EFFECTS OF DIVIDEND POLICY ON SHARE PRICE OF
FIRMS LISTED AT THE NAIROBI SECURITIES EXCHANGE,
KENYA

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OF KENYATTA UNIVERSITY

SEPTEMBER 2015
DECLARATION

This thesis is my original work and has not been presented for a degree in any other university or any other award.

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Department of Accounting and Finance
Kenyatta University
DEDICATION

To my parents Mr. and Mrs. John Tuigong who taught me the virtue of fortitude and to my only sister, Helen for her moral support.
ACKNOWLEDGEMENT

Special thanks goes to the Almighty God for the gift of life and strength which enabled me to come this far. I would also like in a special way to acknowledge crucial role played by my supervisors, Dr Jagongo and Dr. Ndede, for their invaluable support and guidance at Kenyatta University. Further, my gratitude and appreciations goes to all those individuals and organisations whose contributions facilitated the completion of this thesis work. I am sincerely grateful for those who shared their truthful and illuminating views on a number of issues related to this thesis. Their invaluable and constructive criticism added value to this document. Finally, I would like to appreciate the guidance given by the panellist especially in my presentations at all stages that has since improved my presentation skills and the quality of my document.

God bless you all.
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OPERATIONAL DEFINITION OF TERMS

Bear Market / Bear Cycle: An extended period when share prices generally keep falling and the stock market index keeps going down.

Blue Chip Stocks: Are the stocks of leading, well established, capitalized and nationally known companies that have a proven record of earnings and pay a reasonable dividend.

Bonus Issue: These are additional shares issued to existing shareholders in proportion to their holdings. They are issued free of cost.

Bourse: This is term is generally used to refer to the Securities Exchange.

The dividend payout ratio: is the percentage of a company's annual earnings paid out as cash dividends.

Dividend Policy: is an exclusive decision by the management to decide what percentage of profit is distributed among the shareholders or what percentage of it is retained to fulfil its internal needs.

Dividend: A taxable payment declared by a company's board of directors and given to its shareholders out of the company's current or retained earnings.

Emerging market: is a financial market of a developing country, usually a small market with a short operating history.

Financial Markets: Any market place where buyers and sellers transact in assets such as equities, bonds, currencies and derivatives. It includes money markets and capital markets

Listed Shares: These are shares that have been registered by a recognized and regulated stock exchange to be traded on its trading floor. Shares can be listed on more than one stock exchange.
Market Price: The last reported price at which a share was sold at the stock exchange. It is also referred to as the market value.

Quote: This is the price at which a share is currently traded at the stock exchange. It is also referred to as the quotation or quoted price.

The NSE 20 Share Index: It is a price weighted index that measures the average performance of 20 blue chip counters at the NSE. It is the oldest Kenyan stock market index established in 1966.

Turnover: This is the total number of shares sold in the stock market during a given period of time, usually a day. It is also referred to as the market turnover.

Panel data: This is data from a (usually small) number of observations over time on a (usually large) number of cross-sectional units such as individuals, households, firms, or governments.

Multivariate analysis: Statistical procedure that attempts to assess the relationship between a dependent variable and two or more independent variables. It is an analysis which looks at the simultaneous and combined effects of a number of variables.

Exchange: refers to Nairobi Securities Exchange
<table>
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<th>Abbreviation</th>
<th>Description</th>
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<tr>
<td>NSE</td>
<td>Nairobi Securities Exchange</td>
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<tr>
<td>REM</td>
<td>Random Effect Model</td>
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<td>FEM</td>
<td>Fixed Effect Model</td>
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<tr>
<td>CMA</td>
<td>Capital Market Authority</td>
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<td>KNBS</td>
<td>Kenya National Bureau of Statistics</td>
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<tr>
<td>EPS</td>
<td>Earnings Per Share</td>
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<tr>
<td>REPS</td>
<td>Retained Earnings per Share</td>
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<td>NAPS</td>
<td>Net Assets Per Share</td>
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<tr>
<td>DER</td>
<td>Debt Equity Ratio</td>
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<tr>
<td>VWAP</td>
<td>Volume Weighted Average Price</td>
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<tr>
<td>OLS</td>
<td>Ordinary Least Square</td>
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<td>GLS</td>
<td>Generalized Least Square</td>
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ABSTRACT

Dividend policy is a widely researched topic in the field of corporate finance; however, it still remains a mystery as to whether dividend policy affects the share prices of quoted firms. During the period under review (2001-2011), share prices of listed firms in the Nairobi Securities Exchange severely fluctuated making it difficult for investors to make informed investment decisions. The general objective of this study was to investigate the effect of dividend policy (cash and share dividend) on the stock prices, specifically, the study sought to establish the relationship between cash dividend and the share prices and to determine the relationship between share dividend and share prices of firms listed at the Nairobi Securities Exchange. The data set consisting of volume weighted average price as dependent variable and cash dividend per share and share dividend per share as independent variables and net assets per share, retained earnings per share, debt equity ratio and earnings per share as control variables were collected using data collection schedules for 55 companies sampled for the study. Secondary data was obtained from Nairobi Securities Exchange, Capital Market Authorities and individual company’s websites for a period between the years 2001 and 2011. Ordinary Least Square diagnostic tests were run to ascertain the suitability of the model and the results showed that the model was suitable for estimation since it did not suffer from multicollinearity, heteroscedasticity and non-normality problems. Random Generalized Least Square regression analysis was carried out with the help of STATA for the whole market and for the 10 economic sectors represented at the Nairobi Securities Exchange at five percent level of significance. The results of the market indicated that there was a statistically significant positive relationship between cash dividend and share prices while there was statistically insignificantly negative relationship between share dividend and share prices. This implied that dividend policy affects the share price and that increase in cash dividend would result in increase in share price for companies listed at the Nairobi Securities Exchange, Conversely, an increase in share dividend would result in an insignificant decrease in share price for companies listed at the Exchange. The results of the study confirmed relevance of dividend policy on firm’s value. Based on the findings of the study, it was recommended that the management of Capital Markets Authority of Kenya should amend Cap 485A Laws of Kenya and other relevant laws and regulations and ensure enforcement of those laws among other measures to guarantee consistent practices by listed firms that lead to efficiency in the market for the benefit of the investors. Further, the management of listed firms should consider cash dividend policy more than share dividend due to it positive effect on the share price as a strategy of increasing the value of the firms. If this is done consistently, the shareholders’ wealth would be maximized in the long run. It is thus recommended that further research could be conducted to establish whether macroeconomic variables affect equity price for firms listed at the Exchange.
CHAPTER ONE
INTRODUCTION

1.1 Background of the Study

Modern corporation finds its origin in cooperative ventures in various parts of Europe in the medieval period (Scott, 1912; Kindleberge, 1984). Voyages in the sixteenth century both increased the demand for and the supply of capital, and these ventures led to large and long-lived entities such as the British East India Company. As business evolved into early form of corporations, dividend policies also evolved.

In the sixteenth century, investors backed expectations were formed as ventures in parts. The investors owned “parts” or shares in fractions of eighth, sixteenth, and the like (Baker & Kent, 2009). These organisations more closely resembled partnerships than corporations (Masselman, 1963; Beatty, 2001). The prevailing practice was to raise new capital for each trading venture and the joint stock companies generally did not have fixed capital that persisted beyond a given venture. At that time, dividend payment followed a clear and basic policy, a liquidating dividend policy. At the end of the voyage, a mass liquidation of all assets occurred and investors received a profit in proportion to the shares they owned. With the end of joint venture, the investors and the sea captain of the sailing vessel could negotiate the details of a new venture or go their separate ways (Lease, Kose, Anner, Uri, & Oded, 2000).

Although this type of dividend policy lowered the opportunity of fraud, the practice of total liquidation at the end of each venture was not very efficient because the investors received proceeds from both earnings and assets. They often received their
dividends in form of real goods. Investor’s adept in managing financial risks probably found liquidation of real assets cumbersome. Furthermore, the practice lessened the opportunity to gain from human capital built from the relationships developed in early ventures (Kindleberge, 1984; Baskin, 1988).

By the beginning of the seventeenth century, corporations had become longer-lived, and paid dividends only from earnings. Initially, investors considered dividend very important. At the end of the century, however, investors began placing less emphasis on dividend payment. A period of increased speculation followed, which culminated in a major decline in stock prices in 1720 and the passage of the Bubble Act in England. The Bubble Act placed restrictions on the formation of corporation and their activities.

Corporations became important again in the early nineteenth century with an increased demand for capital from railroad and canal companies in both Britain and United States. British investors supplied much of the capital for expansion in both countries. Eventually, parliament repealed the Bubble Act in 1824. Corporations increased in numbers and the issue of dividend payment regained its importance. The nineteenth century saw innovations such as preferred stock and efforts by management to smooth dividends. As industries continued to grow in the twentieth century, the link between dividend and share value gained attention. After 1920, managers increased both dividend payments and their practices of dividend smoothing. Despite efforts to smooth dividends, the twentieth century witnessed considerable variability in dividend payouts and dividend yields. The reasons underlying past and current trends in dividend payments are the subjects of such
debate and research. Today some experts question whether dividends are really necessary.

The twenty-first century has seen dividend policy remain one of the most important financial policies used in financial management to achieve the objective of wealth maximization (Baker & Kent, 2009). Further, it is a requirement in Kenyan for companies that intend to be listed in the NSE to have a clear future dividend policy (Kenya Gazette Supplement No. 40, 2002). This makes dividend policy worthy of serious management attention.

Although cash dividend is one of the most important type of dividend, particular circumstances may motivate management to use other types of dividend such as share dividends or share buyback (Broyles, 2003), or to use them simultaneously with cash dividend. According to Frankfurter & Wood (2002), a number of conflicting theoretical models, all lacking strong empirical support, define current attempts to explain corporate dividend behaviour. (Baker, Powell & Veit, 2002) posits that much debate exists about the role, if any, of dividend decisions on share price. Moreover, both academics and corporate managers continue to disagree about whether the value of the firm is independent of its dividend policy.

1.1.1 Importance of Dividend

At the beginning of the nineteenth century, dividend became an important form of information. The scarcity and unreliability of financial data often resulted in investors making their assessment of corporations through their dividend payment rather than reported earnings. Investors were often faced with inaccurate
information about the performance of the firm, and used dividend policy as a way of gauging the management’s views about the future performance of the firm (Al-Malkawi, 2005). Consequently, an increase in dividend payments tended to be reflected in rising stock prices. As corporations became aware of this phenomenon, it raised the possibility that managers of companies could use dividends to signal a strong earnings prospects and/or to support the company’s share price because investors read dividend announcement as a proxy for earnings growth (Ikame, 2009)

1.1.2 Determinants of Dividend Payout

There are many determinants of dividend payout, these include: financial leverage, profitability, firm size and growth opportunities (Rafique, 2012). A growing number of studies have found that the level of financial leverage negatively affect dividend policy (Gugler & Yurtoglu, 2003); (Al-Malkawi, 2005). Their studies inferred that highly levered firms look forward to maintaining their internal cash flow to fulfill duties instead of distributing available cash to shareholders and protect their creditors. However, (Mollah, Keasey, & Short, 2001) examined an emerging market and found a direct relationship between financial leverage and debt-burden level that increases transaction costs. Thus, firms with high leverage ratios have high transaction costs, and are in a weak position to pay higher dividends to avoid the cost of external financing. (Al-Kuwari, 2009) also finds a significantly negative relationship between the two.

The financial literature document that a firm’s profitability is a significant explanatory variable of dividend policy (Jensen, Solberg & Zorn, 1992; Fama & French, 2001). However, there is a significant difference between dividend policies
in developed and in developing countries. This difference has been reported by (Glen, Miller, and Karmokolias, 1995) showing that dividend payout rates in developing countries are approximately two-thirds of those in developed countries. Moreover, emerging market corporations do not follow a stable dividend policy; dividend payment for a given year is based on firm profitability for the same year. Profitability is the ratio of net profits to the amount of money that shareholders have put into the company. Return on Equity (ROE) has been used in several studies as a proxy for firm profitability (Aivazian, Booth, & Cleary, 2003); (Gwilym, Thomas, & Seaton, 2004). This creates the assumption that the dividend ratio per year is based on firm earnings for the same year. In addition, (Amidu & Abor, 2006) finds dividend payout policy decision of listed firms in Ghana Stock Exchange is influenced by profitability, cash flow position, and growth scenario and investment opportunities of the firms. Profits have long been regarded as the primary indicator of a firm’s capacity to pay dividends. (Al-Kuwari, 2009) finds a significantly positive relationship between the current and past years’ profits.

Eriotis (2005) reported that the Greek firms distribute dividend each year according to their target payout ratio, which is determined by distributed earnings and size of these firms. Research by (Lloyd, Page & Jahera, 1985), and (Vogt, 1994) indicate that firm size plays a role in explaining the dividend-payout ratio of firms. They find that larger firms tend to be more mature and thus have easier access to the capital markets, which reduces their dependence on internally generated funding and allows for higher dividend-payout ratios. Firm size is measured as a natural logarithm of total assets. This is due to the fact that large firms will pay large dividends to reduce agency costs (Ghosh & Woolridge, 1988); (Redding, 1997). Jensen, Solberg & Zorn
(1992), Redding (1997) and Fama & French (2001) indicated that large firms distribute a higher amount of their net profits as cash dividends, than small firms do. Lloyd, Page & Jahera (1985) were among the first to modify Rozeff’s model (1982) by adding “firm size” as an additional variable. They considered it an important explanatory variable, as large companies are more likely to increase their dividend payouts to decrease agency costs. Their findings support (Jensen & Meckling, 1976) argument that agency costs are associated with firm size.

Holder, Langrehr, & Hexter (1998) reveals that larger firms have better access to capital markets and find it easier to raise funds at lower costs, allowing them to pay higher dividends to shareholders. This demonstrates a positive association between dividend payouts and firm size. The positive relationship between dividend payout policy and firm size is also supported by a growing number of other studies (Fama & French, 2001; Manos, 2002; Mollah, 2002; Al-Malkawi, 2008).

Higgins (1972) shows that payout ratio is negatively related to a firm’s need for funds to finance growth opportunities. D'Souza (1999) however shows a positive but insignificant relationship in the case of growth. Rozeff (1982), Lloyd, Page & Jahera, (1985), and Collins, Weiss & Mayde (1997) all show a significantly negative relationship between historical sales growth and dividend payout. Higgins (1981) indicates a direct link between growth and financing needs: rapidly growing firms have external financing needs because working capital needs normally exceed the incremental cash flows from new sales. Growth rate is measured as the growth rate of sales (Rozeff, 1982); (Lloyd, Page & Jahera, 1985); (Jensen, Solberg & Zorn, 1992); (Alli, Khan, & Ramirez, 1993); (Moh’d, Perry, & Rimbey, 1995); (Holder,
Langrehr, & Hexter (1998); (Manos, 2002). Thus, growth rate has been identified in this study by Annual Sales Growth. Overall literature portrays a negative as well as a positive relationship between the dividend policy and sales growth.

1.1.3 Profile of Nairobi Securities Exchange

The Securities Exchange plays a crucial role by providing vehicles for raising finances for companies. The liquidity that an Exchange provides affords investors the ability to quickly and easily sell securities. This is an attractive feature of investing in stocks, compared to other less liquid investments such as real estate. In addition, the stock market performs a wide range of economic and political functions while offering trading, investment, speculation, hedging, and arbitrage opportunities. The stock market also serves as an instrument for price discovery and information dissemination. History has shown that the price of shares and other assets is an important part of the dynamics of economic activity, and can influence or be an indicator of social mood. An economy where the stock market is on the rise is considered to be an up-and-coming economy. In fact, the stock market is often considered the primary indicator of a country’s economic strength and development. Rising share prices, for instance, tend to be associated with increased business investment and vice versa. Share prices also affect the wealth of households and their consumption (Aduda, Masila & Onsongo, 2012).

The Nairobi Securities Exchange (NSE) is an emerging market that stands out as an average Securities Exchange with great potential for growth. In 1994 the NSE was rated by the International Finance Corporation (IFC) as the best performing emerging market in the world with a return of 179% in dollar terms. It accounts for
over 90% of market activity in the East African region and is a reference point in terms of setting standards for the other markets in the region (Kibuthu, 2005). However, in the recent past, the NSE has witnessed slow growth in the number of listed firms. As of 2011, companies listed at the NSE were categorised into 10 (ten) economic sectors: Agricultural, Automobile and Associates, Banking, Commercial and Service, Construction and Allied, Energy and Petroleum, Insurance, Investment, Manufacturing and Allied, Telecommunication and Technology.

As an emerging market, NSE continues to face challenges which inhibit growth. Some of these include harsh economic and political conditions, illiquidity, lack of public awareness, decreased listings, underdeveloped market infrastructure, high and volatile interest rates among others (Ngugi & Njiru, 2005). The Nairobi Securities Exchange has consistently faced severe fluctuation in the share price over the period under consideration as evidenced by drop in the NSE 20 share index to 1097.73 points in August 2002 from 1932.85 points in February 2001. Further, the index slid significantly from 6161 points high in February 2007 to 2474.75 points in February 2009. Moreover, the NSE 20 Share Index dipped to 3155.00 points in November 2011 from 4559.56 points in October 2010 (NSE Monthly Market Statistical Bulletins, 2012).

1.2 Statement of the Problem

Nairobi Securities Exchange has in the recent past faced severe fall in market price of share which has significantly affected the value of many listed firms. In the period between 2001 and 2011, investors at the Exchange have been worried as the market
remained turbulent with stock prices dipping to new levels (Bitok, Kiplangat, Tenai, & Rono, 2011).

The share price dip at the bourse is evidenced by drop in the NSE 20 Share Index to 1097.73 points in August 2002 from 1932.85 points in February 2001. Further, the index slid significantly from 6161 points high in February 2007 to 2474.75 points in February 2009. This period saw the Institutional investors lose close to KES 80 billion of the total portfolio invested in shares at the Nairobi Securities Exchange (NSE) due to the depreciation of share prices. In addition, the NSE 20 Share Index dipped to 3155.00 points in November 2011 from 4559.56 points in October 2010 (NSE Monthly Market Statistical Bulletins, 2012).

The share price of listed firms is a matter of concern not only to the management of the firm but also to other stakeholders such as investors, employees, suppliers and customers. A fall in the share price of a firm subsequently decreases its value and the demand for equity of the firm in the market fall. This induces further fall in share price. When this happens, the life of the company is affected and its management may be threatened with adverse consequences such as the discontent of individual and corporate investors, rise in cost of raising new capital, undercut the confidence of employees, customers, suppliers and may handicap merger.

Despite dividend policy being one of the mostly researched topics in the field of finance (Arnott, & Asness, 2003) (Farsio, Geary, & Moser (2004), the question as to whether dividend policy affects the share price still remains unresolved (Ouma & Murekefu, 2012) among managers, policy makers and researchers since half century
ago (Khan, 2012). Most of the studies conducted (Arnott, & Asness, 2003); (Farsio, Geary, & Moser (2004), on dividend policy and stock prices concentrated in developed countries. The question of relevance of dividend policy on stock prices in developing countries remains valid. The researcher used panel data methodology to investigate this problem, a complete departure from event study methodology used by researchers in the Kenyan context (Geofrey, 2005, Ann, 2004; Bunyasi, 2007). It is against this background that this study sought to fill this gap in literature by investigating the effect of dividend policy on share prices at the Nairobi Securities Exchange using census for an eleven year (2001-2011) panel.

1.3 Research Objectives

1.3.1 General objective

The general objective of this research was to investigate the effects of dividend policy on the share price of the firms listed at the Nairobi Securities Exchange.

1.3.2 Specific Objectives

In order to achieve the general objective, the specific objectives that guided the study included:

1. To establish the relationship between cash dividend and the share price of firms listed at the Nairobi Securities Exchange.

2. To determine the relationship between share dividend and share price of firms listed at the Nairobi Securities Exchange.

3. To determine the relationship between selected intervening variables and share price of firms listed at the Nairobi Securities Exchange.
1.4 Hypotheses

To investigate the effects of dividend policy on the share price for companies listed at the Nairobi Securities Exchange; this study proposed the following hypotheses:

H₁: There is no statistically significant relationship between cash dividend and the share price of the firms listed at the Nairobi Securities Exchange.

H₂: There is no statistically significant relationship between share dividend and the share price of firms listed at the Nairobi Securities Exchange.

H₃: There is no statistically significant relationship between selected intervening variables and the share price of firms listed at the Nairobi Securities Exchange.

1.5 Significance of the Study

The contributions of the study would be of interest to many stakeholders. First, the information from this study would form the basis of formulation of dividend decisions by the senior management especially finance managers of listed companies whose main objective is to maximize the shareholder’s wealth in a Kenyan context. The study would therefore help in making strategic investment decisions which would maximize shareholder’s wealth.

Further, the study would provide an insight to shareholders on the theory and practice of dividend policy and its effects on the share price of listed firms which is also useful in appraisal of the efficiency of the management in decision making. With millions of traders as monitoring mechanism, management’s good or bad decisions would reflect on the share price instantly. The changes in share prices affect the value of shares. Therefore, shareholders have a responsibility to continually monitor management’s decisions to ensure that they are aimed at
maximizing shareholders’ wealth. In addition, researchers and scholars of universities and colleges would access and use this study as a reference for future related studies.

This study would also help potential investors to make informed investment decisions. The potential investors would invest in companies that practice dividend policies that maximize the shareholder’s wealth.

1.6 Scope of the Study
The general objective of this study was to investigate the effect of dividend policy (cash and share dividend) on the stock prices, specifically, the study sought to establish the relationship between cash dividend and the share prices and to determine the relationship between share dividend and share prices of firms listed in Nairobi Securities Exchange. This was done by taking a sample of 55 companies listed at Nairobi Securities Exchange which met the inclusion criteria for a period between the years 2001 and 2011. The reason for the inclusion/exclusion criteria was to ensure adequacy of data for credible analysis. The researcher collected secondary data available from CMA, NSE and from the individual company’s websites for specific data set of interest.

1.7 Limitations of the Study
The limitations of the study are related to the case study and data set. First, there could be other relevant factors which significantly influence share price of listed firms in the NSE other than dividend policy. This could be inferred from low adjusted $R^2$ from the analysis. This means the explanatory power of the selected
predictor variable was low and the others relevant factors are worth exploring. However, the discussion of these factors was beyond the scope of the study. Secondly, this study sought to establish the relationship between dividend policy and stock prices. The presence of the relationship means existence of association between the variables. However, existence of relationship does not infer causality. Further, sector analyses have limitations with respect to the generality. For example, findings from Energy and Petroleum economic sector could not be singularly used to generalize the behavior of the entire market. By extension, findings for the whole market was specific to companies listed in the NSE and may not apply in all emerging markets hence may not be used to generalize the behavior regionally or for other emerging markets.

In addition, reliability and accuracy of the data have a bearing on the results of the study. Despite a lot of effort being put to ensure accuracy of the data collected, there was a problem with some data being averaged since data collected was on yearly basis. Stock prices for example were provided on a daily basis while dividends were paid quarterly, half-yearly or yearly depending on the company. The time difference and averaging of variables may have affected the accuracy results. Finally, data for variables such earnings per share, debt equity ratio, retained earnings per share among others were collected from financial statements of sampled firms. Despite adoption of International Financial Reporting Standards (IFRS) and International Accounting Standards (IAS) by all listed firms in preparation of the financial statements, different companies have different financial policies and different year ends. The difference in financial policies and time difference in year ends made comparison of similar variables difficult.
1.8 Organization of the Study

This thesis is structured into five chapters. Chapter one gives the research background, research objectives, significance of the study, scope and limitations encountered in the course of the study. Chapter two presents literature review on relevance of dividend policy on stock prices and the conceptual framework. Chapter three describes the methodology for the study and chapter four focuses on data analysis, discussion and interpretation of the results. Chapter five contains conclusions of the study, policy recommendations and suggestion for further research.
CHAPTER TWO
LITERATURE REVIEW

2.0 Introduction

This chapter acknowledges the relevance of the various literatures on the effects of dividend policy on the stock prices of firms listed in the NSE. The first part of the chapter presents the review of theoretical literature, followed by dividend policy discussion, and past studies on dividend policy and stock price. The fourth part focuses on the critical review of major issues followed by the summary and gaps to be filled by the study. Lastly, the chapter presents the conceptual framework of the study.

2.1 Theoretical Literature

2.1.1 Modigliani-Miller Dividend Irrelevance Theory

Modigliani & Miller (1961) presented one of the most influential dividend theories and even though it was generated for more than 50 years ago, it is still seen as one of the most respected theories. When the theory was presented in the article “Dividend policy, growth and the valuation of shares”, it provided a new benchmark and changed the view that both practitioners and academics had towards dividends. Before the publication of Modigliani-Miller’s dividend irrelevance theory, the general view was that dividends were highly correlated to the value of the stock (Baker & Kent, 2009). As the name of the theory suggests, it states that under perfect capital markets the dividend policy is independent to the price of firm and it does not matter whether the company has high or low dividend payouts.
The theory (Miller & Modigliani, 1961) assumes there are no taxes, or the tax rate on cash dividends and tax rate on capital gains are equal; that there is no transactions cost for the process of selling or buying shares therefore if the investor needs cash, he/she will be able to sell his/her shares without losing commissions and fees instead of cash dividends; that the investor is absolutely rational in his/her decisions; and that there are no agency costs which means that company managers who distribute low cash dividends do not use company profits to achieve personal goals that may harm the company (Jensen, Solberg, & Zorn, 1992). Additionally, the theory assumes that the company operates under a full and efficient market which means that the information is available and accessible to all at the same time without any costs, and the stock prices reflect this information and is influenced by it at the moment it is provided; and that there is no information gap and the company operates in a full and efficient market. Finally, the theory assumes that the future outlook on the performance of the company is homogeneous among all investors, including information and expectations among managers and investors.

Based on the above assumptions, Miller and Modigliani have explained the irrelevance of dividend as the crux of the arbitrage argument. The arbitrage process refers to setting off or balancing two transactions which are entered into simultaneously. The two transactions are paying out dividends and raising external funds to finance additional investment programs. If the firm pays out dividend, it will have to raise capital by selling new shares for financing activities. The arbitrage process will neutralize the increase in share value (due to dividends) with the issue of new shares. This makes the investor indifferent to dividend earnings and capital
gains as the share value is more dependent on the future earnings of the firm than on its current dividend policy.

Modigliani and Miller also argue that the shareholders are able to construct their own homemade dividends. That is, if the company does not pay dividends but the shareholder prefers some dividend, they can sell and equivalent proportion of his stocks hence creating a homemade dividend. The opposite is of course also true, if the company pays a higher dividend than the shareholder prefers he can use the surplus dividends to buy additional stocks (Brigham & Houston, 2011). These two arguments discussed above are the underlying assumption of the irrelevance hypothesis and according to these arguments shareholders should be indifferent between capital gains and dividends. This in turn explains why the shareholders are unwilling to pay a higher price for dividend paying stocks which in turns make the question of dividends irrelevant. Therefore, the theory suggests that under perfect a market, the company’s dividend payout policies do not affect the share value of a company. This research intends to ascertain the validity of this theory in the Kenyan context.

2.1.2 Signalling Theory

The signalling theory of dividends has its origins in (Lintner, 1956) studies who revealed that the price of a company’s stocks usually changes when the dividend payments changes. Even though Modigliani & Miller (1961) argued in favour of the dividend irrelevance they also stated that in the real world disregarding the perfect capital markets, dividend provides an “information content” which may affect the market price of the stock. Many researchers have thereafter been developing the
signalling theory and today it is seen as one of the most influential dividend theory. (Bhattacharya, 1979) presented one of the most acknowledged studies regarding signalling theories which states that dividends may function as a signal of expected future cash flows. An increase in the dividends indicates that the managers expect higher cash flows in the future. The research is based on the assumptions that outside investors have imperfect information regarding the company’s future cash flows and capital gains. Another important assumption is that dividends are taxed at a higher rate compared to capital gains. Bhattacharya (1979) argues that under these circumstances even though there is a tax disadvantage for dividends, companies would choose to pay dividends in order to send positive signals to shareholders and outside investors.

Many researches have been conducted in order to test if the signalling theory applies in the real world and there exist different opinions regarding the applicability of the signalling theory. Asquith & Mullins Jr (1983) provided empirical evidence in favour of the signalling theory. They argue that an increase of dividend payments tends to increase the shareholders wealth.

### 2.1.3 The Bird in Hand Theory

The Bird in Hand theory was first mentioned by Lintner (1956) and it has been supported by various researchers including (Gordon, 1963). Al-Malkawi (2008) 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)” Due to uncertainty of future cash flow, investors will often tend to prefer dividends to retained earnings.
This is due to the high degree of uncertainty related to capital gains and dividends paid in the future. Current dividends are more predictable than capital gains, since the stock price is determined by market forces and not by the managers (Keown, Martin, Petty & Scott, 2007; Gordon, 1963). Dividend model is based on several assumptions; first, that the company is all equity financed and no external financing is used. This implies that the company finances all investment with retained earnings, secondly, internal rate of return, cost of capital and the retention ratio is constant and finally that the company has an eternal life.

The underlying assumptions of Gordon’s model is based on the idea of what is available today compared to what may be available in the future (Khan & Jain, 2008). It is based on the logic that the more distant the future is, the higher the uncertainty regarding capital gains and future dividends. Even though the capital gains in the future may provide a higher return than the current dividends, there is no guarantee that the investor will accumulate a higher return due to the high degree of uncertainty (Gordon, 1963). Since the length of the time and the level of risk are correlated, investors are unwilling to invest in companies where the time until the dividend payments are far away. An investor would therefore be willing to pay a higher price for firms that pay current dividends. For companies which do not pay current dividends, the investor would use a higher discount rate in order to discount the earnings and the value of these companies should therefore be lower than the companies which pay current dividends (Khan & Jain, 2008). This means that the discount rate becomes higher as the earnings retained in the company increases. The opposite is true; companies which pay current dividends have a lower level of retained earnings which contributes to lower discount rate which in turn contributes to a higher value of the firm.
Lintner’s (1956) main arguments towards the bird in hand theory is based on that most companies are conservative in their financing policy and the dividend payments are therefore based on an optimal payout ratio. The principal factor that contributes to deviations from the optimal payout ratio is due changes in the company’s profit, and if the profit increases the dividend payout should increase in the same proportions (Myers & Bacon, 2004). But uncertainty regarding future profits also has an impact on the company’s dividends. If the estimated risk in the future is higher than the current risk, the company may decrease the dividend payout ratio in order to hedge to decreasing future profits (Friend & Puckett, 1964). The bird in hand theory has been subject to a large amount of criticism and opponents to the theory states that it excludes important factors. Keown, Martin, Petty & Scott (2007) argue against the theory and say that increases in current dividends do not decrease the riskiness of the company; it does in fact work in the opposite direction. Because if an increase in dividend payments are made the managers have to issue new stocks in order to raise the needed capital. Therefore a dividend payment just transfers the risk from the old to the new shareholders. However, even this limitation the theory. Keown, Martin, Petty & Scott (2007) argue that there are still many individual investors and financial institutions who consider that dividends are important and it is therefore of importance to include the theory even though it has some limitations.

2.1.4 Clienteles effects of Dividends theories

According to this theory, investors tend to prefer stocks of companies that satisfy a particular need. This is because investors face different tax treatment for dividends
and capital gains and also face some transaction cost when they trade securities. Miller & Modigliani (1961) argues that for these cost 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 firms dividend policy, one clientele is as good as another, therefore dividend policy remains irrelevant. Al-Malkawi (2008) affirms that firms in their growth stage, which tend to pay lower dividend would attract clientele that desire capital appreciation, while those firms in their maturity stage which pay higher dividends attract clientele that require immediate income in the form of dividend. Al-Malkawi (2008) grouped the clientele effect in two, those that are driven by tax effects and those driven by transaction cost. He argued that investors that are on high tax bracket 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; prefer companies who satisfy this need because they cannot afford the high transaction cost in selling securities.

### 2.2 Dividend Policies

Many studies which explain the relationship between dividend policy and stock prices have been conducted earlier. These studies help new researchers to explore the dividend policy in a new way (Alaa, 2010). Broadly classified, dividend policies include cash dividend, share dividend and share buy back as discussed below:
2.2.1 Cash Dividend Policy

Companies mostly pay dividend in cash and hence companies should have enough cash in its bank account when cash dividend is declared (Pandey, 2010). The impact of cash dividend policy on the current prices of company shares is considered to be very important, not only for policy makers, but also for investors, portfolio managers, and economists interested in the performance of capital markets (Okpara, 2010). The critical question raised here is whether managers maximize the wealth of the owners of the company through a particular dividend policy. This question has been the subject of a number of studies and there seems to be no consensus on the answer.

The arguments among researchers about dividend policy focus on the part of the cash dividend to be distributed to shareholders and its impact on the company’s value and therefore the wealth of the owners of the company. Miller & Modigliani (1961) believes that the cash dividend does not affect the value of the company as the company’s value will not be affected by how earned profits are divided; but rather affected by the ability to achieve profits. Thus, instead of deciding how to divide profits between dividends and retained earnings, thinking must be directed towards maximizing these profits through the optimal investment policy. However, in the opinion of others (Olson & McCann, 1994); (Lipson, Maquieira, and Megginson, 1998), the manner in which profits are divided between dividends and retained earnings affect the company’s value through an increase or decrease in the demand for the company shares, as the investors with high incomes usually prefer companies without cash dividend if the value of taxes on cash dividend exceeds the taxes on capital gains, while investors who do not pay taxes or have a low tax
bracket typically prefer companies that cash high dividends. Also, investors in growing companies may not ask the company to distribute high levels of cash dividends but instead accept low cash dividends. This is because the internal return rate in these companies is usually greater than the costs of obtaining funds from sources other than retained earnings, and thus maximizes the wealth of shareholders through the retention of all or most of the profits in order to use them to finance projects which have a positive present value. Meanwhile, investors in non-growth companies, on their part, look for high dividends (Walter, 1963). The decision of cash dividend policy, particularly its cash portion, is one of the challenges facing company managers, because the distribution decision defines the funds to be given company’s shareholders, and therefore the funds to remain for managers in the company to reinvest (Lumby & Jones, 1999). The choice of cash dividend policy by firms depends on factors such as legal, contractual, internal shareholders and market consideration. Cash dividend policies can further be subdivided into the following types (Alaa, 2010).

2.2.1.1 Fixed Rate Dividend Policy

The fixed rate dividend policy is determined by apportioning the dividends on profits earned. Since corporate annual profits are not fixed, adopting this policy will lead to a fluctuation in the amount of dividends because the stability of the dividends rate from non-fixed profit leads to a difference in the amount of the annual dividends. This is the main criticism of this policy since fluctuations in the level of dividends is one of the benchmarks that measure the risks of the company and because the non-fluctuation of profits is usually seen as something positive for
current and future performance of the company. The prices of company shares that follow such a policy may be adversely affected by this policy (Alaa, 2010).

2.2.1.2 Regular Dividend Policy

Alaa (2010) asserts that according to this policy, the company pays a fixed rate of dividend each year which will be fixed over the following few years. This policy gives a positive indicator about the company because of the stability of the level of dividends, leading to reduced risks of uncertainty. Companies that follow such a policy tend to increase the dividends rate whenever they feel that the increase in profits is steady and continuing in the future.

2.2.1.3 Low regular fixed policy with special or added dividend

Some companies follow a policy of systematic low dividends with additional dividends when the company’s profits are unstable and highly volatile. It is therefore difficult to maintain a regular high-level profits distribution policy. The company, therefore, seeks to pay consistent low dividends and then pay other additional dividends in the years when it achieves high profits. The company is thus able to achieve consistency and continuity in the level of dividends, which is an indicator of great importance on the part of investors who consider this necessary for building confidence with the company.
2.2.1.4 Remaining cash dividend policy

The optimal cash dividend rate for any company is best determined by the differentiation between a numbers of factors (Baker & Kent, 2009). They include: shareholders’ preference for cash dividend or capital gains; investment opportunities available to the company; optimal structure mix for the company’s capital (funding sources); and external financing costs. The last three factors combined affect the remaining dividend policy. It is based on distributing cash dividends that exceed the company’s ability to finance all the company’s investment opportunities that have a positive present value. The company should take the following three steps when applying the remaining cash dividend policy (Baker & Kent, 2009): first, identify all the available investment opportunities which have positive present value and in which the company wishes to invest; in addition, determine the optimal structure mix of capital that achieves the lowest cost; and finally, use profits to finance new projects with a positive present value because of their low cost in comparison to raising new share issues in case they represent the best combination of capital.

Based on this concept, as long as the money needed by the company to reach the optimal mix of the capital structure is the equity fund, and not money borrowed, and as long as the need for funds exceeds the company’s achieved profits and retained earnings, the company will not make any dividends distribution to shareholders. However, where required funds are less than retained earnings, the company will take its cash needs and distribute any excess money as a cash dividend for shareholders (Saxena, 1999; Baker & Kent, 2009)
2.2.2 Stock Dividend Policy

This policy consists of dividends distribution to existing shareholders in the form of shares instead of cash (Ross, Westerfield, & Jaffe, 1999). A company usually resorts to this policy when it is in a rapid growth phase or restructure, so that these stages require a large capital expenditure hence motivating the company to maintain all possible liquidity to achieve this aim (Pike & Neale, 2009).

In the accounting process, share dividend policy is the transfer of funds between equity accounts (Levy & Sarnat, 1994). It does not include any outside cash flows; therefore, the shareholders do not receive anything in fact (Broyles, 2003). This is due to the fact that the market value per share, after the share dividend announcement, will go down. However, the total shareholders’ wealth will not be affected because the number of shares owned will be increased to cover the decline in market value per share (Moyer, Kretlow, & McGuigan, 1995); (Pike & Neale, 2009). Additionally, the volume of the company's shareholders control would not be affected, because the percentage of equity held will not be affected since the share dividends are in the same percentages of as proportion to the existing old equity (Ross, Westerfield, & Jaffe, 1999).

As long as the company’s rate of returns is fixed, the rate of return per share will decline due to an increase in the number of shares with the stability of the overall rate of return. The total shareholders’ revenue, however, will not be affected owing to the increase of the number of shares owned by shareholders to compensate for the decline in dividends per share. In addition, it is not expected that the share dividend policy would have any impact on the company’s value as long as the investors
understand that the replacement of cash dividends by shares is for the sake of reinvesting this money and not because of financial difficulties or to meet outstanding payments (Ross, Westerfield, & Jaffe, 1999).

Usually, the share dividend policy is looked upon as part of the general dividend policy (Broyles, 2003). However, in reality, it is no more than a small split, as the share dividends leads to an increase in the number of shares issued without affecting the company's risks, revenues or cash flows. There are several studies on the share dividend policy impact on a company’s share price and consequently on shareholders’ wealth. These studies come to the following conclusions ((Woolridge, 1983), (Grinblatt, Masulis, & Titman, 1984), (Lakonishok & Lev, 1987).

Usually a company’s shares prices rise immediately after the announcement of shares dividend (Brennan & Copeland, 1988). The shares dividends process has an information content understood by investors in a certain way. The reason shares prices of companies that announce these dividends increase is not due to the shareholders’ preference of shares to cash. It is that the information content of the shares dividends gives a positive signal about the level of future profits expected by the managers of these companies. In addition, companies’ managers who believe that future profits will be better than current profits are the only companies that distribute the shares. On their part, investors are aware of this fact; therefore, they ask for these shares not just for additional shares which do not affect the company's value, but also because the content of information engendered by such a process. If the companies that have announced shares dividends do not increase cash dividends
in the short period following the share dividend announcement, their share prices will go down to reach the level prior to the shares dividends announcement.

The shares dividends process leads to increased costs associated with sales and purchases (Ross, Westerfield, & Jaffe, 1999), as fees and commissions are charged by broker on the absolute amounts if the values attributed to the original buyer or sales are higher when the original price decreases. In addition, the margin between the selling and purchasing prices as a proportion of the sale or purchase assets price is higher whenever the assets price decreases. This means that dealing in low price shares is more costly than dealing with high price shares, if the fees and commissions amounts are absolute. As the shares dividend policy leads to a decline in share price, this may lead to low liquidity of these shares because of the relatively high cost. However, a low share price increases the number of investors who have the ability to buy these shares, more than could lead to increased liquidity.

Grinblatt, Masulis, & Titman (1984) gives two reasons for an increase in the share price of companies that use shares dividends. First, there is an ideal price for a company’s share prices, which most companies believe is between the lower and upper prices. Companies believe that investors look for stocks with a price less than the lower limit price as being at risk which causes concern. At the same time, they look for stocks with a price greater than the upper price as being a high price. Therefore, companies try to keep the prices of their shares within the price range through a share dividend policy seeking to reduce the market’s value per share. Secondly, the importance of information content to the shares dividend process to shareholders. Although the nature of the information issued by the shares dividends
is not entirely clear, the study also states that the distribution process aims at raising questions about the company on the part of financial analysts, leading to the discovery of information that the management always tries to deliver to investors.

2.2.3 Shares Repurchase Policy

A company’s shares repurchase to become treasury shares has become one of the most well-known alternatives to profit dividends in developed countries. The most common methods used by companies to buy back shares are (Copeland, Weston, & Shastri, 2005): repurchase tender offer, open market Purchases, and repurchase by negotiated basis.

In stock repurchase by tender offer, a company announces its desire to purchase a number of shares at a fixed price during a specified period of time. If there is no enough number of shares available during the specified period, the company might resort to extending the period or cancelling the offer. This method is used when the company wants to purchase a large quantity of shares. There are many empirical studies that deal with stock repurchases by tender offer (Masulis, 1980; Dann, 1981; Vermaelen, 1981); (Vermaelen, 1984); (Dann, Masulis, & Mayers, 1991); (Chhachhi & Davidson, 1997).

In the case of open market stock repurchases, a company tends to repurchase its shares through the Stock Exchange at the market prices. This method enables the company to choose both the prices and the appropriate times to buy back shares as it gives the company greater flexibility in selecting the appropriate times, numbers, and price. Furthermore, this method is used for the repurchasing of small quantities
of shares. Many empirical studies have investigated stock repurchase by open market (Baker, Powell, & Veit, 2003); (Liano, Huang, & Manakyan, 2003).

Finally, in repurchase by negotiation basis, the company individually negotiates with certain shareholders to achieve certain prices through which the company can purchase those shareholders’ shares. Although this method is not common, it is used to control and get rid of shareholders who cause trouble to the management. Recently, the shares repurchase policy adoption by listed firms increased as an alternative to the cash dividend policy primarily due to its characteristics in comparison with the cash dividend policy ((Asquith & Mullins Jr, 1983).

Copeland, Weston, & Shastri (2005) discussed some of the merits for share repurchase as follows: First, the cash dividends distributed to shareholders constitute a burden on a company and its management where the management finds itself bound by continuing to have to pay this level on an annual basis. Any reduction in that percentage leads to a negative impact on the company’s value because of the information content inherent in cash dividends. However, repurchasing shares is looked upon as an alternative to cash dividends and also as a non-recurring cash outlay. Companies that do not expect to continue to make profits at the same level prefer the repurchasing method instead of distributing cash dividends to shareholders so as not to commit themselves to follow the same level in the coming years.

Secondly, the existence of a large offer of a company’s shares in a market with low demand reduces the price of the company’s shares keeping them low. The
company’s repurchasing stock policy leads to an alternative to the cash dividends to get rid of the extra shares offer so that only those shareholders that remain are willing to retain their shares. Such a process leads to a rise in the shares prices due to the reduced offer, thus positively affecting the company’s market value and shareholders’ wealth. Additionally, when a company wants to change the capital structure to reach the optimal mix with the aim of reducing its finance costs within a short period of time, the buyback policy serves as an effective means. When the equity fund in the capital structure increases beyond the optimum ratio, it leads to an increase in the finance costs; therefore the repurchasing policy operates to reduce equity funds in the mix by reducing the number of shares issued and arriving at the optimal mix which eventually reduces finance costs.

Share repurchase policy protects shareholders from wealth damage because of exposure to taxes imposed on dividends (Copeland, Weston, & Shastri, 2005). Since the taxes imposed on cash dividends in most countries of the world are higher than taxes on capital gains, the buy back shares policy seeks to mitigate the impact of taxes on shareholders’ wealth through the conversion of cash dividends to capital gains. This occurs only if shareholders sell their shares and secure capital profits. Further, there is a positive information content associated with the shares repurchasing policy when the company wishes to buy shares (Dann, 1981); (Vermaelen, 1981); (Asquith & Mullins, 1983); (Ofer & Thakor, 1987); (Constantinides & Grundy, 1989); (Grullon & Michaely, 2004). In response to this, the investors understand that the company’s share price is undervalued. The management, which is fully aware of this, tends to buy these shares. Such an understanding of the buy back shares announcement leads to increase the investors’
demand for the company shares, which raises the market value. Ikenberry, Lakonishok & Vermaelen (1995) tested the information content of the buy back stock policy and concluded that the shares prices of companies that have repurchased their shares were better than the shares prices of similar companies that did not repurchase their shares.

In addition, the buy back stock policy focuses on controlling the company by reducing the number of shareholders in the company (Copeland, Weston, & Shastri, 2005). This means that the shareholders who do not sell their shares will have a greater part of the company after each process of buying back shares. Finally, the buy back stock policy works to strengthen the prices of the company’s shares. A number of empirical studies (Dann, 1981; Vermaelen, 1981, Comment and Jarrell, 1995, Ikenberry, Lakonishok & Vermaelen (1995) find evidence that managers repurchase shares when they believe that their firms share price is undervalued.

Due to the characteristics of the buying back shares policy, until recently, finance and economy writers believed that the buy back stock policy was preferred as an alternative to cash dividend policy, regardless of whether they are regular or extraordinary additional dividends (Kolodny & Suhler, 1985); (Asquith & Mullins Jr, 1983); (Masulis & Korwar, 1986); (Mikkelson & Partch, 1986). This is due to the flexibility of the policy and its ability to protect shareholders from paying taxes on cash dividends. The buy back shares policy depends on the philosophy of reducing the number of issued shares, thus reducing the number of claimants’ profits (Copeland, Weston, & Shastri, 2005). This means increasing the profits realized per share if the company used the profits earned or retained for financing buying back
shares without recourse to borrowing. If the company, on the other hand, tends to finance the shares buy back process through borrowing funds, the profits realized per share will increase because the borrowing costs are less than shares bought. The company, however, should take into account the tax shield of the interest paid on the borrowed money, so that the increase in the profits realized per share is equal to the difference between the profits per share for repurchased shares and the cost of borrowed funds to finance the repurchase process taking into account the tax shield divided by the number of remaining shares following the repurchase. If the cost of borrowing is more than the profitable shares purchased, taking into account the tax shield, the profits realized per share will be less after buying back the shares.

The buyback stock policy, however, is not without criticisms. According to Copeland, Weston, & Shastri (2005), the following are some of these criticisms. First, there may be negative information content for the buyback stock policy. This policy might suggest that the company is unwilling to commit to a certain level of profits, as the management cannot be certain of its ability to achieve this level of profits continuously. Secondly, there are a number of investors who cannot be neglected or underestimated, such as those who would prefer cash dividends rather than capital gains, because they rely on it as a source for meeting their consumer and investment needs. Therefore, a company’s adoption of the buy back stock policy may push those investors to abandon their shares. Finally, when a company announces its desire to repurchase shares, the shareholders who wish to sell their shares may request a higher price for the shares. Additionally, a company’s request for purchasing a large number of shares at one time would lead to higher demand for the shares, thus leading to higher prices. This indicates that the company will pay a
higher value than the real value of the shares, resulting in damaging the remaining shareholders’ wealth. Share repurchase is prohibited in Kenya (Cap 486 of Kenyan Laws)

2.3 Intervening Variables

2.3.1 Financial Leverage

The financial leverage corresponds to the level of debt relative to the level of equity in the company’s balance sheet. Even though leverage is one of the key indicators of a company’s financial health, it is not a commonly used factor to test its effect on market value of the firms. For this reason, this variable was used as a control variable. One commonly used measurement is the debt ratio which is the expressed total debt/total assets. Debt ratio reflects the broader picture of company’s liabilities; however it is not straight forward about the proportion of debt to equity (Aivazian, Booth, & Cleary, 2003). According to (Werner & Jones, 2004) debt to equity ratio indicates in which proportions the company is financed by creditors relative to shareholders. Therefore, debt to equity ratio was used as a measure of leverage for this study. (Allen & Rachim, 1996) found a positive relation between stock prices and size, earnings and leverage after studying 173 Australian listed stocks.

2.3.2 Profitability

Baskin (1989) and (Allen & Rachim, 1996) used Earnings Per Share as a control variable in their study. Results of their study showed that Earnings per Share significantly explain the variation in the stock prices. This study used EPS as a profitability variable.
2.3.3 Firm Size

Various researchers have argued that the size of the company is one of the factors that have the largest influence on the stock prices of firms (Allen and Rachim, 1996). But even though the majority of the previous studies have concluded that size is an important factor, the measurements of size have varied between studies. Holder, Langrehr, & Hexter (1998) used the natural logarithm of sales as a measurement of the size while (Daunfeldt, Selander & Wikström, 2009) used the logarithm of the number of employees in order to measure the size. In this study, a net assets per share was used as a proxy for firm size.

2.3.4 Investment Policy

Retention ratio is opposite to dividend payout ratio and is calculated by subtracting Total dividend from Total earnings and dividing the resulting amount by earnings. This ration is a proxy for investment from the profits. (Pani, 2008) used dividend to retention ratio to see its effect on stock prices and found positive relation between them. The study used retained earnings per share as a proxy for investment policy.

2.4 Empirical Literature

Many studies have been conducted explaining the relationship between dividend policy and stock prices. Discussion of dividend policy cannot be completed without including the work of Lintner (1956). He raised the all-important question, “what choices made by managers do affect the size, shape and timing of dividend payments?” This question remains relevant to date. Thereafter, (Miller & Modigliani, 1961) introduced the concept of Dividend Irrelevance theory in which they explain that dividend policy does not affect the stock prices. Black & Scholes
(1974) found no relationship between dividend policy and stock prices. Their results further explain that dividend policy does not affect the stock prices and it depends on investors’ decision to keep either high or low yielding securities; return earned by them in both cases remains the same. Many researchers like, Adefila, Oladipo & Adeoti (2004), (Uddin & Chowdhury, 2005), Denis & Osobov (2008) and Adesola & Okwong (2009) provide the strong evidence in the favour of dividend irrelevance theory and does not consider it relevant to the stock prices.

Gordon (1963) gave another view about the dividend policy by presenting the concept of dividend relevance theory. They said that dividend policy do affect the value of firm and market price of shares. Investors always prefer secure and current income in the form of dividends over capital gains. Studies conducted by (Travlos, Trigeorgis, & Vafeas, 2001); (Baker, Powell, & Veit, (2002); ((Myers & Bacon, 2004)); (Dong, Robinson & Veld, 2005); and (Maditinos, Sevic, Theriou, & Tsinani, 2007) support dividend relevance theory. (Ann, 2004) studied the information content of dividend announcement for companies listed in the NSE. She found out that stock dividend has an informational content since it leads to an increase in the prices of shares. Geoffrey (2005) studied the effects of dividend announcement on market price of shares of finance and investment companies listed at the NSE. He found out that dividend announcement led to an increase in share prices.

Bunyasi (2007) studied effects of dividend policy on the market value of shares of public companies quoted at the NSE. The study focused on event study for the period between 1997 and 2005. She concluded that dividend payout in the Exchange signals investors’ wealth thus resulting to price changes due to the confidence gains.
Chen, Huang & Cheng (2009) analyzed the effect of Cash Dividend on Share Price for the period 2000-2004 in China. They found that Cash Dividend has significantly positive effect on the Stock Prices. When Cash Dividend increases Stock Prices also increase and when the Cash Dividend decreases, Share Prices decrease. Ali & Chowdhury (2010) analyzed the price movement of private commercial banks listed at Dhaka Stock Exchange towards the dividend announcement. They took a sample of 25 banks and their results showed that stock prices of 11 banks decreased, 6 banks’ stock prices increased, while 8 banks’ stock prices remained unchanged when dividends were announced. Overall results of their study showed that there is insignificant relation between stock prices and dividends. (Akbar & Baig, 2010) took the sample of 79 companies listed at Karachi Stock Exchange for the period of 2004 to 2007 to study the effect of dividend announcement on stock prices. Results of their study show that announcement of dividends either Cash Dividend or Stock Dividend or both have positive effect on Stock Prices. Nazir, Nawaz, Anwar, & Ahmed (2010) also study the effect of dividend policy on stock prices. Results of their study show that dividend payout and dividend yield have significant effect on stock prices while size and leverage have negative insignificant affect and earning and growth have positive significant effect on stock prices.

Khan, Aamir, Qayyum, Nasir, & Khan (2011) studied the effect of dividend payment on stock prices by taking the sample of fifty five companies listed at Karachi Stock Exchange. Results of their study show that dividend yield, earnings per share, return on equity and profit after tax are positively related to stock prices while retention ratio has negative relation with stock prices. Hussainey, Mgbame, &
Chijoke-Mgbame (2011) studied the impact of dividend policy on stock prices. Results of their study show the positive relation between dividend yield and stock price changes and negative relation between dividend payout ratio and stock price changes. Their results further indicate that the firms’ earnings, growth rate, level of debt and size also cause the change in Stock Price in United Kingdom.

Khan (2012) attempted to explain the effects of dividend announcements on stock prices of chemical and pharmaceutical industry in Pakistan. The study applied Panel data to explain the relationship between dividends and stock prices after controlling the variables like Earnings Per Share, Retention Ratio and Return on Equity. The study indicates that Cash Dividend, Retention Ratio and Return on Equity have significant positive relation with stock market prices and significantly explains the variations in the stock prices of chemical and pharmaceutical sector in Pakistan while Earnings Per Share and Stock Dividends have negative insignificant relation with stock prices. This paper further showed that Dividend Irrelevance Theory is not applicable in the case of chemical and pharmaceutical industry of Pakistan.

Baker & Powell (2012) has used survey technique to take the opinion of Indonesian managers about the factors influencing dividend policy, dividend issues, and explanations for paying dividends. Results of their survey show that Indonesian managers consider stability of earnings and level of current and expected future earnings are the most important determinants of dividend policy. Their results further indicate that dividend policy affects firm value and Indonesian managers consider different dividend theories like signaling, catering, and life cycle theories in designing their dividend policies.
2.5 **Critical Review of Major Issues**

A theoretical view in explaining the effects of different determinants of stock prices provide a clear view and fundamental concept to the investors, portfolio managers, and companies about the influencing capacity of each base determinant, that is, internal factors, external factors, economic factors, political factors and the environmental factor. This study sought to investigate the effect of dividend policy on the share price of firms listed in the NSE. The study identified dividend policy variables (cash dividend and share dividend) as independent variables and investment policy, profitability, financial leverage, and firm size, as control variables. However, stock prices are affected by a number of other factors and events that are not part of the chosen predictor variables which may directly or indirectly influence stock prices. Some of the factors that affect or predict the buying and selling of stock that ultimately affect the stock prices can generally be grouped into quantitative and qualitative factors. Qualitative factors include company goodwill, market sentiments, international situation, changes in government policies, investor’s hype, analyst’s report, and unexpected circumstances. Quantitative factors include take-over or merger, stock splits, margin loan, inflation, money supply, interest rates, and exchange rates.

2.6 **Summary and Gaps to be filled by the Study**

Despite dividend policy being one of the most widely researched topics in the field of finance, the question whether dividend policy affects stock prices still remains debatable among managers, policy makers and researchers to date. Dividend policy literature can simply be summarized into two schools of thoughts. Irrelevant school of thought posited by Miller & Modigliani (1961) said that dividend policy is
irrelevant to the share price of the firm while the second school of thought follows the point of view of (Gordon, 1963) and considers dividend policy relevant to the share price of the firm. The dilemma hitherto exists among investors and managers as to which theory the companies should apply in making their dividend decisions. Further, the recent fluctuations in the share price for quoted companies have made investors in the Nairobi Securities Exchange, Kenya a worried lot as the market remained turbulent with stock prices dipping to new levels (Bitok, Kiplangat, Tenai, & Rono, 2011). This justified the need for empirical analysis which would help in understanding the effects of dividend policy on share prices for firms quoted at the NSE. Many studies that have been conducted at stock markets on the effects of dividend policy on stock prices have been done in developed countries and a few exist in emerging markets. Moreover, Kenyan studies (Geofrey, 2005, Ann, 2004; Bunyasi, 2007) on dividend policy utilized event study methodology to investigate the impact of dividend on share price for firms listed in the NSE. This study sought to fill the gap in literature by investigating the effects of dividend policy on stock price of firms listed in the NSE using eleven period panel data between 2001 and 2011, a complete departure in methodology from previous studies in the Kenyan context.
2.7 Conceptual Framework

![Conceptual Framework Diagram]

**Independent variable**
- Cash dividend per share
- Bonus dividend ratio

**Dependent variable**
- Volume weighted Average Price

**Intervening I Variables**
- Retained Earnings per share
- Earnings per Share
- Net Assets per share
- Debt Equity Ratio

Source: Author, (2012)

Figure 2.1: Conceptual framework
CHAPTER THREE
METHODOLOGY

3.0 Introduction

This chapter is structured around research design, target population, sample design, data collection procedures and instruments, and data analysis and presentation.

3.1 Research Design

Descriptive Research is used to obtain information concerning the current status of the phenomena to describe “what exists” with respect to variables or conditions in a situation (Mugenda & Mugenda, 1999). The method involves range from the survey which describes the status quo, the correlation study which investigates the relationship between variables, to developmental studies which seek to determine changes overtime (Key, 1997). Descriptive research design was deemed appropriate for this study since the researcher was looking for in-depth information on the correlation between dividend policy variables and the share market prices of firms listed at NSE for the period between 2001 and 2011.

3.1.1 Study Location

The study was conducted using firms listed at the NSE as the objects of study. The Companies are spread throughout Kenya; however, most of them have their headquarters located in Nairobi, Kenya. NSE which is located in the Nairobi Central Business District, in Nation House was chosen due to its singular existence in the Kenyan context.
3.1.2 Empirical Model

The study investigated the effects of dividend policy on the share price through panel data estimation. Panel data estimation allows for observation for company effect and time effect through the period under consideration. The company effect refers to the factors affecting the behaviour of an individual company if constant over time. The time effect refers to the economic condition at a particular time point which varies over time (Alaa, 2010). Panel data consist of observations on the same cross-sectional, or individual, units over several time periods (Gujarati, 2003). The study undertook empirical tests with the following model framework:

\[ \ln \text{VWAP}_{it} = \alpha_0 + \beta_1 \ln \text{CDPS}_{it} + \beta_2 \ln \text{SDPS}_{it} + \beta_3 \ln \text{NAPS}_{it} + \beta_4 \ln \text{REPS}_{it} + \beta_5 \ln \text{DER}_{it} + \beta_5 \ln \text{EPS}_{it} + \epsilon_{it} \] (i)

Where:

- \text{VWAP} - volume weighted average price
- \text{CDPS} - cash dividend per Share
- \text{SDPS} - new share dividend per share (bonus)
- \text{NAPS} - net assets per share (firm size)
- \text{REPS} - retained earnings per share (Investment policy/retention policy)
- \text{DER} - debt equity ratio (gearing)
- \text{EPS} - earnings per share (profitability)
- \beta_1 ... \beta_5 - coefficients of firm specific independent and intervening variables
- \alpha_0 - intercept for independent variables
- \epsilon_{it} - disturbance term
- \text{i} - represents the firm
\( t \) - time measured by a firm’s year end

\( \ln \) - natural logarithm

### 3.1.3 Definition and Measurement of Variables

This study investigated the effects of dividend policy on equity price for firms listed at the Nairobi Securities Exchange using yearly data for the period between the years 2000 and 2011. A description of the variables is provided below.

#### Table 3.1: Variable Definition

<table>
<thead>
<tr>
<th>Type</th>
<th>Variable</th>
<th>Transformation and Measure</th>
<th>Variable Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Dependent variable</td>
<td>Equity Market Price</td>
<td>VWAP(_t)</td>
<td>Volume weighted Average Price of the specific counters measured by yearly volume weighted average price of the indices.</td>
</tr>
<tr>
<td>Independent Variables</td>
<td>Cash Dividend</td>
<td>CDPS(_t)</td>
<td>Cash dividend per share declared and paid yearly</td>
</tr>
<tr>
<td></td>
<td>Share Dividend</td>
<td>SDPS(_t)</td>
<td>The bonus ratio for new shares to existing shareholders per share measured yearly.</td>
</tr>
<tr>
<td></td>
<td>Retention policy</td>
<td>REPS(_t)</td>
<td>The ratio of profit retained measured per annum of the sample firms</td>
</tr>
<tr>
<td></td>
<td>Firm size</td>
<td>NAPS(_t)</td>
<td>Net Assets per share for sample companies measured yearly.</td>
</tr>
<tr>
<td></td>
<td>Profitability</td>
<td>EPS(_t)</td>
<td>Earnings per share measured by earnings after interest, depreciation and tax divided by the number of shares annually.</td>
</tr>
</tbody>
</table>

#### 3.2 Target Population

The population of this study consisted of all the sixty one (61) firms listed in NSE by December 2011 (see Appendix C), however, within the period under consideration (between 2000 and 2011), many firms have been listed and others delisted.
Table 3.2: Target Population

<table>
<thead>
<tr>
<th>Sector</th>
<th>Number of Firms</th>
</tr>
</thead>
<tbody>
<tr>
<td>Agricultural</td>
<td>8</td>
</tr>
<tr>
<td>Automobile and Associates</td>
<td>4</td>
</tr>
<tr>
<td>Banking</td>
<td>10</td>
</tr>
<tr>
<td>Commercial and Service</td>
<td>9</td>
</tr>
<tr>
<td>Construction and Allied</td>
<td>5</td>
</tr>
<tr>
<td>Energy and Petroleum</td>
<td>4</td>
</tr>
<tr>
<td>Insurance</td>
<td>6</td>
</tr>
<tr>
<td>Investment</td>
<td>4</td>
</tr>
<tr>
<td>Manufacturing and Allied</td>
<td>9</td>
</tr>
<tr>
<td>Telecommunication and Technology</td>
<td>2</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>61</strong></td>
</tr>
</tbody>
</table>

Source: Author (2012)

3.3 Sample Design

Purposive sampling was the most appropriate sampling technique for this study because this technique would allow the researcher to select observations that would facilitate test of hypothesis in the most appropriate way. Further, the technique was appropriate for the study since the target population size was small and the fact that adequate data for analysis would be obtained. The eligibility criterion based on the date of listing of the counters in the Exchange was used. The study focused on firms that had been listed at the NSE by January 2009 or those firms with at least three data points. The reason for the inclusion/exclusion criteria was to ensure that adequate data was collected and subsequently analysed. Therefore, a sample of 55 companies was selected from the total population which met the eligibility criteria.

This sampling procedure would earn more credence to the findings of the study (Kothari, 2004).
Table 3.3 shows the sample of the study as follows:

**Table 3.3: Sample size**

<table>
<thead>
<tr>
<th>Sector</th>
<th>Number of Firms</th>
</tr>
</thead>
<tbody>
<tr>
<td>Agricultural</td>
<td>8</td>
</tr>
<tr>
<td>Automobile and Associates</td>
<td>4</td>
</tr>
<tr>
<td>Banking</td>
<td>10</td>
</tr>
<tr>
<td>Commercial and Service</td>
<td>7</td>
</tr>
<tr>
<td>Construction and Allied</td>
<td>5</td>
</tr>
<tr>
<td>Energy and Petroleum</td>
<td>4</td>
</tr>
<tr>
<td>Insurance</td>
<td>3</td>
</tr>
<tr>
<td>Investment</td>
<td>3</td>
</tr>
<tr>
<td>Manufacturing and Allied</td>
<td>9</td>
</tr>
<tr>
<td>Telecommunication and Technology</td>
<td>2</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>55</strong></td>
</tr>
</tbody>
</table>

Source: Researcher (2012)

3.4 **Data Collection Procedure and Instruments**

3.4.1 **Data collection procedure**

Data was collected from the KNBS, NSE and CMA and from the listed companies using data collections schedules.

3.4.2 **Data collection instruments**

The study used secondary data. This data was obtained using data collection schedules from Kenya Bureau of Statistics, Capital Market Authorities and the NSE.
3.5 Data Analysis and Presentation

3.5.1 Data Analysis

The study adopted multivariate analysis where a multiple regression model was utilized.

First, Ordinary Least Square diagnostic tests for normality, homoscedasticity and multicollinearity were run to ascertain the suitability of the model. Further, a Hausman Specification test was conducted determine model to be adopted (Random or fixed effect). Finally, a Random Generalized Least Square regression analysis was carried out with the help of STATA for the whole market and for the 10 economic sectors represented at the Nairobi Securities Exchange at five percent level of significance. The company share price was regressed against the Dividend policy (cash dividend and share dividend) at 5% level of significance.

3.5.2 Presentation of Results

The results of the study were interpreted and inferences made and presented using tables and figures in order to explain the outcome.
CHAPTER FOUR

EMPIRICAL RESULTS AND INTERPRETATION

4.0 Introduction

This chapter presents stepwise regression aimed at determine the number variables to be included in the model, model test, test for regression OLS (Ordinary Least Square) assumptions and the Hausman specification test. Further, the chapter presents and discusses the results of empirical tests. The data was collected and then processed in response to the problems posed in chapter 1 of this thesis. The general objective of this study was to investigate the effect of dividend policy (cash and share dividend) on the stock prices, specifically, the study sought to establish the relationship between cash dividend and the share price and to determine the relationship between share dividend and share price of firms listed at the Nairobi Securities Exchange. The chapter therefore sought to test the null hypotheses of the study.

4.1 Descriptive Statistics

Table 4.1 shows the descriptive statistics including mean, standard deviations, minimum and maximum value of all variables and variance.

Table 4.1: Descriptive Statistics

<table>
<thead>
<tr>
<th>Variable</th>
<th>Mean</th>
<th>Std. Dev.</th>
<th>Min</th>
<th>Max</th>
<th>Variance</th>
</tr>
</thead>
<tbody>
<tr>
<td>Volume Weighted Average Price</td>
<td>65.9</td>
<td>74.9</td>
<td>1.8</td>
<td>445.0</td>
<td>5602.19</td>
</tr>
<tr>
<td>Cash dividend Per Share</td>
<td>2.5</td>
<td>3.7</td>
<td>0.0</td>
<td>23.1</td>
<td>13.48</td>
</tr>
<tr>
<td>Share Dividend per Share</td>
<td>0.1</td>
<td>0.2</td>
<td>0.0</td>
<td>2.0</td>
<td>0.06</td>
</tr>
<tr>
<td>Retained Earnings Per Share</td>
<td>0.7</td>
<td>1.2</td>
<td>-4.8</td>
<td>22.1</td>
<td>1.34</td>
</tr>
<tr>
<td>Net Assets per Share</td>
<td>60.2</td>
<td>84.5</td>
<td>0.0</td>
<td>836.4</td>
<td>7142.07</td>
</tr>
<tr>
<td>Earnings Per Share</td>
<td>4.9</td>
<td>10.3</td>
<td>-46.7</td>
<td>100.1</td>
<td>105.11</td>
</tr>
<tr>
<td>Debt Equity Ratio</td>
<td>2.6</td>
<td>4.6</td>
<td>-14.8</td>
<td>69.7</td>
<td>21.46</td>
</tr>
</tbody>
</table>

Source: table is derived from the sample data compiled for the study
The mean value of Volume Weighted Average Price variable is the highest at 65.9 while mean value of Net Assets per Share is 60.2. The lowest mean value is 0.1 representing the mean value for share dividend per share. This was expected since the variable was a ratio. Standard Deviation shows the variation in the data with the highest value Standard Deviation 84.5 implying that the great variation in the Market Prices of listed firms at the NSE is due to firm size. Share Dividend per Share has the least value of Standard Deviation at 0.2 implying that Share Dividend per Share causes minimum variation in the share market prices of firms listed at the NSE.

4.2 Model Test

Before analyzing the regression model, the reliability of the model was tested through stepwise regression and regression assumption. Further, a suitable model was identified using Hausman test.

4.2.1 Stepwise Regression

In deciding on the best set of explanatory variables for a regression model, researchers used stepwise regression in order to help find the best regression model (Berenson, Levine & Krehbiel, 2009). There are two methods available for stepwise regressions are stepwise forward regression and stepwise backward regression (Gujarati & Porter, 2009). The study adopted stepwise forward regression to determine the best model by comparing $R^2$ value to establish a set of independent variables that have the highest explanatory power as shown in the table 4.1 below:
Table 4.2: Stepwise Regression Results

<table>
<thead>
<tr>
<th>LNCDPS coeff</th>
<th>LNSDPS coeff</th>
<th>LNREPS coeff</th>
<th>LNNAPS coeff</th>
<th>LNEPS coeff</th>
<th>LNDER coeff</th>
<th>R²</th>
</tr>
</thead>
<tbody>
<tr>
<td>0.70</td>
<td>-0.12</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>63.20%</td>
</tr>
<tr>
<td>0.62</td>
<td>-0.08</td>
<td>0.03</td>
<td></td>
<td></td>
<td></td>
<td>70.27%</td>
</tr>
<tr>
<td>0.49</td>
<td>-0.07</td>
<td>-0.22</td>
<td>0.24</td>
<td></td>
<td></td>
<td>69.90%</td>
</tr>
<tr>
<td>0.67</td>
<td>-0.08</td>
<td>-0.04</td>
<td>0.44</td>
<td>-0.34</td>
<td></td>
<td>71.07%</td>
</tr>
<tr>
<td>0.64</td>
<td>-0.11</td>
<td>-0.45</td>
<td>0.57</td>
<td>-0.37</td>
<td>0.22</td>
<td>67.55%</td>
</tr>
<tr>
<td>0.45</td>
<td>-0.12</td>
<td>-0.62</td>
<td>0.35</td>
<td></td>
<td>0.20</td>
<td>75.57%</td>
</tr>
<tr>
<td>0.55</td>
<td>-0.09</td>
<td></td>
<td>0.20</td>
<td></td>
<td>0.11</td>
<td>75.69%</td>
</tr>
<tr>
<td>0.65</td>
<td>-0.07</td>
<td></td>
<td>0.37</td>
<td>-0.23</td>
<td>0.16</td>
<td>74.94%</td>
</tr>
</tbody>
</table>

Source: table is derived from the population data compiled for the study.
LNCDPS, LNSDPS, LNREPS, LNNAPS, LNEPS and LNDER represents cash dividend per share, share dividend per share, retained earnings per share, net assets per share, earnings per share and debt equity ratio in the natural logarithmic forms. R² is the coefficient of determinations.

From table 4.2, the model with all specified variables except earnings per share have the best combination of variables since it gives the highest overall R² of 77.54%.

4.2.2 Diagnostic Tests

There are three critical assumptions for regression models: multicollinearity, normality and homoscedasticity (Gujarati, 2003, Berenson, Levine & Krehbiel, 2009). The following tests were conducted and the results highlighted below:

4.2.1.1 Collinearity test

Probability of collinearity between independent variables is one of the most important problems facing the use of multiple regression analysis, so that they cannot be fully independent (Berenson, Levine & Krehbiel, 2009). Multicollinearity
occurs when there is a strong correlation between one or more independent variables with each other, although usually there is no new information added to the regression model. In addition, the relationship tends to distort the model results because of the difficulty of isolating the impact of relationship between the supposedly independent variables. One of method used to test collinearity between independent variables is Variance Inflation Factor (VIF) for each independent variable. VIF can be calculated through the following equation:

\[ V = \frac{1}{1 - R^2} \]

The predictor variable is considered to be independent and in collinearity with other independent variables if the VIF coefficient of the variable is greater than five (Berenson, Levine & Krehbiel, 2009).

Collinearity test for predictor variables such as cash dividend per share (CDPS), share dividend per share (SDPS), retained earnings per share (REPS), Debt Equity ratio (DER) and Net Assets per share (NAPS) was conducted to examine the presence of multicollinearity between independent variables with a significant effect on the relationship between the predictor variables and the predicted variable. STATA programme was used to compute VIF coefficients for independent variables as tabulated below:
Table 4.3: Variance Inflation Factor

<table>
<thead>
<tr>
<th>Variable</th>
<th>VIF</th>
<th>1/VIF</th>
</tr>
</thead>
<tbody>
<tr>
<td>ln.cdps</td>
<td>2.70</td>
<td>0.369942</td>
</tr>
<tr>
<td>ln.sdps</td>
<td>1.09</td>
<td>0.920003</td>
</tr>
<tr>
<td>ln.mpaps</td>
<td>2.52</td>
<td>0.396561</td>
</tr>
<tr>
<td>ln.reps</td>
<td>2.33</td>
<td>0.428476</td>
</tr>
<tr>
<td>ln.nder</td>
<td>1.60</td>
<td>0.623358</td>
</tr>
</tbody>
</table>

Mean 2.05

Based on the above results, all the VIF values for the independent variables were less than five. Therefore, it was concluded that there was no evidence of unacceptable collinearity between explanatory variables that had a significant effect on the relationship of the independent variables and the dependent variable at a 95% confidence level.

4.2.2.2 Normality Test

Regression models also assume that the variables follow a normal distribution. In this context, the more the data that follow normal distribution, the more accurate the results (Berenson, Levine & Krehbiel, 2009). The researcher sought to test whether or not the independent variables and the dependent variable follow a normal distribution by using Shapiro-Wilk test. Shapiro & Wilk (1965) test was originally restricted for sample size of less than 50. Rayston(1992) modified the first version of Shapiro Wilk Test to accommodate any $n$ in the range of $3 \leq n \leq 5000$. This test was used to detect departure from normality due to either skewness or kurtosis, or both (Althouse, Ware, & Ferron, 1998). The test was preferred due to its good power properties (Mendes & Pala, 2003). The value of W lies between zero and one. Small values of W lead to rejection of normality. A value of one indicates normality.
On the basis of the results above, W ranges from 0.85102 and 0.98800. This showed an indication of normality, though the distribution may not have been perfectly normal.

4.2.2.3 Heteroscedasticity Test

The homoscedasticity assumption means that variance of the error terms is constant for each observation (Berenson, Levine & Krehbiel, 2009). There are two methods of testing heteroscedasticity; Cameron and Trivedi’s decomposition of IM test and Breusch-Pagan/Cook-Wesberg. The Breusch-Pagan/Cook-Wesberg was used by the researcher to test for presence of heteroscedasticity in the study and the results were as shown in table 4.5 below:

Table 4.5: Breusch-Pagan / Cook-Wesberg test

Breusch-Pagan/Cook-Weisberg test of heteroskedasticity
H0: Constant variance

<table>
<thead>
<tr>
<th>Variable</th>
<th>Obs</th>
<th>W</th>
<th>V</th>
<th>Z</th>
<th>Prob&gt;z</th>
</tr>
</thead>
<tbody>
<tr>
<td>lnvwap</td>
<td>528</td>
<td>0.98800</td>
<td>4.240</td>
<td>3.481</td>
<td>0.00025</td>
</tr>
<tr>
<td>lncdps</td>
<td>404</td>
<td>0.98214</td>
<td>4.961</td>
<td>3.813</td>
<td>0.00007</td>
</tr>
<tr>
<td>lnsdps</td>
<td>47</td>
<td>0.92560</td>
<td>3.333</td>
<td>2.558</td>
<td>0.00526</td>
</tr>
<tr>
<td>lnreps</td>
<td>482</td>
<td>0.85102</td>
<td>48.488</td>
<td>9.315</td>
<td>0.00000</td>
</tr>
<tr>
<td>lnnaaps</td>
<td>528</td>
<td>0.95713</td>
<td>15.147</td>
<td>6.549</td>
<td>0.00000</td>
</tr>
<tr>
<td>lnnder</td>
<td>526</td>
<td>0.97358</td>
<td>9.302</td>
<td>5.373</td>
<td>0.00000</td>
</tr>
</tbody>
</table>

Chi2(1) = 1.93
Prob>chi2 = 0.1646
The results in the table 4.6 showed $\text{prob}>\text{chi}^2 = 0.1646 > 0.05$. Hence the null hypothesis was not rejected. This meant that the variables had constant variance.

### 4.2.2.4 Hausman Test

The Hausman test (1978) helps to determine whether to use of fixed effect model or random effect model by calculating the value of $\text{Prob}>\text{chi}^2$. The decision rule is that if $\text{Prob}>\text{chi}^2$ is lower than the study level of significance, then the assumptions for the random effects estimation are violated and fixed effect should be used, and vice versa.

**Table 4.6: Hausman Test**

<table>
<thead>
<tr>
<th></th>
<th>fixed</th>
<th>random</th>
<th>(b-b)</th>
<th>sqrt(diag(v_b-v_B))</th>
</tr>
</thead>
<tbody>
<tr>
<td>lncdps</td>
<td>-.8928342</td>
<td>.4452009</td>
<td>-.1338035</td>
<td>.5285913</td>
</tr>
<tr>
<td>lnndps</td>
<td>.1161254</td>
<td>-.1149025</td>
<td>.2310279</td>
<td>.1085317</td>
</tr>
<tr>
<td>lnreps</td>
<td>.9282458</td>
<td>-.6174605</td>
<td>1.545706</td>
<td>1.562291</td>
</tr>
<tr>
<td>lnnapss</td>
<td>.6996625</td>
<td>.3464093</td>
<td>.3532532</td>
<td>.374229</td>
</tr>
<tr>
<td>lnnder</td>
<td>-.2451813</td>
<td>.2028796</td>
<td>-.4480609</td>
<td>1.015512</td>
</tr>
</tbody>
</table>

\[ b = \text{consistent under } H_0 \text{ and } H_1; \text{ obtained from } \text{xtreg} \]
\[ B = \text{inconsistent under } H_1 \text{, efficient under } H_0; \text{ obtained from } \text{xtreg} \]

Test: $H_0$: difference in coefficients not systematic

\[
\text{chi}^2(5) = (b-B)'[\{v_{b-v_B}\}^{-1}]^{-1}(b-B)
\]
\[
= 9.77
\]

\[
\text{prob}>\text{chi}^2 = 0.0820
\]

Table 4.7 gave calculated value of $\text{Prob}>\text{chi}^2$ of 0.0820 which is greater than 0.05. This implied that the assumption of random effects estimation is not violated and the random effect estimation would be appropriate for the study. Hence, random general least square regression was adopted in the data analysis.

### 4.3 Regression Analysis Results
A random effect GLS regression analysis was run for 55 companies represented in the sample in order to establish the relationship between dividend policy and share prices for listed firms in the NSE. This was done for the market and for the ten (10) economic sectors at the NSE. For market analysis, the researcher transformed the data into their natural logarithm form and regressed natural logarithms of share price against cash dividend, share dividend and control variables which included net assets per share, debt equity ratio and retained earnings per share using regression equation outlined in section 3.1.2. Earnings per share were excluded as a control variable since it was noted during forward stepwise regression that the variable did not add explanatory power to the model, instead, inclusion of the variable reduced the explanatory power of the model (see section 4.2.1).

4.1.1 Market Analysis

A summary of the regression results for the whole market is indicated in table 4.1.

Table 4.7: Regression results for the whole market

<table>
<thead>
<tr>
<th></th>
<th>Coefficient</th>
<th>Z calculated</th>
<th>Z critical</th>
</tr>
</thead>
<tbody>
<tr>
<td>lnvwap</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>lncdsp</td>
<td>0.45*</td>
<td>3.39</td>
<td>(-1.96 and +1.96)</td>
</tr>
<tr>
<td>lnsdps</td>
<td>-0.11</td>
<td>-1.34</td>
<td>(-1.96 and +1.96)</td>
</tr>
<tr>
<td>lnreps</td>
<td>-0.62</td>
<td>-1.7</td>
<td>(-1.96 and +1.96)</td>
</tr>
<tr>
<td>lnnaps</td>
<td>0.35*</td>
<td>2.12</td>
<td>(-1.96 and +1.96)</td>
</tr>
<tr>
<td>lnder</td>
<td>0.20*</td>
<td>2.05</td>
<td>(-1.96 and +1.96)</td>
</tr>
<tr>
<td>cons</td>
<td>1.92</td>
<td>2.67</td>
<td>(-1.96 and +1.96)</td>
</tr>
</tbody>
</table>

Source: Table is derived from the sample data compiled for the study. Where ln is the natural logarithm while cdps, sdps, reps, naps and der are cash dividend per share, share dividend per share, retained earnings per share, net assets per share, earnings per share and debt equity ratio respectively. R-square-overall is the adjusted R². * indicate the coefficient of a statistically significant variable at 5% level of significance.
4.1.1.1 Test of Hypothesis using Z test

Relationship between Cash dividend and share price

The first specific objective of the study was to establish the relationship between cash dividend and share price for firms listed in the NSE. The null hypothesis was stated as follows:

$H_0$: there is no statistically significant relationship between cash dividend and the share price of the firms listed at the Nairobi Securities Exchange.

The original data was transformed into their natural logarithm form because the original data exhibited skewness, kurtosis and variability of residuals. The results of the analysis were based on lognormal distribution. Table 4.7 shows regression coefficients of lognormal distribution for the regression which were the percentage change the dependent variable would change as a result of percentage change in independent variable. The sign of regression coefficients showed the direction of relationship between the independent variables and the dependent variable.

To test whether the relationships between variables are statistically significant, the significance of coefficients of independent variables were tested by using z test. The decision criterion was that, if $Z_{calculate} > Z_{critical}$ then, reject the null hypothesis and vice versa. From table 4.7, Z-calculated coefficient cash dividend equals to 3.39 which was greater than Z-critical range of between -1.96 and +1.96, hence the coefficient was found to be statistically significant. The null hypothesis was therefore rejected. This implied that there was a significant positive relationship between cash dividend and share price for firms listed at the NSE for the period under study. The sign showed the direction of the relationship. The coefficient of
0.45 implied that when cash dividend increase by 1%, stock prices increase by 45% and vice versa.

The research findings were consistent with signaling theory propositions. Signal theory has its origins in (Lintner, 1956) studies who revealed that the price of a company’s stocks usually changes when the dividend payments changes. Even though Modigliani & Miller (1961) argued in favour of the dividend irrelevance, they also stated that in the real world disregarding the perfect capital markets, dividend provides an “information content” which may affect the market price of the stock. Bhattacharya (1979) presented one of the most acknowledged studies regarding signaling theories which states that dividends may function as a signal of expected future cash flows. An increase in the dividends indicates that the managers expect higher cash flows in the future. The research is based on the assumptions that outside investors have imperfect information regarding the company’s future cash flows and capital gains. Another important assumption is that dividends are taxed at a higher rate compared to capital gains. Bhattacharya, (1979) argues that under these circumstances even though there is a tax disadvantage for dividends, companies would choose to pay dividends in order to send positive signals to shareholders and outside investors. Many other researches have been conducted in order to test if the signaling theory applies in the real world and there exist different opinions regarding the applicability of the signaling theory. Asquith & Mullins Jr (1983) provided empirical evidence in favour of the signaling theory. They argue that an increase of dividend payments tends to increase the shareholders wealth.
**Relationship between Share dividend and share price**

The second specific objective of the study was to establish the relationship between share dividend and share price for firms listed at the NSE. The null hypothesis was stated as follows:

\( H_0: \) there is no statistically significant relationship between share dividend and the share price of the firms listed at the Nairobi Securities Exchange.

To test whether the relationships between variables were statistically significant, the researcher tested the significance of the individually regression coefficients by using \( Z \) test. If \( Z_{\text{calculate}} > Z_{\text{critical}} \) then, reject the null hypothesis. From table 4.7 above, \( Z \)-calculated for share dividends equaled to -1.34 which was within the \( Z \)-critical range of between -1.96 and +1.96. This meant that the coefficient of share dividend was not statistically significant hence the null hypothesis was not rejected. This implied that there was no significant relationship between share dividend and share price for firms listed at the NSE in the period between years 2001 and 2011.

These results were consistent with the argument that share dividend policy is the transfer of funds between equity accounts (Levy & Sarnat, 1994) and that it does not include any outside cash flows; therefore, the shareholders do not receive anything (Broyles, 2003). The market value per share after the share dividend announcement will go down. However, the total shareholders’ wealth will not be affected because the number of shares owned will be increased to cover the decline in market value per share (Moyer, Kretlow, & McGuigan, 1995); (Pike & Neale, 2009). It is not expected that the share dividend policy would have any impact on the company’s value as long as the investors understand that the replacement of cash dividends by
shares is for the sake of reinvesting this money and not because of financial difficulties or to meet outstanding payments (Ross, Westerfield, & Jaffe, 1999).

**Relationship between intervening variables and share price**

The control variables in the study included retained earnings per share, net assets per share and debt equity ratio. The objective of including the control variables in the model was to establish their relationship with the share price and their explanatory power on the dependent variable in the model as intervening variables. The null hypotheses for controlled variables were as follows:

- **H$_1$:** there is no statistically significant relationship between investment policy and the share price of the firms listed at the Nairobi Securities Exchange.
- **H$_2$:** there is no statistically significant relationship between firm size and the share price of the firms listed at the Nairobi Securities Exchange
- **H$_3$:** there is no statistically significant relationship between finance leverage and the share price of the firms listed at the Nairobi Securities Exchange

Table 4.7 shows the value of $Z$-calculated for net assets per share and debt equity ratio as 2.12 and 2.05 respectively. These were greater than $Z$-critical range of between -1.96 and +1.96 in which case, the null hypotheses H$_2$ and H$_3$ were rejected. This meant that the coefficients of firm size and financial leverage were statistically significant and hence the null hypothesis was rejected. This implied that there was positive relationship between firm size and financial leverage and share price for firms listed at the NSE. The coefficient of 0.35 and 0.20 for firm size and financial leverage respectively implied that a increase of net assets per share and debt equity ratio by a 1% would lead to an increase in share price by 35% and 20% respectively
and vice versa. For retained earnings per share, the Z-calculated value of -1.70 was within the Z-critical range of between -1.96 and +1.96. This meant that the coefficient of retained earnings per share was not statistically significant; therefore, the null hypothesis $H_1$ was not rejected. This implied that there is no significant relationship between the retention/investment policy and the share price for firms listed in the NSE. Although the test of significance revealed statistically insignificant relationship between investment policy and share price, there existed some negative relationship between the retained earnings per share and the share price. The coefficient of -0.62 for retained earnings per share implied that a unit increase in retained earnings per share would result to 62% decrease in share prices of the firms and vice versa.

The results of the study were consistent with Allen & Rachim (1996), Khan, Aamir, Qayyum, Nasir, & Khan, (2011) and Allen & Rachim (1996) which found a statistically significant relation between stock prices and size and finance leverage. However, the results are inconsistent with Pani (2008) which found positive relationship between retention policy and share price.

The ability of the independent variables to explain the changes in dependent variable was tested using the value of $R^2$. In this case $R^2$ was found to be 0.7754, which meant that the independent variables explained 77.54%, of the dependent variable. In turn, this meant that dividend policy and the control variables within the model explained 77.54%, of the stock prices for listed companies at the NSE. To establish the joint significance of the predictor variables, the following null hypothesis was to be tested.
H_0 = \beta_1 = \beta_2 = \beta_3 = \ldots \beta_5 = 0$, that is, all the coefficients of predictor variables were equal to zero.

The above hypothesis was tested by comparing pro>\text{chi2} with the level of significance. If the prob>\text{chi2} was found to be less than the level of significance, the null hypothesis would be rejected. Since prob>\text{chi2}=0.0000 and level of significance is 0.05, prob>\text{chi2} < level of significance, the null hypothesis is rejected. The combined coefficients the predictor variables of the model were found to be statistically significant at 5% level of significance. This implied that the model was suitable for estimation.

4.1.2 Economic Sector Analysis

Further to the market analysis, sector analysis was also conducted. There were ten economic sectors at the NSE as at the time of the study. Share prices was regressed against cash dividend per share, share dividend per share and the intervening variables such as retained earnings per share, net earnings per share, earnings per share and debt equity ratio. A summary of the regression equations for the economic sectors represented in the market was as shown in table 4.8 below:
Table 4.8: Regression Results for Economic Sectors (2000-2011)

<table>
<thead>
<tr>
<th>Economic Sector</th>
<th>Constant</th>
<th>Coefficient</th>
<th>( R^2 ) Overall</th>
<th>Prob&gt;chi2</th>
<th>Wald Chi2</th>
</tr>
</thead>
<tbody>
<tr>
<td>Agricultural</td>
<td>31.18</td>
<td>23.30*</td>
<td>142.55*</td>
<td>0.5572</td>
<td>0.0000</td>
</tr>
<tr>
<td>Automobile and Associates</td>
<td>-26.22</td>
<td>42.23*</td>
<td>-31.89</td>
<td>0.6577</td>
<td>0.0000</td>
</tr>
<tr>
<td>Banking</td>
<td>14.55</td>
<td>8.14*</td>
<td>0.66</td>
<td>0.7287</td>
<td>0.0000</td>
</tr>
<tr>
<td>Commercial and Service</td>
<td>9.71</td>
<td>22.23*</td>
<td>46.36</td>
<td>0.8804</td>
<td>0.0000</td>
</tr>
<tr>
<td>Construction and Allied</td>
<td>5.34</td>
<td>14.34*</td>
<td>-41.96</td>
<td>0.6281</td>
<td>0.0000</td>
</tr>
<tr>
<td>Energy and Petroleum</td>
<td>34.00</td>
<td>-6.31</td>
<td>-97.63</td>
<td>0.6735</td>
<td>0.0000</td>
</tr>
<tr>
<td>Insurance</td>
<td>-46.44</td>
<td>55.73*</td>
<td>-39.81</td>
<td>0.6324</td>
<td>0.0000</td>
</tr>
<tr>
<td>Investment</td>
<td>-14.52</td>
<td>9.38</td>
<td>-2.46</td>
<td>0.8227</td>
<td>0.0000</td>
</tr>
<tr>
<td>Manufacturing and Allied</td>
<td>3.70</td>
<td>5.13*</td>
<td>-9.54</td>
<td>0.7815</td>
<td>0.0000</td>
</tr>
<tr>
<td>Telecommunication and Technology</td>
<td>11.71</td>
<td>21.81*</td>
<td>-</td>
<td>0.9615</td>
<td>0.0000</td>
</tr>
</tbody>
</table>

Source: Table is derived from the population data compiled for the study.

cdps represents cash dividend per share while sdps is the share dividend per share. R-square-overall is the sector \( R^2 \). * indicate the coefficient of a statistically significant variable at 5% level of significance. Prob>chi2 tests the model fit, that is, if Prob>chi2 is less than the level of significance.

Companies under agricultural sector recorded a statistically positive significant coefficient of cash dividend per share implying a positive relationship between cash dividend between share dividend and share prices. The coefficient of determination \( R^2 \) overall was found to be 0.5572. This implied that the predictor variables explained 55.72% of the changes in the predicted variable in the agricultural sector.

To establish the joint significance of the independent variables, the following null hypothesis was to be tested.

\[ H_0 = \beta_1 = \beta_2 = \beta_3 = \cdots = \beta_6 = 0, \] that is, all the coefficients of predictor variables were jointly equal to zero.
To test the above hypothesis, the researcher compared \textit{prob}>\textit{chi2} with the level of significance. The decision rule in this case was that if the \textit{prob}>\textit{chi2} was less than the level of significance; the null hypothesis would be rejected. Since \textit{prob}>\textit{chi2}=0.0000 and the chosen level of significance was 0.05, \textit{prob}>\textit{chi2} < level of significance, hence the null hypothesis was rejected. The joint coefficients of the predictor variables were found to be statistically significant at 5\% level of significance. This implied that the model was suitable for estimation. The coefficients of 23.30 and 142.55 for cash dividend per share and share dividend per share respectively implied that an increase of in cash dividend per share and share dividend per share by a unit value respectively would result in increase in share price by 23.30 and 142.55 units of share price on average for cash dividend per share and share dividend per share respectively, all factors held constant.

In the automotive and accessories sector, the coefficient of cash dividend was found to be statistically but that of share dividend was found to be statistically insignificant. This implied that there was positive relationship between cash dividend and share price. The coefficient of determination \( R^2 \) was found to be 0.6577. This implied that the predictor variables explained 65.77\% of the change in dependent variable in the automobile and associates sector. Moreover, the joint significance of the independent variables was tested under the following null hypothesis;

\[
H_0=\beta_1 = \beta_2 = \beta_3 = \cdots \beta_6 = 0,
\]

the coefficients of the predictor variables are jointly equal to zero.
The hypothesis above was tested by comparing prob>chi2 with the level of significance. If the prob>chi2 was less than the level of significance, the null hypothesis would be rejected. Since prob>chi2 = 0.0000 and chosen level of significance = 0.05, prob>chi2 < level of significance, therefore, the null hypothesis was rejected. The joint coefficients the independent variables of the model were found to be statistically significant at 5% level of significance. This implied that the model was appropriate for estimation. The coefficient of 42.23 for cash dividend per share implied that an increase in cash dividend per share by a unit value would result to an increase in share price by 42.23 units. Conversely, an increase in cash dividend per share by a unit value would result in a decrease in share price by 31.89 units, all other factors held constant.

In the banking sector, a statistically significant coefficient of cash dividend was found implying positive relationship between cash dividend and share price. The coefficient of determination $R^2$ was found to be 0.7287. This implied that the predictor variables explained 72.87% of the change in predicted variable in the banking sector. Similarly, to establish the joint significance of the independent variables, the following null hypothesis was tested:

$H_0: \beta_1 = \beta_2 = \beta_3 = \cdots \beta_6 = 0$, the coefficients of predictor variables were jointly equal to zero.

The hypothesis was tested by the researcher by comparing prob>chi2 with the level of significance. If the prob>chi2 is less than the level of significance, the null hypothesis would be rejected. Since prob>chi2 = 0.0000 and the chosen level of significance = 0.05, prob>chi2 < level of significance, hence the null hypothesis was
rejected. The joint coefficients of the independent variables of the model were found to be statistically significant at 5% level of significance. This implied that the model was desirable for estimation. The coefficient of 8.14 for cash dividend per share implied that an increase in cash dividend per share by a unit value would result to an increase in share price by 8.14 units. Similarly, an increase in share dividend per share by a unit value results in an increase in share price by 2.13 units, all other factors held constant.

Commercial and services sector recorded a statistically significant coefficient of cash dividend implying a positive relationship between cash dividend and share price. The coefficient of determination $R^2$ was found to be 0.8804. This implied that the predictor variables explained 88.04% of the changes in predicted variable in the commercial and service sector. Correspondingly, joint significance of the predictor variables was tested under the following null hypothesis;

$H_0 = \beta_1 = \beta_2 = \beta_3 = \ldots \beta_6 = 0$, that is all the coefficients of independent variables are jointly equal to zero.

To test the above hypothesis, the researcher compared $\text{prob}>\chi^2$ with the level of significance. If the $\text{prob}>\chi^2$ was less than the level of significance, the null hypothesis would be rejected. Since $\text{prob}>\chi^2=0.0000$ and the level of significance was 0.05, $\text{prob}>\chi^2 < \text{level of significance}$, hence the null hypothesis was rejected.

The joint coefficients of the predictor variables of the model were found to be statistically significant at 5% level of significance. This implied that the model was suitable for estimation. The coefficient of 22.23 for cash dividend per share implied that an increase in cash dividend per share by a unit value results in an increase in
share price by 22.23 units. Similarly, an increase in share dividend per share by a unit value would result to an increase in share price by 44.36 units when all other factors held constant.

In the construction and allied sector, a statistically significant coefficient of cash dividend was found implying a positive relationship between cash dividend and share price. The coefficient of determination $R^2$ was found to be 62.54%. This implied that predictor variables explained 62.81% of the change in predicted variable in the construction and allied sector. Additionally, the joint significance of the predictor variables was tested using the following null hypothesis:

$$H_0 = \beta_1 = \beta_2 = \beta_3 = \cdots \beta_6 = 0,$$

all the coefficients of predictor variables were jointly equal to zero.

The hypothesis was tested by comparing the $\text{prob}>\chi^2$ with the level of significance. If the $\text{prob}>\chi^2$ was less than the level of significance, the null hypothesis would be rejected. Since $\text{prob}>\chi^2=0.0000$ and the chosen level of significance=0.05, $\text{prob}>\chi^2 < \text{level of significance}$, hence the null hypothesis was rejected. The joint coefficients of the predictor variables of the model were found to be statistically significant at 5% level of significance. This implied that the model was desirable for estimation. The coefficient of 14.34 for cash dividend per share implied that an increase in cash dividend per share by a unit value would result to an increase in share price by 13.34 units. Conversely, an increase in share dividend per share by a unit value would result in a decrease in share price by 41.96 units when all other factors held constant.
Energy and petroleum sector recorded a statistically insignificant relationship between cash dividend and share dividend and stock prices. The coefficient of determination $R^2$ was found to be 0.6735. This implied that the predictor variables explained 67.35% of the predicted variable in the energy and petroleum sector. The joint significance of the predictor variables was tested using the following null hypothesis:

$$H_0 = \beta_1 = \beta_2 = \beta_3 = \cdots \beta_6 = 0,$$

that is all the coefficients of independent variables are jointly equal to zero.

The above hypothesis was tested by comparing the $\text{prob}>\text{chi2}$ with the level of significance. If the $\text{prob}>\text{chi2}$ was less than the level of significance, the null hypothesis would be rejected. Since $\text{prob}>\text{chi2}$ was 0.0000 and the chosen level of significance was 0.05, $\text{prob}>\text{chi2} < \text{level of significance}$, the null hypothesis was rejected. The joint coefficients of the predictor variables of the model were found to be statistically significant at 5% level of significance. This implied that the model was appropriate for estimation. The coefficient of 5.74 for cash dividend per share implied that an increase in cash dividend per share by a unit value would result in an increase in share price by 5.74 units in the sector. Contrarily, the coefficient of 3.54 for share dividend per share implied that an increase of in share dividend per share by a unit value would result in an increase in share price by 5.74 units in the energy and petroleum sector, all other factors held constant.

Companies categorized under insurance sector had statistically significant coefficient of cash dividend implying positive relationship between cash dividend and share price. The coefficient of determination, $R^2$ was found to be 0.6324. This implied that the predictor variables explained 63.24% of the change in predicted
variable in the insurance sector. Similarly, the joint significance of the predictor variables was tested using the following null hypothesis;

\[ H_0 = \beta_1 = \beta_2 = \beta_3 = \cdots \beta_6 = 0 \], all the coefficients of independent variables are jointly equal to zero.

The hypothesis was tested by comparing the \texttt{prob>chi2} with the level of significance. If the \texttt{prob>chi2} was less than the level of significance, the null hypothesis would be rejected. Since \texttt{prob>chi2} was 0.000 and the chosen level of significance was 0.05, \texttt{prob>chi2} < level of significance, hence the null hypothesis was rejected. The joint coefficient the predictor variables of the model were found to be statistically significant at 5% level of significance. This implied that the model was satisfactory for estimation. The coefficient of 55.73 for cash dividend per share implied that an increase in cash dividend per share by a unit value would result in increase in share price by 55.37 units in the sector. Conversely, an increase in share dividend per share by a unit value results in decrease in share price by 39.81 units in the insurance sector, all other factors held constant. Further, investment sector recorded a statistically insignificant coefficient of either cash or share dividend. relationship between cash dividend per share and share dividend per share and share prices.

Companies listed under manufacturing sector had a statistically significant coefficient of cash dividend implying a positive significant relationship between cash dividend and share price. The coefficient of determination \( R^2 \) overall was found to be 0.7815. This implied that the explanatory variables explained 78.15% of the change in explained variable in the manufacturing sector. Additionally, the joint significance of the explanatory variables was tested using the following null hypothesis;
H0=β₁ = β₂ = β₃ =⋯β₆ = 0,

The above hypothesis was tested by comparing the prob>chi2 with the level of significance. If the prob>chi2 was less than the level of significance, the null hypothesis would be rejected. Since prob>chi2 was 0.0000 and the chosen level of significance was 0.05, prob>chi2 < level of significance, therefore, the null hypothesis was rejected. The joint coefficients of the independent variables of the model were found to be statistically significant at 5% level of significance. This implied that the model was proper for estimation. The coefficient of 5.13 for cash dividend per share implied that an increase in cash dividend per share by a unit value would result in an increase in share price by 5.13 units. Conversely, an increase in share dividend per share by a unit value results in decrease in share price by 9.54 units when all other factors held constant.

Companies listed in the telecommunication and technology sector had statistically significant positive coefficient of cash dividend implying a positive relationship between cash dividend and share price. The coefficient of determination, \( R^2 \) was found to be 0.9615. This implied that the explanatory variables explained 96.15% of the change in explained variable in the manufacturing sector. To establish the joint significance of the explanatory variables, the following null hypothesis was to be tested.

H0=β₁ = β₂ = β₃ =⋯β₆ = 0,

The hypothesis was tested by the researcher by comparing the prob>chi2 with the level of significance. If the prob>chi2 was less than the level of significance, the null hypothesis was rejected. Since prob>chi2 was 0.0000 and the level of significance was 0.05, prob>chi2 < level of significance, hence the null hypothesis
was rejected. The joint coefficients the explanatory variables of the model were found to be statistically significant at 5% level of significance. This implied that the model was sufficient for estimation. The coefficient of 21.82 for cash dividend per share implied that an increase in cash dividend per share by a unit value would result in an increase in share price by 21.82 units in the telecommunication and technology sector, all other factors held constant.
CHAPTER FIVE
SUMMARY, CONCLUSIONS AND RECOMMENDATIONS

5.0 Introduction
This chapter summarizes the main findings of the study, highlights the implications of the study findings and suggests areas for further research.

5.1 Summary
The objective of the study was to investigate the effect of dividend policy on share price for firms listed at the NSE. In doing so, the study could contribute immensely to the scarce literature in the area of corporate finance in the Kenyan context. Chapter one gave a detailed background of dividend and the determinants of dividend payout, the profile of NSE and the objectives of the study. Further, the chapter discussed the motivation for the study as the concern for the recent fluctuation of share prices in the NSE which took a downward trend. The chapter also focused on the significance of the study and the organization of the study.

Chapter two presented the review of theoretical literature on dividend policy, particularly irrelevant and relevant (signalling) theories, followed by dividend policy discussion around cash dividend, share dividend and share buyback. Further, a detailed discussion on past studies on dividend policy and share price showed that despite many researches having been done in this area, consensus on dividend policy issues still remains as wide as theory. The chapter also focused on the critical review of major issues followed by the summary and gaps to be filled by the study. Lastly, the chapter presented the conceptual framework of the study comprising of dividend
policy as independent variable and share price as dependent variable with control variables such as financial leverage, investment policy, profitability and firm size.

Chapter three was structured around research design, target population, sample design, data collection procedures and instruments, and data analysis and presentation. The sample comprised of 55 sampled companies that met the eligibility criteria. The sample covered firms from across the ten economic sectors represented at the NSE for the period between the years 2001 and 2011.

Chapter four presented and discussed the results of empirical testing of the effects of dividend policy on firms listed at the NSE, Kenya. A regression analysis was run and the results discussed in detail. Diagnostic tests were also conducted to test the suitability of the model. The tests showed that the model was appropriate both for the whole market and for each of the ten (10) economic sectors as classified by NSE.

Major findings of the analysis pointed out that there was a statistically significant coefficient of cash dividend implying a positive relationship between cash dividend and share prices for listed firms at the NSE in the whole market. Conversely, there was a statistically insignificant negative relationship between share dividend and share price for all firms listed at the NSE.

Economic sector analysis revealed that there was a statistically positive significant coefficient of cash dividend implying a positive relationship between cash dividend and share prices in all sectors represented at the NSE except for the energy and petroleum and investment sectors. Energy and petroleum sector gave unique results
contrary to the market findings since results showed that there was statistically negative insignificant coefficient of cash dividend implying a negative relationship between cash dividend and share dividend and share price. It is suggested that further investigation is required to establish the reasons behind the divergence of results from the market behaviour. Investment sector showed a statistically insignificant positive coefficient of cash dividend implying a weak positive relationship between cash dividend and share price. The results also showed mixed relationship between share dividend and share price for different sectors. Agriculture sector revealed a statistically significant positive coefficient of share dividend implying a relationship between share dividend and share price. Commercial and service and banking sectors results showed that there was statistically insignificant coefficient of share dividend implying a weak relationship between share dividend and share price for firms listed in those sectors. Sectors such as automobile and associates, construction and allied, insurance, investment and manufacturing indicated that there was a statistically insignificant negative coefficient of share dividend implying a weak relationship between share dividend and share price. Telecommunication and technology sector was not analysed on this objective since the variable was omitted due to failure of the companies in the sector to issue share dividend in the period under consideration.
5.2 Conclusion

The main objective of the study was investigate the effects of dividend policy on share price for firms listed at the NSE, specifically, the study sought to establish the relationship between cash dividend and share dividend and the share price for listed firms at the NSE. The hypotheses were tested to achieve these objectives both for the market and for the ten (10) economic sectors represented at the NSE using the random effect regression for eleven years panel data between the years 2001 to 2011.

Cash dividend was found to positively affect the share price for companies listed in the NSE since there was a statistically significant coefficient of cash dividend implying a positive relation between cash dividend and share price for the whole company. This is inconsistent with Modigliani & Miller (1961) who posited Irrelevant Theory. Irrelevant theory proposes that there is no relationship between dividend policy and stock prices. The divergences from theory mainly due to the assumptions adopted by the theory regarding the efficient market are almost impossible to achieve in practice especially in developing countries such as Kenya. The findings are consistent with signal theory as highlighted in the previous chapter.

From the findings of the study, it is concluded that that the NSE does not exhibit characteristics of an efficient market. Kenyan investors therefore prefer stock that pays more cash dividend than those that pay share dividend or no dividend at all. The management of listed companies should therefore seriously consider paying cash dividend since this will subsequently increase the share prices and hence increase shareholder’s wealth in the long run. Many investors in Kenya do not prefer
share dividend since share dividend does not involve any cash flow. Cash dividend is used by investors to meet their day to day expenses and they would thus feel inconvenience if the management of those companies proposes to diverted earnings to investment opportunities rather than paying out to shareholders in form of cash dividend. In addition, empirical studies to prove signal theory posited that payment of share dividend would send a negative signal to the investors. This would significantly reduce the demand for the counters hence negatively affecting the share prices. Thus maximization of shareholders wealth requires consideration of investor need for cash dividends.

5.3 Recommendations and Policy Implications

Several implications could be drawn from the theoretical literature and findings of the study. First, the study demonstrated the merger of theory and practice on dividend policy and share price for listed firms in Kenya. In particular, dividend relevant theories are applicable in a Kenyan case. This study therefore demonstrates the applicability of signaling theory in a Kenyan context. The investors should therefore invest in companies that consistently pay cash dividend since this would increase shareholders’ wealth in the long run due to its ability to send positive signals to the potential investors hence increasing the demand for those shares.

Secondly, despite many laws governing the conduct of listed firms at the Securities Exchange, many companies have gone under due malpractices such as insider trading that eventually water down their share prices. A case in point is Uchumi Supermarket that went under due to insider trading and conflict of interest between the members of the board of directors in the year 2005. The Capital Markets
Authority of Kenya should therefore amend Cap 485A Laws of Kenya and issue strict guidelines that will ensure application of practices that are consistent with good corporate governance by listed firms at the NSE. Apart from ensuring efficiency in the market, these laws and guidelines would safeguard the interests of the investors. It is further recommended that the management of listed firms should consider cash dividend policy more than share dividend due to its positive effect on the share price. If this is done consistently, the shareholders’ wealth would be maximized in the long run.

5.4 Recommendations for Further Studies

This study examined the effect of dividend policy on share prices for firms listed at the NSE. The variables chosen were firm specific variables and may not be the only variables that affect share prices. It is recommended that further research could be conducted to establish whether macroeconomic variables affect share price for firms listed in the NSE. This was informed by the low explanatory power of the selected independent variables on the change in dependent variable in the study.

Further, there is need to conduct event study on the effects of dividend announcement on share price for listed firms at the NSE and by extension, on emerging markets. In addition, research could be conducted on the effects of dividend policy on market returns in Kenya. Despite a lot of literature in this area, dividend policy remains a vital element of corporate finance. This thesis revealed much on the effects of dividend policy on share price in Kenya and hence has contributed immensely in the area of corporate finance in Kenya.
REFERENCE


Appendix A: Data Collection Schedule

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<th>YEAR</th>
<th>Nature of Dividend</th>
<th>VWAP</th>
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Source: Researcher (2012)
Appendix B: Research Permit

KENYATTA UNIVERSITY
GRADUATE SCHOOL

E-mail: dean-graduate@ku.ac.ke
Website: www.ku.ac.ke

F.O. Box 43844, 00100
NAIROBI, KENYA
Tel. 8710901 Ext. 4550

Our Ref: D58/CTY/PT/15523/2008
DATE: 14th December, 2014

The Principal Secretary,
Higher Education, Science & Technology,
P.O. Box 30040,
NAIROBI

Dear Sir/Madam,

RE: RESEARCH AUTHORIZATION FOR TUIGONG WILSON KIBET
REG. NO. D58/CTY/PT/15523/2008

I write to introduce Mr. Tuigong Wilson Kibet who is a Postgraduate Student of this University. He is registered for M.Sc. degree programme in the Department of Accounting and Finance.

Mr. Tuigong intends to conduct research for a M.Sc. proposal entitled, “Effects of Dividend Policy on Share Price of Firms Listed at the Nairobi Securities Exchange, Kenya.”

Any assistance given will be highly appreciated.

Yours faithfully,

MRS. LUCY N. MBAABU
FOR: DEAN, GRADUATE SCHOOL

ST/ewm
Appendix C: Firms Listed at the NSE by January 2012

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<td>Rea Vipingo Plantations Ltd</td>
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<td>Sasini Ltd</td>
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<td>Standard Group Ltd</td>
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## Appendix D: NSE20 Share Index 2001-2011

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<th>2010</th>
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<td>1,510.63</td>
<td>3,157.88</td>
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<td>3,198.90</td>
<td>3,565.28</td>
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<td>1,557.74</td>
<td>3,175.36</td>
<td>4,056.63</td>
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<td>2,474.75</td>
<td>3,629.41</td>
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<td>5,133.67</td>
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<td>4,025.21</td>
<td>5,148.07</td>
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<td>5,001.77</td>
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**Source:** NSE Monthly Market Statistical Bulletins (2012)
Appendix E: Regression Results for the Whole Market

```
. xtreg lnvwap lncdps lnsdps lnreps lnnaps tnder, re
Random-effects GLS regression                               Number of obs   =   33
Group variable: company                                     Number of groups=   22
R-sq: within = 0.1106                                        obs per group: min=   1
                               between = 0.7845                       avg=   1.5
                               overall = 0.7754                        max=   4
Random effects u_i ~ Gaussian                               Wald chi2(5)   =   62.54
corr(u_i, X) = 0 (assumed)                                   Prob > chi2    =   0.0000
```

|       | Coef.  | Std. Err. | z     | P>|z|  | [95% Conf. Interval] |
|-------|--------|-----------|-------|------|---------------------|
| lnvwap|        |           |       |      |                     |
| lncdps| 0.4452009 | 0.1313511 | 3.39  | 0.001| 0.1877575 - 0.7026443 |
| lnsdps| -0.1149025 | 0.0859168 | -1.34 | 0.181| -0.2832964 - 0.0534913 |
| lnreps| -0.6174605 | 0.3627864 | -1.70 | 0.089| -1.328509 - 0.0935878 |
| lnnaps| 0.3464093   | 0.1633897 | 2.12  | 0.034| 0.0261714 - 0.6666471 |
| tnder | 0.2028796  | 0.0989749 | 2.05  | 0.040| 0.0088924 - 0.3968668 |
| _cons | 1.922941   | 0.7209206 | 2.67  | 0.008| 0.5099625 - 3.335919 |

| sigma_u | .27943606 |
| sigma_e | .35379499 |
| rho     | .38416941 (fraction of variance due to u_i) |
Appendix F: Regression Results for Agriculture Sector

\[ \texttt{. xtreg vwap cdps sdps reps naps eps der, re} \]

Random-effects GLS regression
Group variable: company
Number of obs = 84
Number of groups = 8

R-sq: within = 0.0348
between = 0.9750
overall = 0.5572

Obs per group: min = 7
avg = 10.5
max = 11

Random effects u_i ~ Gaussian
corr(u_i, X) = 0 (assumed)
Wald chi2(6) = 96.89
Prob > chi2 = 0.0000

| vwap  | Coef.  | Std. Err. | z     | P>|z|  | 95% Conf. Interval |
|-------|--------|-----------|-------|------|-------------------|
| cdps  | 23.3014| 2.906229  | 8.02  | 0.000| 17.6053 to 28.9975|
| sdps  | 142.5513| 32.77919  | 4.35  | 0.000| 78.30529 to 206.7974|
| reps  | -0.0803245| 3.227967  | -0.02 | 0.980| -6.407023 to 6.246374|
| naps  | -0.0653212| 0.075245  | -0.87 | 0.385| -0.2127987 to 0.0821563|
| eps   | 0.3952864| 0.5045018  | 0.78  | 0.433| -0.5935189 to 1.384092|
| der   | -2.428018| 33.15619   | -0.07 | 0.942| -67.41295 to 62.55691|
| _cons | 31.18088| 22.848    | 1.36  | 0.172| -13.60038 to 75.96215|

\[
\text{sigma_u} = 0
\]
\[
\text{sigma_e} = 31.784271
\]
\[
\text{rho} = 0 \quad \text{(fraction of variance due to u_i)}
\]
Appendix G: Regression Results for Automobile Sector

\[ \texttt{xtreg vwap cdps sdps reps naps eps der, re} \]

Random-effects GLS regression    Number of obs = 42
Group variable: company            Number of groups = 4

R-sq: within = 0.5599     Obs per group: min = 10
    between = 0.9472     avg = 10.5
    overall = 0.6577     max = 11

Random effects u_i ~ Gaussian    Wald chi2(6) = 67.24
corr(u_i, X) = 0 (assumed)        Prob > chi2 = 0.0000

|        | Coef. | Std. Err. | z     | P>|z|   | [95% Conf. Interval] |
|--------|-------|-----------|-------|-------|----------------------|
| vwap   |       |           |       |       |                      |
| cdps   | 42.22648 | 8.185936  | 5.16  | 0.000 | 26.18234-58.27062    |
| sdps   | -31.88799 | 26.73759  | -1.19 | 0.233 | -84.2927-20.51673   |
| reps   | 41.88852 | 11.28649  | 3.71  | 0.000 | 19.76741-64.00963   |
| naps   | -0.0534333 | .1180629 | -0.45 | 0.651 | -.2848323-.1779656  |
| eps    | -.0538307 | .5080362 | -.011 | 0.916 | -1.049563-.9419019  |
| der    | -.177329 | 2.533709  | -0.07 | 0.944 | -5.143308-4.78865   |
| _cons  | -26.09872 | 9.215253  | -2.83 | 0.005 | -44.16028-8.037151  |

\[
\text{sigma_u} \quad 0 \\
\text{sigma_e} \quad 14.648192 \\
\text{rho} \quad 0 \quad \text{(fraction of variance due to u_i)}
\]
Appendix H: Regression Results for Banking Sector

```
.xtreg vwap cdps sdps reps naps eps der, re

Random-effects GLS regression Number of obs =  98
Group variable: company Number of groups =  10
R-sq: within = 0.5640 Obs per group: min =  4
       between = 0.9060 avg =  9.8
       overall = 0.7287 max =  11

Random effects u_i ~ Gaussian Wald chi2(6) = 181.44
corr(u_i, X) = 0 (assumed) Prob > chi2 = 0.0000

|     | Coef.  | Std. Err. |    z  |   P>|z| | [95% Conf. Interval] |
|-----|--------|-----------|-------|--------|----------------------|
| vwap|        |           |       |        |                      |
| cdps| 8.1418 | 1.755796  | 4.64  | 0.000  | 4.700504 11.5831    |
| sdps| 0.6577483| 10.78249| 0.06  | 0.951  | -20.47554 21.79104  |
| reps| -21.67763| 7.415112| -2.92 | 0.003  | -36.21098 -7.144273 |
| naps| 0.2450629| 2.457689| 1.00  | 0.319  | -2.366353 7.267611  |
| eps | 2.976954 | 1.031557| 2.89  | 0.004  | 0.953193 4.998768   |
| der | 3.230982 | 1.839652| 1.77  | 0.077  | -3.546693 6.856634  |
| _cons| 14.54614| 14.49725| 1.00  | 0.316  | -13.86794 42.96022  |

sigma_u | 10.953914
sigma_e | 33.247039
rho    | 0.09792129  (fraction of variance due to u_i)
```
Appendix I: Regression Results for Commercial and Service Sector

```
.xtreg vwap cdps sdps reps naps eps der, re
```

Random-effects GLS regression                               Number of obs = 68
Group variable: company                                     Number of groups = 7

R-sq:                                                within = 0.6954
                                                  between = 0.9806
                                                  overall = 0.8804
Obs per group:                                        min = 6
                                                  avg = 9.7
                                                  max = 11

Random effects u_i ~ Gaussian                          Wald chi2(6) = 449.02
corr(u_i, X) = 0 (assumed)                             Prob > chi2 = 0.0000

|       | Coef.     | Std. Err.  | z     | P>|z|    | [95% Conf. Interval] |
|-------|-----------|------------|-------|--------|----------------------|
| vwap  | 22.22591  | 1.862195   | 11.94 | 0.000  | 18.57607 – 25.87574  |
| cdps  | 46.36986  | 58.11666   | 0.80  | 0.425  | -67.53671 – 160.2764 |
| sdps  | 5.174547  | 8.802639   | 0.59  | 0.597  | -12.0731 – 22.4274   |
| reps  | 0.0566237 | 0.0956345  | 0.59  | 0.554  | -1.30815 – 0.2440639 |
| naps  | 1.456313  | 0.9431912  | 1.54  | 0.123  | -0.992076 – 3.304934 |
| eps   | 0.351341  | 0.3972952  | 0.88  | 0.377  | -0.4273433 – 1.130025 |
| der   | 9.712051  | 7.37801    | 1.32  | 0.188  | -4.748583 – 24.17269 |

sigma_u  0
sigma_e  21.70216
rho      0 (fraction of variance due to u_i)
Appendix J: Regression Results for Construction Sector

```
.xtreg vwap cdps sdps reps naps eps der, re

Random-effects GLS regression Number of obs = 54
Group variable: company Number of groups = 5

R-sq: within = 0.4855 Obs per group: min = 10
between = 0.8649 avg = 10.8
overall = 0.6281 max = 11

Random effects u_i ~ Gaussian Wald chi2(6) = 79.37
corr(u_i, X) = 0 (assumed) Prob > chi2 = 0.0000
```

| vwap  | Coef.     | Std. Err. | z     | P>|z|   | [95% Conf. Interval] |
|-------|-----------|-----------|-------|-------|---------------------|
| cdps  | 14.33681  | 3.229332  | 4.44  | 0.000 | 8.007437            |
| sdps  | -41.96204 | 141.3259  | -0.30 | 0.767 | -318.9557           |
| reps  | 4.328107  | 10.66439  | 0.41  | 0.685 | -16.61291           |
| naps  | .8022466  | 21.34404  | 0.00  | 1.000 | .3839111            |
| eps   | -.6166648 | 1.787003  | -0.35 | 0.730 | -4.119127           |
| der   | -5.530145 | 8.568514  | -0.65 | 0.519 | -22.32412           |
| _cons | 5.341627  | 12.51598  | 0.43  | 0.670 | -19.18924           |

| sigma_u | 0 |
| sigma_e | 34.911779 |
| rho     | 0 (fraction of variance due to u_i) |
Appendix K: Regression Results for Energy Sector

```
. xtreg vwap cdps sdps reps naps eps der, re
Random-effects GLS regression                        Number of obs  =  39
Group variable: company                              Number of groups =  4
    R-sq: within = 0.5745                            Obs per group: min =  6
       between = 0.9544                             avg =  9.8
       overall = 0.6735                            max =  11
Random effects u_i ~ Gaussian                      Wald chi2(6) = 65.99
          corr(u_i, X) =  0 (assumed)               Prob > chi2   =  0.0000

                      | Coef.     Std. Err.      z    P>|z|     [95% Conf. Interval]
-------------|-------------|-----------------------------|--------|--------|-----------------------------|
         vwap  |             |                            |        |        |                            |
        cdps  | -6.314691   |  6.98098                    | -0.90  | 0.366  | -19.99716                  | 7.367779 |
        sdps  | -97.62872   |  67.99053                   | -1.44  | 0.151  | -230.8877                  | 35.63026 |
        reps  | -2.806403   | 13.10668                    | -0.21  | 0.830  | -28.49503                  | 22.88222 |
        naps  | 0.1032075   | 0.0596157                   | 1.73   | 0.083  | -0.013672                  | 0.2200521 |
        eps   | 3.623056    | 1.587474                   | 2.28   | 0.022  | 0.511662                   | 6.734447 |
        der   | 4.098521    | 2.709327                   | 1.51   | 0.130  | -1.211563                  | 9.408804 |
    _cons   | 34.00279    | 13.84069                    | 2.46   | 0.014  | 6.875546                   | 61.13004 |
   sigma_u |             |                            |        |        |                            |
sigma_e  |  41.564957  |                            |        |        |                            |
rho     |             |                            |        |        | (fraction of variance due to u_i) |
```
Appendix L: Regression Results for Insurance Sector

```
. xtreg vwap cdps sdps reps naps eps der, re
Random-effects GLS regression                                Number of obs   =     27
Group variable: company                                       Number of groups =     3

R-sq: within = 0.4569                                         Obs per group: min =     5
          between = 0.9939                                      avg =     9.0
          overall = 0.6324                                      max =    11

Random effects u_i ~ Gaussian                                Wald chi2(6)   =    34.40
corr(u_i, X) = 0 (assumed)                                   Prob > chi2    =   0.0000

                     | Coef.     Std. Err.      z    P>|z|     [95% Conf. Interval]
------------- -------- ----------- ------ ------ -------------------------------
            vwap      55.72857    19.13542     2.91    0.004     18.22384   93.23331
            cdps      -39.80704    53.28109    -0.75    0.455    -144.2361    64.62198
            sdps       82.00729    53.34228     1.54    0.124    -22.54166   186.5562
            reps      -3.293791    478.1674    -0.06    0.949     -1.26657   160.78118
            naps      -3.051431    2.94685    -1.04    0.300     -8.827151    2.72429
            eps       -3.088565    7.096259    -0.44    0.663     -16.99698   10.81985
            der      -46.44438    57.31268    -0.81    0.418    -158.7752    65.88641
            _cons     53.674078

sigma_u 0
sigma_e 0 (fraction of variance due to u_i)
rho 0
```
Appendix M: Regression Results for Investment Sector

```
xtab wapp cdps sdps reps naps eps der, re
```

Random-effects GLS regression  Number of obs = 28
Group variable: company        Number of groups = 3

R-sq:  within = 0.7681  obs per group: min = 6
        between = 0.9953  avg = 9.3
        overall = 0.8227  max = 11

Random effects u_i ~ Gaussian  Wald ch2(6) = 97.46
corr(u_i, X) = 0 (assumed)     Prob > ch2 = 0.0000

|     | Coef.  | Std. Err. | z     | P>|z|  | [95% Conf. Interval] |
|-----|--------|-----------|-------|------|---------------------|
| vwap| 9.380281| 5.153882  | 1.82  | 0.069| -7.211426 to 19.4817 |
| cdps| -2.457886| 5.782225  | -0.43 | 0.671| -13.79084 to 8.875067 |
| sdps| 20.081 | 12.38142 | 1.62  | 0.105| -4.186135 to 44.34814 |
| reps| .4544523| .2516168  | 1.81  | 0.071| -.0387076 to .9476122 |
| naps| 1.676599| 3.207302  | 0.52  | 0.601| -4.609597 to 7.962794 |
| eps | 1.555984| 2.950913  | 0.53  | 0.598| -4.227699 to 7.339667 |
| der | -14.52011| 9.781884  | -1.48 | 0.138| -33.69225 to 4.652034 |
| _cons| 0        | 0         | 0     |      | 0                   |

sigma_u = 0
sigma_e = 10.565731
rho = 0 (fraction of variance due to u_i)
# Appendix N: Regression Results for Manufacturing Sector

```
.xtreg vwap cdps sdps reps naps eps der, re
Random-effects GLS regression                   Number of obs =    73
Group variable: company                        Number of groups =   8
R-sq: within = 0.4323                           Obs per group: min =   4
                between = 0.9815                 avg =    9.1
                overall = 0.7815                max =    11

Random effects u_i ~ Gaussian                  Wald chi2(6) =    236.12
corr(u_i, X) = 0 (assumed)                     Prob > chi2 =    0.0000
```

| vwap  | Coef.       | Std. Err. | z    | P>|z|  | [95% Conf. Interval] |
|-------|-------------|-----------|------|------|----------------------|
| cdps  | 5.130827    | 2.584166  | 1.99 | 0.047| 0.0659536            | 10.1957   |
| sdps  | -9.544185   | 16.02586  | -0.60| 0.511| -40.95428            | 21.86591  |
| reps  | 9.713855    | 18.30778  | 0.53 | 0.596| -26.16584            | 45.69645  |
| naps  | 0.0194217   | 0.251795  | 0.08 | 0.939| -47.40874            | 51.29308  |
| eps   | 7.53631     | 1.837353  | 4.10 | 0.000| 3.935164             | 11.13746  |
| der   | -4.233842   | 1.5923    | -2.70| 0.069| -3.544693            | 2.697009  |
| _cons | 3.695983    | 16.15404  | 0.23 | 0.819| -27.96535            | 35.35731  |

\[\text{sigma}_u \quad 0\]
\[\text{sigma}_e \quad 42.697341\]
\[\text{rho} \quad 0\] (fraction of variance due to \(u_i\))
Appendix O: Regression Results for Telecommunication Sector

```
. xtreg vwap cdps sdps reps naps eps der, re
note: sdps omitted because of collinearity

Random-effects GLS regression                       Number of obs =  9
Group variable: company                              Number of groups =  2

R-sq: within = 0.8997                                obs per group: min =  4
          between = 1.0000                           avg =  4.5
          overall = 0.9615                           max =  5

Random effects u_i ~ Gaussian                      Wald chi2(5)  =  74.88
corr(u_i, X) = 0 (assumed)                          Prob > chi2   =  0.0000

                      | Coef.     Std. Err.      z    P>|z|     [95% Conf. Interval]
---------------------|-----------|------------------|--------|---------|-----------------------------|
                      | vwap      |                  |        |         |                            |
 cdps                | 21.81505  | 10.16337         | 2.15   | 0.032   | 1.895217                   | 41.73489
 sdps (omitted)      |           |                  |        |         |                            |
 reps                | 1.289864  | .8385989         | 1.54   | 0.124   | -.3537596                  | 2.933488
 naps                | 2.150449  | .7822779         | 2.75   | 0.006   | .6172123                   | 3.683686
 eps                 | -1.606393 | 9.479191         | -0.17  | 0.865   | -20.1863                   | 16.97351
 der                 | -19.96366 | 6.666703         | -2.99  | 0.003   | -33.03016                  | -6.897164
 _cons               | 11.70758  | 6.336699         | 1.85   | 0.065   | -.712126                   | 24.12728

 sigma_u             | 0         |                  |        |         |                            |
 sigma_e             | 2.7189273 |                  |        |         |                            |
 rho                 | 0         |                  |        |         | (fraction of variance due to u_i) |
```