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Research article

INDUSTRY SECTOR DETERMINANTS OF DIVIDEND POLICY AND ITS EFFECT ON SHARE PRICES IN GHANA

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Abstract

The Study was conducted to examine the industry sector determinants of dividend policy and its effect on share prices of companies listed on the Ghana Stock Exchange for the period 2006-2011. Dividend policy is one of the most debated issues in contemporary corporate finance. In Ghana, very few studies have been done on dividend policy. The Study uses factors such as Price Volatility, Profit After-Tax, Earning Per Share, Size, Growth in Assets, Return on Equity, and Liquidity as explanatory variables and the Dividend Payout as the dependent variable. The study uses a sample of twelve companies (12) covering six different sectors of the economy. In finding out the determinants of dividends policy, panel data regression is performed using the SPSS software. The findings show that the main determinants of dividend policy for companies listed on Ghana Stock Exchange are return on equity, profit after tax and size of the company. There are however, varying factors that influence the dividend payout across the different sectors. Profit After-Tax happens to be a key variable that is

consistently considered by most sectors in paying their dividend. Most of the firms listed on the Ghana Stock Exchange, however show statistically insignificant and weak relation between their Dividend Payout and Share Price.

Key words: Determinants, Dividend Policy, Share Price, Ghana Stock Exchange

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Introduction

Despite numerous years of theoretical and empirical research, issues on dividend policy still remain unresolved. Dividend policy is one of the most debated issues in contemporary corporate finance. Dividend policy refers to the trade- off between retaining earnings on one hand; and redistributing cash or issuing new shares to owners of the company on the other hand. A dividend policy of a company is about deciding whether to pay or not to pay a dividend. In paying a dividend, the board of directors mostly has to decide on whether to pay a large, small or zero percentage of their earnings as dividends or to retain them for future investments (Amidu, 2007). Dividends can only be paid when a company has enough cash to do so. Key factors such as profitability, Liquidity, leverage, growth in asset, return on equity have been identified by several researchers as the determinants of dividend policies of companies (Allen and Rachim (1996); Liu and Hu (2005), Amidu and Abor (2006), Pani (2008), Ahmed and Javid (2009); Jecheche, (2012)

In Ghana, very few studies have been done on dividend policy. Among them are Amidu and Abor (2006), Enyan (2009), Marfo-Yiadom and Agyei (2011), and Adu-Boanyah, Ayentimi and Osei-Yaw (2013).

This study looks at the industry sector determinants of dividend policy and its effect on share prices of companies listed on the Ghana Stock Exchange. The study is conducted with the aim of: Firstly to determine the general factors considered by management in paying out dividends of companies listed on GSE. Secondly to identify the specific factors that influence dividend policy of the different sectors of companies listed on the GSE and finally to identify the relationships between dividend policy and Share Price of Companies Listed on the GSE.

The study unfolds the main determinants of dividend policy in general and the varying factors that influence dividend policy across the various sectors of the economy of Ghana. This study therefore seeks to fill the gap in the literature.

The rest of the article is organized as follows. The next section reviews the relevant literature relating to the subject matter of the Study. Section three discusses the methodology. Section four discusses the results. Finally, section five focuses on the summary of findings, conclusion and recommendations of the paper.

2. Literature Review

Researchers on corporate dividend policy have over the years followed two divergent paths, Musa (2009)-the behavioural and the normative approach. The behavioural approach includes works such as Baker, Farrelly and Edelman (1985), Pruitt and Gitman (1991), and Baker and Powell (2000).

Baker, Farrelly and Edelman (1985) surveyed 318 New York Stock Exchange (NYSE) firms and established that the major determinants of dividend payments are anticipated level of future earnings and pattern of past dividends. Pruitt and Gitman (1991) enquired from financial managers of the 1000 largest U.S. firms and reported that, current and past year' profits are important factors influencing dividend payments. They also found that risk (year to year variability of earnings) also determine the firms' dividend policy. According to Baker and Powell (2000), anticipated level of future earnings is the major determinant of dividend policy. This is their conclusion from a survey of NYSE-listed firms. The above studies, following the behavioural approach report that different managers at different times attach varying importance to the factors that influence a firm's dividend decision. Certain factors such as level of current and past earnings and the pattern of variability of past dividends, however, have emerged as consistently important over the years

Some researchers on the other hand followed the normative approach by developing and empirically testing various mathematical models in order to explain the dividend policy of firms (Musa, 2009). Lintner (1956) was the first researcher to develop and test the partial-adjustment model of dividend. His model suggests that a change in dividends is a function of the target dividend payout less the last period's dividend payout multiplied by the speed of an adjustment factor. Lintner found that the most important determinant of a company's dividend policy was a major change in earnings "out of line" with existing dividend rates.

This study follows the normative approach like the works of Lintner (1956), Baskin (1989), and Amidu (2007). The basic model of Lintner is modified to include some controllable variable. This approach has been similarly used by Baskin (1989) and Adesola and Okwong (2009) in examining dividend policy and stock price behaviour. This approach is far superior as the relationships among the variables are best presented and analyzed.

Adesola and Okwong (2009) in his empirical study of dividend policy of quoted companies in Nigeria adopt the Lintner's model as modified by Brittan between 1996 – 2000. The result provides strong support for the explanatory or predictive power of Lintner's model. He found that the dividend policies of quoted companies in Nigeria are significantly influenced by their earnings and previous year dividend and that because of the reluctance to cut dividends, companies only partially adjust their dividends to changes in earnings.

Adelegan (2001) however asserts that Lintner's model does not perform quite creditably in explaining the dividend behaviour of corporate firms. He pinpoints further that the factors that mainly influenced the dividend policy of quoted firms are after tax earnings, economic policy changes, firm growth potentials and long term debts.

Eriotis (2005) reports that firms distribute dividend each year according to their target payout ratio, which is determined by distributed earnings and size of these firms.

In investigating the determinants of dividend policy of Tunisian stock Exchange, Naceur *et. al* (2006) found that the high profitable firms with more stable earnings can manage the larger cash flows and because of this they pay larger dividends

In related work in Pakistan by Ahmed and Javid (2009), they found that firms having high profitability with stable earnings afford larger free cash flows and hence such firms pay out larger dividend. Again the firms with larger investment opportunities can easily influence dividend policies and that investment opportunities happen to be a key determinant of dividend payout policies.

A firm that has relatively stable earnings is therefore often able to predict approximately what its future earning will be. Such a firm is more likely to pay a higher percentage of its earnings than the firm with fluctuating earnings (Anil and Kapoor, 2008).
Marfo-Yiadom E. and Agyei S.K. (2011) reveals that the major determinants of dividend policy of banks are profitability, leverage, changes in dividend, collateral capacity, growth and age.

Dividend policies may affect the share price of companies and therefore needs to be critically observed and analyzed by all key stakeholders as it may affect the value of the firm and hence shareholders worth.

3. METHODOLOGY

This section covers the methods and materials of the study and takes into account the entire research design which is the method adopted in the sampling technique, the nature and source of data and the method of data collection and analysis

The study uses only secondary data obtained from the Ghana Stock Exchange (GSE) for six (6) year period from the 2006 to 2011. This period (six years) is to enable a panel analysis of the data of the companies listed on GSE. There are currently thirty-four (34) companies listed on the GSE. However, due to unavailability of data for some companies the researcher used twelve (12) companies covering six different sectors as sample for the study. This sample is approximately one- third of the population of companies listed on the Ghana Stock Exchange (34 companies as at 4th July 2013); hence, concrete and reliable conclusion can be made. The data were derived from the annual reports of companies listed on GSE, and they consist of Balance sheet, Income Statements, Financial ratios and other relevant pieces of information for all publicly quoted companies.

Dividend Payout Ratio is taken as the dependent variable which is calculated by dividing total dividends by total earnings. Price Volatility, Earning per Share, Net Profit after Tax, Growth in Assets, Size, Return on Equity and Liquidity are used as independent variables to study the determinants of dividends policy and its effect on share prices.

Multiple panel regression is used to analyse the data in finding out the determinants of dividend policy of companies listed on GSE and the relationship between the dividend policy and stock prices.

The following are the companies used for the study and their corresponding sectors:

Table 3.1: The companies used in the sample and their corresponding sectors

Company	**Sector**
1. Ayrton Drug Manufacturing Ltd 2. Starwin Products Limited	Pharmaceuticals
3. Cal Bank Limited 4. Ecobank Ghana Limited	Banking and Finance
5. Enterprise Insurance 6. SIC Insurance	Insurance
7. Mechanical Lloyd Co. Ltd 8. Ghana Oil Company	Distribution
9. Guinness Ghana Breweries Ltd 10. Fanmilk Ltd	Food and Beverages
11. Unilever Ghana Limited 12. Cocoa Processing Company	Manufacturing

The Model

The model used in this study is the Ordinary Least Square (OLS) regression model as it is a suitable tool used in getting useful findings. It involves regressing the dependent variable and independent variable. Fama and French (1988); Afza and Mirza (2010) also used the Ordinary Least Square (OLS) regression in their studies to explain the relationship between dividend policy and stock prices. The equation is

$$\boldsymbol{POR_{it}} = \boldsymbol{\beta_0 + \beta_1 PV_{it} + \beta_2 PAT_{it} + \beta_3 EPS_{it} + \beta_4 SZ_{it} + \beta_5 GROWTH_{it} + \beta_6 ROE_{it} + \beta_7 LIQ_{it} + \varepsilon_{it}}$$

where

POR (Payout Ratio) = Total Dividend / Total Earnings

PV (Share Price Volatility) = $\sqrt{\left(\frac{Annual\ range\ of\ stock\ prices}{Average\ of\ high\ and\ low\ stock\ prices}\right)^2}$

PAT = Profit after Tax

EPS (Earning per Share) = $\frac{Net\ income - preferred\ stock\ dividend}{Number\ of\ outstanding\ shares}$

SZ (Size) = Natural logarithms (Ln) of Total Asset

Growth (Growth in Assets) = Company's equity / Total Assets.

ROE (Return on Equity) = Profit after Tax / shareholders' equity

LIQ (Liquidity) = Current Assets/ Current Liabilities

The subscript i represent the cross-sectional dimension, and the t represent the time-series dimension. $\boldsymbol{\beta_0}$ is the constant and , $\boldsymbol{\beta_1, \beta_2, \beta_3, \beta_4, \beta_5, \beta_6, \beta_7}$ are the coefficients and the $\boldsymbol{\varepsilon_{it}}$ is the disturbance term

The dependent variable POR is Payout ratio and the independent variables PV is Price Volatility; PAT is Profit after tax; EPS is earning per share; SZ is size of the firm; Growth as the proxy for growth opportunities, ROE is the return on equity, and LIQ is liquidity which is represented by current asset ratio.

The table below shows the expected hypothesized sign of the variables used in these studies with the empirical evidence.

Table 3.2: Variable, Hypothesized Sign and Empirical Evidence

Variable	**Hypothesized Sign**	**Empirical Evidence**
Payout Ratio	Dependent Variable	Amidu and Abor (2006), Anil and Kapoor (2008), and Marfo and Agyei (2011).
Price Volatility	Positive	Allen and Rachim (1996), and Adesola and Okwong (2009)
Profit After Tax	Positive	Pani (2008), Adesola and Okwong (2009), Ahmed and Javid (2009), Amidu and Abor (2006) .
Earnings per Share	Positive	Baskin (1989), Liu and Hu (2005), Adefila, Oladipo and Adeoti (2004), and Adesola and Okwong (2009)
Return on Equity	Positive	Liu and Hu (2005)
Growth	Negative	Jecheche (2011), and Marfo-Yiadom and Agyei (2011)
Size	Negative	Ahmed and Javid (2009)
Liquidity	Positive	Amidu and Abor (2006), Enyan (2009) and Ahmed and Javid (2009)

4 . Discussion of Results

This chapter discusses the results generated from the statistical tool (SPSS) used. This chapter shows important descriptive statistics, regression analysis, and correlation findings from the variables used in the analysis.

Descriptive Statistics

Table 4.1 below provides a summary of the descriptive statistics of the explanatory variables of dividend policy across the various sectors of companies listed on the GSE.

The table shows the mean, standard deviation, minimum and maximum values of the study variables for six sectors under study. From the table, it reveals that the variable- profit after tax has the highest mean value in the pharmaceutical, banking and finance, insurance, distribution, and food and beverages sectors. However, this variable has the lowest mean but highest maximum value in the manufacturing sector. The ROE was as low as 10.55% for Pharmaceuticals, with some pharmaceuticals firms recording a minimum of -7% and the maximum been 25%. The average SZ which is taken as natural logarithms of total asset was 1139% for Pharmaceuticals. This pre-supposes that as pharmaceutical firms grow they acquired more assets.

All the sectors namely: Pharmaceuticals, Banking and Finance, Insurance, Distribution, Food and Beverages and Manufacturing had high Liquidity (Cash position). Their average liquidity are 414%, 114.77%, 258.70%, 126.22%, 127.63% and 130.41% respectively.

The average growth for Pharmaceutical, Banking and Finance, Insurance, Distribution, Food and Beverages, and Manufacturing are: 75%, 12.43%, 48.44, 39.93%, 51.44%, and 29.48% respectively.

The share Price Volatility (PV) calculated using the Parkinson's extreme values has an average of 89.62%, 46.75%, 40.87%, 28.89%, 46.72% and 37.60% for Pharmaceuticals, Banking and Finance, Insurance, Distribution , Food and Beverages and Manufacturing sectors respectively. The deviation of PV did not deviate much from the mean PV.

Table 4.1: Descriptive statistics of the explanatory variables of dividend policy across the various sectors

Sector	Variables	Mean	Standard Deviation	Minimum	Maximum
Pharmaceutical	Return on Equity (ROE)	0.1055	0.09576	-0.07	0.25
	Liquidity (LIQ)	4.1400	2.92698	1.42	9.81
	Price Volatility (PV)	0.8962	1.58701	0.00	4.40
	Profit After Tax (PAT)	1.9235E6	2.86921E6	-1.32E5	1.03E7
	Growth	0.7590	0.15672	0.50	1.01
	Earnings Per Share (EPS)	4.9909	13.98324	0.00	48.08
	Size (SZ)	11.3978	4.38680	6.94	17.26
Banking and Finance	Return on Equity (ROE)	0.2513	0.09078	0.12	0.40
	Liquidity (LIQ)	1.1477	0.04234	1.07	1.22

	Price Volatility (PV)	0.4675	0.19704	0.17	0.82
	Profit After Tax (PAT)	4.1962E4	45065.05268	5204.00	1.65E5
	Growth	0.1243	0.02148	0.09	0.15
	Earnings Per Share (EPS)	1.1047E2	300.56766	0.03	1025.00
	Size (SZ)	13.7004	0.82731	12.37	15.25
Insurance	Return on Equity (ROE)	0.1385	0.09754	0.04	0.37
	Liquidity (LIQ)	2.5870	1.95690	1.02	6.35
	Price Volatility (PV)	0.4087	0.27634	0.00	0.87
	Profit After Tax (PAT)	6.8492E6	8.95764E6	2236.00	2.95E7
	Growth	0.4844	0.16435	0.30	0.73
	Earnings Per Share (EPS)	1.0859E2	254.77007	0.03	712.00
	Size (SZ)	15.4124	4.03038	10.49	19.48
Distribution	Return on Equity (ROE)	0.1546	0.05386	0.07	0.25
	Leverage (LIQ)	1.2622	0.18933	1.05	1.54
	Price Volatility (PV)	0.2889	0.28522	0.00	0.78
	Profit After Tax (PAT)	3.6730E6	2.64557E6	34819.00	7.89E6
	Growth	0.3993	0.12478	0.23	0.55
	Earnings Per Share (EPS)	1.0684E2	325.69023	0.01	1131.96
	Size (SZ)	17.5023	1.49970	13.28	18.87
Food and beverages	Return on Equity (ROE)	0.2359	0.14996	-0.10	0.43
	Liquidity (LIQ)	1.2763	0.74437	0.33	2.67
	Price Volatility (PV)	0.4672	0.24217	0.13	0.90
	Profit After Tax (PAT)	2.4332E4	40521.04560	533.00	1.50E5
	Growth	0.5144	0.19594	0.22	0.76
	Earnings Per Share (EPS)	2.1408E2	524.12774	0.00	1655.60
	Size (SZ)	8.5866	4.02887	4.37	14.00
Manufacturing	Return on Equity (ROE)	-6.9421	23.25118	-80.69	0.46
	Liquidity (LIQ)	1.3041	0.47230	0.48	2.18
	Price Volatility (PV)	0.3760	0.43532	0.00	1.56
	Profit After Tax (PAT)	-4.4565E6	6.84149E6	-1.69E7	6.47E5
	Growth	0.2948	0.17077	0.00	0.53
	Earnings Per Share (EPS)	0.8882	2.63176	-0.02	9.23
	Size (SZ)	15.0362	3.51597	11.47	19.13

Regression Results

The results of the panel data regression are discussed under two sections. The first section presents the multiple panel regression analysis for companies listed on GSE (Aggregate data). The results are reported in table 4.2

The second section shows the multiple panel regression analysis pertaining to the various sectors of companies listed on GSE. The results are reported in Table 4.3 to 4.9

In both sections, the data shows the regression results between the dependent variable (Dividend Payout) and the explanatory variables of the study. The multiple panel regression model has the following as independent variables: return on equity, liquidity, price volatility, profit after-tax, growth in assets, earnings per share and size and the dividend payout ratio as the dependent variable. The coefficients, standard errors, t-statistic and p-values for the aforementioned independent variables as well as the multiple coefficient of determination (i.e. R-square) are also clearly shown in the results.

Multiple panel regression analysis for companies listed on GSE

Table 4.2: Multiple panel regression result for companies listed on GSE

Model (**R-Square=0.505**)	Coefficients	Standard Error	t-Statistic	P-Value
Constant	-3.839	2.460	-1.560	0.124
Return on Equity (ROE)	-0.124	0.048	-2.548	0.013
Liquidity (LIQ)	0.428	0.365	1.171	0.246
Price Volatility (PV)	0.043	0.672	0.063	0.950
Profit After Tax (PAT)	-4.300×10^{-7}	0.000	-5.145	0.000
Growth	-1.028	2.835	-0.363	0.718
Earnings Per Share (EPS)	0.001	0.002	0.708	0.482
Size (SZ)	0.406	0.126	3.209	0.002

From the table, the p-values indicate that return on equity, profit after tax and size of the company with coefficients of -0.124, -4.300×10^{-7} and 0.406 respectively are statistically significant at 5% level. However, the remaining variables are not significant. These suggest that main determinants of dividend policy for companies listed on GSE are return on equity, profit after tax and size of the company. Therefore, the fitted multiple panel regression model with the main determinants of dividend policy for companies listed on GSE is given by Equation 4.2.

$$POR = -0.124ROE - 4.300 \times 10^{-7}PAT + 0.406SZ \qquad (4.2)$$

The above model suggests that a unit increase in return on equity and profit after tax decreases dividend payout by 12.4% and 4.300×10^{-5}% respectively among companies listed on GSE. Also, every unit increase in the size of company increases dividend ratio by 40.6%. With an R-square of 50.5%, the fitted model explained a moderate proportion of dividend payout ratio. However, contrary to expectations and findings of Amidu and Abor (2006), the study during the period under review shows profitability negatively affects the dividend Payout. This could probable suggest that companies listed on GSE pays dividend even when profitability decreases.

Multiple panel regression analysis of the various sectors of companies listed on GSE

Pharmaceutical Sector

Table 4.3: Multiple panel regression result for Pharmaceutical Sector

Model (**R-Square=0.994)**	Coefficients	Standard Error	t-Statistic	P-Value
Constant	-0.419	0.154	-2.726	0.053
Return on Equity (ROE)	0.727	0.141	5.149	0.007
Liquidity (LIQ)	0.184	0.011	16.013	0.000
Price Volatility (PV)	0.112	0.009	12.885	0.000
Profit After Tax (PAT)	-5.098E-7	0.000	-20.257	0.000
Growth	0.108	0.120	0.903	0.418
Earnings Per Share (EPS)	0.101	0.005	21.955	0.000
Size (SZ)	0.005	0.008	0.580	0.593

Table 4.3 above shows results of the multiple panel regression model for the pharmaceutical sector.

The constant term is -0.419; however, the p-value of 0.053 indicates that this term has no significant effect on dividend payout ratio at 5% level of statistical significance. The variable growth in assets showed a positive coefficient (0.108), but it is statistically not significant (p-value=0.418). Similarly, size of the company with a positive coefficient of 0.005 is also not significant (p-value=0.593). However, return on equity, liquidity, price volatility and earnings per share with coefficients of 0.727, 0.184, 0.112 and 0.101 and p-values of 0.007, 0.000, 0.000 and 0.000 respectively give an indication of positive significant association with dividend payout ratio at 5% level. Also, profit after tax with coefficient of -5.098$\times 10^{-7}$ and p-value of 0.000 suggests a significant negative association with dividend payout ratio. These suggest that the main determinants of dividend policy in the pharmaceutical sector are return on equity, liquidity, price volatility, profit after tax and earnings per share. Therefore, the fitted multiple panel regression model with the main determinants of dividend policy in the pharmaceutical sector is given by Equation 4.3.

$$POR = 0.727ROE + 0.184LIQ + 0.112PV - 5.098 \times 10^{-7}PAT + 0.101EPS \qquad (4.3)$$

From Equation 4.3, the positive coefficient of 0.727 for return on equity suggests that a unit increase in return on equity increases dividend payout ratio by 72.7%. Similarly, dividend payout increased by 18.4%, 11.2% and 10.1% for every unit increase in liquidity, price volatility and earnings per share respectively. However, the negative coefficient of -5.098$\times 10^{-7}$ for profit after tax imply that a unit increase in profit after tax decreases dividend payout ratio slightly by 0.00005098%. Finally, with R-square of 99.4%, the fitted model explained a sufficient proportion of dividend payout ratio.

Banking and Finance Sector

Table 4.4 : Multiple panel regression result for Banking and Finance Sector

Model (R-Square=0.969)	Coefficients	Standard Error	t-Statistic	P-Value
Constant	-0.541	1.269	-0.426	0.692
Return on Equity (ROE)	1.731	0.839	2.062	0.108
Liquidity (LIQ)	0.818	0.867	0.943	0.399
Price Volatility (PV)	0.305	0.171	1.786	0.149
Profit After Tax (PAT)	6.883×10^{-6}	0.000	3.063	0.038
Growth	2.897	2.542	1.140	0.318
Earnings Per Share (EPS)	0.016	0.005	3.200	0.023
Size (Sz)	-0.078	0.068	-1.151	0.314

Table 4.4 above displays results of the multiple panel regression model for the banking and finance sector.

From Table 4.4, six of the independent variables, thus return on equity, liquidity, price volatility, profit after tax, growth and earnings per share have positive coefficients whilst the constant term and the variable size have negative coefficients. Among them only, profit after tax with coefficient of 6.883×10^{-6} and p-value of 0.038 and earnings per share with coefficient of 0.016 and p-value of 0.023 are statistically different from zero at 5% level. These suggest that the key determinants of dividend policy in the banking and finance sector are profit after tax and earnings per share. Therefore, the fitted multiple panel regression model with the key determinants of dividend policy in the banking and finance sector is given by Equation 4.4.

$$POR = 6.883 \times 10^{-6} PAT + 0.016 EPS \qquad (4.4)$$

From Equation 4.4, the positive coefficient of 6.883×10^{-6} for profit after tax suggests that a unit increase in profit after deduction of tax increases dividend payout ratio by 6.883×10^{-4}% and dividend payout ratio increase by 1.6% for every unit increase in earnings per share. Finally, with R-square of 96.9%, the fitted model explained a sufficient proportion of dividend payout .

Insurance Sector

Table 4.5: Multiple panel regression result for Insurance Sector

Model (R-Square=0.745)	Coefficients	Standard Error	t-Statistic	P-Value
Constant	2.933	0.082	35.768	0.000
Return on Equity (ROE)	0.200	0.031	4.878	0.011
Liquidity (LIQ)	0.448	0.298	1.503	0.207
Price Volatility (PV)	.093	0.305	0.306	0.775
Profit After Tax (PAT)	1.075×10^{-8}	0.000	0.239	0.823
Growth	-6.496	4.842	-1.342	0.251

Earnings Per Share (EPS)	0.201	0.052	3.865	0.026
Size(SZ)	-0.058	0.073	-0.786	0.476

Results in Table 4.5 above shows result of the multiple panel regression model for the insurance sector.

From Table 4.5 the constant term with estimate of 2.933 is statistically significant at 5% level (i.e. p-value=0.000). Return on equity and earnings per share with coefficients of 0.200 and 0.201 respectively are significantly associated with dividend payout ratio. Moreover, among the remaining variables, liquidity, price volatility, and profit after tax showed positive associations with dividend payout ratio, but they were not significant. On the other hand, growth in assets and size of the company are negatively associated with dividend payout ratio, but the associations were not statistically significant at 5% level.

These depict that the main determinants of dividend policy in the insurance sector are return on equity and earnings per share. Therefore, the fitted multiple panel regression model with the main determinants of dividend policy in the insurance sector is given by Equation 4.5.

$$POR = 2.933 + 0.200ROE + 0.201EPS \qquad (4.5)$$

The model depicts that the effect of return on equity and earnings per share on dividend payout ratio are almost the same. Thus, a unit increases in return on equity and earnings per share in the insurance sector increase dividend payout ratio by 20.0% and 20.1% respectively. Finally, R-square value of 74.5% suggests the fitted model explain a moderate proportion of dividend payout ratio.

Distribution Sector

Table 4.6: Multiple panel regression result for Distribution Sector

Model (R-Square=0.769)	Coefficients	Standard Error	t-Statistic	P-Value
Constant	-2.830	5.439	-0.520	0.630
Return on Equity (ROE)	-0.395	0.049	-8.061	0.004
Liquidity (LIQ)	0.076	0.013	5.846	0.006
Price Volatility (PV)	-0.006	0.224	-0.028	0.979
Profit After Tax (PAT)	-5.696E-8	0.000	-16.593	0.000
Growth	-1.160	0.951	-1.220	0.289
Earnings Per Share (EPS)	0.000	0.001	0.483	0.654
Size	0.212	0.310	0.685	0.531

Results in Table 4.6 above, shows result of the multiple panel regression model for the distribution sector. From the table, three of the independent variables, thus liquidity, earnings per share and size of the company have positive coefficients whilst the constant term together with the remaining variables have negative coefficients. The p-values indicate that return on equity with coefficient of -0.395, liquidity with coefficient of 0.076 and

profit after tax with coefficient of -5.696× 10^{-8} are statistically significant at 5% level. These suggest that the key determinants of dividend policy in the distribution sector are return on equity, liquidity and profit after tax. Therefore, the fitted multiple panel regression model with the key determinants of dividend policy in the distribution sector is given by Equation 4.6.

$$POR = -0.395ROE + 0.076LIQ - 5.696 \times 10^{-8}PAT \qquad (4.6)$$

The above model depicts that, every unit increase in return on equity and profit after tax decreases dividend payout ratio by 39.5% and 5.696×10^{-6} respectively. Also a unit increase in liquidity increases dividend payout ratio by 7.6%. With R-square of 76.9%, the fitted model explained a moderate proportion of dividend payout ratio.

Food and Beverages Sector

Table 4.7: Multiple panel regression result for Food and Beverages Sector

Model (R-Square=0.904)	Coefficients	Standard Error	t-Statistic	P-Value
Constant	-2.028	2.544	-0.797	0.470
Return on Equity (ROE)	9.104	3.034	3.001	0.040
Liquidity (LIQ)	0.459	1.212	0.379	0.724
Price Volatility (PV)	-2.128	1.715	-1.240	0.283
Profit After Tax (PAT)	-1.109× 10^{-5}	0.000	-2.521	0.049
Growth	-1.752	5.742	-0.305	0.776
Earnings Per Share (EPS)	0.000	0.000	-0.266	0.803
Size	0.186	0.132	1.413	0.231

Results in Table 4.7 above shows result of the multiple panel regression model for the food and beverages sector.

The p-values indicate that return on equity with coefficient of 9.104 and profit after tax with coefficient of -1.109× 10^{-5} are statistically significant at 5% level. These suggest that the major determinants of dividend policy in the food and beverages sector are return on equity and profit after tax. Therefore, the fitted multiple panel regression model with the major determinants of dividend policy in the food and beverages sector is given by Equation 4.7.

$$POR = 9.104ROE - 1.109 \times 10^{-5}PAT \qquad (4.7)$$

The results suggest that, return on equity has a strong effect. Thus, every unit increase in return on equity increases dividend payout ratio by 910.4%. However, every unit increase in profit after tax decreases dividend payout ratio by 1.109× 10^{-3}%. With R-square of 90.4%, the fitted model explained an adequate proportion of dividend payout ratio.

Manufacturing Sector

Table 4.8: Multiple panel regression result for Manufacturing Sector

Model (R-Square=0.904)	Coefficients	Standard Error	t-Statistic	P-Value
Constant	-8.398	22.033	-0.381	0.722
Return on Equity (ROE)	0.037	0.087	0.423	0.694
Liquidity (LIQ)	4.535	0.209	21.699	0.000
Price Volatility (PV)	-2.153	4.668	-0.461	0.669
Profit After Tax (PAT)	5.128E-8	0.000	3.997	0.046
Growth	-29.203	35.052	-0.833	0.452
Earnings Per Share (EPS)	-0.985	0.222	-4.437	0.044
Size	1.487	1.139	1.306	0.262

Results in Table 4.8 above shows result of the multiple panel regression model for the manufacturing sector.

The p-values in table indicate that, liquidity with coefficient of 4.535, profit after tax with coefficient of 5.128×10^{-8} and earnings per share with coefficient of -0985 are statistically significant at 5% level. These suggest, in the manufacturing sector liquidity, profit after tax and earnings per share are the main determinants of dividend policy. Therefore, the fitted multiple panel regression model with the main determinants of dividend policy in the manufacturing sector is given by Equation 4.8.

$$POR = 4.535LIQ + 5.128 \times 10^{-8}PAT - 0.985EPS \qquad (4.8)$$

From the above model, every unit increase in liquidity and profit after tax increases dividend payout ratio by 453.5% and 5.128×10^{-6}% respectively. However, every unit increase in earnings per share decreases dividend payout ratio by 98.5%. With R-square of 90.4%, the fitted model explained an adequate proportion of dividend payout ratio.

4.3 Correlation of the explanatory Variables of Dividend Policy

Table 4.9: Pearson's Correlation matrix of the explanatory variables of dividend policy for companies listed on GSE

	ROE	LIQ	PV	PAT	GROWTH	EPS	SZ
ROE	1						
LIQ	0.080 (0.502)	1					
PV	0.015 (0.903)	0.379** (0.001)	1				
PAT	0.299* 0.011	0.077 (0.521)	-0.072 (0.548)	1			

Growth	0.219 (0.064)	0.714** (0.000)	0.240* (0.042)	0.254* (0.032)	1		
EPS	0.041 (0.731)	-0.117 (0.327)	-0.147 (0.318)	0.191 (0.108)	-0.032 (0.792)	1	
SZ	-0.164 (0.170)	-0.488** (0.000)	-0.264* (0.025)	0.040 (0.738)	-0.544** (0.000)	-0.081 (0.499)	1

Table 4.9 shows the Pearson's correlation matrix of the dividend policy variables. From the table the strongest association which is 0.714 appears to be statistically significant (i.e. p-value=0.000). This association exists between liquidity and growth. Also, there exist a moderate negative association between growth and size. Besides, other associations are significant but not strong.

5. SUMMARY, FINDINGS AND RECOMMENDATION

The Chapter presents a summary of the research findings, conclusions and recommendations.

Summary of findings

The research is conducted to find the determinants of dividend policy and its effect on share prices in Ghana. The research is therefore conducted with the following aims:

Firstly to determine the general factors considered by management in paying out dividends of companies listed on GSE. Secondly to identify the specific factors that influence dividend policy of the different sectors of companies listed on the GSE and finally to identify the relationships between dividend policy and Share Price of Companies Listed on the GSE

This chapter provides a summary of the findings and recommendations and conclusions. The findings have been derived from analysis performed using the SPSS. The data used were derived from the annual report of listed firms for the period 2006-2011.

General factors considered by management in paying out dividends.

The independent variables used in determining the general factors management consider in paying dividend are the Price Volatility, Profit after Tax, Earning Per Share, Return on Equity, Size , Growth and Liquidity.

The panel regression analysis reveals that main determinants of dividend policy for companies listed on GSE are return on equity, profit after tax and size of the company. From the Regression analysis, the p-values indicate that return on equity, profit after tax and size of the company are statistically significant at 5% level. This confirms work by several authors which concludes return on equity, profitability and size are factors considered in paying out dividend. Such works include Marfo-Yiadom and Agyei (2011).

Specific factors that influence dividend policy of the different sectors of companies listed on the GSE

The following are findings pertaining to the specific factors that influence dividend payout across the various sectors.

This paper reveals that the specific factors that influence dividend payout of the banking and finance sector are: profit after tax and earnings per share. Marfo and Agyei (2011) found a statistically significant association between profitability and dividend payout of banks in Ghana for the period 1999-2003.

In addition to the factors considered by the banking sector: profit after tax and earning per share, the manufacturing sector further considers liquidity in the determination of its dividend policy. The main determinants of dividend policy of manufacturing sector are profit after tax, earning per share and liquidity. Earnings per share was found to be one of the key determinants of dividend policy of manufacturing firms in Ghana by Enyan (2009) in the period 2000 -2005.

This paper suggests that the main determinants of dividend policy in the pharmaceutical sector are return on equity, liquidity, price volatility, profit after- tax and earnings per share. This augment that in addition to all the factors considered by the manufacturing sector, the pharmaceutical sector further considers return on equity, and price volatility in the determination of its dividend policy. These are the variables that show a significant association with dividend payout.

The main determinants of dividend policy in the food and beverages sector however are return on equity and profit after tax.

Similarly, the findings reveal that the key determinants of dividend policy in the distribution sector are return on equity, profit after tax and liquidity.

The findings again reveal that the major determinants of dividend policy of insurance sector are return on equity and earning per share.

The relationships between Dividend Policy and Share Price of Companies Listed on the GSE

The findings from the panel data regression analysis for companies listed on the GSE shows a positive relationship between dividend payout and Share Price (Price Volatility) although it is not significant. The findings pertaining to the specific sectors however reveal varying results. The following sectors: Banking and Finance, and Insurance show a weak positive relationship between dividend payout and share price. This is however not statistically significant. Sectors such as Distribution, Food and Beverages and Manufacturing on the other hand show a negative relationship between Dividend payout and share price. This is also not significant. It is only the pharmaceutical sector that shows a positive significant relation between dividend

policy and Share Price. It can therefore be said that most of the firms listed on the Ghana Stock Exchange show statistically insignificant and weak relation between their Dividend Payout and Share Price.

Conclusion

This study is conducted to determine the industry sector determinants of dividend policy and its effect on share price of companies listed on the GSE. Panel data is constructed from the annual reports of companies on GSE for the period 2006-2011. Panel data regression using the statistical tool-SPSS, is used in analyzing the aggregate data of companies listed on the GSE and the data corresponding to specific sectors of the companies listed on the GSE.

The study reveals that the main determinants of dividend policies of companies listed on the GSE are return on equity, profit after tax and size of the company. There are however different factors that influence the dividend payout across the various sectors. Profit After-Tax happens to be a key variable that is considered by most sectors in paying their dividend. Thus Profitability is a key determinant of dividend policy of companies across the various sectors on the GSE.

Recommendations

From the findings of this study, the researcher makes the following recommendations:

Listed companies in paying dividend must not only consider the general factors that affect dividend policy of companies in Ghana but also consider the specific sector they find themselves in order to reap the expected effects that accompanies dividend policy (payout).

Future studies should look at the determinants of dividend policy of unlisted companies in Ghana. This would highlight whether or not the factors considered by listed companies in paying dividends is consistent with unlisted companies.

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