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Dividend policy and share price volatility: UK evidence

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Abstract

Purpose – The purpose of this paper is to examine the relation between dividend policy and share price changes in the UK stock market.

Design/methodology/approach – Multiple regression analyses are used to explore the association between share price changes and both dividend yield and dividend payout ratio.

Findings – A positive relation is found between dividend yield and stock price changes, and a negative relation between dividend payout ratio and stock price changes. In addition, it is shown that a firm's growth rate, debt level, size and earnings explain stock price changes.

Practical implications – The paper supports the fact that dividend policy is relevant in determining share price changes for a sample of firms listed in the London Stock Exchange.

Originality/value – To the best of the authors' knowledge, this paper is the first to show that corporate dividend policy is a key driver of stock price changes in the UK.

Keywords United Kingdom, Dividends, Business policy, Share prices

Paper type Research paper

Introduction

Issues of dividend policy range from its puzzle by Black (1976) to its irrelevance by Miller and Modigliani (1961), to its relevance by DeAngelo *et al.* (1996). Other issues include theories on dividend payment, such as stakeholders' theory, pecking order theory, agency cost, signalling theory, bird-in-hand fallacy and clientele effect. The information asymmetry between managers and shareholders, along with the separation of ownership and control, formed the base for another explanation of why dividend policy has been so popular. Also in line with this subject area, Al-Malkawi (2007) and Al-Najjar and Hussainey (2009) established that there is a negative relationship between dividend payout and outside directorship.

The volatility of share price, on the other hand, is the systemic risk faced by investors who possess ordinary shares investment (Guo, 2002). Investors are by nature risk averse, and the volatility of their investments is important to them because it is a measure of the level of risk they are exposed to. The UK stock market, which cannot be classified as an emerging one, manifests the features of a matured market, with relatively moderate regulations compared to those of emerging markets in Africa. Companies realize, also, that

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investors pay close attention to their dividend returns, and that the riskiness of their investments may affect the valuation of the firm's shares in the long run. This makes the volatility of stock prices as important to firms as it is to investors.

The debate has been whether corporate dividend policy has any relationship with stock price movement. In this connection, this paper is aimed at establishing a relationship between dividend policy and share price volatility, with particular focus on the UK stock market.

The research is premised on the theoretical framework created by Baskin (1989) and Allen and Rachim (1996). We employ correlation and multiple least square regressions in order to establish the extent to which dividend policies of firms in the UK affect their share price changes. We regress share price changes on two dividend variables to establish this relationship. The independent variables are dividend yield and payout ratios. However, this research is different from that of Baskin and Allen and Rachim in some ways:

- It analyses firms in the UK.
- It excludes firms in the finance sector because of their specialised regulatory nature.
- It makes use of more recent years, in which most economies have evolved greatly.
- It discusses the determinants of dividend policy as well as the theories of dividend policy.

Literature review

Dividend policy is a firm's policy with regards to paying out earnings as dividends versus retaining them for reinvestment in the firm. It is the division of profit between payments to shareholders and reinvestment in the firm. Dividend policy is thus an important part of the firm's long-run financing strategies.

Dividend policy and share price volatility

In early corporate finance, dividend policy referred to a corporation's choice of whether to pay its shareholders a cash dividend or to retain its earnings. It addressed the frequency of such payments (whether annually, semi-annually or quarterly) and how much the company should, if it decides to do so, pay.

Dividend policy, in today's corporations, has gone beyond this scope to include such issues as whether to distribute cash via share repurchase, or through specially designated rather than regular dividends. Other issues considered are how to balance the preferences of highly taxed and relatively "untaxed" investors, how to maintain and improve the value of its shares and stocks in the market, etc.

However, the vital questions asked today by corporate managers are the very same ones asked by managers in the 1950s. Lintner (1956) identified these questions as:

- Should dividend payments be maintained at the current level or changed?
- Would investors prefer stable dividend payouts, or those that fluctuate with earnings?
- Should dividend policy favour older or younger investors?

The dividend policy of companies has thus been a common research subject for more than half a century (Lintner, 1956; Gordon and Shapiro, 1956; Modigilani, 1982) and it has been related to several vital corporate matters ranging from agency problems to share valuation.

The volatility of ordinary stock is a measure used to define risk and represents the rate of change in the price of a security over a given time: the greater the volatility, the greater the chance of a gain or loss in the short run. Volatility has to do with the variance of a security's price. Thus, if a stock is labelled as volatile, its price would greatly vary over time, and it is more difficult to say with certainty what its future price will be. Investors prefer less risk. The lesser the amount of risk, the better the investment is (Kinder, 2002). In other words, the lesser the volatility of a given stock, the greater its desirability is.

The link between the dividend policy of corporations and the volatility of their stock prices has been explored at different times by different researchers (Allen and Rachim, 1996; Baskin, 1989). Also, a number of dividend theories exist that attempt to explain the influence of corporate dividend policies on stock prices. These theories include the clientele effect, the information or signalling effect, the bird-in-hand theory and the rate of return effect.

Theories of dividend policy

Dividend policy has been a strong bone of contention in the area of finance; this is evidenced by numerous studies on dividend policy, from Lintner (1956) to Miller and Modigliani (1961) to Bhattacharya (1979) and, more recently, DeAngelo *et al.* (1996), Fama and French (2001), Al-Malkawi (2007) and Al-Najjar and Hussainey (2009). Below are some of the theories of dividend policy.

Dividend irrelevance theory. Miller and Modigliani (1961) proposed that dividend policy is irrelevant to the shareholder and that stockholder wealth is unchanged when all aspects of investment policy are fixed and any increase in the current payout is financed by fairly priced stock sales. The main assumption is that there is 100 per cent payout by management in every period. Other assumptions are:

- that there exist perfect capital markets; that is, no taxes or transactional cost, the market price cannot be influenced by a single buyer or seller, and free and costless access to information about the market;
- that investors are rational and that they value securities based on the value of discounted future cash flow to investors;
- that managers act as the best agents of shareholders; and
- that there is certainty about the investment policy of the firm, with full knowledge of future cash flows.

In light of the foregoing, they concluded that the issue of dividend policy is irrelevant.

Bird-in-hand theory. Al-Malkawi (2007) asserts that in a world of uncertainty and information asymmetry, dividends are valued differently from retained earnings (capital gains): "A bird in hand (dividend) is worth more than two in the bush (capital gains)". Owing to the uncertainty of future cash flow, investors will often tend to prefer dividends to retained earnings. Though this argument has been widely criticised and has not received strong empirical support, it has been supported by Gordon and Shapiro (1956), Lintner (1962) and Walter (1963). The main assumptions are:

- that investors have imperfect information about the profitability of a firm;
- that cash dividends are taxed at a higher rate than when capital gain is realised on the sale of a share; and
- that dividends function as a signal of expected cash flows.

Despite the tax disadvantage of paying dividends, management continue to pay dividends in order to send a positive signal about the firm's future prospects. The cost of this signalling is that cash dividends are taxed higher than capital gains. While some investors would rather have capital gains to cut down on tax impact, others may prefer dividends because they prefer immediate cash in hand. Al-Malkawi also assumed that assets in which management invest outlive management's stay in their position and that ownership of the assets is transferred to new management over time.

Agency cost and the free cash flow theory. Agency cost is the cost of the conflict of interest that exists between shareholders and management (Ross *et al.*, 2008). This arises when management acts in their own interest rather than on behalf of the shareholders who own the firm. This could be direct or indirect. This is contrary to the assumptions of Miller and Modigliani (1961), who assumed that managers are perfect agents for shareholders and no conflict of interest exists between them. This is somewhat questionable, as the owners of the firm are different from the management. Managers are bound to conduct some activities, which could be costly to shareholders, such as undertaking unprofitable investments that would yield excessive returns to them, and unnecessarily high management compensation (Al-Malkawi, 2007). These costs are borne by shareholders; therefore, shareholders of firms with excess free cash flow would require high dividend payments instead. Agency cost may also arise between shareholders and bondholders: while shareholders require more dividends, bondholders require fewer dividends than shareholders by putting in place a debt covenant to ensure availability of cash for their debt repayment. Easterbrook (1984) also identified two agency costs: the cost of monitoring managers and the cost of risk aversion on the part of managers.

Signalling hypothesis. Though Miller and Modigliani (1961) assumed that investors and management have perfect knowledge about a firm, this has been countered by many researchers, as management who look after the firm tend to have more precise and timely information about the firm than outside investors. This, therefore, creates a gap between managers and investors; to bridge this gap, management use dividends as a tool to convey private information to shareholders (Al-Malkawi, 2007). Petit (1972) observed that the amount of dividends paid seems to carry great information about the prospects of a firm; this can be evidenced by the movement of share price. An increase in dividends may be interpreted as good news and brighter prospects, and vice versa. But Lintner (1956) observed that management are reluctant to reduce dividends even when there is a need to do so, and only increase dividends when it is believed that earnings have permanently increased.

Clientele effects of dividends theories. Investors tend to prefer stocks of companies that satisfy a particular need. This is because investors face different tax treatments for dividends and capital gains and also face some transaction costs when they trade securities. Miller and Modigliani (1961) argued that for these costs to be minimised, investors tend towards firms that would give them those desired benefits. Likewise, firms would attract different clientele based on their dividend policies. Though they argued that even though clientele effect may change a firm's dividend policy, one clientele

is as good as another, therefore dividend policy remains irrelevant. Al-Malkawi (2007) affirms that firms in their growth stage, which tend to pay lower dividends, would attract clientele that desire capital appreciation, while firms in their maturity stage, which pay higher dividends, attract clientele that require immediate income in the form of dividends. Al-Malkawi (2007) grouped the clientele effect into two groups, those that are driven by tax effects and those driven by transaction cost. He argued that investors in higher tax brackets would prefer firms that pay little or no dividends, to get reward in the form of share price appreciation, and vice versa. Transaction cost-induced clientele, on the other hand, arises when small investors depend on dividend payments for their needs; this clientele prefers companies who satisfy this need because they cannot afford the high transaction cost of selling securities.

Methodology

The relationship between ordinary stock price volatility and dividend policy has been analysed utilising multiple least square regressions. The regression model developed basically relates price volatility with the two main measures of dividend policy – dividend yield and dividend payout ratio. In line with the recommendations by Baskin (1989), a number of control variables were included to account for certain factors that affect both dividend policy and stock price volatility – asset growth, earnings volatility and firm size.

The model was evaluated annually over the ten-year period to measure the periodic effect of dividend policy on stock price volatility. Multiple regression analysis was used to describe these relationships and a correlation analysis was done amongst the variables.

First, the dependent variable price – volatility – was regressed against the two main independent variables, dividend yield and payout ratio. This provides a crude test of the relationship between share price volatility and dividend policy with the regression equation:

$$\text{P-Vol} = a_1 + a_2\text{D-yield}_j + a_3\text{Payout}_j + e_j \quad (1)$$

Baskin's (1989) analysis showed a significant negative relationship between dividend yield and dividend payout and share price volatility. Allen and Rachim (1996) reported a positive relationship between share price volatility and dividend yield, but a negative relationship between share price volatility and dividend payout. The close relationship between dividend yield and dividend payout ratio may pose a small problem as there are a number of factors that influence both dividend policy and price volatility. To limit these problems, the control variables mentioned earlier were included in the analysis. The dependent variable was regressed against the two independent variables and the control variables with the following regression equation:

$$\text{P-Vol} = a_1 + a_2\text{D-yield}_j + a_3\text{Payout}_j + a_4\text{Size}_j + a_5\text{Earnings}_j + a_6\text{Debt}_j + e_j \quad (2)$$

Expected results

The expectation was that dividend yield, payout and size would be inversely related to price volatility; that is, given an increase in the dividend yield, the dividend payout ratio and the size of a firm, there would be a decrease in the volatility of the stock price of a firm. Also, earnings volatility and the level of debt would be positively related to

share price volatility, i.e. the more volatile a firm's earnings and the higher their leverage, the more volatile the stock price.

There is also the possibility that the close association between dividend policy and price volatility may be attributed to industry patterns more than individual company policies alone, hence dummy variables were included, representing industry classification into two groups, services and industrial companies, with the equation:

$$\text{P-Vol} = a_1 + a_2\text{D-yield}_j + a_3\text{Payout}_j + a_4\text{Size}_j + a_5\text{Earnings}_j + a_6\text{Debt}_j + a_7\text{Dum}_2 + e_j \quad (3)$$

The coefficient of the first dummy variable, service companies, is represented by the intercept.

Definition of variables

Price volatility. This is the dependent variable. It is based on the annual range of adjusted stock price obtained from Datastream, for each year. The range is then divided by the average of the highest and lowest prices obtained in the year and then squared. This was averaged for all available years and a square root transformation was applied so as to obtain a variable comparable to a standard deviation (Baskin, 1989). The use of proxy for share price volatility rather than standard deviation was deliberate. This is basically because standard deviation could be influenced by extreme values. Again, our approach is in line with Baskin's (1989), whose study forms the theoretical framework of this research.

Dividend yield. This is expressed as the dividend per share as a percentage of the share price. Figures were obtained directly from Datastream. Dividend is calculated on gross dividends, i.e. excluding tax credits. The average was taken for all available years.

Payout ratio. This is the ratio of dividends per share to earnings per share for all available years. The average over all available years was utilised. The figures were obtained directly from Datastream.

Size (market value). This is the share price multiplied by the number of ordinary shares in issue. A transformation using the base 10 logarithm was then applied to obtain a variable that reflects orders of magnitude. The figures were obtained directly from Datastream.

Earnings volatility. Earnings figures were obtained from Datastream. These figures represent the earnings before interest and taxes. Following Dichev and Tang (2009), earnings volatility is calculated by taking the standard deviation of earnings for the most recent preceding five years for each year.

Long-term debt (debt). Figures for long-term debt and total assets were obtained directly from Datastream. These figures represent all interest-bearing financial obligations, excluding amounts due within one year, e.g. debentures, mortgages and loans with maturity greater than one year. It is shown net of premiums or discount. The ratio of long-term debt to total assets was calculated and the average over all available years was utilised.

Growth in assets (growth). Figures for growth in assets were obtained directly from Datastream. These figures were obtained by taking the ratio of the change in total assets at the end of the year to the level of total assets at the beginning of the year. These figures were averaged over all available years.

Empirical results

Table I shows a broad description of the summary statistics of the variables used in the study. It shows the statistical mean, standard deviation, median and standard error. According to Allen and Rachim (1996), assuming that stock prices follow a normal distribution pattern and ignoring the effect of a firm's going ex-dividend, the standard deviation of stock market returns is equivalent to the measured volatility of this study. This can be done using the formula derived by Parkinson (1980), in line with Baskin (1989). Here, the mean price volatility, 0.2940, is multiplied by the constant, 0.6008, giving a result of 17.66 per cent. This is in line with Allen and Rachim's (1996) result regarding Australian firms, which was 29.42 per cent, and Baskin's (1989) result regarding US firms, which was 36.9 per cent.

Table II shows the correlation amongst the variables utilised for the study. From the table, it can be seen that the correlation between price volatility and dividend yield is

Name of variables	Mean	SE	Median	SD	Sample variance	Range	Sum	Observations
Price volatility	0.2940	0.0167	0.2507	0.1843	0.0330	1.0948	36.1617	123
Dividend yield	3.1197	0.1129	3.0950	1.2524	1.5685	7.264	383.721	123
Dividend payout	0.4588	0.0148	0.4596	0.1639	0.0269	0.8118	56.4280	123
Size	3.2121	0.0562	3.1172	0.6235	0.3887	2.9838	395.0847	123
Earnings volatility	4.6874	0.0638	4.6580	0.7076	0.5008	3.2334	576.54483	123
Debt	0.1816	0.0116	0.1607	0.1287	0.0166	0.6307	22.3348	123
Growth	0.1609	0.0340	0.1108	0.3776	0.1426	4.2675	19.7868	123

Notes: Price volatility = the annual range of stock prices divided by the average of the high and low prices obtained in the year, raised to the second power; dividend yield = dividend per share divided by price per share; dividend payout = dividend per share divided by earnings per share; size = number of ordinary shares multiplied by price per share; earnings volatility = SD of earnings for the most recent preceding five years for each year; debt = ratio of long-term debt to total assets; growth = ratio of change in total assets at the end of the year to the level of total assets at the start of the year

Table I.
Descriptive analysis

	Price volatility	Dividend yield	Dividend payout	Size	Debt	Growth	Earnings volatility
Price volatility	1						
Dividend yield	−0.2583***	1					
Dividend payout	−0.4446***	0.6684***	1				
Size	−0.1823**	−0.0893	0.1743*	1			
Debt	0.1528*	0.2122**	0.1882**	0.0430	1		
Growth	−0.0087	−0.1997**	0.0367**	0.2049	−0.0719	1	
Earnings volatility	0.1166	−0.0440	−0.0007***	0.8631	0.0970	0.1626*	1

Notes: Significance at: *10, **5, and ***1 percent levels; price volatility = the annual range of stock prices divided by the average of the high and low prices obtained in the year, raised to the second power; dividend yield = dividend per share divided by price per share; dividend payout = dividend per share divided by earnings per share; size = number of ordinary shares multiplied by price per share; earnings volatility = SD of earnings for the most recent preceding five years for each year; debt = ratio of long-term debt to total assets; growth = ratio of change in total assets at the end of the year to the level of total assets at the start of the year

Table II.
Correlation analysis

negative (−0.2583). As expected, this is in line with that of Baskin (1989), which was −0.643, but it is in contrast with that of Allen and Rachim (1996), which was positive (0.006). Also, the correlation between price volatility and dividend payout is negative (−0.4446), as expected and in line with the correlation in both Baskin (1989), which was −0.542, and Allen and Rachim (1996), which was −0.210. The correlation table also shows a high correlation between dividend yield and payout, with value 0.6684 (approximately 70 per cent). This raises questions as there is the possibility of multicollinearity, which could be a potential problem. Multicollinearity exists when the correlation between two independent variables is equal to or greater than 70 per cent (Drury, 2008). There is therefore the need to include the control variables in the regression equation to see if there would be changes. The correlations for other variables are in line with their predicted sign with share price volatility. But there is a significant high correlation between earnings volatility and size, with the value 0.8631; this indicates that the multicollinearity problem exists between the two variables. This is in contrast with Allen and Rachim (1996). Regression equation (2) was therefore run with and without one of the two variables to see if there was any effect; this is shown in Tables VII and VIII. Earnings volatility has a negative correlation with both dividend yield and payout ratio. This is in line with expectation, as firms with volatile earnings are perceived to be more risky and management tends to pay lower dividends to have enough retained earnings for years when earnings are bad; this in turn affects dividend yield.

Table III shows the results obtained from equation (1). The regression results of share price volatility with dividend yield and dividend payout show a positive relationship between dividend yield and share price volatility, and a negative relationship between dividend payout and share price volatility. But that of dividend yield is contrary to expectation. This could be an explanation of the earlier mentioned high correlation between the dividend yield and dividend payout ratio, which is a possible problem of multicollinearity.

Next, the control variables were added to see if there would be any change in the coefficient of dividend yield. This is given by the regression equation (2). As shown in Table IV, it was observed that the coefficient of dividend yield became negative, and all other variables were exactly as expected. This explains the fact that dividend policy on its own is not the determining factor of price volatility, but a close examination of the *t*-statistic and *p*-value of the dividend payout, −0.9946 and 0.3220, respectively, showed that this was insignificant. To check the cause of this, dividend payout and dividend yield were simultaneously dropped from the equation. The results are shown in Tables V and VI.

The results in Table V, which was the regression without payout, showed that there was not much difference in the values of the variables, just a slight increase

	Coefficient	*t*-stat	*p*-values
Intercept	0. 5154*	11. 1003	0.000
Dividend yield	0. 0103	0. 6406	0.5230
Dividend payout	−0. 5529*	−4. 4798	0.000

Notes: Significant at: *1 percent level; $R^2 = 0.2004$; Adj. $R^2 = 0.1871$; *F*-stat. = 15.038; *F*-prob. = 0.000; the model used is: $\text{P-Vol}_j = a_1 + a_2\text{D-yield}_j + a_3\text{Payout}_j + e_j$

Table III.
The link between share price volatility, dividend yield and dividend payout ratio

in the coefficients. Table VI, on the other hand, shows that the previous insignificant result of payout is now significant, as well as other variables remaining as predicted. These results are consistent with Allen and Rachim (1996).

Going back to the correlation table, it was observed that there was a significantly high correlation between size and earnings volatility. To check if this correlation is statistically insignificant or not, both of the variables were simultaneously dropped from the analysis. Tables VII and VIII show the results. Tables VII and VIII show that there is no effect of removing the two variables simultaneously, except that the coefficient of dividend yield is now positive. The reason for the high correlation between the two variables is not clear. However, the correlation is statistically insignificant since there was no effect when the variables were dropped from the analysis.

	Coefficients	*t*-stat	*p*-value
Intercept	0.2131*	2.2338	0.0274
Dividend yield	−0.04016*	−2.6083	0.0103
Dividend payout	−0.1246	−0.9946	0.3220
Size	−0.3130**	−6.4265	0.0000
Earnings volatility	0.2607**	6.3873	0.0000
Debt	0.2577*	2.5447	0.0122

Notes: Significance at: *5 and **1 percent levels; $R^2 = 0.4569$; Adj. $R^2 = 0.4337$; *F*-stat. = 19.6880; *F*-prob. = 0.0000; the model used is: $\text{P-Vol} = a_1 + a_2\text{D-yield}_j + a_3\text{Payout}_j + a_4\text{Size}_j + a_5\text{E-Vol}_j + a_6\text{Debt}_j + e_j$

Table IV.
The link between share price volatility, dividend yield, dividend payout, size, earnings volatility and debt

	Coefficients	*t*-stat.	*p*-value
Intercept	0.1870*	2.0387	0.0437
Dividend yield	−0.0515**	−4.9924	0.0000
Size	−0.3405**	−8.4791	0.0000
Earnings volatility	0.2809**	7.9329	0.0000
Debt	0.2463*	2.4477	0.0158

Notes: Significance at: *5 and **1 levels; $R^2 = 0.4523$; Adj. $R^2 = 0.4338$; *F*-stat. = 24.365; *F*-prob. = 0.0000; the model used is: $\text{P-Vol} = a_1 + a_2\text{D-yield}_j + a_3\text{Size}_j + a_4\text{E-Vol}_j + a_5\text{Debt}_j + e_j$

Table V.
The link between share price volatility and dividend yield, size, earnings volatility and debt

	Coefficients	*t*-stat.	*p*-value
Intercept	0.2070*	2.1187	0.03622
Dividend payout	−0.3671**	−4.2676	0.0001
Size	−0.2536**	−5.7509	0.0000
Earnings volatility	0.2189**	5.6930	0.0000
Debt	0.2429*	2.3449	0.0207

Notes: Significance at: *5 and **1 percent levels; $R^2 = 0.4253$; Adj. $R^2 = 0.4059$; *F*-stat. = 21.8352; *F*-prob. = 0.0000; the model used is: $\text{P-Vol} = a_1 + a_2\text{Payout}_j + a_3\text{Size}_j + a_4\text{E-Vol}_j + a_5\text{Debt}_j + e_j$

Table VI.
The link between share price volatility and dividend payout, size, earnings volatility and debt

Lastly, we include industry dummy variables in the regression analysis given by equation (3). This is shown in Table IX. However, we find no significant relationship between stock price changes and industry factors.

Summary and conclusion

The objective of this study was to examine the relationship between dividend policy (dividend yield and dividend payout) and the volatility of stock price. This was done for a period of ten years (1998 through 2007). It was based on a sample of publicly quoted companies in the UK. It also examined the relationship between stock price volatility and other variables, such as size, growth, earnings volatility and debt.

Table VII.
The link between share price volatility, dividend yield, dividend payout, size and debt

	Coefficients	*t*-stat.	*p*-value
Intercept	0.5812***	6.6095	0.0000
Dividend yield	−0.0015*	−0.0922	0.9267
Dividend payout	−0.5225***	−4.1577	0.0006
Size	−0.0333	−1.3514	0.1792
Debt	0.3541***	3.0574	0.0028

Notes: Significance at: *10, **5 and ***1 percent levels; $R^2 = 0.2676$; Adj. $R^2 = 0.2427$; *F*-stat. = 10.7762; *F*-prob. = 0.0000; the model used is: $\text{P-Vol} = a_1 + a_2\text{D-yield}_j + a_3\text{Payout}_j + a_4\text{Size}_j + a_5\text{Debt}_j + e_j$

Table VIII.
The link between share price volatility and dividend payout, earnings volatility and debt

	Coefficients	*t*-stat.	*p*-value
Intercept	0.3641*	3.3996	0.0009
Dividend yield	0.0061	0.3888	0.6981
Dividend payout	−0.5803*	−4.8517	0.0000
Earnings volatility	0.0249	1.2024	0.2316
Debt	0.3320*	2.8484	0.0052

Notes: Significance at: *1 percent level; $R^2 = 0.2652$; Adj. $R^2 = 0.2403$; *F*-stat. = 10.6484; *F*-prob. = 0.0000; the model used is: $\text{P-Vol} = a_1 + a_2\text{D-yield}_j + a_3\text{Payout}_j + a_4\text{E-Vol}_j + a_5\text{Debt}_j + e_j$

Table IX.
The link between share price volatility, dividend yield, dividend payout, size, debt, growth and industry dummy

	Coefficients	*t*-stat.	*p*-value
Intercept	0.5758*	6.4281	0.0000
Dividend yield	0.0023	0.1362	0.8919
Dividend payout	−0.5491*	−4.1689	0.0005
Size	−0.0350	−1.3971	0.1651
Debt	0.3505*	2.9664	0.0037
Growth	0.0258	0.6301	0.5299
Industry	0.0125	0.4071	0.6847

Notes: Significant at *1 percent level; $R^2 = 0.2771$; Adj. $R^2 = 0.2334$; *F*-stat. = 7.1906; *F*-prob. = 0.0000; $\text{P-Vol} = a_1 + a_2\text{D-yield}_j + a_3\text{Payout}_j + a_4\text{Size}_j + a_5\text{Earnings}_j + a_6\text{Debt}_j + a_7\text{Dum}_2 + e_j$

The empirical findings suggest that there is a significant negative relationship between the payout ratio of a firm and the volatility of its stock price, and a negative relationship between dividend yield and the volatility of stock price. This is consistent with the findings of Allen and Rachim (1996). But the findings on payout ratio were contrary to the findings of Baskin (1989). The overall findings suggest that the higher the payout ratio, the less volatile a stock price will be. They also suggest that payout ratio is the main determinant of the volatility of stock price. Among the control variables, it was discovered that size and debt had the highest correlation with price volatility. While size had a significant negative relationship with price volatility, suggesting that the larger the firm, the less volatile the stock price is, debt, on the other hand, showed a significant positive relationship with price volatility, suggesting that the more leveraged a firm is, the more volatile the stock price will be.

Since both management and investors are concerned about the volatility of stock price, this research has provided a light on the pathway to discovering what moves stock price, as well as important factors to be considered by investors before making investment decisions and by management in formulating dividend policies for their firms. This research also discussed some theories and determinants of dividend policy, as well as theories of risk and dividends.

References

Allen, D.E. and Rachim, V.S. (1996), "Dividend policy and stock price volatility: Australian evidence", *Journal of Applied Economics*, Vol. 6, pp. 175-88.

Al-Malkawi, H.N. (2007), "Determinants of corporate dividend policy in Jordan: an application of the Tobit model", *Journal of Applied Accounting Research*, Vol. 23, pp. 44-70.

Al-Najjar, B. and Hussainey, K. (2009), "The association between dividend payout and outside directorships", *Journal of Applied Accounting Research*, Vol. 10, pp. 4-19.

Baskin, J. (1989), "Dividend policy and the volatility of common stock", *Journal of Portfolio Management*, Vol. 15, pp. 19-25.

Battacharya, S. (1979), "Imperfect information & dividend policy and the 'bird in hand' fallacy", *The Bell Journal of Economics*, Vol. 10, pp. 259-70.

Black, F. (1976), "The dividend puzzle", *Journal of Portfolio Management*, Vol. 2, pp. 5-8.

DeAngelo, H., DeAngelo, L. and Skinner, D.J. (1996), "Reversal of fortune: dividend policy and the disappearance of sustained earnings growth", *Journal of Financial Economics*, Vol. 40 No. 3, pp. 341-71.

Dichev, I. and Tang, V. (2009), "Earnings volatility and earnings predictability", *Journal of Accounting and Economics*, Vol. 47 Nos 1/2, pp. 160-81.

Drury, C. (2008), *Management & Cost Accounting*, 7th ed., Cengage Learning, London.

Easterbrook, F.H. (1984), "Two agency-cost explanations of dividends", *The American Economic Review*, Vol. 74, pp. 650-9.

Fama, E. and French, K. (2001), "Disappearing dividends: changing firm characteristics or lower propensity to pay?", *Journal of Financial Economics*, Vol. 60, pp. 3-43.

Gordon, M.J. and Shapiro, E. (1956), "Capital equipment analysis: the required rate of profit", *Management Science*, Vol. 3, pp. 102-10.

Guo, H. (2002), "Stock market returns, volatility and future output", available at: www.research.stlouisfed.org/publications/review/02/09/75-86Guo.pdf

Kinder, C. (2002), "Estimating stock volatility", available at: http://finance.yahoo.com

Lintner, J. (1956), "The distribution of incomes of corporations among dividends, retained earnings and taxes", *American Economic Review*, Vol. 46, pp. 97-113.

Lintner, J. (1962), "Dividends, earnings, leverage, stock prices and supply of capital to corporations", *The Review of Economics and Statistics*, Vol. 64, pp. 243-69.

Miller, M.H. and Modigliani, F. (1961), "Dividend policy, growth and the valuation of shares", *The Journal of Business*, Vol. 34, pp. 411-33.

Modigilani, F. (1982), "Debt, dividend policy, inflation and market valuation", *The Journal of Finance*, Vol. 37, pp. 225-75.

Parkinson, M. (1980), "The extreme value method for estimating the variance of the rate of return", *Journal of Business*, Vol. 53, pp. 61-5.

Petit, R.R. (1972), "Dividend announcements, security performance, and capital market efficiency", *Journal of Finance*, Vol. 27, pp. 993-1007.

Ross, S.A., Westerfield, R.W., Jaffe, J. and Jordan, B.D. (2008), *Modern Financial Management*, 8th ed., McGraw-Hill, New York, NY.

Walter, J.E. (1963), "Dividend policy; its' influence on the value of the enterprise", *Journal of Finance*, Vol. 18, pp. 280-91.

Further reading

Ross, S., Westerfeld, R. and Jaffe, J. (1996), *Corporate Finance*, 4th ed., Times Minor Education Group, Los Angeles, CA.

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