

Effectiveness of Dividend Policy on Investment Information Delivery

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Keywords: Dividend Policy, Share Price, Bird-in-Hand Theory, Signal Theory, Efficient-Market Hypothesis (EMH)

Abstract: Dividend policy is a considerable element that impact share price significantly, and the efficiency of dividend policy has gained increasing attention from stakeholders and researchers. There is no exact answer to the reasons and the aims of changing dividend policy and dividend payout methods. Thus, this paper examined the efficiency of dividend payout methods by testing the relationship between dividend policy and share price, the impact of dividend policy on share trend prediction, and the factors that caused dividend payout methods to change yearly. This paper selected 11 companies from the FTSE All-Share Index at London Stock Exchange and the data are collected from 2003 to 2018. By providing evidence that the dividend per share has a positive relation with share price, this paper found that the dividend policy has a significant relation with stock trends. This paper also examined the efficiency of firms investment information delivery of dividend policy by using the Dividend Growth Model and Capital Asset Pricing Model, the evidence suggested that the information delivered by historical dividend policy is useless for future decision-making.

1. Introduction

Dividend policy is commonly indicated as a financial tool for investment decision-making of stakeholders (Adesina, 2017).^[1] For stakeholders, dividend policy can be used to demonstrate the speculation investment opportunities. For companies, to deliver information on operating results and financial performance to stakeholders, the aim is to attract more investors (Bernhardt and Robertson, 2005).^[6] It thus has been becoming a considerable factor in stakeholders investment decision-making. The determination of dividend payout depends on the size, age and development period of a company (Hashim and Davidas, 2018).^[13] Meanwhile, the percentage of the share for external and internal shareholders has an impact on the dividend policy (Al-Malkawi, 2007).^[3] The dividend policy thus tends to signal the firm operating and profit performance, which also causes the agency conflict (Barine, 2013).^[5]

The share price change is a considerable factor in the prediction and investment appraisal. It is also the measurement of the risk for investment, the dividend payout is the measurement of the risk of return (Adesina, 2017).^[1] The UK stock market has been influenced by Brexit from 2016, such as the exchange rate, and the confidence of shareholders. The share price will fluctuate during the special

period, there is uncertainty for investors to make a decision and is difficult for firms in the UK to make operating decisions (Williamson, 2019).^[18] The positive impact of dividend policy on share price was identified by Hussainey in 2011.^[14] However, there is a finding that the measurement elements of dividend policy have a negative relationship with share price (Hashemijoo et al, 2012).^[12] Thus, this paper aims to empirically identify the relation between dividend policy and share price, the efficiency of dividend payout methods, and the factors causing dividend payout methods to change yearly, using the historical annual data from 2003 to 2018 of companies that are listed on the London exchange Stock.

2. Review of the Literature

2.1 Definition of Dividend Policy

Miller and Modigliani(1961) defined dividend policy as a return payment method to investors, which is the percentage of the profit, and it can be paid simply from the additive profit rather than the capital.^[15] Meanwhile, it is addressed that the wealth of shareholders can be impacted by the higher or increase dividend payout yearly, and the wealth of the dividend policy can also be increasing if there is a higher payout ratio (Glen and Deborah, 2019).^[11] From the view of companies, a positive dividend policy can attract more shareholders, it also rewards the shareholders from investor's perspective, as it is the assistant of return and risk analysis (Fischer, 1996).^[9] It is one of the points of investment analysis for investors, which also can enhance the chances of speculators (Hashim and Davidas, 2018).^[13]

Additionally, dividend policy is defined as a policy that considers the payout of yearly earnings, rather than reinvesting in other programs, which is used to constant the long-term finance sources (Hussainey, et al., 2011).^[14] It is one of the approaches for firm profit arrangement, there are various ways to apply profit in developing firms and mature companies. For new firms, the better way to reinvest the profit for creatives and innovations, however, for mature firms, the payout of profit as dividends to shareholders is a better financial strategy (Subramaniam and Devi, 2011).^[16]

There is an obvious doubt regarding why a firm pays out the dividend, which is demonstrated by the puzzle of dividend policy(Fischer, 1996).^[9] For the significance of paying the dividend, there are three factors - conveying a positive signal to stakeholders, creating a positive cash flow after holding significant equity, giving confidence to clients, and keeping long-term financial strategies (Hashimand Davidas, 2008).^[15] The dividend payout method is one of the most significant ways to deliver financial conditions to external shareholders when analyzing the historical dividend paid-out data. The information works for cash flow creation, the firm needs more equity which retains the profit or reinvests it when during the beginning period of a firm's life-cycle. At the mature period of the life cycle, the company has enough equity, however, it needs a positive reputation by paying dividends with a positive policy to remain stakeholders, as indicated by Hashim and Davidas in 2008.^[13]

2.2 Relevant Theories

2.2.1 Bird-in-Hand Theory and Signal Theory

“A bird in hand (dividend) is worth more than two in the bush”, which is considered the bird-in-hand theory, according to the findings of Al-Malkawi in 2007.^[3] There are uncertainties and risks of future cash flow and return, as a great number of stakeholders prefer dividends rather than capital or retained earnings. The uncertainty of development and the imperfection of information about the operating and management ability of a firm are considered by shareholders, they will choose to hold

cash as a return rather than hold a promise of the future (Alvin, 2015).^[4] However, considering the high taxation of cash dividends, which will have a higher cost, stakeholders may prefer capital earning for these kinds of factors. Thus the preference of stakeholders may have an impact on dividend payout method, which will attract an increasing number of stakeholders and further positively influence the firm financial performance, for example the share price, if the share price increases, then the dividend payout method is more efficient.

On the contrary, benefits can be delivered by the cash payment method from the perspective of companies and managers, as it can convey a positive signal from internal to external (Hussainey et al., 2011).^[14] The dividend signaling hypothesis denotes as information content of dividend with the assumption that managements hold private information about the company's attributes that markets are not known (Miller and Modigliani, 1961).^[15] According to this hypothesis, dividends appear to act as important conveyors of information regarding companies' performance (Tse, 2005).^[17] DeAngelo et al. (1996) posit that dividend payments are the underlying and value-added function since dividends are a continuous signal to shareholders of a company's performance.^[8] Apart from dividends use as a signaling mechanism, the company's financial structure is also applicable to the signaling concept. It is assumed that the signaling delivered by dividend policy is productive when share price increases. Thus, following the the Bird-in-Hand Theory and Signal Theory, Hypothesis 1 is developed:

H1: There is a positive impact of firm dividend policy on share price (SP).

2.2.2 Efficient-Market Hypothesis (EMH)

The efficient-market hypothesis (EMH) is indicated as, efficient information that can be reflected in stock price, and it should work for the new information (Aharoni, 2013).^[2] For example, historical data such as historical share price is not used to be an information to appraisal future share price, it suggests that the share price reflects today's information. However, there are several critics from other researchers and financial experts who believe that the share price can be predicted by historical data rather than a "random walk," which uses "fresh" information to select shares (Burton, 2003).^[7] Meanwhile, the existing possibility of an efficient market is low, there would be other information that can be used to analyze and appraise the future market trend (Grossman and Stiglitz, 1980).^[10] Thus, the Hypothesis 2 is developed by EMH:

H2: The signaling delivered by historical Dividend Policy can be used to predict share price.

2.3 Review of Empirical Studies

The relation between dividend policy and share price is already demonstrated by the dividend discount model. However, exactly what kind of relation exists between share price and dividend policy becomes a puzzle in the financial world. Previous studies provided both positive and negative relation between share price and dividend policy by empirical research. For example, previous study suggested that there is significant correlation between share price volatility and dividend policy by providing evidence that the positive relation between two important measurements (dividend payout ratio and dividend yield) of dividend policy with share price volatility, there is negative impacts of dividend payout ratio, dividend yield and firm size on share price (Hussainey, et al., 2011).^[14] However, previous study also suggested that the significant negative relation between share price and dividend yield and retention ratio (Adesina, et al., 2017), the findings also suggested that there is positive relation between share price and earnings per share and dividend per share.^[1] The debt of the relationship between share price and dividend payout ratio and dividend yield is still existing. This paper thus aim to test the relation between share price and dividend payout ratio and dividend yield with data from 2011-2018 in UK.

3. Research Design and Data collection

This research combined the quantitative method and the qualitative methods. The relation between the correlation between the share price and four different variables, the dividend per share, firm size (total assets), earnings per share, and dividend yield is indicated by regression analysis, which is used to test H1. In the DGM (Dividend Growth Model) and Capital Asset Pricing Model, there is a majority of analysts and investors that estimate the future share price by DGM, aiming to test the efficiency of historical information for predicting future share value. The DGM is used to identify whether the dividend policy of each company is successful or not. This paper collected data from the companies listed in FTSE100 of London exchange stock, which have extensive historical data. The main factor is the longer and recorded historical data can be collected from the firms' annual report (2003- 2018), include 11 firms, 3I group, Anglo American PLC, BAE Systems plc, BT Group, Centrica group, CRH plc, DCC group, Johnson Matthey plc, Pearson, Prudential and SEGRO plc, as they are all from diverse sectors. The data for DDM includes share price, dividend per share, FTSE100 index, and inflation, the share price and dividend per share are collected from the historical annual report, the FTSE100 index is from the London Stock Exchange, and the inflation is collected from OECD data. For the multiple linear regression analysis, the data includes historical share price, dividend per share, firm size (total assets), and earnings per share all of these are collected from annual report from 2003-2018, and the dividend yield is the percentage that share price is divided by, through dividend per share.

4. Data Result and Analysis

4.1 Descriptive Statistics

There are 11 companies selected to support this research, all of them are the listed companies on London stock exchange. Additionally, all of the companies have the complete data, from 2003-2018, the data include share price, inflation rate, dividend per share, earnings per share and total assets (firm size).

Table 1: Descriptive Statistics

	Mean	Std. Deviation	N
Share price	1131.12	1134.72	176
Inflation	2.13%	0.83%	176
Dividend per share	31.93	23.62	176
Firm size (total assets)	237644.84	693044.27	176
Earnings per share	73.52	98.31	176
Dividend yield	3.61%	1.69%	176

The descriptive statistics shown in table 1, the main finding is the mean of each variables. Firstly, it shows the mean of share price, which shows the average of all firms' share price is around 1131.12 pence. At the same time, the mean of dividend per share is about 31.93 per share, it obviously presents a 3.61% dividend yield, shareholders can gain 31.93 pence when they invest a share. Additionally, the inflation rate, firm size and earnings per share have a distributive value as 2.13%, 237644.84 and 73.52. Correspondingly, the correlation and significant presented in table 3 and table 4.

As table 2 shows, the value of R is 0.915, indicating that the model has an important and practical value. And the R Square is 0.838, it shows that there is a higher level of explaining of independent variables which can explain 83.8% variance of share price.

Table 2: Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.915a	0.838	0.833	463.8351477
a. Predictors: (Constant), Dividend yield, Inflation, Dividend per share, Firm size (total assets), Earnings per share				

4.2 Correlation Analysis

The empirical test results of Pearson correlations between each variable performed in table 3 and the significant evidence as depicted in table 4. This part will focus on the correlations between the share price and other variables, as the result shows that all of the dividend per share, firm size and earnings per share have positive correlations with share price. However, the dividend yield has negative correlations with other variables, such as dividend per share, firm size and earnings per share.

The correlation between share price and dividend per share is 0.811, which is the highest correlation compared to other correlations. The evidence of significant value is 0.000, which is below 0.005, it distributes a positive significant correlation between dividend per share and share price. Correspondingly, the impacts of dividend policy on share price can be proofed, thus H1 is supported. Conversely, the correlation between share price and dividend yield is -0.465, which distribute a negative significant correlation between dividend yield and share price, and the impact of inflation rate on share price has same condition, which shows -0.034 correlation as a negative impact between them. Additionally, the correlations between share price and firm size, and earnings per share are 0.603 and 0.554, both of them are positive and over 0.5.

The correlations between the inflation rate and other variables are different. There are both positive and negative impacts, for negative impact, there is not only negative for share price. The correlation between inflation and dividend per share is -0.025, and the impact of inflation on firm size is negative, which shows correlation as -0.004.

Dividend per share also has several correlations with other variables. It has significant positive correlations with firm sizes and earnings per share. It indicates that there are lots of variables influenced by dividend per share, which is a considerable figure. Such as inflation rate and dividend yield, both of them have negative correlations with dividend per share. The firm size has negative correlations with inflation rate and dividend yield, shown as -0.004 and -0.193 respectively.

Table 3: Correlations

		Share price	Inflation	Dividend per share	Firm size (total assets)	Earnings per share	Dividend yield
Pearson Correlation	Share price	1.000					
	Inflation	-0.034	1.000				
	Dividend per share	0.811	-0.025	1.000			
	Firm size (total assets)	0.603	-0.004	0.481	1.000		
	Earnings per share	0.554	0.152	0.579	0.251	1.000	
	Dividend yield	-0.465	0.003	-0.105	-0.193	-0.331	1.000

4.3 Regression Result

From the values B of the unstandardized coefficients, if the value of dividend per share, firm size, earnings per share and dividend yield are equal to zero, the share price is predicted as 919.422. “b” is -19.066, indicating the share price decreases by around 19 pence when inflation rate increases. The “c” is 32.446, it shows when the dividend per share increases by 1 penny, the share price will increase

32.446 pence. It shows dividend per share has a positive impact on share price volatility. The X3 (firm size) is deleted, because of the “d” is zero. “e” is “-0.063. Earnings per share has negative impact on share price, such if earnings per share increase 1 penny, the share price will reduce 0.063 pence. For dividend yield, it has same condition that is when dividend yield increase by 1 penny, the share price will decrease by 238.583 pence.

As the table 3 shows, there is a positive relation between dividend per share and share price, the evidence can be shown in the t-statistics value of 15.695 and the P-value as 0.000, which shows a significant positive correlation. The Significant value was given in table 3, there is 66.7% independent variables having high statistically significant in terms of their P-value below 0.05. However, the P-value of earnings per share is 0.895 and inflation rate is 0.661, which is over 0.5, indicating earnings per share as statistically significant.

Table 4: Coefficientsa

Model	Unstandardized Coefficients		Standardized Coefficients	t	Sig.	Correlations			
	B	Std. Error	Beta			Zero-order	Partial	Part	
1	(Constant)	919.422	135.245		6.798	0.000			
	Inflation	-19.066	43.363	-0.014	-0.440	0.661	-0.034	-0.034	-0.014
	Dividend per share	32.446	2.067	0.675	15.695	0.000	0.811	0.769	0.485
	Firm size (total assets)	0.000	0.000	0.210	5.857	0.000	0.603	0.410	0.181
	Earnings per share	-0.063	0.478	-0.005	-0.132	0.895	0.554	-0.010	-0.004
	Dividend yield	-238.583	22.563	-0.356	-10.574	0.000	-0.465	-0.630	-0.327

a. Dependent Variable: Share price

As the information shows in the table 4, the P-values between variables are described. 80% of P-values are below 0.001, such as the P-values between share price and other all variables, the dividend per share with firm size and earnings per share, firm size with earnings per share, earnings per share with dividend yield. Share price has very strong evidence to support hypothesis 1. There is one P-value (10%) higher than 0.05 (firm size with earnings per share). To sum up, there is a significance relation between dividend per share, firm size, earnings per share, dividend yield and share price, additionally, the data is indicating that there are positive correlations between share price and all other the variables.

4.4 Current Dividend Policy Asses of Firms

There are several dividend changes of companies. Generally, firms will keep increasing, decreasing or constant to pay dividend yearly. However, some of them chose mix policy, for this part, the dividend payout methods of cases will be explained by comparing the dividend growth rate with inflation rate. The measurement of its success will be discussed by comparing the current share price and appraisal share price of 2018, the result can be shown as table 5:

According to the comparison between the annual dividend growth rate and current year’s inflation rate, firms increase their dividend almost yearly, around 60% companies use increasing dividend policy, and there are six firms using it. At the same time, there is one company increasing firstly and then constant dividend payout. Three firms mix three methods to set dividend. However, there is a firm paying same value of dividend more than five years. The dividend growth rate is zero, and there is no validity to compare with inflation. Thus, the case of CRH PLC can be delete.

Table 5: Dividend Policy and Share Price

Name	Dividend Policy	Given Beta	Calculated Share Price (2018)	Given Share Price (2018)	Share Price Annual Compound Rate
3I Group plc	increase	1.4	403.17	865.8	11.45%
Anglo American plc	mix	1.46	967.46	1363.284	21.41%
BAE Systems plc	increase-constant	0.86	742.99	465	9.43%
BT GROUP	increase	0.99	404.24	244	5.70%
CENTRICA	mix	0.75	417.37	133	-0.88%
CRH	-	1.14	1426.00	2036.00	5.87%
DCC	increase	0.62	-3351.34	5986	18.84%
JOHNSON MATTHEY	increase	1.41	1782.96	2775	8.89%
PEARSON	increase	1.03	139.68	945.8	4.38%
PRUDENTIAL	increase	1.37	1227.77	1415.5	11.13%
SEGRO	mix	0.57	285.47	587.2	49.68%

The predicted share price is calculated by DGM, the capital asset pricing model (CAPM) is used to work out overall compound growth rate, assume treasury rate is 4% and market return of 10%, and calculate the expected return rate as below:

$$\text{CAPM} = R_f + \text{Beta} (R_m - R_f) \quad (1)$$

From the view of the expected share price in 2018, compared with given share price of 2018 from firms, it set as that the dividend policy of the company is efficient when the share value is over estimation, Otherwise, it is failure. The share price estimate base on the growth rate of yearly dividend per share, which indicates the relation between share price and dividend. As the result shows, there are only 27% firms' share price are overvalued, while the other 73% of firms are underestimated, which need to improve their dividend policy. The result indicated that there are 27% of firms' dividend policy are efficient information for decision-making of stakeholders, on the contrary, 73% of firms' dividend policy failed for providing efficient invest information. Thus, the H2 is reject by the evidence.

From the view of the annual compound share price growth rate, there are different results. There is a positive proportion of companies succeed, there are 90% of firms have greater share price growth rate compared with the grow 3.83% of FTSE 100 index from 2003-2018, only 10% of firms' share price decreased 0.88%. Consequently, the 90% firms present a satisfied dividend policy, though, are not effective enough to predict corporate share trends. The rejection of H2 is also supported by this evidence.

5. Discussion of Result

The correlation of dividend per share and share price is 0.811, which shows a significant P-value as $<0.001 (<0.005)$, which is an important evidence of dividend per share has a positive impact on share price. It suggests that there is very strong evidence to support the H1 and H2. Similarly, the correlation between firm size is 0.603, it is a positive relationship, which is supported by the significant positive value (<0.001) as depicted in table 6, it is indicated that there is significant relation between firm size and share price. The Pearson correlation value is 0.554 of the earnings per share with share price, and the supporting significant value is 0.000, which contributes a strong evidence to support the hypothesis 1. There are two negative impacts of variables on share price. As the table 3 shows, the inflation rate and dividend yield have negative correlation with share price. The

correlation value of dividend yield is -0.465, which shows a negative significant relation. It is supported by the significant value as <0.001 , which is a strong evidence to support the indication of dividend yield and share price have significant relation.

There are both positive and negative relations shown between share price and other five variables show respectively shown by data analyse result, H1 is supported by the evidence that dividend policy has positive impact on share price. However, considering the dividend is not only element which impacting share price and decision of shareholders, the impacts of earnings per share, firm size and inflation rate on share price are used to asses this experiment. As data analysis result proved the historical information shown by dividend policies are not useful for share price prediction, which reject the H2.

The findings present that the correlations between dividend per share, firm size, earnings per share with share price are significant positive, support the H1.

Table 6: Significant

		Share price	Inflation	Dividend per share	Firm size (total assets)	Earnings per share	Dividend yield
Sig. (1-tailed)	Share price						
	Inflation	0.329					
	Dividend per share	0.000	0.371				
	Firm size (total assets)	0.000	0.478	0.000			
	Earnings per share	0.000	0.022	0.000	0.000		
	Dividend yield	0.000	0.485	0.083	0.005	0.000	

6. Conclusion

This paper provides evidence to support Hypothesis 1 and reject Hypothesis 2, which demonstrates that the dividend policy has extraordinary positive impacts on share prices and that the signaling of historical dividend policy is not efficient enough to be used by stakeholders to analyze the stock trend. Both quantitative research methods and qualitative research methods were used to support this research. The findings of the quantitative method are supported by the multiple regression analysis, showing the evidence that dividend policy impacts share price positively to support Hypothesis 1. The dividend per share has a positive impact on share price, but there is a negative impact of dividend yield on share price, the finding is the same as the findings of Kehinde in 2017 and Hussainey in 2011, it has satisfied evidence to associate with previous findings. Additionally, on the control of variables, the firm size and earnings per share are tested and have a positive impact on the share price as well, this result shows that bigger firms have higher reputations. Conversely, the dividend yield has a negative impact on the share price. This result suggested that companies pay an unsatisfied dividend payout to shareholders. Based on the suggestion of Kehinde, the inflation is considered as a variable. However, the multiple regression analysis suggested that there is no correlation between inflation rate and share price. Considering the qualitative method, the DGM (Dividend Growth Model) and Capital Asset Pricing Model (CAPM) are used for examining the efficiency of dividend policy on firm share trend prediction. The research results show that the dividend policies provided by a small number of firms contribute to stakeholders' investment decisions, while the dividend policies of most enterprises fail to provide effective investment information. Therefore, historical dividend policies are ineffective for stock price prediction.

Although the evidence proved the hypothesis that there is a significant relationship between dividend policy and firm share price trend, a puzzle of endogeneity needs to be focused on since the causal problem exists between most firm policies and strategies and firm performance. In this paper,

the dividend policy is set as the dependent variable, while the share price is the independent variable, however, the causal problem still exists. Premature definition of variable attributes is one of the limitations of this research, thus, the causal problem between dividend policy and firm share price trend is suggested to focus on future research, and the further endogeneity between firm policy and strategies and firm performance should be dealt with.

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