed to be +0.75 which is the correlation between DPR and DY. However, according to Studenmund (2011) the problem of multicollinearity is considered to exist when an absolute value is larger than 0.8. Considering that +0.75 is slightly far from 0.8, we conclude that there is no a serious problem of multicollinearity among our variables.

Wald test for heteroscedasticity was also conducted to check the homogeneity of variance of the residuals. The compliance with this condition is vital before running regression. The results of Wald test presented in [Table 4](#) show a Chi value that is greater than the critical value, implying that the hypothesis for homoscedasticity could be rejected.

4. Empirical results

4.1. Descriptive statistics

[Table 5](#) below shows a descriptive statistics of sample data employed in this paper. The table shows that stock price volatility of industrial firms listed in Dar es Salaam Stock Exchange varies from 0.0141 to 0.478, and stands at a mean of about 0.36 with a standard deviation of about 0.20. The average dividend payout ratio is relatively low by approximately 17% implying that the companies use about only 17% of their after-tax profit to pay dividends to shareholders. Besides, the mean dividend yield of the sampled firms stands at 0.015 with the standard deviation of 1.25%. The statistics of other control variables shows that, on average firms have leverages of 39%, growth rate of 13% and size of 4.4.

4.2. Regression results

[Table 6](#) presents the main results of pooled OLS, FE and RE models. Across all three models, regression results show that only leverage has a positive impact on Stock Price Volatility, while Growth, Firm Size, Dividend Payout Ratio and Dividend Yield have a negative impact on Stock Price Volatility. Level of significance varies from one model to the other but the significance levels of variables is stronger with Random effect model compared to other two models. As previously determined, Hausman test indicates that Random effect model is more relevant in describing the relationship among the given variables as the null hypothesis is not rejected. Thus, we focus on the results of the RE model only and discuss them in detail. [Table 6](#) shows that the random model is able to explain 61 per cent of the total variation in SPV. Also, *F*-statistics and Wald-test χ^2 statistics are found to be significant. Furthermore, the residual autocorrelation was also tested using D-W test, and reported in [Table 6](#). A rule of thumb is that test statistic values in the range of 1.5–2.5 are relatively normal. Field (2009) suggests that values under 1 or more than 3 are a definite cause for concern. The value of our test is within the normal range which brings no fear for serial autocorrelation of variables. Thus, overall, the model is a good fit

Table 1. Variables description

Variables		Description	Source
Dependent Variable	Stock Price Volatility	Standard Deviation of [Annual range of adjusted stock price/average of the high and the low for each year] ²	Baskin (Policy Baskin, 1989), Hashemijoo et al. (2012), and Shah and Noreen (2016)
Independent Variables	Dividend Payout	Ratio of dividends per share to earnings per share	Shah & Noreen, (2016) Camilleri et al. (2019)
	Dividend Yield	The percentage of dividend relative to its share price.	Baskin (Policy Baskin, 1989); Shah and Noreen (2016); Suwanhirunkul and Masih (2018); Camilleri et al. (2019)
	Leverage	Debt to Equity Ratio	Baskin (Policy Baskin, 1989); Shah and Noreen (2016); Suwanhirunkul and Masih (2018); Camilleri et al. (2019)
	Firm Size	Natural Logarithm of Firm Market Value	Baskin, Policy Baskin, 1989; Al-Malkawi, 2008;
	Assets Growth	The average of the change in total assets at the end of the year divided by the total assets at the beginning of the year.	Baskin (Policy Baskin, 1989), Allen and Rachim (1996), Hashemijoo et al. (2012)

Table 2. Hausman test

coefficients			(b-B)	Sqrt(diag(v_b-v_B)) S. E
	(b) fe	(B) re		
DPR	-0.002	0.000	-0.002	.
DY	-0.012	0.000	-0.012	.
LEV	-0.120	-0.135	0.015	0.155
SZ	-0.496	-0.032	-0.464	0.154
GTH	0.060	0.051	0.090	0.112

b = Consistent under H_0 and H_a ; obtained from xtreg
B = inconsistent under H_0 ; Efficient under H_0 ; obtained from xtreg
 Test: H_0 : Difference in coefficient not systematic
 Chi (5) = 10.419
 Prob>chi2 = 0.091
v_b-v_B is not positive definite

Table 3. Correlation matrix for the SPV regression

Variables	DPR	SZ	LEV	DY	GRTH
DPR	1.000	0.345	0.234	0.124	0.465
SZ	0.345	1.000	0.519	0.465	0.561
LEV	0.536	0.519	1.000	0.657	0.308
DY	0.754	0.124	0.236	1.000	0.376
GRTH	0.465	0.561	0.308	0.376	1.000

The reported negative and statistically strong significant relationships between dividend payout and stock price volatility, and that between dividend yield and stock price volatility (at 1% and 5% significant levels respectively) presented in Table 6, are in line with Diamond (1967), Baskin (Policy Baskin, 1989), Allen and Rachim (1996), Nazir et al. (2010) and Hussainey et al. (2011). These results are supported by signaling and bird-in-hand theory implying that the higher dividend may

Table 4. Wald test for heteroskedasticity

Modified Wald test for groupwise heteroscedasticity in the model
 HO: $\sigma^2(i) = \sigma^2$ for all I
 Variables: fitted values of dividend payout ratio

Chi ² (13)		123.87
Prob >chi2		0.000

Table 5. Descriptive statistics

	Mean	Std. Dev.	Minimum	Maximum
SPV	0.357	0.198	0.0141	0.478
DY	0.015	0.012	0.000	0.148
DPR	0.171	0.053	0.000	0.421
LEV	0.392	0.134	0.006	0.872
GRTH	0.132	0.844	0.012	0.765
SIZE	4.404	2.145	0.121	2.524

Table 6. Regression results

Variable	Pooled Regression	Fixed Effect	Random Effect
DPR	-3.345*	-4.665*	-3.675***
DY	-2.45**	-5.12*	-2.612**
SIZE	-1.529*	-1.324*	-0.324**
LEV	1.251*	1.287*	1.127***
GRTH	-0.0123*	-0.0056	-0.003**
F-Value	2.28**	2.18*	2.69***
R ²	0.56	0.57	0.61
F-stat	332.12	298.34	342.12
DW-stat	2.1	2.2	2.4

Note: *, ** and *** means coefficients are significant at 10%, 5% and 1% respectively.

imply a signal of corporate stability, so the investors tend to associate the stocks which pay higher dividends less share price volatility-lower risk.

The results in Table 6 also reveal an inverse relationship between firm size and share price volatility, and that between asset growth and stock price volatility—although these relationships are not as stronger as that between dividend policy and stock price volatility. The reported correlations of firm size and asset growth rate with stock price volatility are statistically significant at only at 5% and 10% significant level respectively. In essence, most of the big firms tend to stabilize their growth rates so they usually pay higher dividend instead of reinvesting most of their earnings into new projects. Among other control variables, it is revealed that leverage had the statistically positive correlation with stock price volatility at 1% significant level. This result suggests that the more leveraged a firm is, the more volatile would be the stock price. Since both management and investors are concerned about the volatility of stock price, the findings of this paper shed a light on the path way to discovering what moves stock price and important factors to be considered by investors before making investment decisions, and management in formulating dividend policies for their firms.

5. Concluding remarks

This paper primarily aims at examining the impact of corporate dividend policy on stock price volatility of listed industrial firms in Dar es Salaam Stock Exchange for the period between 2009 and 2019. The results of the paper reveal that higher dividend payouts have a tendency of reducing the stock price fluctuation. The paper also reports an inverse relationship between dividend yield and stock price fluctuation implying that lower share price variation is influenced by relatively higher corporate dividend yield. In particular, these results are supported by signaling and bird-in-hand theory implying that the higher dividend may imply a signal of corporate stability, so the investors tend to associate the stocks which pay higher dividends with less share price volatility.

Based on these findings, managers can establish and adjust their corporate dividend policy in order to achieve the stock price target or other related strategies. Indeed, for risk-averse investors, increase of dividend payment may be used as the incentive to attract this group of investors because frequent payment of large dividend narrows the share price fluctuation by sending a signal of lower risk perception to the market. In a nutshell, we conclude that the dividend distribution affects market share price, and hence the dividend policy has an impact on stock price. The results of this study are useful and important for investors, managers, lenders and other stakeholders. The results are imperative for the management to formulate the dividend policy in such a way as to minimize stock price volatility. The future study can focus on a larger sample of all types of companies rather than concentrating on the specific industry like in this study, and also more variables such as prevailing macro-economic variables should be added to the model used in this study to check whether such addition may change the results reported.

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