DETERMINANTS OF DIVIDEND PAYOUT IN EMERGING STOCK MARKETS: EVIDENCE FROM LISTED FIRMS AT NAIROBI SECURITIES EXCHANGE, KENYA

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Determinants of Dividend Payout in Emerging Stock Markets: Evidence from Listed Firms at Nairobi Securities Exchange, Kenya

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DECLARATION

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

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This thesis has been submitted for examination with our approval as University Supervisors.

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DEDICATION

The thesis is dedicated to my wife Naomi and sons Glenn and Gianni.

“You supported this work in many ways and endured my deficient attention,

I love you all and will always do”

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ACRONYMS

ANOVA	Analysis of Variance
BIHH	Bird in Hand Hypothesis
DIH	Dividend Irrelevant Hypothesis
DPS_t	Current Dividend per Share
DPS_{t-1}	Previous Dividends per Share
EPS	Earnings per Share.
GO	Growth opportunities
FEM	Fixed Effects Model
KShs	Kenya Shillings
LSDVM	Least Square Dummy Variable Model
MPS	Market Price per Share
MTB	Market to Book ratio.
NSE	Nairobi Securities Exchange
P/E	Price-Earnings ratio
REM	Random Effects Model
SH	Signaling Hypothesis
SOA	Speed of Adjustment
TCH	Transaction cost hypothesis

TPR Target Payout Ratio

TPH Tax Preference Hypothesis

VIF Variance Inflation factor

OPERATIONAL DEFINITION OF TERMS

Business Risk Business risk is measured by the ratio of price to earnings per share. A negative relationship exists between risk (P/E) and dividend payout (Mehta, 2012). A high P/E signify low risk and vice versa.

Dividend Dynamics Changes in dividends paid out over time caused by a number of factors. In this study, it is used as a regressor (lagged value) in the study model. Dynamics also arise from the panel data changes over the study period.

Dividend Policy Dividend policy is defined herein as the payout policy followed by firm management in determining size and pattern of dividends distributed to shareholders overtime (Kaur & Kaur 2012).It is concerned with "how much" dividend to pay "when" and with what approach for consistency

Dividend Smoothing A concept whose origin is in Lintners (1956) partial adjustment dividend model. it argues that firms strive towards stability and consistency when paying out dividends. That current dividends are governed by previous dividends and level of current earnings.

Earnings per share (EPS) This is the ratio of current after tax profits to number of outstanding shares (Brealey & Myers, 2005). Current EPS is used to represent current earnings which is one of the independent variables.

Growth prospects/ Opportunities Opportunities for growth which is explained by the gap between market price per share and book value per share (Gill, Biger & Tibrewala, 2010). This

is also growth opportunities which is hypothesized to be inversely related to dividend payout and proxied by Market to book ratio (MTB)

Past/Prior/lagged Dividends Dividends paid in the previous year or lagged dividends (one period). This variable was hypothesized to affect dividend policy directly by Lintner (1956).Firms that have previously paid dividends are usually reluctant to reduce or omit payout altogether.

ABSTRACT

Dividend decisions are central to corporate finance because of its relationship with firm value, finance and investment. Emerging stock markets exhibit unpredictable dividend behaviour with inconsistent results from same dividend factors. The major issue preoccupying corporate dividend decisions today is how to make value enhancing dividend decisions. Investors and corporate managers in Kenya require a more efficient and effective dividend model to help with making better dividend decisions. Particularly they would benefit from findings on how well an extended partial adjustment dividend model serve to predict dividend policy at the NSE. In general, the investigation examines how profitability (measured by current after tax earnings), prior dividends paid, growth prospects (measured by market to book ratio) and business risk (measured by price to earnings ratio) predict dividend decisions at the Nairobi Securities Exchange. In addition to determine stability and validity of dividend decisions in this market to inform better investment and financing decisions in the market. A triangulation approach is used to compare results from panel and cross section data. Panel data estimation techniques was used to explain determinants of dividend policy while a logistic regression is applied in analysing cross section data. The industry and time effects are tested as moderators. The results show that prior dividends and business risk characterize dividend decisions in this market. However, earnings only apply to three sectors (Agriculture, banking and Construction) while growth prospects is irrelevant to dividend decisions based on data analysed. Industry and time effects did not moderate the relationship between dividend policy and the determinants. Conversely, stability tests indicate stickiness in the variability of dividend which imply some form of smoothing for dividends pursued by managers. In conclusion, dividends payout by listed firms at the NSE are significantly influenced and predicted mainly by prior dividends as evidenced by panel and cross section data, followed by changes in current after tax earnings and lastly business risk to a lesser extent. Secondly, listed companies pay out stable dividend while dividend policy in the market is explained by asymmetric information, agency and signaling theories. Third dividend payout in this market is explained by agency cost, signaling and information asymmetry theories. Key recommendations arising are; shareholders and new investors at NSE looking for dividend income should consider prior dividends and earnings changes when selecting stock(s) to buy or sell. Secondly, dividend payout need to be stabilized more by corporate managers to enhance value especially for firms in sectors facing high risk and growth prospects. Third, dividend paying (increase or decrease) firms are preferred by investors to non-paying (No dividend change) firms because changes in dividends elicit excitement among investors compared to keeping dividend unchanged. Finally,based on the panel data analysed, management of three companies namely Bamburi Cement, Kapchorua Tea and BOC Ltd possessed superior talent compared to other firms in their respective industries.

CHAPTER ONE

INTRODUCTION

1.1 Background to the Study

The concept of corporate dividends has grown with the development of companies themselves (Frankfurter & Wood, 1997). Dividends remain one of the thorniest puzzles in corporate finance according to Al Malkawi, Rafferty and Pillai (2010). They are part of earnings after tax that is distributed to shareholders. Financial management deals with how companies make decisions related to investment, financing and distributions. When it comes to profit distribution, a company has to choose between paying cash and (or) stock to stockholders or repurchase stock (Van Horne & Dhamija, 2012). Both methods are likely to enhance firm value through higher dividends or higher expected earnings per share due to reduced number of outstanding shares. Public firms are usually faced with the question of whether to share profits at all, and if so what proportion from the earnings. Additionally they have to decide whether to stabilize the payout or not (Michaely & Roberts, 2012)

Dividends and capital gains arising from retention of profit may shore up stock price depending on investor preference. Conversely share repurchase also works well for the different investors who may either prefer to sell their stock for immediate cash or defer sale for later in the hope of earning higher capital gains. But since repurchase method provide an option among shareholders it satisfies different investor needs (Alber & Ahmed, 2017). The major difference between dividends and share repurchase lie the information it conveys. Dividends are sticky and signal better prospects for a company but stock buy-back do not convey much information about a firm's financial health and prospect because it is not a consistent strategy. Extensive research has been conducted on this subject in both developing and developed world. A lot of work has concentrated on the USA and UK while those that have confined on developing countries have chosen middle east nations. Fewer studies have focused on Africa led by South Africa and Nigeria while using different metric and non metric measures of dividend policy. No study was found to have

attempted to triangulate results using cross section and panel data on any African country and particularly Kenya.

Dividend payments have for a long time remained popular among investors in developing and developed capital markets of USA and UK. It has been described as a complex matter which is among the top ten perplexing issues in finance theory (Black, 1976). In finance literature, dividend policy is a complex matter which is among the top ten perplexing issues as suggested by Gul, Razzaq, Faruk and Khan (2012). It continues to be a controversial subject in corporate finance since the debate on its relevance was started by Lintner in the 1950's. Dividend relevance or irrelevance have continued to be debated by various scholars of finance with no conclusive answer. Modigliani and Miller (1961) posited that in a perfect market condition; where costs (taxes, transaction, agency costs) are zero and information asymmetry is nonexistent, dividend policy is irrelevant to firm value. These conditions however do not apply in the real world and as such dividends continue to influence corporate financing and investment decisions.

Among the reasons given for paying dividends by corporations are; controlling information asymmetry costs, agency costs and signaling reasons. The determinants are numerous classified into quantitative and non- quantitative measures. Quantitative measures include profits or earnings, previously paid dividends, cash flow, liquidity et cetera while qualitative measures are; size of firm, growth prospects, business risk, industry ownership structure and others.

Hussainey (2011) contend that after the stock market crash of 2008, United States of America equity investors turned their attention to investing in companies that pay healthy dividend. They considered these stocks as safer and more stable in a market that has increasingly become volatile. Consequently dividends became reasonable sources of return compared to capital gains especially in an increasingly uncertain investment environment.

For companies to pay dividends, they should be able to afford and sustain the level of dividend payout. This means that profitability of a company should not be in

doubt. Dividend payout acts as a signal of confidence in the firm's future (Al Malkawi, Rafferty & Pillai, 2010). Payouts made are usually not expected to vary negatively. This makes dividends inflexible and therefore good indicator of firm prospects.

1.1.1 Stability of Dividends

Stability of dividends has concerned corporate managers for a long time (Al Malkawi et al, 2010). Dividend stability is said to occur when managers are able to maintain a given dividend trend line that is upward sloping. Studies have shown that investors appears to value stability possibly because this takes away any uncertainty they may have about their investment (Al Malkawi, 2007). Stability of dividends becomes important especially to institutional investors that buy stocks of companies with a history of consistency in paying dividends. These institutions are pension funds, insurance companies and savings banks which manage members' funds to ensure they access them at an appropriate time in future. Stable dividends for a long time are preferred because investors liken them to stable interest income from bonds (Frankfurter & Wood, 1997). Thus an attractive income source for institutional investors. A stable dividend conveys management's confidence in the future earnings of a firm, despite last period's drop. Hence managers are able to influence expectations of investors through the informational content of dividends (signaling role). This information is reflected in a firm's valuation. When earnings drop and a company does not cut its dividends, the market may have more confidence in the stock than it would have if the dividend were cut (Van Horne & Dhamija, 2012). It should be noted however that any drop in earnings must be temporary for the situation to hold. The market cannot be fooled all the time.

Besides stability of dividends, a number of companies have been observed to follow a policy of a target dividend payout ratio over the long run (Lintner, 1956). This is the fraction of current earnings that is distributed to shareholders. Out of any targeted payout, the actual payment has been observed to be reduced especially among publicly listed companies. This is an indication of a motive to smoothen dividend payouts by adjusting the rate by which any transitory earnings are

distributed to stockholders (Michaely & Roberts, 2012). This rate has been termed speed of adjustment. Together with the target payout ratio, a company establishes its optimum dividend policy. An optimum policy explains stability of dividend payout which help investors understand the financial market by guiding their decisions.

Several factors have been highlighted by numerous scholars to be affecting dividend decisions. The factors differ from country to country and from industry to another and between individual firms too. This has been attributed to different cultures and beliefs, managerial philosophy and talent (Elsady, Hamdy, Almawaziri & Alshammari, 2012). The variations have made the dividend question become a puzzle to many scholars and researchers. Black (1976) remarked that "the harder we look at the dividend picture the more it appears like a puzzle with pieces that do not fit together". Curiously, researchers have not offered a single explanation as to why firms pay out dividends and how this is determined and executed particularly in emerging stock markets.

1.1.2 Preference for Dividends

Many companies still prefer to distribute part of their earnings as cash dividends rather than repurchase stock because the decision to pay dividends is not as flexible as that of buying back stock. The inflexibility of dividends make it a better signal of future firm performance. What this means is that a decision to pay dividend cannot be arbitrarily varied by corporate managers. Less flexibility of any distributive decision relates to more signaling power and vice versa (Servaes & Tufano, 2006). Besides dividends represent a stream of expected cash-flow on a stock that help determine shareholders wealth. The option to pay ordinary dividend is more stable compared to a special dividend or share repurchase which may not be repeated. Share repurchase takes place to reduce the number of outstanding shares in the market and to correct an undervalued stock. The effect is to improve return on equity or earnings per share. However this action may not convey predictable information since the decisions can be changed easily. Any choice to repurchase shares connotes absence of dividends while retention of profits is assumed to be inversely related to dividend payout and vice versa.

The choice to pay out dividends must be weighed carefully against the opportunity cost. When a firm is faced with the dilemma of financing investments, it pursues a low cost or cheap capital sources as it progresses to more costly sources of capital. Hence the pecking order theory states that internal sources of finance generated through retention and provisions is the first-line source of finance, followed by debt and lastly equity. This means that equity is the most expensive source of capital of all. Conclusion derived from Walters's (1956) dividend model is that when return on equity is greater than cost of capital, then a zero dividend policy would maximize firm value. Conversely, a lower rate of return on equity compared to cost of capital would mean that 100 percent payout policy would maximize firm value. Various market frictions are responsible for payout ratio that lie between zero and 100 percent.

Mizuno (2007) agrees to the fact that a firm ought to pay dividends to shareholders if it cannot identify suitable investments which would bring higher returns than those expected by shareholders. Dividends therefore can either be relevant or irrelevant depending on economic circumstances (tax regime, information asymmetry) cultures and beliefs of investors, both existing and potential (Miller & Modigliani, 1961). The study assumes that dividends are relevant and hence preferred by investors. It pursues the path to test hypothesis that emerging market firm managers are not motivated by stability when paying dividends and the character of payout is different from other markets.

1.1.3 Nairobi Securities Exchange

Nairobi Securities Exchange is an emerging capital market in terms of its capital market size, structure and performance. It is characterized by asymmetric information, thin trading low capitalization relative to the gross domestic product, illiquidity of some stocks and dominant foreign investors. It has however grown over the years and today incorporate trading in derivatives. The NSE lists over 50 companies classified into nine industries. The nine industries are; Agriculture, commercial and services, Telecommunication and technology, Automobile and accessories, Banking, Insurance investment, Manufacturing and allied, construction

and allied, Energy and Petroleum (NSE, 2012). The market serves as barometer indicating how the economy is performing with regard to savings and investments. Investors in the capital market are diverse from local to foreign, individual to institutional young and old all with different objectives and expectations. The market mangers (NSE management) and the regulator (capital market authority) are mandated to promote and protect investors' interests in the market. Among the requirements for listing at the NSE is that a firm should have a clear future dividend policy (Kenya Gazette Legal Notice No.60 May, 2002). This requirement makes dividend policy worthy of serious management attention.

In examining the puzzle concerning suitable predictors of dividend payout and the nature of payout size and pattern, panel data estimation technique is used in this study. The researcher examines validity of Lintner's (1956); Fama and Babiak (1968) dividend smoothing models to try and fit the right model for the securities market (NSE). An extended autoregressive dividend model is designed and compared against the partial adjustment models proposed by (Lintner, 1956; Fama & Babiak, 1968).

The background so far demonstrate that dividend decisions in both developing and developed markets are inconsistent. The subject area remain largely unresolved but critical to investors and corporate decision making. Consequently, the study investigates dividend determinants and paying behavior of NSE market firms. The problem statement, objectives and hypotheses are described below.

1.2 Statement of the Problem

Dividend pay out decisions continue to preoccupy corporate managers, researchers and scholars the world over partly because no single and consistent explanation have been given for exact determinants of dividend payout, how and why firms pay dividends and whether this is a consistent undertaking. Black (1976) remarked that "the harder we look at the dividend picture the more it appears as a puzzle with pieces that do not fit together" (P5). This appears true now as it did then. Indeed the dividend policy picture for public firms at Nairobi Securities Exchange remain

unclear as corporate managers, investors and financial analysts look for value enhancing predictors of dividend policy. An attempt is made here to explain what guides dividend decisions, its consistency, role and theories explaining these decisions at the NSE. This is critical at this point in the country's financial market development because the market was influenced by significant political and economic developments including the financial crisis of the year 2008. Analysis of data relating to this period therefore will depict important information about the true character of dividends decisions by listed firms at the NSE. Local studies by Maniagi et al. (2013), Kibet (2010), Waswa et al. (2014), Arumba (2014), Ochieng and Kinyua (2013) all investigated various factors affecting dividend payout at the NSE with findings that are mixed or inconclusive for various sectors, firms and periods. Dividend decisions are hypothesized here to be influenced by stock value drivers; current after tax earnings, prior dividends, growth prospects measured by market to book ratio and business risk measured by price-earnings ratio.The study is anchored on an extended partial adjustment dividend model by Lintner (1956) and later modified by Fama and Babiak (1968) to determine if a more efficient model can be proposed. The extension of the the model to incorporates two non-quantitative factors (growth prospects and business risk)is deliberate since these two factors are known to be important value drivers for stocks. The study is guided by the objectives below.

1.3 Objectives of the Study

1.3.1 General Objective

The general objective of the study was to examine the determinants and dynamics of dividend payout for listed firms at the Nairobi Securities Exchange over the period 2000 – 2010.

1.3.2 Specific Objectives

1. To examine the effects of profitability measured by current after tax earnings per share on dividend payout by listed firms at the Nairobi Securities Exchange.
2. To assess relationship between prior dividends and current dividends paid by listed Companies at the Nairobi securities Exchange.
3. To determine the link between growth prospects measured by market- to-book ratio and dividend payout by listed firms at the Nairobi Securities Exchange.
4. To test effects of business risk measured by price-earnings ratio on the decision to pay dividends by listed firms at the Nairobi Securities Exchange.
5. To examine whether industry and time effects influence the relationship between dividend determinants and payout by listed firms at the Nairobi Securities Exchange.

1.4 Research Hypotheses

H_1: Firms profitability (current after tax earnings per share) positively relate to and significantly predict dividends paid by listed firms at Nairobi Securities Exchange.

H_2: Previously paid dividends positively relate to and predict current dividend paid by listed firms at the Nairobi securities Exchange.

H_3: Prevailing growth opportunities measured by market to book ratio is negatively related to and significantly predict current dividend payout by listed firms at the Nairobi Securities Exchange.

H_4: Business risk measured by price-earnings ratio is negatively related to and significantly predict current dividend payout by listed firms at Nairobi Securities exchange.

H_5: Industry and time effects significantly influence the relationship between dividend determinants and payout by listed firms at the Nairobi Securities Exchange.

1.5 Justification of Study

Doing this study was important because there is a dearth of knowledge about dividend determinants and their motivation in emerging stock markets. Further insights are to be shared from this study to help fellow researchers and academics, capital market regulators, managers of the market, corporate managers, retail and institutional investors to make important investment, financing and policy decisions that promote market activity and increase wealth.

Corporate managers of listed companies are likely to appreciate how dividend payout is predicted by current and future earnings, previous dividends, growth prospects and business risk. As a result appropriate review of policy shall enable the companies make better decisions about their dividends to match investor expectations. They may use the results to review their dividend policy to enhance share value. The existing policy may not be consistent with market expectations. Corporate managers are to find a dividend model that is likely to predict payout for various sectors to enhance share value. This shall make their payout determination easy given the prevailing circumstances in the market.

Individual investors are to use the findings to select securities and balance their portfolios depending on their dividend yield, characteristics and risk preference. They may gain perspectives into motivations of corporate managers when it comes to dividend payout. Better investments can be made between and within market segments. In addition, new investors wishing to enter the capital market shall have relevant dividend model to predict payout across different market segments and how that responds to earnings report, past dividend history, growth opportunities and business risk. Therefore it is going to reduce information asymmetry between investors and company managers.

Institutional investors like commercial banks, insurance companies and pension institutions may use the findings to invest their funds in portfolios of stocks and other securities promising consistent dividend yield given prevailing market conditions. Firms that distribute regular dividends attract funds from these investors to bolster their liquidity. Since dividends play a signaling role in the capital markets, firm(s) with good dividend history are always preferred by investors.

Fellow researchers and academics may appreciate the choice between Lintner (1956) and Fama and Babiak (1968) dividend models in explaining dividend character of the quoted companies at the NSE. Lintner (1956) argues in dividend theory that the most important determinants are current earnings and previous dividends with earnings racing ahead of previous dividends and that corporate managers are motivated by smoothing when paying dividends. The study is to extend this literature in the context of emerging stock market firms. The results shall also have a bearing on available literature on dividend stability by Aivazian et al. (2003).

Asset Managers/financial advisors may use study findings to make investment decisions of stocks based on dividend return growth opportunity and risk to meet their investment objective. They would use the findings to understand the market as a whole, sector and individual firm performance to enhance efficiency of making investment decisions across the sub markets and asset classes.

The NSE management board as managers of the securities exchange require that all listing firms must have a dividend policy. Therefore as an exchange that act as watchdog on listed companies, the management need to review dividend policy for listed companies to reflect market expectations. Any reforms in the capital market are likely to make it more vibrant and to attract more capital.

1.6 Scope of Study

The study analyzed both primary data from questionnaires and panel data from the NSE involving 40 quoted firms over the period 2000-2010. Firm-year observations obtained from financial reports were analyzed conditional that the selected firms remained listed in the market for at least two-thirds of the period and paid dividends

for at least five years. This is to ensure a majority of dividend paying firms are included in the study with the assumption that dividends are relevant to corporate financial managers. A total of 40 questionnaire respondents and 432 firm-year observations make up data sets analysed. The two sets of data (Cross section and time series) became necessary for triangulation reasons and validation of empirical findings. The firms were drawn from all the nine (9) industries classified by the market.

Panel data for the period 2000-2010 was chosen because this was the period the country went through its best and worst moments economically and politically. Besides a complete business cycle is 10 years which can provide better insights of economic swings. On average the period may provide adequate data for prediction of outcomes upon fitting a linear regression line. Stock data were obtained from audited financial statements and reports of the various companies listed at the exchange for the period while cross section data was collected between the three months of March to May 2016. Data was organized under current and previous earnings per share (EPS) which is profitability, current and previous dividends per share (DPS), market to book (MTB) ratio which is proxy for growth opportunities, and risk measured by price-earnings (P/E) ratio. These variable have been extensively used in similar studies in other markets though this study is unique in the sense that its the first to extend the partial adjustment dividend model to include qualitative factors like growth prospects and business risk. The control or moderator variable in the study is industry where a firm belongs and time factor to take care of the investment function over the period of study.

1.7 Limitations of study

1) The study was limited to the period between 2000 and 2010 which was characterized by political and economic events in Kenya particularly beginning with a transition in 2002 to the political crisis of 2007/2008 and international financial crisis in the year 2008. The choice of study period was therefore deliberate to assess market dynamics over a full business cycle characterised by significant events.

2) Only firms that were listed for at least six years within that period were considered in the sample. Hence a sample of 40 qualifying firms are investigated out of the 52 listed at the time.
3) While a robust approach was adopted especially for determining predictors of dividend payout by analyzing both cross section and time series data, the signaling role of dividends was not confirmed by event study. The conclusion should therefore be taken with some caution.
4) Dividend payout in the study refer to ordinary cash distribution and does not consider share repurchases or even special dividends as other forms of distribution preferred by certain firms.
5) Performance of firms is measured by ability to pay and maintain a dividend pattern and not any other measure. Clientele effect among different categories of investors is assumed to be insignificant.

CHAPTER TWO

LITERATURE REVIEW

2.1 Introduction

This section presents the theoretical, conceptual and empirical review of literature related to dividend payments. It discusses the concept of dividend policy, dividend smoothing, and provides empirical support from various scholars. Determination of optimum dividend policy has also been described. At the end a conceptual framework for the study is illustrated and variables explained.

2.2 Dividend Policy Overview

The famous statement of Fisher Black about dividend policy "the harder we look at the dividends picture, the more it seems like a puzzle, with pieces that just do not fit together"(Black, 1976) is still valid today as it was then. Dividend policy is described as a firm's strategy with regard to paying out earnings as dividends versus retaining them for reinvestment in the firm. Kyle et al. (2013) defined dividend policy as a strategy of sharing earnings between the business and stockholders. It is the decision to distribute earnings to shareholders and or retain earnings to finance growth. Therefore dividend policy is part of firm's long term financing strategy. Dividend policy issues have been concerned with "how much" dividend to pay "when" and with what approach for consistency (Kaur & Kaur, 2012).Three policies emerge as most widely supported in finance literature.

a) Smoothed Residual Dividend Policy

This policy asserts that dividend payment is kept at minimum. Companies using this policy delay paying dividend and do not react to short term changes in earnings. Dividend per share is kept stable and only altered if long term profitability forecast of the firm has been adjusted (Kyle & Frank, 2013). A low dividend adjustment rate relative to target payout ratio characterizes dividend smoothing. This phenomenon has been witnessed in mature stock markets of USA and Europe. Dividend changes

as a result lag behind changes in earnings evident in an economic upturn when retained earnings increase faster than dividends. The converse is true during downturns.

b) Pure Residual Dividend Policy

This policy compares between a firms return on equity and the rate of return that an investor could achieve if they invest their dividend in an alternative venture. By achieving a high return on equity than an equally risky investment in the market, a firm would rather reinvest dividends (plowback) rather than pay it out. Dividends can only be paid out as residual funds after the firm's capital needs have been met. Dividends paid out in this policy fluctuate widely since the decision is purely a residual one; also supported by the free cash flow theory. One period payout may be high and in another it may be low or zero. This means that a firm with more growth prospects will pay low or no dividends at all. Low growth prospects on the other hand would mean more dividends will be paid out since the firm investment opportunities are limited.

c) Constant Payout Residual Dividend Policy

This policy advocates for constant dividend payout. Payout ratio is maintained constant by adjusting dividend paid out in relation to quarterly or annual earnings results (Van Horne & Dhamija, 2012). In this policy, the actual level of dividends paid remains the same each year. In case earnings increase, more of it is retained to maintain a flat payout. Conversely when earnings fall, retention reduce since drawings are made to meet the shortfall in dividends paid out to maintain the level.

2.2.2 Theories of Dividend Policy

Dividend policy has been classified by finance theorists based on their relevance. Three broad schools of thought emerge namely dividends are irrelevant, relevant or middle of the roaders.

2.2.3 Dividend Irrelevance Theory

One of the most prominent dividend theories is the Modigliani and Miller (1961) irrelevance theory. It states that when other factors are considered fixed, an investor would be indifferent between receiving returns in form of dividends or capital gains from reinvestment. Particularly, in the absence of tax, the wealth of a shareholder remains constant regardless of payout policy. The reason for their indifference is that shareholder wealth is affected by the income generated by the investment decisions a firm makes, not by how it distributes that income. Therefore, in M&M's (1961) world, dividends are irrelevant. M&M argued that regardless of how the firm distributes its income, its value is determined by its basic earning power and its investment decisions. In other words, investors calculate the value of companies based on the capitalized value of their future earnings, and this is not affected by whether firms pay dividends or not and how firms set their dividend policies. M&M go further and suggest that, to an investor, all dividend policies are effectively the same since investors can create "homemade" dividends by adjusting their portfolios in a way that matches their preferences. M&M based their argument upon idealistic assumptions of a perfect capital market and rational investors.

These assumptions include; first, no differences between taxes on dividends and capital gains; second, no transaction and flotation costs incurred when securities are traded; third, all market participants have free and equal access to the same information (symmetrical and costless information); fourth, no conflicts of interests between managers and security holders (i.e. no agency problem); and lastly, all participants in the market are price takers. Some theories in support of low or no dividend payout as a way of leveraging firm performance in future are; pecking order, tax preference, and transaction cost.

a) Pecking order Hypothesis

The pecking order hypothesis by Myers and Majluf (1984) argues for low payout. It states that internally generated resources are a priority when sourcing funds needed for capital projects. Retained earnings are a cheaper source compared to external

funding. Here dividends payment is discouraged since it contributes to cheap internal sources of finance compared to issuing equity or even borrowing to finance expansion. It therefore suggests that firms that pay high dividends experience low growth which contradicts studies by Zhou and Ruland (2006) and Arnott and Asness (2003). The equity component of a firm increases when more earnings are retained. However, if a firm has a large payout, financing may need to come from debt. An increase in debt without a proportionate increase in equity may result in a deviation from a firm's optimal capital structure (Baker, 2001). A flexible dividend policy may also serve to optimize firms' capital structure (Mitchell et al., 2001). A residual dividend policy, for example, may enable firm's easily access external sources of funds such as debt. Lenders in this case will not view dividends as a fixed and regular payment which may adversely affect the firm's cash flows. They will thus be more willing to give debt to firms.

b) Tax Preference Hypothesis

Lichtenberger and Ramaswamy (1979) developed the tax preference hypothesis which looks at effect of tax on clientele. They argue that different tax rates on dividends and capital gain create different clientele. Individual investors' tax preferences may also influence their dividend preferences. Investors afraid of higher taxes are likely to prefer low or no dividend payouts in an attempt to reduce their taxable income thus preferring capital gains (Howatt et al., 2009).

In addition, dividends are taxed immediately, while taxes on capital gains are deferred until the stock is actually sold. These tax advantages of capital gains over dividends tend to predispose investors, who have favorable tax treatment on capital gains, to prefer companies that retain most of their earnings rather than pay them out as dividends, and are willing to pay a premium for low-.Tax effect hypothesis (TEH) suggests that taxable investors will demand superior pre-tax returns from stocks that pay a large proportion of their income in the form of highly taxed dividends.

In Kenya at the time of writing this thesis, dividends are taxed at 15% as a final tax for individuals while capital gains tax introduced recently is at 5%. Firms that meet

the needs of individual investors are more likely to be able to command a higher share price premium and thus an enhanced firm value. However, Amidu (2007) argues that, if investors migrate to firms that pay the dividends that most closely match their needs, no firm's value should be affected by its dividend policy. Therefore investors will value a shilling of capital gains greater than a shilling of dividends, resulting in lower dividend-stocks selling at a relative premium to their higher-dividend counterparts.

c) Transaction Cost Hypothesis

Transaction Cost theory which is a part of clientele hypothesis was initiated by Rozeff, (1982) who assume that if high dividend is paid then the agency cost incurred would be lowered. However, he added that if the company paid high dividends, then the transaction cost would be increased. Transaction cost theory indicates that firms incurring large transaction costs in processing dividend payout will be required to reduce dividend payouts to avoid the costs of external financing when additional capital is sought (Al-Kuwari, 2009).For example, small investors (such as retirees, income-oriented investors, and so on) who rely on dividend income for their consumption needs, might be attracted to (and even may pay a premium for) high and stable-dividend stocks, because the transaction costs associated with selling stocks might be significant for such investors. On the other hand, some investors (e.g. wealthy investors), who do not rely on their share portfolios to satisfy their liquidity needs, prefer low payouts to avoid the transaction costs associated with reinvesting the proceeds of dividends, which they actually do not need for their current consumption (Bishop et al., 2000).The other effect of transaction costs on dividend policy is related to the fact that firms may need to restore cash paid out as dividends with new equity issues (or debt financing) to take advantage of new investment opportunities. If issuing costs are significant, then firms are most likely to rely on retained earnings rather than external financing.

2.2.4 Dividend Relevant Theory

Proponents Gordon and Shapiro (1956) and Walter (1956) posit that dividend policy affects value of a firm. Thus a change in dividend payout will bring about a change in market value of a firm. In a world of uncertainty and imperfect information, dividends are valued differently to retained earnings (or capital gains).Hence there must be an optimum payout ratio that is one that gives maximum market price. The hypotheses supported here are; bird in hand hypothesis, agency theory, and signaling hypothesis.

a) Bird in Hand Hypothesis

Graham and Dodd (1934) argued that a dollar of dividend payout on average has four times the impact on stock price as a dollar of retained earnings. This was the first empirical support for the Bird-in-hand hypothesis. They asserted that dividends are worth more than retained earnings to investors citing uncertainty of future cash flows. His theory assumes investors as risk averse preferring predictable return cash dividends now rather than capital appreciation in future. In a world of uncertainty and imperfect information, dividends are valued differently to retained earnings (or capital gains). Investors prefer the “bird in the hand” of cash dividends rather than the “two in the bush” of future capital gains. Increasing dividend payments, all else remaining the same may then be associated with increases in firm value (Malkawi, Rafferty & Pillai (2010). Studies that provide support for the BIHH include Gordon and Shapiro (1956), Gordon (1959, 1963), Lintner (1962), and Walter (1963). Modigliani and Miller (1961) criticized the BIHH and argued that the firm’s risk is determined by the riskiness of its operating cash flows, not by the way it distributes its earnings. Consequently, M&M called this argument the bird-in-the-hand fallacy.

Bhattacharya (1979) further suggested that the reasoning underlying the BIHH is fallacious. Moreover, he suggested that the firm’s risk affects the level of dividend not the other way around. That is, the riskiness of a firm’s cash flow influences its dividend payments, but increases in dividends will not reduce the risk of the firm. Empirical support for the BIHH as an explanation for paying dividends is generally

very limited, and the argument has been challenged especially by Modigliani and Miller (1961) who argued that the required rate of return (or the cost of capital) is independent of dividend policy, suggesting that investors are indifferent between dividends and capital gains.

b) Agency Hypothesis

Agency hypothesis developed by Jensen and Mecklin (1976) postulates that high payouts reduce internal resources and consequently the cost of monitoring managerial activities. The cost is transferred to lenders when capital is sourced from external sources particularly debt. By paying dividends to shareholders, free cash flows are reduced and thus managers have no opportunity to make sub-optimal investments (Bartram et al., 2009 & DeAngelo et al., 2006). A firm's value and performance is therefore enhanced through higher returns from optimal investments. Dividend payments force firms to raise funds externally for new investments, which in turn increases the level of external monitoring of corporate activities by the capital market regulator (Jiraporn et al., 2011). There is thus improved corporate governance which has a positive effect in the firm's performance.

c) Signaling Hypothesis

Signaling hypothesis by Ross (1977) posits that dividend payment bridges the information gap between management and investors. It argues that due to information asymmetry between investors and managers on the financial strength of a firm, companies choose to payout a dividend to send a signal to investors that their firm is financially stable and remains profitable. Informational gap between insiders and outsiders may cause the true intrinsic value of the firm to be unavailable to the market. If so, share price may not always be an accurate measure of the firm's value. In an attempt to close this gap, managers may need to share their knowledge with outsiders so they can more accurately understand the real value of the firm (Malkawi et al., 2010). Many academics and financial practitioners also suggest that dividends might have implicit information about a firm's prospects. Even M&M (1961) suggest that when markets are imperfect share prices may respond to changes in dividends. In other words, dividend announcements may be seen to convey implicit

information about the firm's future earnings potential. This proposition has since become known as the "information content of dividends" or signaling hypothesis. According to the signaling hypothesis, investors can infer information about a firm's future earnings through the signal coming from dividend announcements, both in terms of the stability of, and changes in, dividends.

However, for this hypothesis to hold, managers should firstly possess private information about a firm's prospects, and have incentives to convey this information to the market. Secondly, a signal should be true; that is, a firm with poor future prospects should not be able to mimic and send false signals to the market by increasing dividend payments. Thus the market must be able to rely on the signal to differentiate among firms. If these conditions are fulfilled, the market should react favorably to the announcements of dividend increase and unfavorably if otherwise (Ang, 1987; Koch & Shenoy, 1999).

2.2.5 Middle of the Roaders

These group of scholars were not specific to whether dividends should be paid or not but rather contingent on other variables as management view of market structure or needs assessment. Among the theories here are; life cycle and catering hypotheses.

a) Life Cycle Hypothesis

Life Cycle hypothesis explanation given by the Lease et al. (2000); Fama and French (2001) says that the firms should follow a life cycle and reflect management's assessment of the importance of market imperfection and factors including taxes to equity holders, agency cost, asymmetric information, floating cost and transaction costs. This hypothesis considers dividend pay-out as a product of all factors influencing dividends over the life of a firm. This policy is more discretionary on the part of management to decide whether earnings ought to be distributed or not based on their own assessment of the market and the prevailing frictions. Younger firms facing better growth opportunities would pay fewer dividends so as to finance investment opportunities. Conversely, mature or old firms with diminished opportunities would pay more dividends because of the agency

costs (overinvestment) they face. On the part of individual investors, younger investment would prefer fewer dividends at present so that they can consume more in future. Older investors like pensioners require steadier income hence would prefer a high dividend paying firm.

b) Catering Hypothesis

Catering theory given by Baker and Wurgler (2004) suggest that the managers should give incentives to the investors according to their needs and wants and in this way cater for the investors by paying smooth dividends when the investors put stock price premium on payers and by not paying when investors prefer non payers. This theory match clientele effect hypothesis which posit that high paying firms attract investors (clientele) that want higher dividends and vice versa. For these reasons and based on different investors' situations, taxes and transaction costs may create investor clienteles, such as tax minimization induced clientele and transaction cost minimization induced clientele respectively.

2.3 Conceptual Framework

The conceptual framework for this study is illustrated in Figure 2.1 below. It shows the relationship between the four independent variables; profitability, previous dividend, growth opportunity and business risk with dependent variable (dividend per share). The first two independent variables test validity of Lintner's dividend model (1956) by finding out how well they predict dividend policy (DPS). The other two independent variables; growth opportunity and business risk are also included to determine their suitability to the model as a whole. Lastly, a final partial correlation test that controls for the effect of firm classification (financial or non-financial) is to be done to determine if this classification has any significant influence on dividend policy. Further interactive effects between industry categorization and firm classification (financial or otherwise) is also studied to determine if main and joint effects alter the outcome significantly.

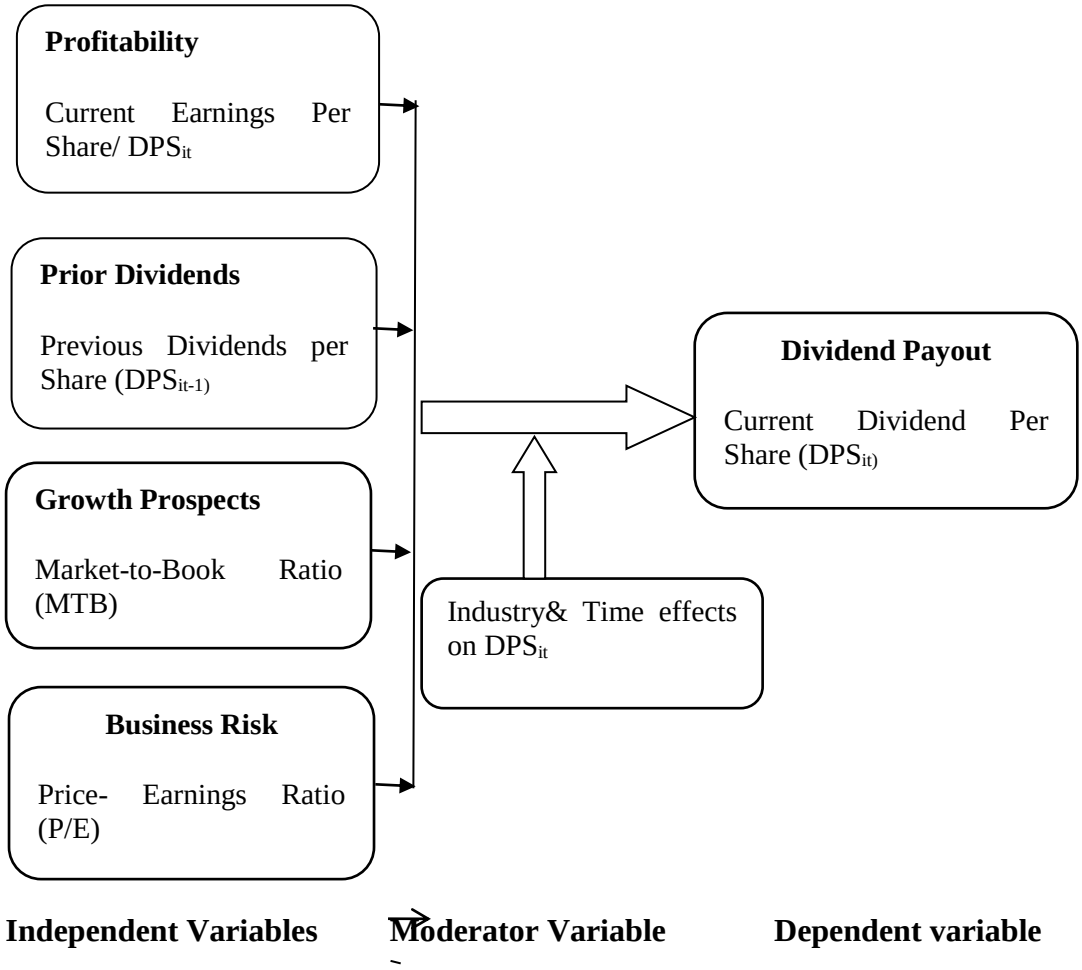

Figure 2.1: Conceptual Framework

2.4. Empirical Review of Variables

The key variables in this study were profitability, previous dividends, growth opportunities and business risk. Moderating variable was firm-classification which refer to the factor that either accelerate or decelerate the link between independent variables and dividend payout. It is largely associated with the independent variables. Conversely intervening variables here would be liquidity, dividend preference, and cost of external capital. Intervening variables are antecedent to current dividend payout.

2.4.1 Profitability

The concept of profitability in this study refers to current earnings after tax attributable to common shares. It is earnings per share (EPS) arrived at by dividing earnings available to ordinary shareholders by the total number of shares outstanding. The term profitability and current earnings per share are used here interchangeably. The variable is used in the study as one of the independent variables hypothesized to be positively related to dividend payout. Data on earnings is quantitative and therefore will be tested first for normality and outlier effects before it is applied.

Abbas et al. (2016) explored the determinants of dividend policy and capital structure among manufacturing firms in Pakistan. They discovered that profitability has positive relationship with dividend policy. Similar findings were found by Alber, et al. (2017) and Fahhim, et al. (2015) who examined dividend determinants for Saudi listed firms and financial sector firms in Pakistan respectively.

Mudassar (2015) examined dividend payout ratio and profitability of firms in Pakistan particularly those in the energy and textile industry and discovered a negative association between dividend payout and next year's earnings irrespective of industry where the firm belongs. Baker and Powell (2001) studied US companies listed at the NASDAQ where they realized that the pattern of past dividends, earnings stability and the level of current and expected future earnings are significant factors determining the level of current dividends. Another study by Baker and Powell (2012) surveyed opinion of Indonesian managers regarding factors influencing dividend payout. Their conclusion was that managers consider stability of earnings and level of current and expected earnings as significant factors affecting dividend policy as cited in (Turakpe & Fiiwe, 2017).

In another study by Mc Cluskey, et al. (2007), Irish firms indicated that historical, current and earnings stability to be main factors determining dividend policy. Baker et al. (2007) concluded that for Canadian firms, future earnings were more significant in making dividend decisions. Musa (2009) also studied dividend

behavior of Nigerian listed firms using metric and non-metric variables. The results showed that metric variables (cash flow, profits, dividends, etc.) were significant in influencing dividend policy compared to non- metric variables like, size and industry classification. Pruitt and Gitman (1991) asked financial managers of the 1000 largest U.S. and reported that, current and past year' profits are important factors influencing dividend payments and found that risk (year to year variability of earnings) also determine the firms' dividend policy.

However, Kazuku (2015) in his survey of Turkish listed firms realized that profitability measured by earnings per share is negatively and significantly associated with dividend decisions. This is explained by the maturity hypothesis of dividend payout proposed by Grullon, Michaely and Swaminathan (2002). Maturing firms according to the authors face few opportunities for investments and therefore higher payout abound to reduce agency coats. Closely related to these studies, Skinner and Soltes (2011) concluded that current earnings and future earnings are strongly associated for dividend paying firms compared to non-payer.

Studies in India by Bose and Hussainy (2011) produced results that signify asymmetric dividend paying behaviour across five industries software, finance, steel, electrical machinery and pharmaceutical. The firms in these sectors increased dividend in line with profits and vice versa. Amidu and Abor (2006) examined dividend behavior in Ghana and concluded that profitable firms tend to disburse more dividends.

Locally, a previous study by the author (Bulla, 2013) used simple regression (OLS) equation with earnings changes as an explanatory variable in a dividend model arrives at the conclusion that current earnings changes is significantly related to dividend changes with a coefficient of (0.65). However due to high adjustment speed and low target payout, smoothing or stability of dividend for NSE firms is not a priority. Current earnings after tax explain 42% of the changes in dividend payout for firms listed at the NSE. Maniagi et al. (2013) examined determinants of dividend payout of non-financial firms listed on Nairobi Securities Exchange on the context of: non-financial companies and purposive sampling technique. They established

that current earnings directed level of dividends paid by listed firms at NSE. In addition earnings and profitability according to Arumba, (2014) had a positive and significant relationship with dividend payout for listed firms at the Nairobi Securities Exchange. A similar result was also realized by Waswa et al. (2014) on their study of dividend payout by Agricultural firms at the NSE.

2.4.2 Prior Dividends

Dividends that have already been paid (past or prior dividends) lagged one period are used in this study as a predictor of payout because current dividends may be related to past dividends (Lintner, 1956; Fasio et al., 2004). Previous dividends are directly related to current dividends because managers sometimes consider what has already been paid to determine by how much dividends will positively change. When current dividends are regressed on current earnings and previous dividends, then a test of dividend stability (smoothing) is inferred based on Lintner's model (1956); Fama and Babiak (1968). Measurement of past dividends takes the form of one period lagged dividends paid per share.

The earliest research on dividend distribution was undertaken by Lintner (1956) on American companies in the mid of 1950s. Findings from the study show that dividend decisions made by companies are based on the current profitability and in part on the dividends of the previous year. An increase in dividends may be the result of good performance in previous periods which may continue into the future (Fasio et al., 2004). This supports the view of a positive causal relationship between current dividends and future earnings. Al-Twaijry (2007) confirmed that current dividends are affected by the past and future earnings. Similarly Alber et al. (2017) in their study of dividend payout among Saudi listed firms realized that previous year dividends have a positive influence on current dividend payments.

In Pakistan, dividends are fixed by past dividends and current earnings going by findings from Ahmad and Attiya (2009). Dividends paid per share is postulated to be strongly related to previous payout according to Lintner (1956); Fama and Babiak (1968). Miller and Rock (1985) developed the signaling theory classical model

which indicated that dividend will act as a signal of the firm future prospects and expected cash flows under imperfect information. Signaling theories suggest that dividend payout results in higher price for stock and vice versa. This applies to companies initiating, maintaining or increasing dividends. Studies particularly of public companies with a history of paying cash dividends are observed to be reluctant to omit (Arnott & Asness, 2003) or reduce payout probably because investors only get information about future prospects of the company from dividends distributed.

2.4.3 Growth Opportunity

Opportunities for growth is explained by the gap between market price per share and book value per share (Kuzuku, 2015; Gill, Biger & Tibrewala, 2010). A firm's growth opportunity is hypothesized to be inversely related to dividend payout and proxied by Market to book ratio (MTB). The opportunities for growth for business mean availability of investment opportunities that promise a positive net present value. In this study, growth opportunity is measured by the ratio of market price per share to its book value per share (MTB).

Higher growth opportunities would lead to reduced dividend payout as retention rate increase in order to finance expected growth hence a negative relationship is anticipated between MTB and dividend per share (DPS). Alber et al. (2017) concluded in their study involving Saudi listed firms that investment opportunity has a significantly negative relationship with current dividends. However Issa (2015) arrived at a different conclusion in his study of Malaysian firms listed at the Kuala Lampur Stock Exchange. In his study, Market-to-book ratio was positively related to dividend payout as Abbas et al. (2016) also made similar conclusion for Pakistan Manufacturing firms.

Kanwal and Kapoor (2008) studied dividend payout ratio of Indian information technology sector using pooled data over seven years 2000-2006. Their result indicates that market-to-book value did not explain dividend payout pattern of the sector but liquidity and beta (risk) were significant predictors of dividend policy.

Conversely, Gill, Biger and Tibrewala (2010) realized that for American manufacturing firms, dividends are a function of profit margin, tax and market-to-book ratio.

Conversely Kuzuku (2015) in his study of Turkish firms' dividend policy tested growth opportunities using price-to-book ratio and his findings are that growth prospects positively and significantly influence dividend payout. The implication is that increased opportunities for investment lead to increased retention of earnings and consequently decreased payout and vice versa.

In developing markets, factors that influence dividend policy for publicly quoted companies in Jordan were current, past and expected earnings. Dividend payment has largely been seen to be a residual decision (paid after all investment needs are fulfilled) so that these firms that pay dividend are likely to have less investment. Low investment would be signified by a low market-to-book ratio and low price-earnings ratio (high risk).

The market-to-book ratio (MTB) is the ratio of market price of a share to the book value of a share. It is a proxy for growth opportunities so that a direct relationship is hypothesized between MTB ratio to growth opportunities and so to firm value measured by market price per share. However in the study, the relationship with dividend payout is expected to be negative because better opportunities require additional resources to finance investments and consequently reduced need to pay dividends. Olantundun (2000) in a study of Nigerian firms using Lintner-Brittain model using pooled/cross section and time series data between 1984-1994 concludes that the behaviour of Nigerian firms did not conform to Linter-Brittain model but rather on growth prospects, level of gearing and firm size. Musiega et al. (2013) in their study of non -financial firms at NSE realised that dividend policy was influenced positively and significantly by growth prospects. Conversely, a study by Waswa et al. (2014) of the dividend payout by agricultural firms at the NSE found that growth prospects negatively affect dividend payout. This supports theory on the inverse relationship between growth opportunities and cash dividend payout all else remaining the same.

2.4.4 Business Risk

Business risk in this study is proxied by price-earnings ratio as applied by Mehta (2012); Issa (2015) from their studies of firms in UAE and Malaysisia respectively. A high P/E ratio signify low risk and vice versa. Hence P/E ratio is directly related to dividend payout. This also means that risk (low P/E ratio) in the context of this study is inversely related to dividend payout. A higher market price per share in the capital market indicate that investors perceive the business as low risk and hence presented with more positive net present value investment opportunities. Kyle and Frank (2013) in their conference paper on the effects of dividend policy on stock price volatility stated that many investors prefer stocks that support more predictable earnings and therefore carry less risk.

Price to earnings ratio is also linked to firms' value and to dividends payout. This takes place through investor's perception of risk of a company's future earnings which in this case is proxied by P/E ratio. A high P/E ratio signifies low risk and a low P/E ratio means the risk carried is high. High risks also result in diminished firm value and less payout. Low risk firms (high P/E) would be considered attractive by investors and therefore would experience low dividend payout as investment needs increase. A low P/E (high business risk) suggests that investors' low earnings hence dividend payout would be higher due to lack of investment opportunities (Turki & Ahmed, 2013; Fama & French, 1998). Price-earnings ratio and risk is negatively related according to this study and has also been supported by Mehta (2012). Another way of stating that P/E ratio is positively related with dividend per share. Issa (2015) while studying dividend behavior of

Malaysian firms listed at the Kuala Lampur Stock Exchange concluded that beta which is a measure of business risk had a significantly negative effect on dividend payout. When a firms risk increases then uncertainty of future cash flow make it reduce payout of dividends to control overinvestment problem. Mehta (2012) in his study of UAE (United Arab Emirates) firms discovered that size, risk and profitability are the most significant variables influencing dividend decisions. The

variables explained 42.8% of total variation of dividend payout ratio. Firms with higher P/E ratio had lower risk and so higher payout ratio.

A negative relationship between risk and dividend payout was evidenced. However, profitability returned a negative relationship with dividend payout indicating that the more profitable the firms are, few dividends would be paid. D'Souza (1999) also found statistically significant and negative relationship between beta (business risk) and dividend payout.

Business risk has also been measured using stock price volatility. Hussainey, Mgbame, Chijoke, Mgybame and Arnoriwo (2011) tested the relationship between dividend policy and stock price volatility in England. In their result a negative correlation was established between size and volatility and a positive correlation between leverage and volatility. The same result was reported by Allen and Rachim (1996) returning negative and significant correlation between dividend yield and volatility. The relationship was of the cause and effect type. Emerging markets are said to be unique due to market risk arising from low trading volumes and eligibility of certain stocks. In this regard Nazir, Anwar and Ahmed (2010) chose an emerging market and their expectation was that developed and developing markets would present different results when it came to correlating size, leverage with price volatility.

Another study by Farooq, Saoud and Agnaou (2012) examines dividend policy and price volatility in diverse market conditions. Particularly they worked at the influence of dividend policy on price volatility both in times of market growth and market stability. Their reasoning was that investors would not be concerned with low dividend payout in times of economic growth as would be the case with economic downturns. These conditions act as control variables for studies on dividend policy and price volatility.

Regression results from Kyles and frank (2013) indicated a negative beta coefficient for dividend yield and price volatility which was also significant at 5% level. This is interpreted as high stock volatility related to low dividend returns and vice versa.

Closely associated with this response was company size measured by market capitalization which returned a significant negative relationship, while these studies looked at how stock price volatility was being influenced by leverage, size, growth, and dividend yield and payout ratio. The results are significant in understanding how the variables are related. Ochieng and Kinyua (2013) sought to assess the nature of relationship between earnings volatility and dividend payout of the listed firms at the NSE, the research found that there was no significant relationship between earnings volatility and dividend payout.

2.4.5 Dividend Payout

Dividend payout refer to dividends paid out of current earnings per share. This dividend may be zero, low, moderate or high. A dividend policy is a consistent dividend payout rate by firms over time. This variable is the dependent one in this study. It is estimated to be dependent on the four independent variables; profitability/current earnings after tax, past/previous dividends, business risk and growth prospects. Dividends per share (DPS) is analyzed here as antecedent to firm value (MPS). The researcher is interested in finding out how dividends paid relate to firm value. The relationship would imply a signaling effect that dividends portray to investors. Kiyondi and Oyugi (2013) find a strong positive correlation between an increase in dividend and an increase in the earnings resulting in the conclusion that that dividend policy is relevant and that managers should, as deliberate strategy design a dividend policy that will enhance firm performance and therefore shareholder value, which will attract investors to invest in the firms shares.

A direct association which is hypothesized by the researcher would mean stockholders view dividend payment as signal of future profitability even with a temporary drop in earnings hence a rise in dividends paid per share result in a rise in firm value and vice versa. Firm value is measured by the stock price multiplied by the number of outstanding shares. Shareholder wealth is maximized when stock price rises which is what every finance manager hopes to achieve through his decisions on investment, financing and dividends. Stock price per share is similar to market price per share (MPS). A higher correlation would indicate a signaling

function that payout conveys about the performance of the listed firm. This test will also reveal dividend paying behaviour of corporate managers, whether they are motivated or not motivated by smoothing or stability of dividends. The results would shed important insights into how an emerging stock market behaves with regard to stock returns in form of dividends. The research findings suggest that the average corporate dividend payout to stockholders for 40% of the firms is low and stable and that 28% of the firms quoted paid out high and stable dividends (Kibet et al., 2010).

2.4.6 Firm Classification

Firm classification has been used in this study as a moderator. This classification is based on the industry the firm belongs to. The categorization is necessary because different industries have peculiar characteristics unique to the sectors in terms of performance, risk, growth prospects and level of competition. Therefore it is necessary to account for industry difference as a moderator in dividend payout. Horace (2002) and Ho (2003) argue that a firms industry type influence dividend policy. In other words, different industries are affected differently by systematic risk.

Components of industry characteristics are; growth phase, ownership pattern, size of firm, earnings variability and systematic risk. Baker and Powell (2000) concluded from their survey of NYSE-listed firms that dividend determinants are industry specific and anticipated level of future earnings is the major determinant. Industry effects on dividend policy were also investigated by Baker and Powell (1999). Their findings were that utility firms have higher payout ratios possibly because of the prevailing regulatory environment and monopoly power. Baker, Farelly and Edelman (1985) also arrived at similar conclusion.

Turakpe and Legaaga (2017) in their study of dividend policy of selected firms in Nigeria concluded that firm characteristics significantly determine dividend policy when regressed against profit after tax and return on assets. The mixed results were

from two financial firms and one manufacturing firm. The sign and magnitude of the relationship was not stable between the studied firms.

2.4.7 Dividends and Firm Value (Signaling Mechanism)

Dhanani (2005) in his survey of managerial views and attitudes of corporate managers on dividend policy found that quite correctly that dividend policy serves to enhance corporate market value. Many studies on dividend smoothing from Lintner's (1956) seminal paper through Fama and Babiak (1968) to Brav et al. (2005) have not offered an explanation as to why firms are reluctant to cut dividends or why they appear to smooth dividends. However this behaviour can be explained by the fact that the companies are publicity traded. Therefore, in the eyes of management, such an announcement have the effect on investors' reactions and hence firm value.

M'rabet and Boujjat (2016) investigated the relationship between dividend policies and firm financial performance for listed companies in Morrocco. What they discovered is that dividend policy positively significantly influenced firm performance. In another related study, Ozuomba, Anichebe and Okoye (2016) realised that dividend policy positively affect share price of listed firms in Nigeria.

Modiglian and Miller (1961) stated that firm value is independent of its dividend policy because it depends on choice of investments. This means that wealth of shareholder is not influenced by dividend policy if investment policy remains the same. It is hence puzzling as to why dividends effects are varied across markets and segments. Dividends impacts value in some markets and not in others. Results from different studied have been mixed. Those that found a link between the two were by Ferrell, Baker and Edelman (1985) and Baker and Powell (1999). Dividends are not just a means of distributing the profits but any variation on payment of dividend could affect share prices, and investors' perception of the firm (Aroni et al., 2014).

In Kenya, studies so far reviewed include; Ochieng and Kinyua (2013), Nkobe, Kandu and Limo (2013), Mokaya, Nyangara, and Lillian (2013), Murekefu, and Ouma (n.d), Maniagi, Musiega, Maukomba, and Egessa (2013). All these studies

have investigated various factors affecting dividend policy at the NSE but non attempts to establish whether dividends paid have any consistent pattern that would make investors predict size and pattern of returns for their investments at the exchange. This study therefore plugs this gap in literature by offering a more permanent picture of what financial managers think of dividends by listed companies. Results are to either agree or disagree with Aivazian, Cleary and Booth (2003) work that compared dividend behavior of emerging market firms and those of the United States of America. Other studies (Mehta, 2012; Kaunwar & Kapoor, 2008; El-Sady et al., 2012) have also focused on dividend issues in Asia with Amidu and Abor (2006), Musa (2009) involving African countries namely Ghana and Nigeria respectively. Their work emphasized how dividends were affected by various factors but no particular one converging on a consistent dividend payout.

2.4.8 Dividend Stability (Smoothing)

Lintner (1956) contends that dividends are adjusted to changes in earnings but only with a lag. He argues that when earnings increase to a new level, a company increases dividends only when it feels it can maintain the increase in earnings (cited in Van Horne & Dhamija, 2012). Smoothing of dividends which also refers to stability has been explained by agency issues or information asymmetry (Servaes & Tufano, 2006). That in order to reduce the agency-principal conflict, dividend stability is pursued so as not to cause unnecessary price volatility for publicly listed firms due to uncertainty. Therefore, reducing uncertainty stemming from unpredictable dividend payouts make managers opt to establish a stable growth path of dividend payments.

Stability of dividends has been explained by Lintner (1956), Fama and Babiak (1968), Wolmoran (2003) using regression models they constructed to determine values of speed of adjustment and target payout ratio. Lintner's partial adjustment model estimates coefficients for adjustment speed and target payout (Equation 3.6).

Fama and Babiak (1968) on the other hand explained dividend stability by determining coefficients for adjustment speed and target ratio using absolute values

of dividend per share regressed against changes in earnings and absolute values of previous dividend as in equation 3.7.

When Lintner (1956) questioned managers on their attitudes toward dividend policy in his seminal paper, he concluded that managers targeted long term payout ratio. Dividend payment was found to be sticky, tied to long term sustainable earnings paid by mature companies and smoothed from year to year. Other scholars have since supported this argument (Fama & Babiak, 1968; Brav et al., 2005). While literature has not adequately explained why firms are reluctant to cut dividend or even appear to smooth dividends, one of the reasons that can be attributed to this occurrence is investors' reaction to such announcement. Share value has been observed to decline by a larger magnitude immediately after dividend omission announcement than when dividend payment is announced (Michaely et al., 1995).

Specifically, findings from Lintner's (1956) study of public firms in the USA between 1947 and 1953 indicated a strong and significant correlation between current dividends paid, current earnings and previous dividend. Among public firms, a dividend smoothing behavior is evident by a significantly low values of speed of adjustment relative to target ratio. The reverse indicate no smoothing and thus evidence of wide swings in dividend payment. The motivation to smooth out dividend may be attributed to the scrutiny by the capital markets where agency conflict and information asymmetry is prevalent. Low values for adjustment speed mean that with higher earnings shock, more of the surplus funds are retained and vice versa for lower earnings shock.

Elsewhere, Michaely and Roberts (2012) investigates how firms grouped into private and public, responded to transitory earnings in the United Kingdom. They discovered that response of dividends to transitory earnings shocks vary significantly across the three groups of firms (private dispersed, private and public firms). They concluded that private firm's dividend policies are significantly more sensitive to transitory earnings shocks in contrast to public firms. Empirical evidence provided by (Ibid) shows that public firms follow a unique strategy of paying relatively numerous but small increases in their dividend coupled with a

strong aversion to any negative or large changes. In their findings public firms targeted a payout ratio of 21% of any transitory earnings shock followed by an adjustment speed of 41% to smoothen the trend.

Evidence of dividend smoothing has also been explained by a strong correlation between current dividend and previous dividends (Lintner, 1956). It has been determined using a partial adjustment dividend model regressing current earnings with changes in dividend paid per share. Lintner arrived at value of speed of adjustment and target payout ratio as 30% and 50% respectively for US non-financial firms in 1956. Fama and Babiak (1968) realized 37% for adjustment speed and a target ratio of 50%. This study attempts to estimate the parameters for target payout and speed of adjustment so that with a higher target payout and lower adjustment speed, then smoothing motive is evident. Wolmoran (2003) also reconstructs Lintner's dividend payout model to estimate values of speed of adjustment and target payout ratio. This model looks at changes in dividends resulting from transitory earnings shocks.A low payout ratio and high speed of adjustment according to Ahmed et al (2009) signify low smoothing and hence instability of dividend payout policy.

2.5 Critique of Existing Literature Relevant to the Study

Literature review sources consulted reveal that the studies have focused on either variable(s) outside those that are used in this study or have targeted other markets outside the Nairobi Securities Exchange. Results also indicate mixed findings in different markets and conditions which make it necessary to investigate the variables in the context of our stock market. Very few studies have covered dividend determinants and behavior that cover all segments of the markets. It is also evident that Financial and non-financial firms have been examined in isolation in many studies but this study combines all the firms together separated by industry or market segment. More so the study also tests whether dividend smoothing is pursued by Kenyan listed firms over the period. This has not been carried out for the market firms by the studies so far reviewed. While the researcher argues in his previous findings Bulla (2013) that dividend smoothing is not a priority at the NSE, the

model by Lintner (1956) did not fit the data very well and hence a search for a better dividend model is envisaged. Several studies investigating dividend policy of listed firms at the NSE have used OLS multiple linear regression models which assume that empirical data is pool-able. However this study discriminates data characteristics by deploying panel estimation techniques that examines whether data is pool-able in the first place.

Literature review done also identifies that very few studies explain the theories applicable to dividend policy at the NSE. For instance, the signaling role of dividends in the market as one of the emerging financial markets has not been sufficiently explored. Hence glaring gaps exist in literature particularly related to dividend character in developing markets that need to be plugged.

This study utilizes a panel regression analysis approach with fixed and random effects test to determine the most suitable model for study. This technique detects individual firm level effects that may contribute to dividend policy differences between the various firms listed on the capital market. It will isolate better performing firms from each industry to show superior managerial talent and hence help investors in making better decisions. The researcher did not identify a single study that used this approach in the investigation of dividend policy at the Nairobi Securities Exchange. It is expected that the technique will significantly improve model fitness compared to that used by other authors on the market.

In addition this study selects variables that are considered stock value drivers namely profitability, prior dividends, growth opportunities and business risk which is a combination of both firm-level factors and market factor. This particular set of data has not been applied by other authors whose works the researcher has reviewed.

In the last half a century, many theoretical and empirical studies have been done to determine effects of dividend payment (increase or decrease) on market value of firms. One of the most significant ones is that done by Miller and Modigliani (1961) which suggest that in perfect markets, dividends do not affect firm value. Lintner (1956); Fama and Babiak (1968); D'Souza (1999); Adaoglu (2000); Omet (2004),

DeAngelo et al. (2004); Eriotis (2005); Stulz et al. (2005) have all empirically analyzed data from stock market in various markets either developing and developed with regard to effects of dividend payout, stability of dividends and factors influencing dividend payments.

Among the factors that have been investigated are firm size, growth and profitability (Reddy, 2006), cash flow, investment opportunities (Amidu & Abor, 2006) for Ghana listed firms. Jeong (2008) studied dividend paying behavior for Korean firms on the basis of stock value. A similar study was also done by Daniel et al. (2007) who concluded that dividend payment depend largely on earning threshold of Korean firms. Habib, Kiani and Khan (2012) used ordinary least square multiple regression to regress stock price volatility (dependent variable) against firm size, asset growth, financial leverage, dividend yield and payout ratio (Independent variables).

Ahmed et al. (2009) analyzed empirically dividend policy in Pakistan using the partial adjustment model by Lintner (1956). They determined whether dividend smoothing was a motivation by firms at the Karachi Stock Exchange between 2001 and 2006, using dynamic panel models. Karachi Stock Exchange is an emerging stock market with many similarities to the Nairobi Stock Exchange and other developing stock markets in Africa and Asia. This makes KSE an important market to compare with together with Ghana, Tunisian, Malaysia and Jordanian Stock Markets. Many investors in Pakistan consider stock price appreciation as major component of stock returns and therefore investor attitude towards dividends is expected to impact dividend policy.

2.6 Research Gap

The investigation identifies gaps in other studies that are to be plugged by this research. For instance, few dividend studies have specifically anchored their work on the partial adjustment dividend model by Lintner (1956); Fama and Babiak (1968). Secondly, attempts have not been made to extend the model and apply to an emerging market data like the NSE. The extension to include growth opportunities

and business risk which are also stock value drivers is therefore novel. In addition, the study compares different econometric approaches (Random effects and Fixed effect models and to triangulate results with Logistic regression to model the dynamics of dividends decisions at the NSE. It is also unknown to the researcher whether a similar study testing the significance of industry and time as moderators exist. Overall, the effects of risk and growth opportunities together with earnings and previous dividends on current dividends will be determined. The end result is that corporate managers shall appreciate how their policy on dividends is associated with identified factors and firm value.

The model design and analysis approach adopted makes this study robust and therefore timely for the market at this juncture. The panel data for the period 2000 to 2010 provide firm –year observations from those companies that meet the criteria of consistent dividend payout for not less than two-thirds of the period. This results in unbalanced data involving observations for each firm for each year over the period.

Segmental analysis was envisaged because dividend decisions are argued to be guided by industry behavior. More so the study examines the question of dividend stability which has not been well explored by previous studies. Stability of dividends is critical to enhancing investor confidence since those investors seeking regular income are concerned about variability of dividends returns by firms they invest in. Along with the need to identify individual firm characteristics that differentiates higher dividend payers from low payers or non-payers makes this study unique and timely.

2.7 Summary of Gap to be filled By Study

The study extends literature on dividend theory and paying behaviour of public firmsin emerging stock markets. Dividend determinants are tested for their efficiency using stock market panel and cross sectional data. Extensive literature reviews show that determinants of dividend policy in various stock markets are different and the results are mixed. Very few of the studies have adopted a triangulation approach to validate the findings at the NSE. In addition, dividend size,

consistency and pattern has not been sufficiently studied especially in emerging stock markets of Africa and particularly at the NSE. These reasons motivated the study in the hope of providing better insights into the dividend decisions by corporate managers. In addition, a more efficient model for dividend decisions is necessary for the market. Consequently, new information related to dividends decisions by all listed firms grouped by industry at the NSE should be revealed from this study. There is a good chance that future dividend decisions that drive investments and financing in the capital market are going to be embraced to promote corporate value.

Thus far, this chapter reviewed relevant literature on dividend policy beginning with a theoretical review of the concept of dividend policy, theories and determinants also referred to as drivers of stock value. The pattern of dividend payments was discussed under stability and then followed with empirical reviews of the drivers of dividend decisions as constructed in the study framework. Local studies were reviewed to find the right place for this research work. Beyond the question of how dividend policy is affected by current earnings, past dividends, growth prospects and business risk, dividend stability and signaling role arises. What emerges from the review is that there is a lot of work done on dividend determinants. However, many of the studies shy away from combining different tests on payout policy to enrich research on developing stock markets like NSE. More so a lot of studies have continued to employ GLS regressions or OLS regressions that mask individual firm characteristics that may significantly bear on the dividend policy pursued. This creates a need to carry out this study with a different approach and design. More so the NSE is the biggest and most vibrant stock market in the East African region. Finally a conceptual framework has been illustrated showing the relationship between independent and dependent variables together with their hypothesized relationships. These relationships are what the study explores. The study adopts a triangulation approach where a dynamic panel data estimation technique and logistic regression for primary data is deployed for better validity of results.

CHAPTER THREE

RESEARCH METHODOLOGY

3.1 Introduction

This section traces the systematic process of assembling statistical data, organizing it, cleaning it and finally applying data analysis tools to derive meaning. The tools for analysis are identified, suitability tests conducted in order to make the results valid and accurate within the 0.05 level of significance. Sources of data, exploration and handling of data are clearly described and explained in this section.

3.2 Research Philosophy

The philosophy underpinning this study is critical realism. This philosophy focuses on explaining what we see and experience as a product of underlying structures of reality that shape the observable events (Bhasker, 1978). The reality according to critical realists is the most important consideration (Fleetwood, 2005). More so the proponents see reality as external and independent but not directly accessible through our observation and knowledge of it. It explains what we experience as only a part of the whole story. Thus when studying dividend determinants, stability and validity at the NSE, empirical data observed is said to convey more than just what we see. A proper understanding and knowledge development would therefore occur from an in-depth analysis of patterns of payout over time by individual entities. Cross sectional and time series data contain information that explain the true motive behind payout decisions. Consequently the researcher assert that while empirical data is important to understanding behaviour of corporate managers, there is more than we observe based on the patterns and relationships.

Retroduction which is reasoning backwards in critical realism characterise mental processes that follow events, experience and sensations according to Reed (2005). This way we understand the world and reality as it is. Much of critical realist research take the form of in-depth historical analysis of social and organisational

structures and how they change over time (Reed, 2005). This research philosophy guides research design and data collection approach for this study.

3.3 Research Design

A mixed research design is adopted in this study involving primary and secondary data and analysed by panel estimation and logistic regression techniques. A dynamic regression model includes a lagged value (one period) of the dependent variable as one of the independent variables. The results are compared to explain effects of current after tax earnings, previous dividends, growth opportunities and business risk on dividend decisions of quoted firms at Nairobi Securities Exchange. A panel data comprising 432 firm-year observations from 40 listed firms over period of 11 years is examined. This has been supported by other authors (Lintner, 1956, Fama & Babiak, 1968, Belanes, 2007; Ahmed&Javid, 2009). Dividend signaling and industry effects are also studied to determine role of dividend decisions.

3.4 Target Population

The target population for this study comprised of the entire list of quoted companies at the NSE. Fifty two (52) firms provide 552 firm-year observations from the NSE by end of December 2010 (NSE report 2011). This number comprise 52 financial managers of quoted companies whose financial data (firm-year observations)is used in this study over the 11 year period 2000–2010.Companies listed at the NSE are categorized into nine(9) industries namely manufacturing, commercial, insurance, banking, investment, agriculture, automobile, construction and energy. Targeted number of firms are 40 with 440 firm-year observations. These are the observations used in making various empirical analyses on dividend policy. Each firm provides 11 firm-year observations for the period under study. Financial data on dividends, earnings, price-earnings ratio, market to book ratio and market price per share were collected from audited financial reports of the respective firms.

3.5 Sample Frame

Sample frame is purposely obtained comprising 40 chief finance officers (CFO) for primary data and 440 firm-year observations (panel data) from financial reports of qualifying listed firms. To qualify as sample data, the firm must have remained listed for at least 5 years (business cycle) over the period whether paying consistent dividends or not. It was important that the selected firms be listed for the duration so that any possible bias is reduced. The size of sample was therefore determined based on dividend payout history. About 40 firms were listed throughout the period. Firms that were not listed for the entire period were struck off the sample frame.

3.6 Sample Size and Sampling Technique

The sample was assembled in a purposive manner so that certain criteria (dividend payout) be met. Empirical panel data was explored and assembled from the annual financial records obtained from data vendors at the exchange. Eligible companiesnumbered40 and they provided primary data through their chief finance officers who participated in the study. A larger data set of pooled cross section and time series data (440 firm-year observations) was also procured to reduce bias from the fewer number of qualifying firms at the exchange. This size vary with nature of analysis because each analysis is based on pairwise data considerations. Since accuracy increases with size in pooled data, and that the number of firms is not very large (40), collection of data by random sampling was unnecessary. This partly explains why application of random effects model would not suffice (Gujarati, 2004). Instead a fixed effect model provides better insights to the nature of decisions made by the corporate managers at the exchange.

3.7 Data Collection Instruments

Data collection in the study was in form of primary and secondary data from finance managers or CEOs and also audited financial reports provided by the NSE. Questionnaire on dividend payout and the data set is hereby attached as Appendix II and III. The data set was organized by company name, year (2000-2010), accounting earnings per share, dividends per share, market price, sales, book value per share,

price to book ratio and return on equity. The primary instrument was designed to collect ordinal data related to accounting earnings, dividends previously paid, growth opportunity, and business risk. The information in rank order form was meant to either support or fail to support panel data findings of the study. This aspect gives the study its unique structure besides applying rigorous tests and variables to the Lintners partial adjustment dividend model. By its design and analysis, the researcher expects to obtain better fit model for the dividend data at the NSE.

3.8 Pilot Survey

The purpose of conducting a pilot survey is to test reliability and validity of primary instrument designed to collect data. The study piloted instruments on 10 companies at the exchange that did not form part of the 40 selected firms for main study. Acceptable Test result for reliability was the attainment of an alpha coefficient (Cronbach alpha) of 0.7 and above for the questionnaires items grouped by variables. (Tabachnick & Fidell, 2001). validity is explained by sampling adequacy and Bartletts test of sphericity. A coefficient above 0.6 for adequacy and significant value for Bartlets test (0.000) is sufficient for further analysis. However since primary data was to be analysed non-parametrically, strict adherence to all the assumptions was not necessary.

Conversely, reliability and validity test for panel data is explained by Normality test, Outlier effects, Homoscedasticity, Multi-collinearity and Auto-correlation test for the error terms applicable to panel data. Auto-correlation problem is normally inherent in panel data (Gujarati, 2004) and more so when one of the independent variables is a lagged value of the dependent variable. He suggests testing for autocorrelation in autoregressive models by Durbins *h* -statistic which follows a normal curve (+ or – 3.0) if data is not small (< 30). Solution by data transformation has been suggested in case autocorrelation problem is detected in panel data. Non-normal distribution of data was corrected to reduce skewness (negative or positive). Multi-collinearity on the other hand is absent in regression tests when variance

inflation factor (VIF) and or Tolerance approaches 1.0. All tests are conducted at 0.05 significance level.

3.9 Methods of Data collection

Primary data was collected by questionnaires while secondary data was purchased from NSE data vendors who provided data sets in the form requested. Panel data from the year 2000 to 2010 was presented as firm- year observation grouped by key variables of study. Questionnaires were filled in by 40 finance officers or directors of sampled companies. Their responses were considered representative of management or board view of dividend decisions. Primary data was to deepen insights and to improve the robustness of the results through triangulation.

3.10 Data Processing and Analysis

3.10.1 Overview

Empirical pooled data (firm-year observations) obtained from financial reports of the listed firms at the NSE for the period 2000-2010 is analyzed by mixed panel regression techniques (Gujarati, 2004) using SPSS Version 21 and STATA 13 software. A determination as to whether empirical data is pool-able or not is made based on Hausman specification test (Appendix VIII) before applying pooled OLS regression. Estimation technique for panel data which include Fixed effects and Random effects models (FEM and REM) is used to test if the error term is related to the explanatory variables or not.

Fixed effects regression account for individual managerial talent or philosophy for each company while random model assumes data is pool-able and hence any individual firm level differences is assumed to be random event. However since the firms were selected non-randomly to ensure they meet the criteria of dividend payment, application of both fixed and random models became necessary in the analysis so as to distinguish differences between the firms in their respective industry in the period 2000 to 2010. Conversely, primary data is analysed by LOGIT regression to predict the proportion of dividend policy explained by the four

determinants-also considered drivers of stock value. For this reason, the analysis approach is mixed involving primary and secondary data. Triangulation of results is critical for the validation of the findings expected to provide new insights into the dividend debate in the first decade of the 21st century.

3.10.2 Descriptive and Inferential Analysis

Secondary and primary data was first analysed descriptively to describe measures of central tendency like mean, median, standard deviation and range for each variable under study. These measures show how dispersed data is around the mean and median. High variability and range reduce efficiency of estimated statistics and vice versa. Inferential analysis on the other hand include correlation and regression statistics. Both Pearson correlation and Spearman rank order correlation are used to determine nature and degree of association between variables for time series and cross section data respectively. Conversely a multivariate OLS regression and dummy variable regression techniques are used to identify moderator (industry) and firm level effects. In addition, current earnings after tax together with previous dividends paid depict smoothing effects based on Lintners (1956) partial adjustment model, Fama and Babiak (1968). Current earnings are also lagged by one period and the relationship studied to establish how current dividends relate to future earnings, previously paid dividends, growth opportunities and business risk.

3.10.3 Fixed Effects Test

Fixed effects model (FEM) also known as Least Square Dummy Variable model (LSDV) accounts for unique individuality (managerial talent, size, ownership structure etc.) of the companies in the respective sectors or industry. This difference is represented by (β_{1i})

$$DPS_{it} = \beta_{1i} + \beta_2 EPS_{it} + \beta_3 DPS_{it-1} + \beta_4 GO_{it} + \beta_5 RISK_{it} + u_{it} \qquad (3.1)$$

In the equation, β_1i is differential intercept dummies (n-1) for company 1,2,3……n in each sector or industry taking the value (1) if observation is for a particular company and (0) otherwise, while t= 1,2,3….11 representing the time periods for

each company. The betas; β_2, β_3,.β_5 are slope coefficients for each independent variable.

Beta 1 has only 'i'without't' to account for individual characteristics of each company in the sector. Hence the intercept coefficients for the companies is expected to vary based on individuality of the firms. Slope coefficients of the regressors' for each company in various sectors was considered time invariant. The comparison company in each sector would be the first company on the list represented by the first intercept value in the panel regression.

Time effect was also tested using time dummies for each year. The number of time dummies in each industry shall be (t-1) which is 11-1 = 10. The base year was year 2002. This is the year that the country went through a major political transition.

If the observation belong to a particular year then Dumt = 1, Otherwise = 0. Conversely observations belonging to a particular company in a sector is represented by (1) otherwise (0) for the cross sectional units. The panel regression with time dummies take the form;

$$DPS_{it} = \lambda_t Dum_t + \beta_2 EPS_{it} + \beta_3 DPS_{it-1} + \beta_4 GO_{it} + \beta_5 RISK_{it} + u_{it} \qquad (3.2)$$

In the equation, t = 2000, 2001, (…)..2003……..2010

i = 1, 2, 3 …n companies in each sector/industry.

$\lambda_0 - \lambda_{10}$= time dummy coefficients for the period 2000 to 2010. λ_0=coefficient for comparison year (2002) and β_2 ……β_5 = slope coefficients for the independent variables.

3.10.4 Random Effects Test

Random effects model (RAM) assumes differences in the cross sectional units (company identity) as random factors that are unobservable but captured by the disturbance term εfor company 'i' in time't' so that the expression becomes;

$$DPS_{it} = \beta_1 + \beta_2 EPS_{it} + \beta_3 DPS_{it-1} + \beta_4 GO_{it} + \beta_5 RISK_{it} + \varepsilon_{it} + u_{it} \quad (3.3)$$

In this model, instead of treating 'β_{1i}' fixed, we assume that it is a random variable with a mean value of 'β_1'without subscript. The intercept value for an individual company at time t is expressed as;

$$\beta_{1t} = \beta_1 + \varepsilon_i \quad (3.4)$$

In which i = 1, 2, 3…….n individual companies in each sector/industry.

ε =random error term with a zero mean and constant variance.

$\beta_2, \beta_3 \ldots . \beta_5$ are slope coefficients for each covariate.

A random effects model assumes the companies are randomly drawn from a larger universe of such companies and that that they have a common mean value for the intercept β_1. Any individual differences in intercept value of each company are reflected in the error term ε_i stated in equation (3.5).

$$\varepsilon_i + u_{it} = w_{it} \quad (3.5)$$

The symbol on the right hand side of the equation (3.5) represents a composite error term relating to each company (εi) and also in combination with time series observations (u_{it}). The assumption is the error terms are normally distributed with a mean of zero and unit variance and that they do not suffer autocorrelation problems.

Generalized least square (GLS) technique is used to estimate panel random effects regression model. Parameter estimates are then validated using Hausman (1978) specification test to discriminate between FEM and REM estimates. A chi square difference test for null hypothesis that no significant difference exist between FEM and REM coefficients assist in this respect. If the hypothesis is rejected, then FEM estimates are used, otherwise REM estimates apply conditional that its assumptions are not violated (Gujarati, 2004). One of the assumptions for choosing REM coefficients is that the cross sectional units are drawn randomly from a larger

population of the same units. Another is to compare between the number of cross sectional units and number of time series data. If cross section units (individual companies) are small compared to time series data, then there is little difference between the two techniques. The opposite is true for application of REM method. However since the companies in this study have not been drawn randomly from the population, FEM and REM estimates are tested separately for reliability and efficiency.

3.10.5 Dividend Stability or Smoothing

Evidence of smoothing is yet an additional test envisaged in the study to depict stability of dividend policy in the stock market. This examination is done using Lintner's (1956); Fama and Babiak (1968)partial adjustment dividend models to compute the coefficients of speed of adjustment "α" and target payout ratio "β" respectively, as presented in equations (3.6 and 3.7) respectively.

Lintner's (1956) Partial Adjustment Dividend Model

$$\Delta DPS_{it} = \alpha + \beta_1 E_{it} + \beta_2 DPS_{it-1} + \varepsilon_{it} \quad (3.6)$$

Where; α is intercept term.

β_1&β_2 are slope coefficients.

i- is firm-year observation.

t is time period.

Fama and Babiak (1968) partial adjustment dividend model

$$DPS_{it} = \alpha + \beta_1 \Delta E_{it} + \beta_2 DPS_{it-1} + \varepsilon_{it} \quad (3.7)$$

This is accomplished by regressing dividend payout on earnings per share and previous dividends. A higher speed of adjustment and lower target payout signifies instability or absence of smoothing. Conversely, a higher target payout and low speed of adjustment coefficient mean that corporate managers of listed firms are

motivated by smoothing of dividends. Stability of dividends for public firms has been documented especially in developed markets (Aivazian, Booth & Cleary, 2003; Stulz, 2000; Michaely et al., 2012).

Primary data from the questionnaires are analysed alongside secondary data to provide cross-sectional evidence of the effects of the stock drivers on dividend policy of listed companies at the NSE. The data (being of the Likert type) is analysed using non-parametric techniques including binary logistic (LOGIT) regression. A logistic regression is used to forecast the likelihood or odds in favour of dividend payments based on cross section data collected from 40 finance officers and directors of the selected companies. Deeper insights are derived from the primary data which are also reduced by principle component method (factor analysis) to derive fewer dimensions that explain dividend payout behavior by corporate managers of listed firms at the NSE.

All the hypotheses in the study are tested at 0.05 level of significance. Hypothesis 5 controls the effects of firm classification or industry. Hence, the examination identifies how dividend decisions are moderated by firm classification or industry. Differences between firm value and changes in dividends are investigated for signaling reasons. While Pearson correlation coefficient is used to measure the strength and nature of association within and between variables in the study. The results of analysis are then presented by Summary Tables, Pie Charts, Bar and Scatter graphs along with the discussion of findings.

CHAPTER FOUR

RESEARCH FINDINGS AND DISCUSSION

4.1 Introduction

The chapter explores, analyses and reports on the findings of study guided by the objectives set out in chapter one. By design of study, a linear dynamic panel data estimation technique is used while questionnaire data is analyzed by non-parametric methods to arrive at robust results. Cross section and Panel data descriptive and inferential analysis was conducted for triangulation and consistency of results. Diagnostic tests were first conducted for confirmation of classical linear assumptions ahead of application to the various analytical models.

4.2 Diagnostic Tests on Panel Data

The data applied for analysis in this study was both secondary and primary for purposes of triangulation. In order to obtain valid results and increase the efficiency of the estimations made, secondary data was subjected to diagnostic tests like normality, multicollinearity, heteroscedaticity and autocorrelation. Normality tests were conducted to ensure that the data especially panel data exhibited a normal bell shape distribution through appropriate transformation and deletion of outlier data points. Multicollinearity on the other hand was confirmed by lower correlation coefficients (below 0.5) between the independent variables and also evidenced by the Values of Tolerance and Variance inflation factors that approach 1.0 obtained from the regression Tables.

4.2.1 Heteroscedasticity

Heteroscedasticity was proved by a near linear diagonal line from bottom left to top right on a normal P-P plot for observed and predicted residuals. This was further confirmed by whites heteroscedasticity test which compare the chi square value calculated against the critical table value upon regressing the squared residuals against study regression model that include the square of each of the independent

variables and their cross products (Gujarati, 2004). The result showed that with n=40, and R^2=0.10 for the auxiliary equation, the chi square computed is 4 (40* 0.1) against a table value of 21.026 (Sig 0.05, df= 12) which imply that there was no evidence of heteroscedasticity in the secondary data analysed.

4.2.2 Stationarity Test for DPS_{it}

Stationarity test is necessary when one is analyzing time series data like dividends across companies for the period of study. The test indicates whether the variable under study exhibit a pattern that is stochastic or non-stochastic. The ability of a factor to predict another depend largely on whether the predicted and predictor (related) produce residuals that are constant or not. A constant residual value for all future values of the predicted term is preferred (stationary) to a non-constant (non-stationary) stochastic term. Stationarity for current DPS and its lagged value (DPS_{it-1}) is examined using the Unit root test. This is done to determine whether prior dividends can be a basis for predicting current dividends. Gujarati (2004) recommends a coefficient value for the lagged term that is either *negative or significant* (P<0.05) for stationarity to be evidenced when first difference in DPS is regressed on the lagged value of DPS (AR1).

$$\Delta DPS = \beta DPS_{t-1} + u_t \qquad (4.1)$$

The 431 firm-year observations were used in this analysis and the result was as follows;

$$\Delta DPS = 0.364 - 0.205 DPS_{t-1} \qquad (4.2)$$

t (3.25) (-2.648)

se 0.112 0.077

R^2 =0.018 D-W=2.187 F=7.012 (1,389)

From the equation (4.2) above clearly the coefficient of the lagged term is -0.205 (t=-2.648) which according to Gujarati (2004) means DPS_t is stationary. Thus the lagged term can be used to predict current value with 95 % confidence.

4.2.3 Detecting Auto-correlation in Auto regressive models

Detecting auto correlation between the prior values of dividend per share and subsequent observations becomes necessary in autoregressive models such as this. This test is important to validate the consistency of coefficients so that they are reliable. Durbin-Watson proposed the h-test to detect autocorrelation in autoregressive models (Gujarati, 2004). The formula for h test is equation 4.3.

$$h = \rho\sqrt{\frac{n}{1-n\,\mathrm{Var}(DPSt-1)}} \qquad (4.3)$$

Where ρ is rho or serial correlation coefficient between residuals of subsequent observations of the data for prior dividends (ρ=0.712). n are the groups representing the 40 firms. "Var" is the variance of the coefficient of the lagged variable (DPS_{it-1}) which is 0.132^2=0.0174 (Equation 3, Fixed Effect Regression). The distribution for the test is a standardized normal curve with a mean of 0 and standard deviation of 1.

$$h=0.712\sqrt{40/1-40(0.0174)} = 11.47*\ 0.712= 8.166. \qquad (4.4)$$

The probability of realizing a high value as 8.166 is very low from a standard normal curve. Thus a positive auto-correlation is evident which can be attributable to the low sample size (n)= 40.

4.3 Descriptive Statistics for Current Dividend per Share (DPS)

Descriptive statistics of dividend per share for the period 2000-2010 was analyzed based on the nine segments of the stock market. The statistics represent a snapshot of the measures of central tendency. Distribution of data was explored to reveal normality which is critical to application of parametric tests (Appendix VII). A normally distributed data is bell shaped and lies between ±3 standard deviation. Panel data distribution for current DPS was explored for both the market and

sectors. The distribution violated assumption of normality due to the underlying nature of the concept. Many of the observed DPS data had low values and few had high values (positive skew). Therefore data transformation was necessary for this variable. This was done by square root method after an inspection of the distribution showed that the peak of graph was relatively flat. Market sectors are nine namely; Agriculture, Automobile, Banking, Commercial service, Construction, Energy and petroleum, Insurance, Investment and Manufacturing. A summary of the descriptive statistics of DPS_{it} for the nine sectors is shown in the Table 4.1.

Table 4.1: Descriptive Statistics of Current DPS for the Sectors

Sector	N	Mean	St Dev	Median	Skew	Kurtosis	Min	Max
Agriculture	72	1.0524	0.9277	0.707	0.531	-0.861	0.00	3.16
Automobile & Acc	44	0.4495	0.429	0.5916	0.001	-1.887	0.00	1.00
Banking	93	1.0418	0.9208	0.8367	1.087	0.754	0.00	3.67
Commercial	55	0.998	0.79	1.04	0.122	-1.123	0.00	2.45
Construction	55	1.199	0.73	1.05	0.676	0.776	0.00	3.32
Energy& petroleum	33	1.4057	0.948	1.50	0.027	-0.533	0.00	3.24
Insurance	22	0.875	0.53	1.04	-0.78	-0.542	0.00	1.73
Investment	11	0.4528	0.237	0.5477	-1.42	0.999	0.00	0.67
Manufacturing	40	1.845	1.254	2.1035	-0.41	-1.213	0.00	3.64

4.3.1 Agriculture Sector

Firms listed under the agricultural sector were seven namely Kakuzi, Rea Vipingo, Sasini Tea, Eagads, Kapchorua Tea, Limuru Tea and Williamson Tea (k) Ltd. Sector panel data analysis was used to increase the sample observations which is one of the greatest benefits of using panel data for cross-section units that are few. Overall, statistics indicate that 72 observations returned a mean for current dividend per share (DPS_{it}) of Kshs.1.05 and a standard deviation of Kshs.0.93. This shows a sector paying dividends but which is highly variable ranging from no dividend at all to Kshs.3.16 as presented in Table 4.1. The median value for DPS_{it} is kshs. 0.71. The mean value signify many of the payouts over the period were above median.

4.3.2 Automobile and Accessories sector.

The automobile and accessories sector comprised of four (4) firms providing 44 observations. The firms are; Car and General, CMC Holding, Marshalls East Africa, and Sameer Africa. From Table 4.1, current dividends paid per share (DPS_{it}) for this sector had a mean of Kshs.0.45 and a standard deviation of Kshs.0.42 and range of between Kshs.0.00 and Kshs.1.00. The standard deviation is large signifying high variability of payout for the firms in the sector. In addition, statistics for skewness and kurtosis indicate the distribution was slightly positively skewed with a flatter peak. The mean value is kshs.0.45 which is below median. A greater proportion of payout for this sector was below kshs. 0.59 Per share. Further examination of data distribution for the sector show normality distributed data with high standard deviation compared to the mean. Some positive skew and negative kurtosis was evident but not considered serious. Normalization of panel data was done for consistency with the assumption classical linear regression model.

4.3.3 Banking Sector

The banking sector had nine (9) listed companies and 93 observations. The banks are; Barclays Bank, CFC Stanbic, Diamond Trust Bank, Equity Bank, Housing Finance Company, Kenya Commercial Bank, National Bank of Kenya, National Industrial Credit, and Stanchart Bank. A descriptive analysis of the sector's dividend paying behaviour revealed a mean value of dividend paid per share of Kshs.1.04, standard deviation of Kshs 0.92 and range of current DPS_{it} of Kshs.3.67 with a minimum of sh0.00 and maximum of Kshs.3.67. Table 4.1 also shows a median value of Kshs.0.84 signifying many more DPS panel observations were higher than the median value of Kshs.0.84 over the study period. Since the distribution was fairly normal, the researcher retained data for further parametric analysis.

4.3.4 Commercial Services Sector

The commercial services sector provided data from five (5) companies with 55 observations. A look at the descriptive statistics summary Table 4.1indicate that it paid an average dividend per share of Kshs.1.0 with a standard deviation of 0.79

which means the DPS varies widely from its mean. However a median value of kshs. 1.04 suggest more of the observed DPS being lower than this amount per share. The range of DPS_{it} for this sector is Kshs.2.45 with a minimum of Kshs.0.00 and maximum of Kshs.2.45 per share. Panel data distribution from the commercial sector appear more normal making it suitable for parametric analyses. The median DPS_{it} for the sector was Kshs.1.1 which means that more of the firm's payouts for the period were below Kshs.1.10 per share. This performance was below industry average.

4.3.5 Construction and Allied Sector

The construction and allied sector had five (5) listed companies and a total of 55 observations. Descriptive statistics reveal that the sector paid a dividend per share averaging Kshs.1.20 and a standard deviation of 0.73 (Table 4.1). The DPS_{it} range was Kshs.3.32 with a minimum of 0.00 and maximum of Kshs.3.32. The median DPS_{it} is Kshs.1.06 indicating more of the sector payments were above median value. Conversely a look at the distribution of panel data across the time series reveal a normal curve fitting the data without any serious violations of the assumption of the classic linear regression model.

4.3.6 Energy and Petroleum Sector

The energy and petroleum sector provide data for three (3) firms with 33 observations for the period. Descriptive statistics for the sector show that mean DPS_{it} was Kshs.1.40 with a standard deviation of 0.95 and range of Kshs.3.24. The minimum DPS_{it} is Kshs.0.00. At95 percent confident interval, DPS_{it} spread between Kshs.0.05 and Kshs.2.35 as lower and upper bounds respectively. The median value of DPS_{it} was Kshs.1.50 which is slightly above the mean value of DPS_{it}. This means that more of the payments were below Kshs.1.50. Table 4.1describe statistics for the sector.

4.3.7 Insurance Sector

The insurance sector had two (2) companies with 22 observations on the exchange for the period under study. An analysis of central measures reveal that the sector's mean DPS was Kshs.0.88 and a standard deviation of 0.53. The minimum DPS_{it} was KShs.0.00 while maximum DPS is kshs.1.73. The median value of DPS_{it} was Kshs.1.1 which is above the mean value of KShs.0.88. Low statistics for skewness and kurtosis of -0.7 and -0.5 means the distributions were approximately normal. Table 4.1 presents these statistics.

4.3.8 Investment Sector.

Only one company (Centum Investment) represented this segment providing 11 observations. Descriptive statistics show mean, standard deviation and median. Statistics on Table 4.1 indicates that for this company the mean DPS_{it} was Kshs.0.45 with a standard deviation of 0.24. The minimum and maximum DPS was Kshs.0.00 and Kshs.0.67 respectively. Data distribution for DPS_{it} in this sector after transformation show a near normal pattern.

4.3.9 Manufacturing and Allied Sector.

The manufacturing sector comprises of four (4) companies namely East Africa breweries, British America Tobacco, BOC (K) and Unga group. The total number of observations for the period were 44 returning a mean DPS of Kshs.1.85 standard deviation of 1.25.Minimum DPS was kshs 0.00 while range is KShs.3.64. The sector median DPS_{it} was KShs.2.10 which means more of the observed payments were below median amount according to Table 4.1.Distribution of data for the period however shows normality for the sector data according to Appendix VII. This allows for parametric tests without any manipulation.

4.3.10 Descriptive Statistics of DPS for the Market.

Panel data of DPS_{it} for all the 40 firms and 431 observations at the NSE was pooled and analyzed descriptively for market characteristics. Table 4.2 show that when the data is pooled across 40 companies, mean dividend per share is Kshs.1.10 and a standard deviation of 0.92 and a range of Kshs.3.67. This payout statistics show some level of consistency in dividend paid by market firms.

Table 4.2: Descriptive Statistics of Current DPS for the Market

N	425 6
Mean	1.0772
Median	1.0000
Mode	.00
Std. Deviation	.91794
Skewness	.723
Std. Error of Skewness	.118
Kurtosis	-.118
Std. Error of Kurtosis	.236
Minimum	.00
Maximum	3.67

Obviously DPS_{it} for the market is highly variable with a wide range across firms and industry. This makes DPS_{it} highly unpredictable hence risky.

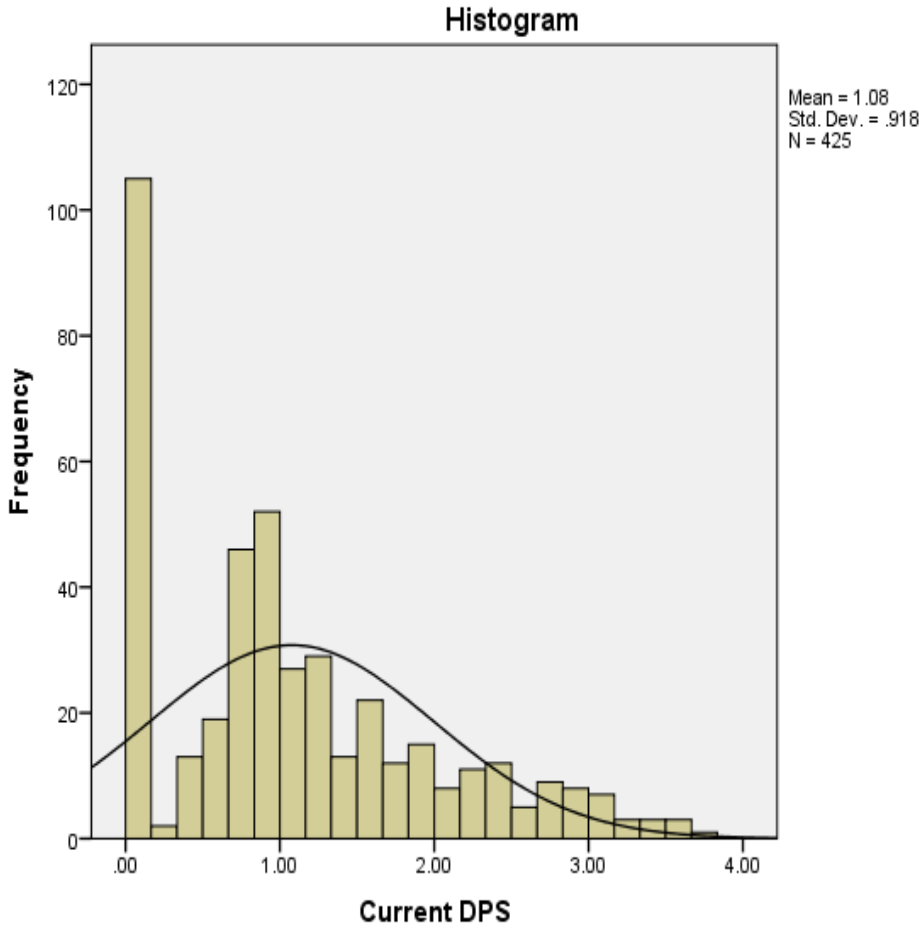

Figure 4.1: Distribution of Current DPS_{it} for the Market

Dividend payout risk according to the risk coefficient Table 4.3 is highest in the Automobile sector (COV 0.955) and lowest in the investment sector with a coefficient of variation of 0.533. This means investors preferring dividend returns are less likely to receive them from sectors ranking low in this list.

Table 4.3: Risk Coefficient Table for current DPS_{it}

Segment	Mean DPS	Standard Deviation	Coefficient of variation	Rank
Agriculture	1.05	0.92	0.876	7
Construction	1.19	0.73	0.613	3
Banking	1.04	0.92	0.885	8
Commercial	0.99	0.79	0.797	6
Insurance	0.87	0.53	0.609	2
Manufacture	1.85	1.25	0.675	5
Energy	1.40	0.94	0.671	4
Investment	0.45	0.24	0.533	1
Automobile	0.449	0.429	0.955.	9

4.4 Descriptive Statistics for Current EPS

Independent variables in this study comprise of current after tax profit (EPS_{it}), previous dividends per share, growth opportunities and business risk. Descriptive statistics for the current earning per shares was computed for each of the segment in the market. The reason for layering the analysis by the sector is to realize any unique characteristics associated with each respective sector. Firms tend to pursue dividend policies that are similar to their peers in the industry. Lintner (1956) in his seminal work on dividend theory posits that earnings are a significant factor positively affecting dividend payout for public firms in general. He studied a group of quoted industrial firms in Americas Stock market (NYSE). Therefore this variable was also investigated at the NSE as an independent variable to determine its influence on dividend decisions. Earnings change precede dividend change since mangers only decide to change dividends after they are certain that earnings change is permanent and not temporary. This is also to say that a temporary change in earnings of public

firms do not necessary affect dividend payout. The variable earnings per share upon inspection revealed a fairly normally distributed panel data (Appendix VII). Therefore no transformation of the variable was necessary either for the respective sectors or the market as a whole.

Table 4.4: Summary Table of Descriptive Statistics for EPSit.

Sector	N	Mean	Stdev	Median	Skew	Kurtosis	Min	Max
Agriculture	73	3.844	9.786	1.25	3.029	14.789	-17.8	59.12
Automobile	44	1.198	6.88	1.4	-2.03	5.531	-23.9	10.69
Banking	93	3.664	4.179	2.94	0.956	3.63	-11.0	18.73
Commercial	55	4.418	7.302	3.59	1.55	7.602	-14.2	37.15
Construction	55	3.8269	4.701	2.51	1.606	3.671	-4.66	20.38
Energy & Petr	33	7.84	21.46	5.79	-0.32	0.805	-40.3	46.97
Insurance	22	3.206	4.6	2.915	-0.31	1.32	-8.85	12.28
Investment	11	1.17	0.962	0.59	1.28	1.174	0.29	3.35
Manufacturing	44	6.613	5.977	7.125	-0.85	2.3	-14.5	17.67

4.4.1 Agriculture Sector

Current earnings per share (EPS_{it}) for this sector returned statistics indicating the sector average earning per share was Kshs.3.84 and standard deviation of 9.79. The maximum EPS_{it} reported was Kshs.59.12 while minimum is Kshs.-17.84. The median value for earning per share was Kshs.1.25 which is below the mean EPS_{it} (Table 4.4). As a result it can be inferred that more of the earnings reported per share were above the median value. More so earning variability is noted to be quite high for this sector. Panel data distribution for the sector indicates that sector earnings were normally distributed given its underlying nature.

4.4.2 Automobile and Accessories Sector

The automobile and accessories sector had four (4) companies and 44 observations as noted in Table 4.4.The mean EPS_{it} for the sector was Kshs.1.19 a standard deviation of 6.882 which clearly show high variation in the earning reported. The confidence interval for EPS_{it} lies between Kshs.-23.95 and Kshs.10.69 around the mean EPS_{it}. The median value of the EPS_{it} for the sector is Kshs.1.40 which is above mean EPS_{it}. Therefore, the firms in this sector reported more EPS_{it} below the median value of Kshs.1.40 per share for the period. Distribution of data shows a normal bell shaped curve for the data. This is suitable for many parametric tests.

4.4.3 Banking Sector

The banking sector has been vibrant with more regular dividend payout over time. This sector with nine (9) firms and 93 observations posted a mean EPS_{it} is Kshs.3.664 and a standard deviation of 4.179 (Table 4.4). In terms of EPS_{it} range paid by listed banks in this sector, the minimum EPS was Kshs.-11.03 while maximum was Kshs.18.73. In addition, this sector did not show high level of earnings volatility. The median value of current EPS was below the mean at Kshs.2.94 indicating more of the earnings reported being above the median value. Low statistics for skewness and kurtosis indicate data is clustered around the mean $EPS_{it.}$

4.4.4 Commercial and Services Sector

The commercial and services sector had five (5) firms listed in the sample and the number of observed data was 55. Table 4.4 on descriptive statistics show that mean EPS_{it} for this sector was Kshs.4.4182, standard deviation of 7.30 with a range from kshs-14.20 to KShs.37.15. In order to understand the nature of distribution of EPS_{it} the median value of EPS_{it} computed is ksh3.59 which is below the mean EPS. The interpretation here is that more of the EPS_{it} in this sector was above the median value. Inspection of data indicate a symmetrical distribution around the mean EPS_{it} (Appendix VII).

4.4.5 Construction and Allied Sector

Construction and allied sector provided data of five (5) companies with 55 observations over the period. The mean EPS_{it} for firms in this sector was Kshs.3.8269 and standard deviation of 4.7. The range is from a minimum EPS_{it} of Kshs.-4.66 to maximum of Kshs.20.38. The median value of EPS_{it} for the sector is Kshs.2.51 below the mean EPS_{it}. Hence more panel observations of EPS_{it} lay above the median value for the period studied. Earning variability was high in the sector as indicated by high standard deviation value compared to the mean EPS_{it}.

4.4.6 Energy and Petroleum Sector

The energy and petroleum sector panel data was provided by three (3) companies. Total number of observations were 33 with a mean EPS_{it} of KShs.7.84 and standard deviation of 21.46. This means the sector EPS_{it} was highly variable. The range of EPS_{it} was from a low of Kshs.-40.33 to a high of Kshs.46.97. When the mean is compared with the median value of (KShs.5.79) it is apparent that more observations of EPS_{it} in this sector were above the median value. This was above average performance.

4.4.7 Insurance Sector

The insurance industry statistics is given in Table 4.4. Data from two firms listed at the exchange namely; Jubilee Insurance and Pan Afric Insurance. Total observed data were 22 which gave a mean EPS_{it} of Kshs. 3.20 and a standard deviation of 4.60. The range of EPS_{it} for the sector was from Kshs. 8.85 to Kshs. 12.28. Variance of EPS_{it} for the sector is not considered very serious. The median value of EPS_{it} tells us that at Kshs. 2.92 more of the reported EPS_{it} was above the median value. Therefore higher earnings characterized the sector for the period studied.

4.4.8 Investment Sector

The investment segment had only one firm known as Centum Investment providing 11 observations. The mean EPS_{it} here was Kshs. 1.1755 and a standard deviation of

0.96. Data range from the statistics is from Kshs. 0.29 to kshs. 3.35 (Table 4.4). Obviously a lower standard deviation of earnings than the mean signify the company earnings was more stable in the market. A median value of Kshs. 0.59 mean more of reported earnings over the period were above the median value or targeted value.

4.4.9 Manufacturing Sector

Manufacturing sector in this study was represented by four (4) companies with 44 observations. The mean EPS_{it} for the manufacturing sector was Kshs. 6.61 and a standard deviation of 5.977 with EPS_{it} ranging from Kshs. -14.57 to Kshs. 17.67 (Table 4.4). This market segment had more reported earnings below median value or target industry average of Kshs.7.12. This performance would be considered below expected for the industry.

Table 4.5 shows earnings risk was highest in the automobile sector and lowest in the manufacturing sector after ignoring investment sector for insufficient data. This is attested to by the coefficient of variation computed for the sectors and the ranking.

Table 4.5: Risk Coefficients for current EPS_{it} for the NSE

Segment	Mean EPS	Standard Deviation	Coefficient of variation	Rank
Agriculture	3.84	9.7	2.53	7
Automobile	1.98	6.88	3.474	9
Construction	3.82	4.7	1.23	4
Banking	3.66	4.17	1.13	3
Commercial	4.418	7.3	1.65	6
Insurance	3.2	4.61	1.44	5
Manufacture	6.61	5.97	0.903	2
Energy	7.84	21.46	2.737	8
Investment	1.17	0.96	0.82	1

Earnings data for each firm over the period (EPS_{it}) was plotted and the resulting graph captured by Figure 4.2. The graph shows a normal graph for the data from all the sampled companies. The data therefore support application of any parametric techniques in further analyses.

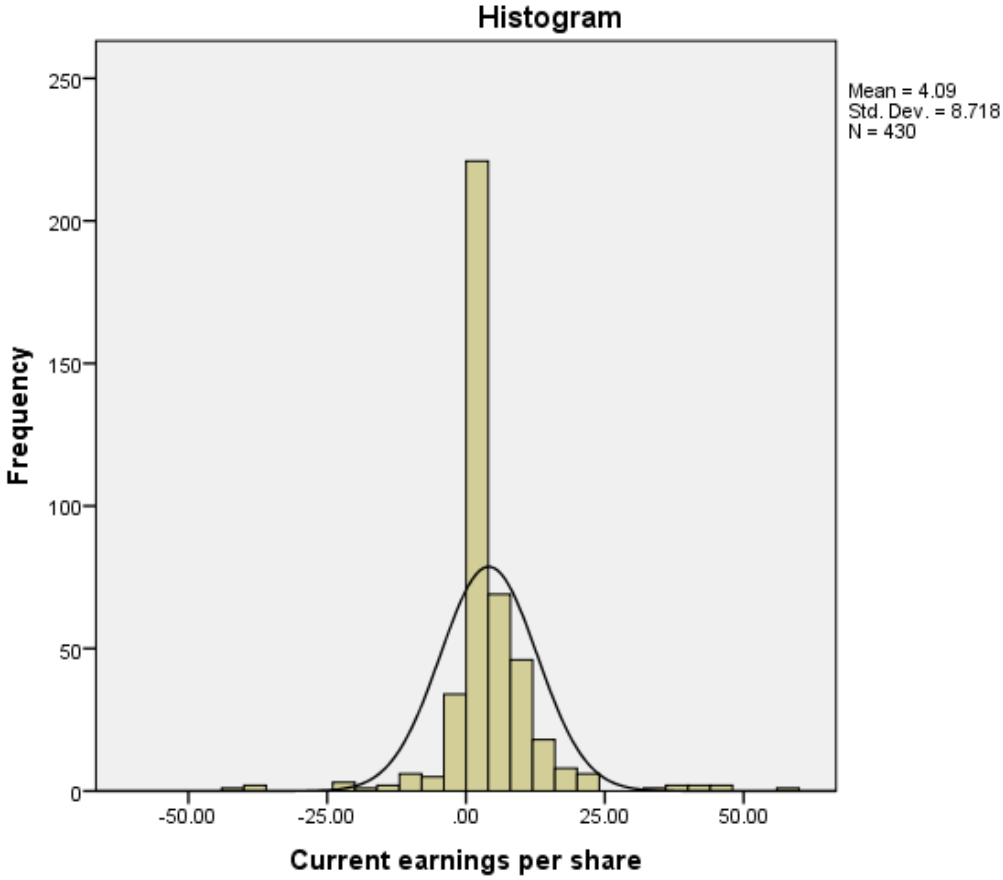

Figure 4.2: Distribution of Current Earnings after tax for the listed firms

4.5 Descriptive Statistics of Previous DPSit

Previously paid dividends was selected as another of the explanatory variables which relates to current dividends paid. This was also studied by Lintner (1956) when determining the stability of dividends by public industrial firms in the USA stock markets in between 1947-1953.Descriptive statistics of panel data for various sectors is shown in Table 4.6.The panel data for this variable was transformed by

square root method to achieve normality for each sector of the market before further analysis. Their distribution is shown in Appendix VII.

Table 4.6: Descriptive Statistics Summary Table for Previous Dividend per Share

Sector	N	Mean	StDev	Median	Skew	Kurtosis	Min	Max
Agriculture	67	1.029	1.00	0.707	0.825	-0.178	0.00	3.87
Automobile	40	0.4609	0.433	0.6312	-0.051	-1.907	0.00	1.00
Banking	84	1.00	0.9108	0.8367	1.027	0.573	0.00	3.46
Commercial	50	0.9843	0.7936	1.048	0.161	-1.084	0.00	2.45
Construction	50	1.1928	0.704	1.0536	0.661	0.903	0.00	3.32
Energy& Petrol	30	1.3938	0.949	1.5406	-0.038	-0.463	0.00	3.24
Insurance	20	0.8267	0.519	1.0477	-0.883	-0.899	0.00	1.32
Investment	10	0.498	0.194	0.5477	-2.102	5.444	0.00	0.67
Manufacturing	40	2.00	1.37	2.12	-0.301	-1.084	0.000	4.12

4.5.1 Previous Dividends per share for the Agriculture Sector

Statistical data for agriculture sector presented in Table 4.6 show a mean value of previous DPS paid of Kshs.1.03. The standard deviation is Kshs. 1.01. Statistics also show dividends paid in the previous period ranging from Kshs. 0.00 to Kshs. 3.87. A look at the median value for the variable indicates Kshs. 0.71 which is interpreted as more observations of previously paid dividends for the period lying above the median amount. The pattern of data distribution was fairly normally distributed around the mean previous dividend.

4.5.2 Automobile Accessories Sector

In the same Table 4.6 the mean value of previously paid DPS_{it} was Kshs. 0.46 and the standard deviation is Kshs. 0.43. This dispersion is large and can affect stability of estimates. The range of values was 1.00So far more than half of the reported DPS_{it} previously paid for this sector was less than Kshs. 0.63.Data distribution

supports non violation of the symmetry assumption underlying classical linear regression models.

4.5.3 Banking sector

Banking sector had 84 valid observations returning a mean of DPS paid previously of Kshs. 1.01 and a standard deviation of 0.9. The median value is Kshs. 0.84 which represents a less variable distribution of lagged DPS. Again a greater proportion of observed DPS_{t-1} was above kshs.0.84. The range of DPS_{it} paid previously was Kshs. 3.46 with a minimum of Kshs. 0.00.Panel data for this sector was more concentrated around the mean as shown by the positive Kurtosis value of Kshs. 0.573. Overall, banking sector data show an industry with a history of paying high dividends that is fairly normally distributed.

4.5.4 Commercial Service Sectors

Previously paid dividends statistics for commercial services sector according to Table 4.6 shows a mean value for DPS_{it} previously paid of Kshs. 0.98 and a standard deviation of 0.79 from five (5) companies and 50 observations. Median DPS paid previously is kshs. 1.04. Therefore more of the reported prior DPS were less than ksh 1.04 which is considered the industry target. This mean previously paid dividends were below target for a much of the period.

4.5.5 Construction and Allied Sector

The construction and allied sector provided 50 observations. The mean value of previously paid dividend is Kshs. 1.19 and a standard deviation of 0.70. The median value is kshs.1.053 signifying more panel observations being above this value. The range of DPS_{it} values is Kshs. 3.32. Table 4.6 indicates a distribution of DPS_{it} previously Paid which is fairly normally distributed. Statistics on skewness and kurtosis show panel data was reasonably normally distributed.

4.5.6 Energy and Petroleum Sector

The energy and petroleum sector had 3 firms with 30 observations. Statistics from Table 4.6 shows that the mean value of previous DPS is kshs.1.39. A standard deviation associated with this mean value is 0.94 the range of kshs. 3.24. Looking at the median value of kshs.1.54, more than half of the reported DPS paid previously were less than this amount. Data showed good symmetry for this variable as shown in Appendix VII

4.5.7 Insurance Sector

Two (2) companies represented the Insurance sector providing 20 panel observations. The mean DPS paid previously by the firms was Ksh.0.82. Standard deviation is 0.52 while the median is kshs.1.05.Hence more of the observed past dividends were below the industry target in this sector. The range is between shs.0.00 and shs.1.74.Datawas transformed appropriately for normality due to the apparent positive skew caused by the underlying nature of the concept. This sector dividend history was below industry target for the period.

4.5.8 Investment Sector

One listed firm (Centum investment) provided panel data of 10 observation for this sector. Descriptive statistics reveal that the company DPS_{it} lagged by one period averaged kshs. 0.50 and a standard deviation of 0.194. The range was from kshs.0.00 to kshs. 0.67 while the median DPS_{it} is kshs.0.54 (Table 4.6). Clearly this sector lagged dividends were below what the target was for much of the period.

4.5.9 Manufacturing and Allied Sector

The manufacturing and allied sector had 4 listed companies providing 40 panel data observations. Average DPS_{it} paid previously is kshs 2.00, while the standard deviation iskshs.1.37. A look at the median value shows an amount of kshs 2.12 which is above the mean. This signify more payments for the sector was below the

median value. The range of previously paid dividends per share was from shs.0.00 to kshs 4.12 as shown in Table 4.6.

4.5.10 Statistics for Previous DPS for the Market.

Statistics for the market as a whole shown in Table 4.7illustrates that average prior dividend paid was kshs 1.09 with an associated standard deviation of 0.96 and a median payout of kshs. 1.00. The range of prior dividends paid was kshs 4.12. Hence for the market as a whole, firms had a dividend history slightly above their target for much of the time.

Table 4.7: Statistics of Prior Dividends paid for the Market

N	Valid	391
Mean		1.0855
Median		1.0000
Mode		.00
Std. Deviation		.96293
Skewness		.858
Std. Error of Skewness		.123
Kurtosis		.272
Std. Error of Kurtosis		.246
Minimum		.00
Maximum		4.12
Percentiles	25	.0000
	50	1.0000
	75	1.5811

The distribution of prior dividends appear normalized for the entire market from the Figure 4.3.This assists in further analysis.

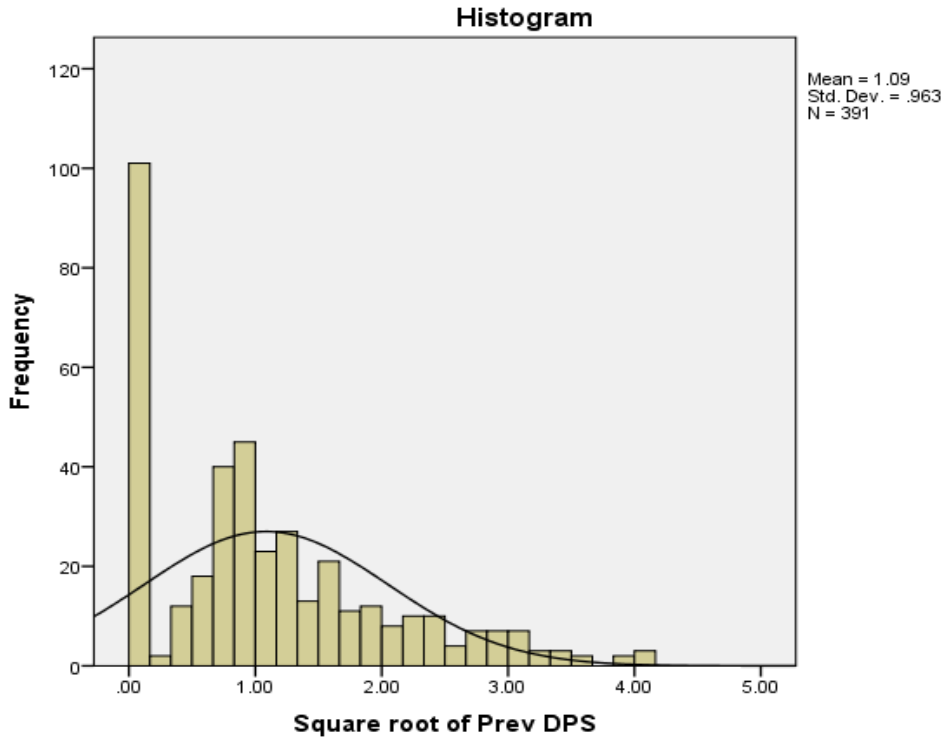

Figure 4.3: Distribution of previous DPS_{it} for the Market

Table 4.8: Risk Coefficient for Prior Dividends per Share for the Market.

Segment	Mean (Prev DPS)	Standard Dev	Coeff of Variation	Rank
Agriculture	1.03	1.0	0.97	9
Automobile & Acc.	0.46	0.43	0.94	8
Construction	1.19	0.7	0.58	2
Banking	1.00	0.91	0.91	7
Commercial	0.98	0.79	0.81	6
Insurance	0.83	0.52	0.63	3
Manufacture	2.0	1.37	0.69	5
Energy	1.39	0.95	0.68	4
Investment	0.498	0.194	0.39	1

A coefficient of variation computed for the sectors (Table 4.8) based on prior dividends paid indicate that investment sector had the lowest risk while agriculture sector had the highest risk. Construction sector is second best by risk coefficient followed by insurance industry. This means that for an investor to maximize dividends on the basis of dividend history, stocks from investment, construction and insurance sectors would be selected in that order.

4.6 Descriptive Statistics for Growth Opportunities

Growth opportunities/prospects was selected in this study as acritical factor that drive share value in the capital market. It is an independent variable proxied by the ratio of market value to book value per share (MTB) for each firm *i* at time *t*. A high MTB ratio would be inversely related to the current dividend paid per share and vice versa. This is because with a high MTB the market put a premium on a company since it has better growth opportunities. Therefore more resources would be required to finance investment opportunities and consequently less of the earnings shall be distributed to shareholders based on the pecking order theory that internal resources are cheaper than external funds. An MTB ratio greater than 1.0 correspond to high opportunities while a ratio of 1.0 or less than 1.0 mean a company faces poor prospects for growth. Hence a dichotomous response (High/Low) was created for this variable from the ratio calculations presented in Table 4.9.

Table 4.9: Summary Table of Growth Opportunities (MTB ratios) for Sectors

Sector	N	Mean	StdDev	Median	Min	Max
Agriculture	74	1.00	1.213	0.532	0.13	5.93
Automobile	44	1.0203	0.784	0.762	0.09	3.57
Banking	93	2.2	1.65	1.78	-0.26	7.33
Commercial	55	2.04	2.01	1.29	0.11	9.31
Construction	55	1.643	1.54	1.1698	0.14	8.54
Energy and petrol	33	0.9926	0.869	0.803	0.03	3.62
Insurance	22	1.06	1.02	0.436	0.20	3.32
Investment	11	1.3298	0.64	1.079	0.64	2.87
Manufacturing	44	2.3417	2.26	1.7	0.13	11.68

4.6.1 Agricultural Sector Growth Opportunities

Descriptive statistics in Table 4.9 indicate that the mean market to book (MTB) ratio for agriculture sector was 1.0 and a standard deviation of 1.2. Sector median ratio is 0.53 and a range between a low of 0.13 and high of 5.93. Only about 26 percent of the ratios were above 1.0 which means about one out of four reported opportunities were high while three out of four were low opportunities (Figure 4.4). Firms with low MTB ratio face poor market opportunities. Consequently with low growth opportunities, the firms face higher agency issues related to excess cash. This should result in less smoothing (high adjustment speed) to mitigate risks (Leary & Michaely, 2011). If this does not happen, then share value would decrease. The modal ratio was 0.13 signifying low growth opportunities characterizing much of the period.

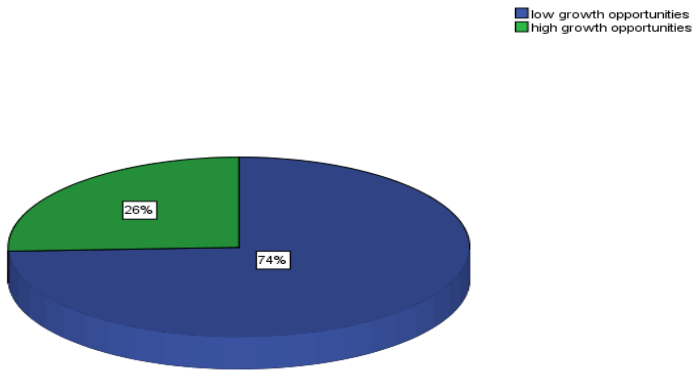

Figure 4.4: Growth Opportunities in Agriculture sector

4.6.2 Automobile and Accessories Growth Opportunities

Table 4.9 again reveals that mean MTB is 1.02 and standard deviation of 0.78. Median MTB for the sector is 0.76. Growth opportunities for this sectors, show that for the period under review, high growth opportunities was present 34 percent of the

time (Figure 4.5). This is represented by 15 out of 44 total observations that returned an MTB greater than 1. Here again much of the opportunities for growth were low for the period. Consequently, the sector faced higher risks which would require lower payout.

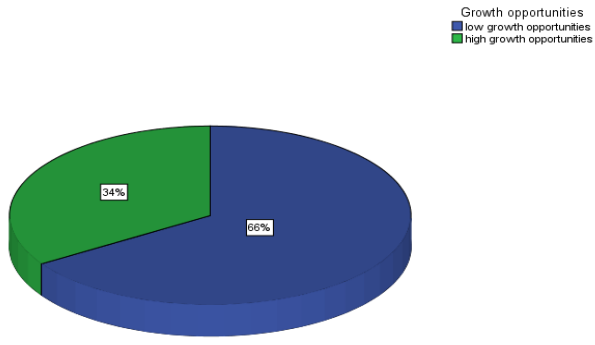

Figure 4.5: Growth Opportunities in Automobile Sector

4.6.3 Banking sector Growth Opportunities

The banking sector according to the chart (Figure 4.6) had higher growth opportunity for much of the period. Out of the entire period, three quarters of the time banking experienced a high market- to -book ratio of greater than 1.0. This would translate into more information asymmetry on the part of investors about the best opportunity selection. Payout decisions in this sector therefore favour more smoothing by paying out fewer dividends. Only 1 chance out of 4 (25%) did the banking institutions report lower MTB ratio of less than 1. Statistics in Table 4.9 reveal a mean MTB ratio of 2.2 and median MTB of 1.78 the range was -0.26 and 7.33. This confirms the outcome reflected by the pie chart (Figure 4.6).

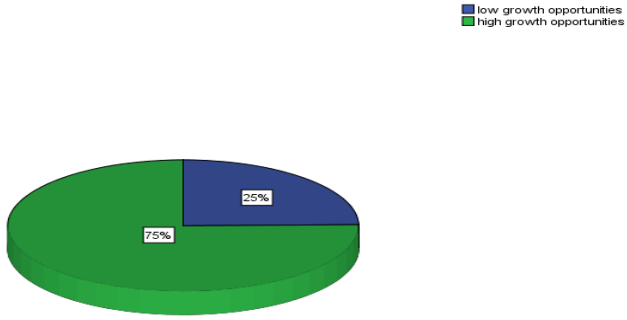

Figure 4.6: Growth Opportunities in the banking Sector

4.6.4 Commercial Services Sector Growth Opportunities

Growth opportunities data in the commercial services sector comprised 55 observations out of which 37 indicating high growth opportunities representing 67 percent of the firm-year observations. Dividend payout in the sector over the period would be expected to be low (more smoothing) to take advantages of investment and market opportunity presented by a high market-to-book ratios (Figure 4.7). The average value of MTB ratio was 2.0, with a standard deviation of 2.0 and median of 1.2 (Table 4.9). The range of ratios is between 0.11 and 9.31 signifying high variability of opportunity for firms which may also be considered risky.

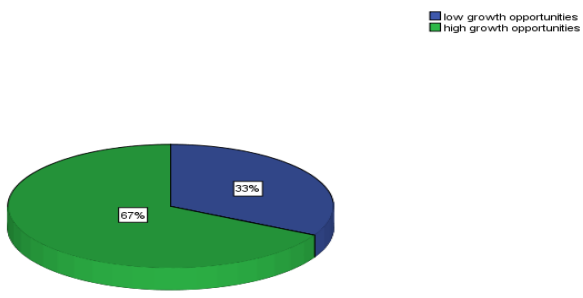

Figure 4.7: Growth Opportunities in the Commercial Sector

4.6.5 Construction and Allied Sector Growth Opportunities

High growth opportunities in this sector was noted from 33 out of the 55 panel observations. This represents 60 percent of the total observations as shown in Figure 4.8. Therefore this sector experienced high growth opportunities for much of the period. The expectation is for the sector should smooth more due to convey that information to the market. A high MTB rate means potential for earnings growth and more dividend payout according to the signaling theorists. Statistics from Table 4.9 show a mean MTB ratio of 1.6, and a standard deviation of 1.5. The median MTB ratio is 1.16. More than half (60%) of the computed ratios were higher than 1.0 while low growth prospects was noted by 40% of the ratios.

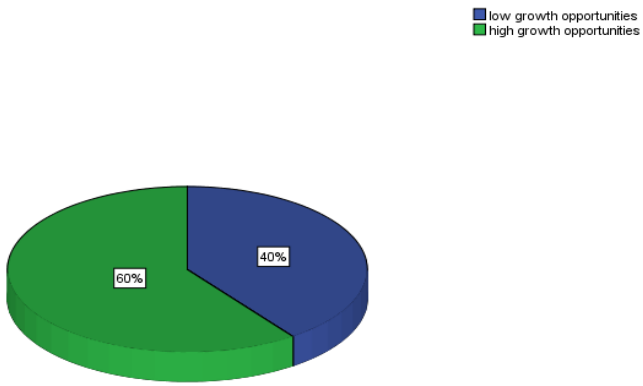

Figure 4.8: Growth Opportunities in the Construction Sector

4.6.6 Energy and Petroleum Sector Growth Opportunities

Energy and Petroleum sector had 3 firms with a total of 33 panel observations. Out of the 33 sampled data, 13 indicated high growth opportunities while 20 indicated low growth opportunities. Availability of growth opportunities for this sector was low (61%) and high (39%) of the time (Figure 4.9). The sector therefore would be

expected to pay more dividends (less smoothing) to avoid the problem of higher risks from agency costs. Descriptive data show a mean MTB ratio of 0.99 with a standard deviation of 0.86 (Table 4.9).

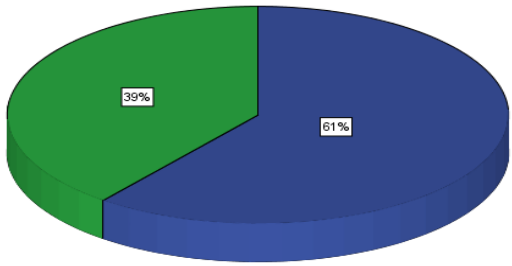

Figure 4.9: Growth Opportunities in the Energy Sector

4.6.7 Insurance Sector Growth Opportunities

Insurance sector with 2 firms and 22 observations indicated low growth opportunities dominating through the period (Figure 4.10). This was represented by 55% of the total observed values. This situation would signify more payout (less smoothing) of dividends since the firms in the sector cannot find better opportunities for investment hence reduce agency concerns. Sector statistics here show a mean MTB ratio of 0.06, standard deviation of 1.02 and a median of 0.44 which is evidence of poor conditions. Market to book ratio spread was from a low of 0.2 to high of 3.32 which again is a highly variable opportunity.

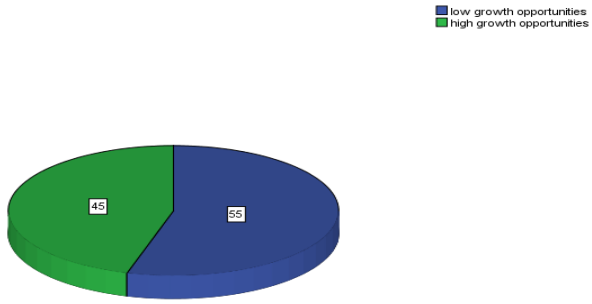

Figure 4.10: Growth Opportunities in Insurance Sector

4.6.8 Investment Sector Growth Opportunities

Investment sector was represented by one company which experienced high opportunity within the period (Figure 4.11). The opportunity was present 73% of the time from 2000-2010 and hence less payments of dividends due to asymmetric information would be expected. However since only one company represent the sector and hence industry performance may not be well captured. Part of the reason for this outcome may be the stage of development for the firm in the sector. Young companies usually have high growth opportunity compared to mature ones. Descriptive statistics in Table 4.9show an average MTB ratio for the sector of 1.33 and a standard deviation of 0.64 for the only firm sampled in this sector.

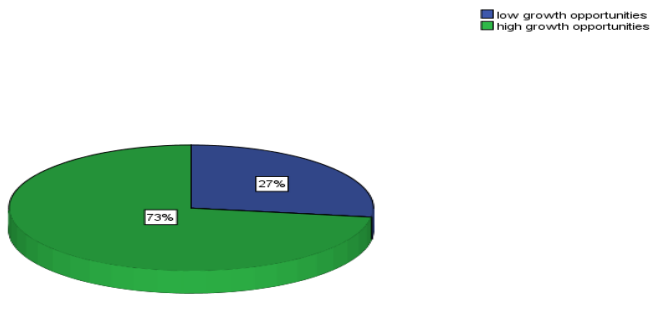

Figure 4.11: Growth Opportunities in the Investment Sector

4.6.9 Manufacturing Sector Growth Opportunities

The manufacturing and allied sector had 4 firms with a total of 44 firm-year observations. Twenty eight (28) observations indicated high growth opportunities representing 64% as shown in Figure 4.12. Better market opportunities for firms in this sector may motivate them to pay fewer dividends (more smoothing). This is likely to address the problem of information asymmetry associated with high growth opportunities (Leary & Michaely, 2011). The mean MTB ratio for manufacturing sector was 2.3 with a standard deviation of 2.26 according to Table 4.9.

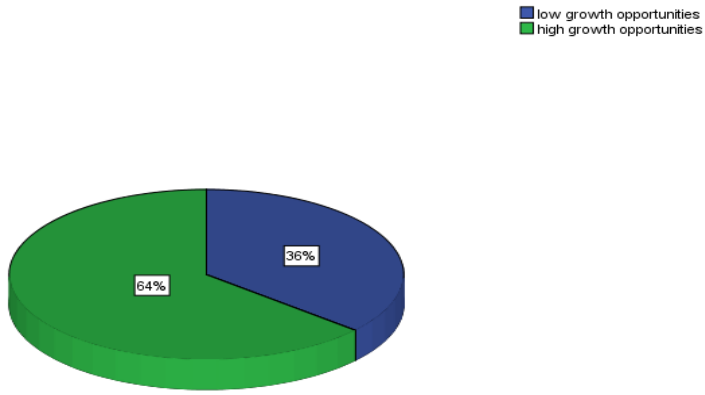

Figure 4.12: Growth Opportunities in Manufacturing Sector

Table 4.10 shows overall market statistics and clearly better opportunities for growth prevailed for the period illustrated by a mean MTB ratio of 1.61 and standard deviation of 1.55.The range of MTB ratio was from 0.3 to 9.31 which is evidence of high information asymmetry in the market which could be managed by increased smoothing (less dividend payout).

Table 4.10: MTB Ratio Statistics for the NSE

	N	Minimum	Maximum	Sum	Mean		Std. Deviation
	Statistic	Statistic	Statistic	Statistic	Statistic	Std. Error	Statistic
Market –to- Book ratio	429	.03	9.31	689.45	1.6071	.07483	1.54981
Valid N	429						

The growth rankingin Table 4.11 shows that the sector with highest growth opportunity was manufacturing, followed by banking and commercial services in that order. Energy and petroleum sector had the least opportunities for growth during the period. Overall, four sectors (Agriculture, Automobile, Energy and Insurance) experienced low growth prospects over the study period. Conversely, five sectors namely manufacturing, banking, commercial, construction and investment had good opportunities for growth during the period. Dividends payout in the market is hence explained by Signaling, agency cost and information asymmetry hypotheses.

Table 4.11: Growth Opportunity Risk Ranking in the Market

No.	Sector	Mean MTB	Growth Opportunity	Rank
	Agriculture	1.003	Low	8
	Automobile & Accessories	1.02	Low	7
	Banking	2.2	High	2
	Commercial Services	2.0	High	3
	Construction	1.64	High	4
	Energy & Petroleum	0.99	Low	9
	Insurance	1.06	Low	6
	Investment	1.32	High	5
	Manufacturing	2.34	High	1

4.7 Descriptive Statistics for Business Risk

Business risk is yet another factor that is discussed in literature to affect dividend payout. Risk is hypothesized to be inversely related with dividend payout so that with high risk, dividends are reduced or even omitted (more smoothing). Business risk in this study is measured by the ratio of market price per share to earnings per share. Consequently a high P/E ratio (above 10) signifies low risk and vice versa. The ratio of 10 was chosen as an average Median value (Target) for all the nine sectors in the market since variation was between a low of 3.32 (Insurance sector) and 18.58 (Banking sector). Low business risk may result in higher payout (less smoothing) since earnings and cash flows are stable and predictable. Price – earnings ratio above 10 was used to indicate low risk and less information asymmetry problems while a ratio equal to or less than 10 mean risks are high (more asymmetric information). Descriptive statistics of panel data by industry at the NSE realized various results for risk faced by the different sectors as shown in Table 4.12.

Table 4.12: Sector Risk Statistics Measured by P/E Ratio

Sector	N	Mean	Stdev	Median	Skew	Kurt	Min	Max
Agriculture	68	6.766	71.65	10.6395	-2.49	13.384	-375	160
Automobile	44	0.110	-5.78	8.2576	-5.78	36..084	-303	36.67
Banking	93	18.58	47.52	12.48	9.00	84.46	-6.1	461.54
Commercial	55	17.2	38.12	12.1	5.48	37.19	-56.11	270.00
Construction	55	14.12	13.03	13.86	-1.024	3.485	-31.72	42.86
Energy & Petr	33	8.112	7.09	8.2645	0.289	1.228	-8.52	28.29
Insurance	22	3.316	18.8	5.6634	-0.764	2.821	-47.96	46.68
Investment	11	14.2	8.329	13.5	0.533	0.058	1.15	29.47
Manufacturing	44	10.9	11.57	12.8	-1.774	7.721	-39.65	32.51

4.7.1 Agricultural Sector Risk

Agriculture sector firms reported low risk or high P/E ratio 55% of the time while high risk or low P/E ratio was noted 45% of the time (Figure 4.13). This means

sector firms experienced low risk much of the time. Dividend payout therefore would be expected to be high to signal the investors that prospects were good. The mean P/E ratio for the sector was 6.8(High risk) while the median P/E ratio is 10.6. The standard deviation is 71.65 signifying high variability in earnings yield for the sector firms. The range between lowest and highest ratio was very high signifying instability in the sector.

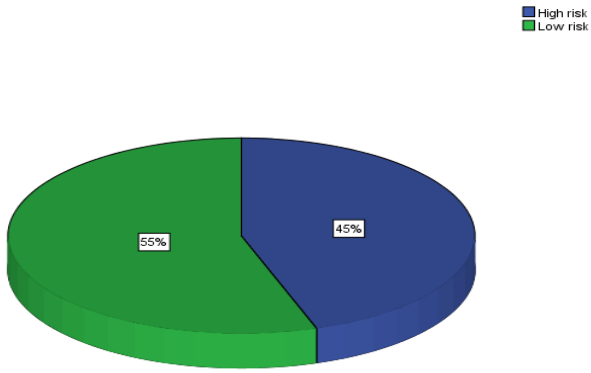

Figure 4.13: Business Risk levels in the Agriculture Sector

4.7.2 Automobile and Accessories Risk Level

Automobile and accessories industry had a mean P/E ratio 0.11 and standard deviation of 48.9 (Table 4.12). The range of P/E ratio was between -303 and 37. The median P/E ratio was 8.25. Hence high risk characterized the sector given the low P/E ratio for much of the time. Dividend payout in this sector would therefore be explained by agency hypothesis in this sector. Figure 4.14 shows most of the cases 59 percent with low P/E ratio hence high risk while 41percent low risk (high P/E ratio) in this sector.

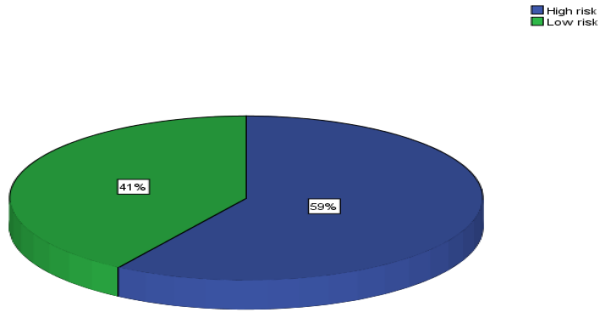

Figure 4.14: Risk level for the Automobile Sector

4.7.3 Banking Sector Risk

The banking sector had 93 cases which returned a mean P/E ratio of 18.58. Standard deviation of 47.5 and a median values of 12.48. The Sector P/E range was from -6 to 461. Both mean and median values for P/E ratio were above 10 signifying a sector experienced low business risk and high growth prospects hence less smoothing required. By levels of risk, low risk was represented by 62% of the observed data while high risk was indicated by 38 % of P/E ratios (Figure 4.15).

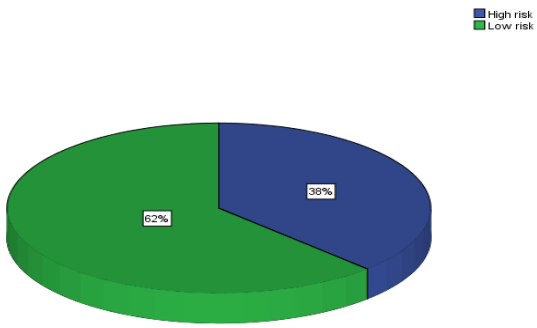

Figure 4.15: Risk Level for Banking Sector

A high average P/E ratio would mean the banking sector paid more dividends because risk was low other things constant (signaling reasons).

4.7.4 Commercial and Allied Services Risk

Commercial and allied sector provided 55 cases where the mean P/E ratio was 17.2 and a standard deviation of 38.1. Price earnings ratio had a median ratio of 12 while the range is between -56.11 to a high of 270. Figure 4.16 shows that risks for the firms in the commercial sector was predominantly low (60%) indicated by high P/E ratios above 12. This is also an indication that the sectors would have less motivation to smooth dividends (SOA would be high). This also means the sectors payout would serve to signal better prospects for the firms in future.

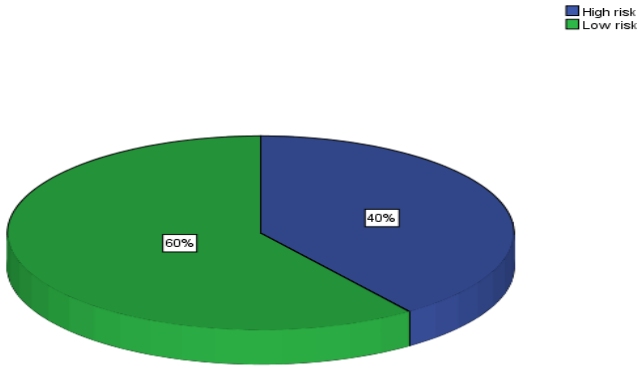

Figure 4.16: Risk Level for Commercial Sector

4.7.5 Construction and Allied Sector Risk

Descriptive statistics for this sector represented by 5 firms and 55 cases revealed an average P/E ratio of 14, standard deviation of 13, median of 13.86 and range of between -31.72 and 42.96. The pie chart (Figure 4.17) shows risk levels for the sector characterized by high risk (33%) and low risk (67%). Again dividend payout here would be expected to be high due to low risk hence less smoothing. The sector therefore recorded low risk much of the period which also mean less motivation to stabilize dividends and better opportunities for investment.

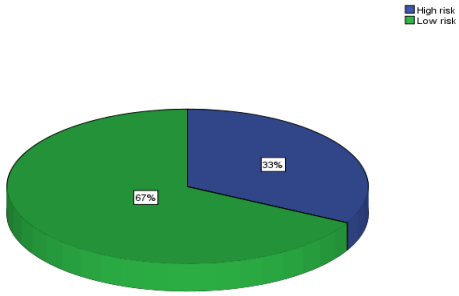

Figure 4.17: Risk level for Construction Sector

4.7.6 Energy and Petroleum Sector Risk

This energy sector had 3 listed firms with 33 valid cases. Descriptive statistics in Table 4.12 show a mean value of price -earnings ratio of 8. The standard deviation is 7.09 while median ratio is 8.26 and range of between -8.52 to 28.29. The mean ratio for P/E is low signifying the sector experienced high risk for the period. This also mean agency problem was present due to over-investment risk. Therefore there arise increased need for smoothing by paying low dividends. By classification of risk, sector firms faced high risk 64 percent of the time and low risk 36 percent of the time from Figure 4.18.

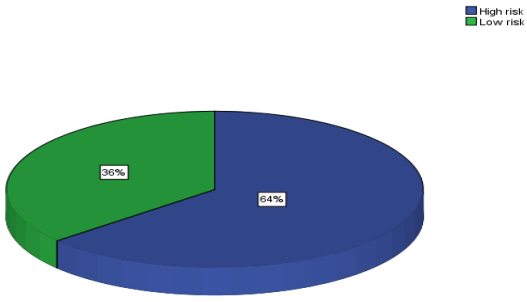

Figure 4.18: Risk level over the period for Energy Sector

The sector therefore could only pay fewer dividends due to the high risk environment it operated in.

4.7.7 Insurance Sector Risk

The insurance sector was characterized by a mean P/E ratio of 3.31 from the 2 firms and 22 observations. A standard deviation of 18.8 and median P/E ratio of 5.66 (Table4.12). Risk for the sector was therefore predominantly high and this necessitates more smoothing to control agency costs. Figure 4.19 shows therefore that in the period under study, high risk prevailed 64% of the time while low risk 36% of the time. Therefore the sector would be expected to pay fewer dividends to try and accommodate prevailing risk conditions.

4.7.8 Investment Sector Risk

The investment sector had one firm which returned a mean P/E ratio of 14.2 and standard deviation of 8.32 (Table 4.12). The median and range for the data was 13.5 and between1.15 and 29.47 respectively. Risk level for the sector was therefore low signifying less need for smoothing and more payout given the high P/E ratio above 10. Figure 4.20 indicates low risk (73%) of observations while high risk (27%) of the computed rations over the period.

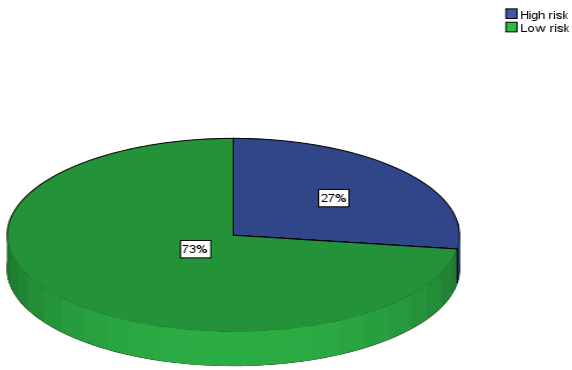

Figure 4.19: Risk Level for the Investment Sector

4.7.9 Manufacturing Sector Risk

Manufacturing sector had 4 firms and 44 observed P/E ratios. The mean P/E ratio was 10.9 and standard deviation of 11.5 according to Table 4.12. The median ratio is 12.8 above the mean which means more ratios lay below this value. A range of between risk-39.65 and 32.51 is seen for the data analyzed. Overall risk level for the sector is low as indicated by 61% of the ratios and high (39%). Therefore the sector would smooth dividends less and by paying more dividends. Figure 4.21 presents the data for risk in the manufacturing sector over the period.

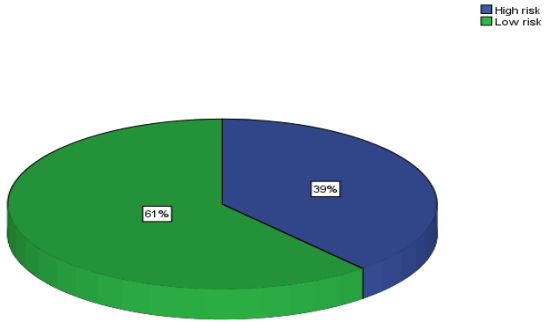

Figure 4.20: Risk Level for Manufacturing Sector

4.7.10 Risk Level for the market

Figure 4.22 presents a summary of risk level for the whole market. It shows that overall risk was low (56%) of the time and high (44%). Hence less risk mean more dividend payments and low motivation for smoothing according to (Leary & Michaely, 2011).

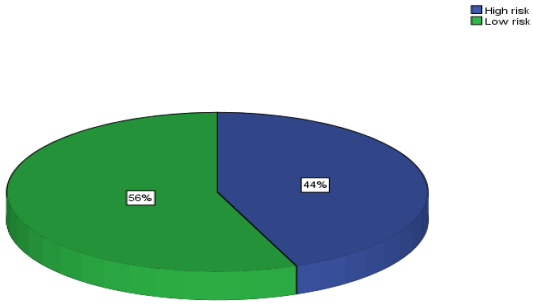

Figure 4.21: Risk Level for the Market as a Whole

Table 4.13presents the risk ranking of the sectors as either high or low using mean value of price-earnings ratio. High risk sectors are expected to pay fewer dividends to mitigate agency problems like overinvestment and vice versa. Clearly the sectors considered high risk (above the median value for price-earnings ratio were Agriculture, Automobile, Energy and Insurance. Conversely low risk sectors were Banking, Commercial services, Construction, Investment and Manufacturing.

Table 4.13: Risk Ranking for the Various Sectors

No.	Sector	Mean P/E	Risk Level	Rank
1.	Agriculture	6.76	High	7
2.	Automobile & Accessories	0.11	High	9
3.	Banking	18.5	Low	1
4.	Commercial Services	17.2	Low	2
5.	Construction	14.12	Low	4
6.	Energy & Petroleum	8.11	High	6
7.	Insurance	3.3	High	8
8.	Investment	14.2	Low	3
9.	Manufacturing	10.9	Low	5

4.8 Correlation Statistics

Correlation statistics are important for relationships because strength and nature of association between independent and dependent variables are determined. Further problems of multicollinearity can also be detected and corrected before using regression techniques. A correlation analysis is part of the preliminary analyses which reveals how the explanatory variables relate to the explained variable (dividend payout) and also between explanatory variables themselves.

Table 4.14: Correlations Table between Dependent and Independent variables

		Current Earnings Per Share	Previous DPS	Market to Book ratio	Price to Earnings ratio
Current DPS	**Pearson Correlation**	**.575****	**.855****	**.368****	**.096***
	Sig. (2-tailed)	.000	.000	.000	.050
	N	424	386	423	416

**. Correlation is significant at the 0.01 level (2-tailed).

*. Correlation is significant at the 0.05 level (2-tailed).

The coefficients in Table 4.14 above show that all the four explanatory variables namely current after tax earnings per share, previous dividends per share, market to book ratio and price-earnings ratio as proxies for growth opportunities and risk respectively have positive and significant association with dividend payout. Previously paid dividends has the strongest association with DPS (0.855) followed by current earnings per share (0.575) then growth opportunities (0.368) and lastly business risk (0.096) at the 0.01 level for the first three and 0.05 level for business risk.

4.8.1 Correlation Statistics between Independent Variables

Table 4.15 show correlations between the explanatory variables. The table reveal that the relationship between independent variables was low at below 0.5 but high between them and current dividend per share at the 0.5 level of significance which is evidence of absence of multi collinearity as stated by (Pallant, 2005).

Pallant (2005) advice that when checking for multi-collinearity, the correlation coefficient statistics are used. She posits that independent variables should show some relationship with the dependent variable (above 0.3). The correlation coefficient between independent variables themselves should be low (0.7) and below to be suitable for further regression analysis. By correcting this potential problem of multicollinearity, a researcher controls for the confounding effects of two or more factors which may undermine efficiency of the estimated coefficients. Other tests for collinearity can be revealed from the regression coefficients table (Appendix V) where Tolerance and variance inflation factors (VIF) are expected to approach 1.0 from below and above respectively. Table 4.14 below is a matrix of coefficients for the dependent and independent variables showing how they are interrelated.

Table 4.15: Correlations Table between Independent Variables.

		Current Earnings Per share	**Previous DPS**	**Market to Book ratio**	**Price to Earnings ratio**
Current earnings per share	**Pearson Correlation**	**1**	**.486****	**.187****	**.073**
	Sig. (2-tailed)		.000	.000	.135
	N	429	390	427	421

**. Correlation is significant at the 0.01 level (2-tailed).

*. Correlation is significant at the 0.05 level (2-tailed).

4.9 Panel Data Regression

Regression analyses applied on the panel data is to discover explanatory power of independent variables on dividend payout. The challenge for pooled data is to establish whether data is pool-able so that stacking can be done to estimate parameters of the variables. Panel data may at times not allow for application of straight ordinary least square (OLS) regression because differences between cross sectional units may be pronounced.

Unique characteristics between individual companies or even between industries do occur and this may have significant effect on dividend policy. Differences between companies can exist in form of managerial talent or philosophy contributing to core competence. The researcher therefore chose to test nature of data for either fixed effects (FEM) or random effects (REM). The choice between the two techniques is decided by Hausman (1978) specification test. When parameter estimates between the two techniques are significantly different according to Hausman test, then a fixed effect model parameters are used, otherwise random effects coefficients would suffice. In the test carried out to determine if REM is superior to FEM (Appendix VIII), a significant chi square value of 124.00 (P=0.000) means an error component model would not fit the data very well as a fixed effects model. Hence individual firm characteristics significantly explain variation in the dividend decisions. Thus fixed effects model is used to highlight those unique firm characteristics influencing payout decisions at NSE.

4.9.1 Regression Analysis

Objective one of the study was to examine how current earnings after tax, previous dividends, growth opportunities and business risk predict dividend decisions of firms listed at the Nairobi Securities Exchange. The purpose here is to develop the right regression model to explain dividend payout behavior of listed firms at the NSE. Panel data estimation technique is deemed appropriate for analysis. But first data has to be tested for suitability to either fixed effect regression or random effect regression. In order to discriminate between fixed and random effects method for

valid coefficients, Hausman specification test which follows a chi square distribution is applied. A significant difference would mean fixed model coefficients will apply otherwise random effects coefficient will be used. Panel data is layered by sector or industry (9) and also by individual firms (40). Differences between industry and also based on weather a firm is a bank or not is already documented as having significant influence on firm performance according to (Horace, 2002; Baker & Powell, 2000).

4.9.2 Study Regression Model

Panel data was explored and organized to meet the assumption of normality for all key variables namely current dividend per share, previous dividend per share, current earnings per share growth opportunities and business risk proxied by MTB and P/E ratios respectively. The linear dynamic panel data regression model is expressed as equation (1) below.

$$DPS_{it} = \beta_1 + \beta_2 EPS_{it} + \beta_3 DPS_{it-1} + \beta_4 GO_{it} + \beta_5 Risk_{it} + \varepsilon_{it} \qquad (4.5)$$

Where $\beta_2 - \beta_5$ are slope coefficients. $\beta_1$is intercept coefficient. ε_{it} is error term capturing random effects in the model. DPS_{it} is current dividends per share for firm *i* at time *t*.EPS_{it} is current earnings per share for firm *i*at time *t*,DPS_{it-1} is dividend per share paid previous by firm *i* at time *t,* GO is growth opportunity for firm *i* at time *t,* $Risk_{it}$ is Business risk for firm *i* at time *t*

4.9.3 Panel Estimation Techniques

Panel data estimation technique is classified into fixed effects and random effects methods. The methods are guided by the assumption that individual firm characteristics are either time variant or invariant (Wooldridge, 2003).

a) Fixed Effect Model

This model assume individual firm characteristics are time invariant and play a role in a firm's dividend decision. Each firm's error term is correlated with each regressor but not with regressors of other firms in the industry or market.

Consequently, recognizing this individuality like managerial talent, style and philosophy is important in estimating parameters of a model.

The fixed effects econometric Equation is;

$$DPS_{it} = \beta_{1i} + \beta_2 EPS_{it} + \beta_3 DPS_{it-1} + \beta_4 GO_{it} + B_5 Risk_{it} + \varepsilon_{it} \quad (4.6)$$

The constant β_{1i} accounts for individual characteristics of each company *i* in each sector while $\beta_2 - \beta_5$ are slope coefficients considered constant or invariant overtime. Before applying relevant data in this analysis using STATA 13, data for DPS both current and previous was transformed by square root method to correct the positive skewness observed as underlying nature of the concept. Estimated fixed effects coefficients are contained in the regression equation (4.7) below. The complete table for FEM and REM can be found at the Appendix VIII

Fixed Effects Estimated Regression Equation,

$$DPS_{it} = 0.71 + 0.104\mathbf{EPS_{it}} + 0.9334\mathbf{DPS_{it-1}} + 0.05MTB_{it} - 0.001\ PER_{it} \quad (4.7)$$

Se	0.16	0.0088	0.132	0.052	0.001
P	(0.000)	(0.000)	(0.0000)	(0.338)	(0.315)

Corr (u_i, X_i) = 0.606, F value (4, 340) = 68.91 (0.000), R^2=0.6813.ρ=0.712

Equation (4.7) shows that only current earnings per share and prior dividends paid per share are statistically significant with probability values below 5%. The indication is that individual firm error factors were positively correlated with the independent variables (0.606) but not with that of other firms. Time factor was considered invariant in the equation. The intercept coefficient 0.71 mean that sampled firms paid a mean dividend of kshs.0.71 per share after controlling for earnings, previous dividends, growth prospects and risk.

b) Random Effects Regression Equation (RE)

A random effects model estimates regression equation which assume individual firm characteristics are time variant hence their error terms are uncorrelated with the independent variables. Any variation between each firm is purely random with an expected value of zero and unit standard deviation. Panel data of 384 observations from 40 groups returned an estimated equation (4.8).

$$DPS_{it} = 0.0127 + 0.1EPS_{it} + 1.54DPS_{it-1} + 0.087MTB_{it} - 0.001PER_{it} \qquad (4.8)$$

P	0.952	0.000	0.000	0.106	0.466

$Corr\ (u_i\ X_i) = 0$, $F = 446.69$ (0.000), $R^2 = 0.7287$

A random effects model (REM) equation (4.8) also shows that only current earnings per share and previously paid dividends are significant predictors of current dividends to be paid. Growth opportunities (MTB) and business risk proxied by PER are irrelevant. The question then is, which of the two sets of coefficients are to be used by corporate managers? This is solved through a Hausman Specification test (1978) which identify the most efficient set of coefficients between FEM and REM. Random effect coefficients test is restrictive and assumes that data is pool-able so that any differences between the companies is captured by the stochastic term. The fixed model (FEM) on the other hand is an unrestrictive model that does not assume data is pool-able. The test results are contained in Appendix VIII which indicate a chi square value of 124.85 and a P-value of 0.000 which means model coefficients by FEM and REM are statistically different at the 5% level of significance. Thus FEM coefficients are more reliable and efficient than REM coefficients. These results imply that individual level effects for listed firms are adequately modelled by a fixed effects model and a least square dummy variable (LSDV) technique appropriately capture the uniqueness of each firm in the respective industry.

4.9.4 Least Square Dummy Variable Model

Fixed effects in the panel data are explored by least square dummy variable (LSDV) models for each sector or industry to compare each firm performance in its sector against a specific or Comparison Company in the same industry. This is done by introducing (*n-1*) dummies to sector firms to avoid the dummy variable trap. Therefore the following analysis demonstrates how each sector firm perform when compared against a benchmark company. A total of nine sectors are analyzed.

a) Fixed Effects Regression for Manufacturing sector

The least square dummy variable (LSDV) model for manufacturing sector is of the form;

$$DPS_{it} = \alpha_1 + \alpha_2 Dum_{2i} + \alpha_3 Dum_{3i} + \alpha_4 Dum_{4i} + \beta_2 EPS_{it} + \beta_3 DPS_{it-1} + \beta_4 GO_{it} + \beta_5 Risk_{2t} + \varepsilon_{it} \quad (4.9a)$$

Where;

α_1 is intercept coefficient of comparison company (East Africa Breweries Ltd)

α_2- α_4 are differential intercepts representing other firms in the industry.

Dum_{2i}= 1 if firm is BAT otherwise 0, Dum_{3i} = 1 if BOC otherwise 0, Dum_{4i} = 1 if Unga Group otherwise 0, *i* – Firm i & tis Time t,GO is growth opportunity proxied by MTB ratio, Risk is business risk proxied by P/E ratio, β_2 – β_5 areslope coefficients for the covariates.

The equation (4.9 b) gives coefficients of the estimated regression equation;

$$DPS_{it}=0.182-0.188BAT+0.383BOC-0.121UNGA+0.023EPS_{it}+0.701DPS_{it-1}-0.00189G0_{it}.-0.001Risk$$

Se	(0.039)	(0.159)	(0.149)	(0.146)	(0.003)	(0.032)	(0.016)	(0.0001)
P	0.0000	0.237	0.010	0.409	0.000	0.000	0.28	0.045

(4.9b)

F= 183.315 (P=0.000)

R^2= 0.77 DW=2.052

From equation 4.9b only two intercept coefficient (BOC) and (East Africa Breweries) was significant with P = 0.01 and 0.000 respectively. Looking at the slope coefficient, EPS has 0.023 and DPS_{it-1} having 0.701 both of which are statistically significant. Growth opportunities was not significant but risk was significant. The model is valid with F = 183.315 (P= 0.000). Model summary also show model fit at R^2 = 0.77 or 77%. The variation in dividend payout in this sector is hence explained by earnings and previous dividends with prior dividends playing a more significant role. Differential intercept coefficients show that BAT and UNGA did not pay dividends significantly different from what East African Breweries paid of kshs 0.182. However BOC paid dividends that were significantly higher (0.182+0.383)=0.565 than what East African Breweries paid. Therefore BOC management may have better managerial talent compared to East Africa Breweries (EABL) signified by higher average dividend paid for the period of shs0.57 against others who paid significantly less of Kshs.0.182.

Dividend paid per share in this industry changes positively by Kshs 0.023 or 23 cents per share every time earning per share increases by one shilling. On the other hand when previously paid dividend change by Kshs 1.00, current dividend changes positively by shs0.70. Collectively statistics indicate that multi-collinearity was not a problem in the analysis with tolerance and variance inflation factor close to 1.00. Autocorrelation of the disturbance term was not a problem since Durbin -Watson value was 2.052 which is close to 2.00.Significance of results measured by Cohen d statistics is large at 0.77 means the results are of huge practical implication.

b) Fixed Effects Regression for Commercial Sector

Regression equation to be estimated for this sector has four dummies representing differential effects for Nation media (NMG), Standard Group (SGM), Tourist Promotion Services (TPS) and Express Kenya (EXPK) (equation 4.10a). The comparison company is Kenya Airways.

$$DPS_{it}=\alpha_1+\alpha_2 Dum_{2i}+\alpha_3 Dum_{3i}+\alpha_4 Dum_{4i}+\alpha_5 Dum_{5i}+\beta_2 EPS_{it}+\beta_3 DPS_{2t-i}+\beta_4 MTB_{it}+\beta_5 Risk_{it}+\varepsilon_{it} \quad (4.10a)$$

Where α_1 is comparison intercept coefficient for Kenya Airways, $\alpha_2 - \alpha_5$ are differential intercept for other firms in the industry, β_2 - $\beta_5$are slope coefficient for the independent variables under study namely EPS, DPS, GO, and Risk. $Dum_{2i}$is 1 if observation belong to NMG, otherwise 0, Dum_{3i} is1 if observation belong to standard group otherwise 0, $Dum_{4i}$is 1 if TPS otherwise 0,Dum_{5i} is1 if Express Kenya otherwise 0.

Table 4.16: Differential Intercept Coefficients for Commercial Sector

Commercial Sector	Differential Intercept Coeff.	Standard error	P-Value
KENYA AIRWAY	0.195	0.039	0.000
NATIONMEDIA	0.139	0.148	0.348
STANDARDMEDIA	-0.202	0.154	0.189
TPS	0.029	0.145	0.841
EXPRESS KENYA	-0.169	0.146	0.248

F= 156 (P=0.000) R^2=0.766 DW =2.035

Regression coefficients above show that none of differential dummy coefficients was statistically significant. Therefore all the firms in the sector paid an average dividend of kshs 0.195 per share for the period which is what Kenya Airways paid. Growth opportunity was not a significant factor in the sector (P=0.296). However, Earnings, previous dividends and risk were significant factors influencing DPS.

Therefore current DPS in this sector increases by shs0.023 every time earning per share rises by shs1.00. As for previously paid dividends, a shillings change increases current DPS by shs0.695 or 69.5 cents. Here again, previously paid dividend contributes significantly to variation in DPS followed by earnings per share. Low p-values for the differential coefficients mean that the four companies namely, Nation Media, standard group, TPS and Express Kenya all paid near similar DPS of Shs0.195 which is similar to that paid by Kenya Airways. Multicollinearity and autocorrelation problem were not inherent in this model going by the D-W value and Tolerance statistics of 2.045 and T~1respectively from *Appendix iv*.

c) Fixed Effects Regression for Insurance Sector

Pan African Insurance and Jubilee insurance were the players in this industry as observed in the panel data. To compare performance between the two companies, Jubilee insurance was considered the comparison company hence only one dummy variable was used in the LSDV regression model (equation 4.11 a)

$DPS_{it} = \alpha_1 + \alpha_2 Dum_{it} + \beta_2 EPS_{it} + \beta_3 DPS_{it-1} + \beta_4 GO_{it} + \beta_5 Risk_{it} + \varepsilon_{it}$ 4.11a)

α_1 is comparison intercept coefficient for jubilee insurance, α_2 is differential intercept coefficient for pan Africa insurance,β_i, sare slope coefficients. Dum_{it}= 1 if observation belongs to Pan Africa insurance otherwise -0, ε - Error term

The estimated regression equation is (4.11 b)

DPS_{it}=0.18 + 0.014PANAF + 0.023EPS_{it} + 0.709DPS_{it-1} - 0.014GO_{it} - 0.001$Riks_{it}$ (4.11b)

Se	(0.038)	(0.145)	(0.003)	(0.029)	(0.016)	(0.001)
P	0.000	0.926	0.000	0.000	0.383	0.035

F = 249.5 (P= 0.000) R^2 = 0.765 DW =2.045

Estimated coefficients above indicate that EPS, DPS_{it-1} and risk are significant factors influencing dividend decision in this sector. The intercept coefficient for Jubilee insurance is also significant but not that of Pan Africa Insurance. This means current DPS paid by Pan Africa Insurance was not different from that of jubilee at ksh0.18 per share. Growth opportunities was not a significant factor in the model but earnings, prior dividends and risk are. The model is sufficient with F =249 (5,376) and sig = 0.000. The equation is also a good fit for the data given a coefficient of multiple determination of 0.765. Durbin-Watson statistics of 2.045 is acceptable while collinearity statistics also do not violate the assumption of no serial correlation of the disturbance term. Further, a rise in EPS_t by one shilling lead to an increase in DPS_{it} of shs0.023 (low target ratio) while a positive change in DPS $_{it-1}$ results in an

increase of DPSt by sh0.709 (strong correlation). Finally business risk in this sector has a weak positive influence on the current dividend paid.

d) Fixed Effects Regression for the Banking Sector

The banking sector had 8 companies representing the industry. Therefore, (8-1) dummies are included in the regression equation. The econometric equation for the sector is

$$DPS_{it} = \alpha_1 + \alpha_2 Dum_{2i} + \alpha_3 Dum_{3i} + \alpha_4 Dum_{4i} + \alpha_5 Dum_{5i} + \alpha_6 Dum_{6i} + \alpha_7 Dum_{7i} + \ldots\ldots \alpha_8 Dum_{8i} + \beta_2 EPS_{it} + \beta_3 DPS_{it-1} + \beta_4 GO_{it} + \beta_5 Risk_{it} + \varepsilon_{it} \quad (4.12\ a)$$

The dummies represent individual differences between banks in term of managerial talent, style, philosophy that separate one bank from another. The comparison bank is Kenya commercial bank (KCB) with a mean DPS_{it} represented by α_1. Coefficient $\alpha_2 - \alpha_8$ are differential intercept representing mean DPS for other banks in the industry.

$Dummy_{2i}$ =Equity (1) otherwise (0) ,$Dummy_{3i}$ =Barclays (1) otherwise (0)

$Dummy_{4i}$ = CFC (1) otherwise (0), $Dummy_{5i}$ = DTB (1) otherwise (0)

$Dummy_{6i}$ = HFC (1) otherwise (0) $Dummy_{7i}$ =NBK (1) otherwise (0)

$Dummy_{8i}$ =NIC (1) otherwise (0), Estimated Regression Equation for banking sector.

Table 4.17: Differential Intercept Coefficients for Banks

Bank	Regression Coeff.	Se	P-value
KCB	0.205	0.04	0.000
EQUITY	0.162	0.218	0.457
BARCLAYS	0.177	0.149	0.236
CFC	-0.057	0.145	0.693
DTB	-0.036	0.145	0.803
HFCK	-0.154	0.147	0.297
NBK	0.228	0.148	0.125
NIC	0.02	0.145	0.988

F= 113.7 (11,370) R^2 =0.765 DW =2.036.

Regression coefficients in the Table 4.16 shows that the intercept coefficient for KCB was ksh. 0.205, slope coefficients EPS, DPSit-1 and $Risk_{it}$ are significant at the 0.05 level. All the differential intercepts representing other banks in the sector were not statistically significant. This means what other banks paid out as current dividends was not significantly different from what KCB paid (Kshs. 0.205) as dividends per share for the period studied. The estimated coefficient imply that for this sector a shilling increase in current earnings per share (EPS_{it}) results in a DPS_{it} increase of shs0.023 by firms in the banking sector. A shilling increase in previously paid dividend also has a direct effect on current DPS_{it} paid of kshs 0.693. The influence of risk is low though significant.

Model statistics indicate a valid model with a good fit; F = 113.7(11,370) P=0.000. R^2 is 0.765 which is the goodness of fit coefficient. Autocorrelation was not a problem Durbin d statistics of2.036. Once more previously paid dividend (DPS_{t-1}) has the single biggest contribution to DPS_{it} as posited by Lintner (1956), Farsio et al (2004) and AI-Twaijiry (2007).

e) Fixed Effects Regression for the Investment sector

Investment sector comprised of only one listed company (Centum) within the period. The econometric equation for this company is expressed in equation (4.13 a).

$$DPS_{it} = \beta_1 + \beta_2 EPS_{it} + \beta_3 DPS_{it-1} + \beta_4 GO + \beta_5 Risk_{it} + \varepsilon_{it} \qquad (4.13\ a)$$

B_1 – Constant for centum investment based on panel data, estimated model thus becomes;

$$DPSt = 0.18 + 0.023EPSit + 0.709DPS_{it-1} - 0.014GO_{it} - 0.001Risk_{it} \qquad (4.13\ b)$$

P	0.000	0.000	0.000	0.379	0.035

Centum investment from equation 4.13 (b) paid a mean DPS of shs0.18 from every shilling earned as profits and the range lies within kshs 0.107 and ksh 0.254 at the 0.05 level of significance. Current earnings per share and the previous paid dividend have direct and significant effect on DPSt at shs 0.023 and shs 0.709 respectively for

every increase in EPS_{it} and DPS_{it-1}. Model summary show it was good ($R^2 = 0.766$) and valid F= 317.7.

f) Fixed Effects Regression for the Agriculture sector

Agriculture sector had seven companies to be investigated for individual characteristics when it came to dividend payout decisions. Hence (7-1) dummies were introduced in the estimating LSDV regression equation.

$$DPS_{it} = \alpha_1 + \alpha_2 Dum_{2i} + \alpha_3 Dum_{3i} + \alpha_4 Dum_{4i} + \alpha_5 Dum_{5i} + \alpha_6 Dum_{6i} + \alpha_7 Dum_{7i} + \beta_2 EPS_{it} + \beta_3 DPS_{it-1} + \beta_4 GO_{it} + \beta_5 Risk_{it} + \varepsilon_{it} \quad (4.14\ a)$$

α_1 is intercept coefficient for comparison company Kakuzi Tea and coffee Ltd.

$\alpha_2 - \alpha_7$ are differential intercepts for other firms in the Industry. $\beta_2 - \beta_5$ are slope coefficients which are constant and are representing independent variable (covariates).

$Dummy_{2i}$ = REA Vipingo (1) otherwise (0), $Dummy_{3i}$ = Sasini Tea (1) otherwise (0)

$Dummy_{4i}$ = Eagads (1) otherwise (0) ,$Dummy_{5i}$= Kapchurua (1) otherwise (0)

$Dummy_{6i}$ = Limuru Tea (1) otherwise (0),, $Dummy_{7i}$ = Williamson Tea (1) otherwise (0), ε = Error term with $\mu\_ \sim N(0, 0^{-2})$

Estimated Regression coefficients for Agriculture sector:

Table 4.18: Differential Intercept Coefficient for Agric. Firms

AGR FIRMS	Regression Coeff.	Se	P.value
KAKUZI	0.18	0.04	0.000
REA VIPINGO	-0.048	0.145	0.738
SASINI	-0.066	0.146	0.652
EAGADS	-0.082	0.145	0.573
KAPCHORUA	0.345	0.148	0.020
LIMURU TEA	0.178	0.164	0.279
WILLIAMSON	0.288	0.154	0.063

F= 127.482 (10,371) (0.000) R^2 =0.769. DW =2.056.

Estimated differential coefficients (Table 4.17) for fixed effects show that coefficient for intercept (Kakuzi) and Kapchorua Tea are statistically significant at the 0.05 level. Only Kapchorua Tea paid an average dividend for the period that would be considered different (0.18 + 345) = Kshs.0.525 per share. Other companies in the sector paid an average of Kshs.0.18 which was paid by the comparison company Kakuzi. A shilling increase in EPS influence DPS_{it} by increasing it by shs.0.023. Conversely, a shilling rise in DPS_{t-1} shall increase DPS_t by shs0.68 which implies a strong correlation. Risk has a significant but low effect on DPS_t (current dividend per share)

The model above is valid F= 127.482 (df=10, 371) P = 0.0005 and the goodness of fit (R^2) is 0.769 or 76.9 percent. Autocorrelation and multicollinearity was not a problem to this model. Previous dividend was again the most important variable followed by earnings. Previous dividends per share explains about 73 percent of the changes in the DPS_{it} followed by current earning about 3.5percent when part correlations are interpreted.

g) Fixed Effects Regression for Automobile Sector

The automobile industry in the analysis had four companies. These are; Car & General, CMC Holding, Marshalls EA and Sameer Africa. Investigating industry performance in terms of dividend paid and specifically company characteristics led to construction of a fixed effect LSDV model in the original form as;

$$DPS_{it}=\alpha_1+\alpha_2 Dum_{2i}+\alpha_3 Dum_{3i}+\alpha_4 Dum_{4i}+\beta_2 EPS_{it}+\beta_3 DPS_{it-1}+\beta_4 GO_{it}+\beta_5 Risk_{it}+\varepsilon_{it} \quad (4.15\ a)$$

Where,α_1 is intercept coefficient for comparison firm (Car & General), α_2 –α_5 are differential intercepts for DPS of other firms in the Industry , β_2 –$\beta_5$are slope coefficients for covariates, Dum_{2i}= CMC Holding (1) if observed otherwise (0), Dum_{3i} -= Marshall EA (1) if observed otherwise (0)Dum_{4i}= Sameer Africa (1) if observed otherwise (0), ε- = Error term

Regression Analysis of Panel data yield the following equation (estimated)

DPS_{it} = 0.196 – 0.196CMC – 0.053MARSH – 0.093SAM + 0.023EPS_{it} + 0.703DPS_{it-1} +

Se (0.039) (0.146) (0.147) (0.0146) (0.003) (0.029)

P 0.000 0.178 0.721 0.525 0.000 0.000

0.015GO_{it} - 0.001$Risk_{it}$ (4.15 b)

(0.016) (0.001)

0.372 0.042

F= 178.66 (7,374) R^2 =0.765 DW= 2.052

Intercept coefficient of 0.196 represent mean DPS_{it} shillings paid by Car and General. The coefficient is significant. A look at the column of significance show that all the other firms did not pay dividends significantly different from what Car and General paid. Current earning, previous dividend and business risk are significant variables influencing DPS_{it}. A change EPS_{it} by a unit lead to a change in DPS_{it} by 0.023 units (shs). Conversely a shilling increase in previously paid dividend results in a shs0.70 increase in current dividend paid (DPS_{it}). The model is efficient R^2 = 0.765, F = 178.66 (7,374) P = 0.000 and Durbin Watson is 2.052. In addition multicollinearity problem is not present in the model as a whole. Even in this sector previous dividends lead dividend payout followed by earnings. The result continue to support Lintner (1956) and Fama et al (1968).

h. Fixed Effects Regression for Construction Sector

Regressing panel data for the construction sector using LSDV technique reveals that the sector had 5 firms each contributing data for the period from 2000-2010. Regression result for fixed effects between the firms is extracted from the equation (4.16)

$DPS_{it}= \alpha_1 +\alpha_2 Dum_{2i} + \alpha_3 Dum_{3i} + \alpha_4 Dum_{4i} + \alpha_5 Dum_{5i}+ \beta_2 EPS_{it} + \beta_3 DPS_{it-1} + \beta_4 GO_{it} + \beta_5 Risk_{it}$ (4.16)

$\alpha_1$is comparison coefficient for Athi River Mining company, α_2 –α_5 are differential intercepts coefficients for firms in the Industry, β_2 – β_5 are constant Slope coefficients for covariates, $Dummy_{2i}$ = 1 if Bamburi Cement otherwise 0 ,$Dummy_{3i}$ = 1 if Crown Berger otherwise 0,$Dummy_{4i}$= 1 if East Africa Cable otherwise 0,$Dummy_{5i}$= 1 if East Africa Portland otherwise 0, ε_{it} is Error term

Estimated Fixed Effects Regression coefficients for construction sector is;

Table 4.19: Differential Intercepts for Construction Sector firms

Firm	Regression Coeff.	Se	P value
Athi River Mining	0.184	0.147	0.000
Bamburi	0.291	0.145	0.048
Crown Berger	0.031	0.145	0.828
EA Cables	0.044	0.145	0.763
EA portland	-0.078	0.003	0.592

R^2=0.766 DW=2.053

Regression estimates above indicate that Athi River Mining paid an average DPS of Ksh.0.184 over the period. The only other company that paid DPS_t significantly different from this was Bamburi Cement at (0.184 + 0.291) = Kshs 0.47 per share. Among the covariates, $EPS_{it,}$ DPS_{it-1} and Risk measured by P/E ratio were significant and model fit was good R^2 = 0.766. Validity statistic for model is F = 157.059 (P = 0.000). No problem with autocorrelation was observed (DW = 2.053).

Interpretation of the covariates indicates DPSt change by shs0.023 positively with every shilling rise in EPS. More so DPS_t increases by shs 0.702 with every shilling increase in previous dividend paid. Growth opportunity was not significant but risk was important but with a weak contribution for this sector.

H). Fixed Effects Regression for Energy and Petroleum Sector

The energy sector had 3 firms namely Kenol-Kobil, KPLC and Total Kenya. A test for fixed effects takes the form of the following regression equation that regress

DPS against earning, previously paid dividend, growth opportunities and business risk. The number of dummies to include are (3 -1) = 2 to differentiate between the three firms.

Econometric Equation for Energy sector (fixed effects)

$$DPS_{it} = \alpha_1+\alpha_2 Dum_{2i}+\alpha_3 Dum_{3i}+\beta_2 EPS_{it}+\beta_3 DPS_{it-1}+\beta_4 GO_{it}+\beta_5 Risk_{it}+\varepsilon_{it} \quad (4.17a)$$

α_1 is intercept coefficient for Comparison Company - Kenol Kobil.,α_2 –α_5 are differential intercepts for other firms in the Industry ,β_2 – β_5 are constant Slope coefficients for covariates $Dummy_{2i}$ - = KPLC (1) Otherwise (0),$Dummy_{3i}$ - = Total Kenya (1) otherwise (0),ε_{it} is Error term.

The estimated Regression Equation with fixed effects (Energy section)

$$DPS_{it} = 0.17 + 0.214KPLC + 0.058TOTAL + 0.023EPS_{it} + 0.706DPS_{it-1} + 0.018GO_{it} - 0.001Risk_{it}$$

Se	(0.038)	(0.146)	(0.144)	(0.003)	(0.029)	(0.016)	(0.001)
P	0.000	0.143	0.687	0.000	0.000	0.273	0.035

$R^2 = 0.766$ F= 209 (6,375) 0.000 DW = 2.036

Regression results above show that Kenol Kobil on average paid ksh 0.17 as dividend per share and other companies paid dividend that were not significantly different at the 0.05 level. Here again current earnings and past dividends and risk (P/E Ratio) were significant. Previous dividend was the main predictor followed by earnings and lastly business risk. The model was valid while the coefficient of multiple determination R^2 has a value of 0.766 meaning the covariates explain 76.6 percent of the changes in dividend per share paid.

4.9.5 Time Effects Regression for Listed firms at the NSE

The panel data between years 2000 to 2010 was also tested for time effects to find out whether time variant factors had an effect on dividend policy. The length of time is 11 years. It is important to investigate the effects of time (Grandfield investment

function) to find out if government policy, technology policy, business cycles had any effect on policy. Therefore dummy variables for 10 years are introduced to study effect of time in comparison to year 2002 when Kenya went through a significant political transition.

Time Effect Regression Equation is expressed as below (4.18a);

$$DPS_{it} = \lambda_1 + \lambda_2 2000 + \lambda_3 2001 + \lambda_4 2003 + \lambda_5 2004 + \lambda_6 2005 + \lambda_7 2006 + \lambda_8 2007 + \lambda_9 2008 + \lambda_{10} 2009 + \lambda_{11} 2010 + \beta_2 EPS_{it} + \beta_3 DPS_{it-1} + \beta_4 GO_{it} + \beta_5 Risk_{it} + u_{it} \quad (4.18\ a)$$

λ_1 is intercept coefficient representing DPS for comparison year 2002, λ_2 - $\lambda_{11}$are differential intercepts for all the other years, β_2 - $\beta_5$are slope coefficients for covariates

i - Firm = 1, 2, 3…..,t - Time variation

Regression coefficients for time effects (Appendix) show that in the year 2002, DPS on average was kshs 0.177 per share. Pay out for the other periods (2000 to 2010) were not statistically different from that of year 2002. Therefore no difference was noted in the history of DPS from 2000 to 2010. Time therefore had no effects on the dividends paid by listed firms at the NSE. Current earnings per share (EPS_{it}), and previous dividends DPS_{it-1} were significant factors predicting dividend payout. Current DPS_{it} changed by shs0.023 for every shilling increase in EPS. When DPS_{it-1} changed by one shilling, DPS changes by shs.0.72 in the same direction.

Once again past dividend paid out was most significant predictor of DPS_t. Model was valid (F =103.8 (12,368) P = 0.000 while explanatory power of the model is 76.4 percent.

4.9.6 Results of the Dividend Model

The results show current earnings are a significant predictor of dividends in only three sectors namely Agriculture, Banking and Construction. Conversely prior dividends is positively and strongly linked to dividend payout across all sectors and so is business risk although the association with risk is weak and negative. It is

noteworthy that growth opportunities do not predict dividend decisions by firms in our capital market. Therefore estimated regression equation for predicting dividends in our stock market is given below (equation 4.19).

DPS_{it}= 0.192+0.023EPS_{it}+ 0.718DPS_{it-1}-0.002$Risk_{it}$ (4.19)

Se	0.035	0.003	0.027	0.001
t	5.532	7.229	26.583	2.312
P	0.000	0.000	0.000	0.021

R^2= 0.766

F=416.945 (3,378) p=0.000

DW (d) = 2.061

The variance inflation factor (VIF) and Tolerance values for the model is close to 1.0 (Appendix 1V Table 13 B). Therefore this model was properly specified. Earnings in the market predict dividends by Shs 0.023 for every shilling increase in earnings per share. Similarly prior dividends predict current dividends by Shs 0.718 for every increase in previous dividends by a shilling. Lastly every rise in the level of risk would decrease dividends paid out per share by Shs 0.002. Thus only earnings and previous dividends are strongly related to dividends paid per share and prior dividends have the strongest effect on current dividends paid contributing over 70 percent of the variation in current dividends. This model is valid (F=416.945 (3,378) with p=0.000. The goodness of fit statistics indicate the three variables explaining (76.6%) percent in the variation in dividend payout.

4.9.7 Dividend Stickiness and Role.

The market appears to be controlled by the stickiness of dividends paid out. Volatility of dividends is smaller (0.074) while earnings volatility is large (0.336) around a mean DPS change of Kshs 0.142 and mean EPS change of Kshs 0.956per share (Table 4.20). Thus there is evidence of some reluctance to vary dividends significantly. Arnott and Asness (2003) asserted that public firms are reluctant to

reduce or even omit dividend because investors only get information about future prospects of the company from dividend distribution. Corporate managers understand that the market puts a premium on dividend paying stocks (signaling role of dividends) evidenced by a strong correlation with stock price. However they do not appear to match this principle with action since payout pattern is not quite stable for a number of stocks. This would be considered a puzzle which is explained by free cash flow (residual hypothesis) and agency cost models. Aivazian et al. (2003) attributes this behavior in emerging market public firms to the nature of their capital structures. Many of them carry more debt and consequently payout would be guided more by availability of free cash flows.

Table 4.20: Descriptive Statistics for Changes in Dividends and Earnings

	N	Minimum	Maximum	Mean		Std. Deviation	Skewness		Kurtosis	
	Statistic	Statistic	Statistic	Statistic	Std. Error	Statistic	Statistic	Std. Error	Statistic	Std. Error
Dividend per share change	391	-10.00	7.00	.1421	.07488	1.48057	-.716	.123	11.815	.246
Earnings per share change	391	-38.18	44.35	.9568	.33633	6.65057	1.043	.123	13.982	.246
Valid N.	390									

4.10 Dividend Stability Tests (Smoothing)

Dividend stability refer to the consistency with which dividends are paid by the listed sampled companies. This was part of what the study sought to investigate because it follows the debate about dividend payouts. Stability of dividends plays a role in reducing uncertainties associated with a stock and consequently stabilizes stock prices in the financial market. Lintner (1956) first provoked debate about stability of dividends among public companies. He provided the model for computing coefficients that would indicate presence (or not) of dividends stability

which is also referred to as smoothing. The model is famously known as the partial adjustment dividend model. Other authors like Fama and Babiak (1968) modified the model to suite different markets.

a. Linter (1956) Partial Adjustment Dividend Model.

Lintner partial adjustment dividend model is expressed in equation (4.20). While the test was previously conducted by the researcher using Wolmoran (2003) model and results published (Bulla, 2013b), the regression model fit (R^2) was 42%. As a result the researcher sought to find out if an improvement could be found by using Fama and Babiak (1968) model which modifies earnings used in Lintners (1956) model.

$$DPS_{it}=\alpha+\sigma(\beta_2 profit_{it})–DPS_{it-1})+\varepsilon_{it} \quad (4.20)$$

DPS_{it} is change in $DPS_{it,}$

DPS_{it-1} is previous dividend,

α,σ & β are constants

The expression above illustrates estimates of two coefficients; target ratio (β) and adjustment speed (σ) from changes between target dividend and actual payout. The fraction of earnings marked for distribution gives the target payout which is usually a long term target. The proportion of dividend change which is actually paid becomes the adjustment coefficient (σ). Modifying this expression we can also regress dividend change against current earnings and previously paid dividend to find rate of adjustment speed ($1 – \beta_2$) and target payout (β_1 /1- β_2) as expressed in equation 4.21 below.

$$\Delta DPS_{it}=\alpha+\beta_1 EPS_{it} + \beta_2 DPS_{it-1} + \varepsilon_{it} \quad (4.21)$$

After conducting the analysis based on equation above the estimated regression for the market is equation 4.22. The coefficients show a shilling increase in previous dividend lead to 52 cents reduction in DPS change.

$\Delta DPS_{it} = 0.408 + 0.075EPS_{it} - 0.519DPS_{it-1}$ (4.22)

Se	(0.104)	(0.010)	(0.082)
T	3.905	7.861	- 6.304
P	(.000)	(.000)	(.000)

$R^2 = 0.153$ DW = 2.064 F = 43.944 (2,387) P = 0.000

A look at the effects of earnings on dividend changes indicate a one shilling increase in current EPS results in a shs0.075 rise in DPS change. However, the low value of R square indicate the model is a poor fit to NSE data used. Further still the problem could be attributable to proper specification of the model.

(b) Fama and Babiak (1968) Model

Fama and Babiak model modifies Linter (1956) by regressing dividend paid per share against changes in earnings and absolute levels of previous dividends. It is represented in equation (4.23 a).

$DPS_{it}=\alpha+\beta_1\Delta EPS_{it}+\beta_2 DPS_{it-1}+\varepsilon_{it}$ (4.23a)

The Equation (4.23 b) is estimated equation by Fama and Babiak (1968) using data from the Securities exchange. The model apparently is a significant improvement on Lintner's since the goodness of fit is 77.8 percent. This development imply a correctly specified dividend model for the NSE should not include business risk and growth prospects.

$DPS_{it}=0.154+0.03\Delta EPS_{it}+0.824DPS_{it-1}$ (4.23b)

Se	(0.034)	(0.003)	(0.023)
t	4.576	9.0	35.894
P	0.000	0.000	0.000

R^2 = 0.778

F = 672.203 (2,382) P = 0.000 DW = 2.155

The goodness of fit statistic (R^2) means that about 78% of the dividend payments by firms for the period are accounted for by changes in earnings and previously paid dividend. A change in previous dividends by a shilling increases current dividend payout by shs. 0.82. This means previously paid dividends to a large extent predict current dividends. That 82% of current dividends are attributable to previous dividends. A change of earnings per share by a shilling would increase current dividends by Kshs.0.03. per share. Therefore earnings change have a small contribution to current dividends of only 3%.A change of earnings per share by a shilling would increase current dividends by Kshs.0.03. per share. The minimum DPS_t for the market is Kshs.0.154 per share. Prior dividends alone explain 75% of the 78% explanatory power of this model by Fama and Babiak (1968). According to Fama et al (1968) the two coefficient are computed from; $\sigma = (1-\beta_2)$ and target ratio $\beta_1 / 1- (1- \beta_2)$. Hence for the market as a whole, the speed of adjustment toward the target ratio is 18% while the target ratio which is the proportion of earnings change paid out as dividends is 3.65%. This result shows that listed firms at the exchange try to stabilize dividends arising from positive earnings change. The reason only a small fraction of the change is targeted for distribution is probably high cost of raising external capital so that firms therefore prefer retaining more of the earnings generated.

Therefore the panel data seem to be well explained by Fama and Babiak (1968) model considering the goodness of fit (R^2=77.8%) which is above fixed effect coefficient of determination of 68%. In addition while Aivazian et al. (2003) concluded that developing stock markets do not exhibit dividend smoothing, the NSE data provides evidence of some dividend smoothing.

4.10.1 Dividend Stability by Various Sectors

Panel data in this study was analyzed by sector to determine extent of smoothing by firms in the respective industries. A low adjustment speed toward the target pay out signify smoothing otherwise a high speed of adjustment relative to target payout imply absence of smoothing. Famas and Babiak (1968) dividend model is applied in the determination of speed of adjustment and target payout ratio for each industry.

Smoothing is also inferred from strong relationship between current and previously paid dividends in the regression equations that follow here-under.

a) Agriculture Sector Dividend Stability

The equation is given by; $DPS_{it}= \alpha +\beta_1 \Delta EPS_{it}+\beta_2 DPS_{it-1}+ \varepsilon_{it}$

Estimated equation for the Agriculture sector is;

$$DPS_{it}=0.33+0.036\Delta EPSit + 0.638\ DPS_{it-1} \qquad (4.24)$$

Se	(0.104)	(0.007)	(0.072)
t	3.159	5.071	8.839
P	0.002	0.000	0.000

R^2=0.609 or 60.9%; F=50.801(2, 62); P=0.000; DW (d) =2.141

From the estimated equation (4.24) above adjustment speed and target payout are 36% and 6% respectively. This result show that the agriculture sector pursues less smoothing. Also evident is that an increase in EPS by one shilling causes current dividend payout to increase by Kshs 0.036. Conversely a shilling rise in prior dividend paid increases current dividend payout by Kshs. 0.64 which is evidence of moderate smoothing. These coefficients are all significant at the 0.05 significance level.

b) Automobile and Accessories Sector Dividend Stability

The econometric Equation is given by;

$DPS_{it}= \alpha +\beta_1 \Delta EPSit+\beta_2 DPS_{it-1}+\varepsilon_{it}$

$$DPS_{it}=0.178+0.009\Delta EPS_{it}+0.594DPS_{it-1} \qquad (4.25)$$

Se	(0.081)	(0.009)	(0.129)
T	(2.188)	(0.906)	(4.585)
P	0.035	0.371	0.000

R^2=0.335 or 34% F-value=10.812 (2, 37) P=0.000DW (d) =1.857

The model (equation 4.25) does not appear to fit the data very well with only 34 percent of the variation in current DPS being explained. Earnings are not significant in predicting DPS. However it is valid and does not suffer autocorrelation problems (F= 10.8 and DW= 1.857). The target ratio and adjustment speed was determined as 2% and 40% respectively.

This sector also practices some smoothing given the high adjustment speed and very low target ratio. Regression estimates indicate that a shilling increase in EPS results in increase in DPS by Kshs 0.009. Dividend per share paid previously also increase current DPSit by Kshs 0.594 with every rise of Kshs1.00 significant test show that coefficient for a change in EPSit is not significant. Therefore only prior DPS influences current DPS.

c) Banking Sector Dividend Stability

The econometric equation to estimate coefficients for stability in this sector is given by

Estimated Equation becomes;

$$DPS_{it}=0.028+0.048\Delta EPSit+0.972DPS_{it-1} \quad (4.26)$$

Se	0.040	0.012	0.029
T	0.681	4.031	33.455
P	0.498	0.000	0.000

R^2=0.932 or 93%F= 565.695 (2.81) p=0.000DW (d) = 1.884

The banking sector coefficients (equation 4.26) reveal that smoothing motivation is strong. The target ratio from earnings is 5% while adjustment speed is 3%. This is further attested to by the high coefficient for previously paid dividends (0.972). A one shilling change in EPS_{it} according to the regression equation lead to a KShs 0.048 change in DPS_{it} in the same direction. In addition a shilling increase in prior

dividend results in a shs 0.97 increase in current DPS for sector firms. Fama and Bibiak (1968) dividend model here has a near perfect fit for data from this sector (R^2 =93%).

d) Commercial Service Sector Dividend Stability

The equation (4.27) represents the commercial sector;

$$DPS_{it}=0.073+0.005\Delta EPSit+0.936DPS_{it-1} \quad (4.27)$$

Se	0.061	0.008	0.049
T	1.198	0.566	19.284
P	0.237	0.574	0.000

R^2=0.886

F = 190.726 (2, 47) p=0.000

DW (d) =1.938

Estimated coefficients of the model (4.27) indicate that it is valid (F=190.72) while the fit is also good (R^2 = 89%). A shilling increase in earnings will increase dividends paid by shs0.005. Further a shilling increase in prior dividends also increase current dividends by shs 0.936. However earnings coefficient is not statistically significant (P > 0.05) but previous dividends are. Hence this sector dividend decisions a fairly more stable as evident by a high coefficient for previously paid dividends.

e) Construction and Allied Sector Dividend Stability

Econometric equation;

Estimated regression equation

DPS_{it} =0.23+0.063ΔEPSit+0.742DPS_{it} (4.28)

Se 0.122 0.012 0.088

T 1.884 5.476 8.963

P0.066 0.000 0.000

R^2= 0.658

F=48.2(2, 47) p=0.000

DW (d) = 2.172

A change in earnings per share in this sector predicts dividends paid per share by Kshs0.063 while prior dividends does the same by Kshs0.742 for every increase by a shilling (equation 4.28). Both coefficients are significant at the 0.05 level and the model fit is 0.658 which is considered good enough. Sector smoothing coefficients show that smoothing is fairly strong as one quarter (SOA=25%) of the additional earnings (TPR=8%) is distributed as dividends.

f) Energy and Petroleum Sector Dividend Stability

The sector estimated regression equation is given as;

DPS_{it}=0.32+0.021ΔEPSit+0.742DPSit-1 (4.29)

P (0.186) (0.053) (0.000)

R^2 =0.487

In equation (4.29) show earning per share change not a significant factor explaining dividend decisions. Prior dividends is a strong predictor of DPS_{it} although the fit is moderate at 0.487 or 48.7 percent. The F-Ratio of 14.7 is good and no problem can be linked to autocorrelation. Prior dividends predict current dividends by Kshs 0.742 for every increase of DPS_{it} by one shilling. This is testimony to some degree of stability associated with dividend payout with a target ratio of 3% and speed of adjustment of 26%.

Insurance Sector Dividend Stability

The insurance sector estimated regression equation for insurance sector is expressed as;

$$DPS_{it}=0.34+0.033\Delta EPSit+0.624DPS_{it-1} \quad (4.30)$$

Se	(0.186)	(0.015)	(0.191)
t	1.829	2.067	3.269
p	0.085	0.054	0.005

$R^2=0.363$

$F=6.412\ (2, 17)\ p=0.008\leq 0.05$

DW (d) = 2.224

According to the equation (4.30) insurance sector prior dividends have a significant effect on current dividends paid per share. Earnings change have no significant effect on DPS_{it}. The model explains 36 percent of the variation in current DPS but is valid given a high F-value of 6.412. The equation show that when previous dividends increase by one shilling current dividends increase by Kshs 0.624 (moderate smoothing) all else equal. The coefficients for target ratio and adjustment speed were 5% and 38% respectively. Therefore the insurance sector dividend decisions were fairly stable on the low payout ratio on additional earnings.

g) Investment Sector Dividend Payout Stability.

This sector data had a poor fit to the model perhaps because of inadequate data. The F value was 1.373 which is not statistically significant p=0.314. Therefore it was ignored in further analysis. The coefficient of determination was less than 1 percent.

h) Manufacturing Sector Dividend Stability

Finally the manufacturing sector estimated regression equation is given as;

$$DPS_{it} = 0.074 - 0.008\Delta EPSit + 0.889DPS_{it-1} \quad (4.31)$$

Se 0.092 0.019 0.037

t 0.808 -0.44 24.319

P-value 0.425 0.663 0.000

$R^2 = 0.946$ or 95%

F=306.123 (2, 33) p=0.000

DW (d) =1.052

Interpretation of regression results (equation 4.31) is that first the model was nearly perfect in explaining dividend decisions for the manufacturing sector (R^2 =0.946). Secondly, F-value is also high indicating validity of variables while d-statistic of 1.052 implies no serial correlation of the disturbance term. Once more earnings for this sector do not predict dividends in the industry (p=0.663). Only prior dividends significantly predict current dividends by shs0.889. Smoothing motive was therefore stronger in this sector as evidenced by a low adjustment speed (11%) toward the target ratio (0.9) on additional earnings.

Table 4.21: Summary of Stability Results by sector

Sector	SOA%	TPR%	DPR%	Degree of Stability	R^2	F-STAT
Agriculture	36	6	32	Moderate	0.61	50.8
Automobile	40	2	7.5	Moderate	0.34	0.8
Banking	3	5	39	Strong	0.93	565
Commercial	6	0.5	28	Strong	0.89	190.7
Construction	25	8	54	Fairly strong	0.66	48.2
Energy & Pet	26	3	21	Fairly strong	0.49	14.7
Insurance	38	5	21	Moderate	0.36	6.4
Manufacturing	11	0.9	68	Strong	0.95	306

4.11 Dividend Smoothing at the NSE

Are corporate managers in different industries motivated by smoothing when paying dividend to shareholders? The analysis here involves application of Lintner (1956) and Fama and Babiak (1968) models. Dividend stability is measured by the relationship between two coefficient namely target payout ratio and adjustment speed derived from regression techniques.

Thus far from Table 4.21, results demonstrate that firms at the Nairobi Securities Exchange are motivated by stability of dividends to different degrees. Sectors like banking, commercial, and manufacturing were smoothing dividends more than construction and energy sector where smoothing was fairly strong. Sectors showing moderate smoothing according to data analysed were Agriculture, Automobile and Insurance. Investors looking toward steady dividend returns as their preference would be therefore have to select their stocks carefully since payout consistency is not uniform across the sectors. The relationship between risk and dividends show that group 1 sectors considered high risk namely Agriculture, Automobile, Energy

and Insurance sectors are faced with information asymmetry issues which require low payments of dividends (more smoothing) compared to group 2 sectors (low risk) namely Banking, Commercial, Construction, Investment and Manufacturing that only need to signal to the market about their better prospects in future and hence less need to smooth. Conversely, based on growth prospects, the same classification reveal that group 1 sectors (low growth) face agency problems while group 2 sectors (high growth) experience information asymmetry conditions that require less smoothing. Therefore more smoothing would be necessary to stabilize stock value for high risk sectors and less smoothing for low risk sectors to stabilize and steadily enhance stock price.

4.12 Paying Dividends and Market Value of Stocks

Is there significant difference in market value between dividend payers and non-payers? The signaling role of dividend mean dividend are used to convey information about quality of a firm in terms of financial strength and future prospects. This is to say there is a strong relationship between dividend and firm value since investors use it to deal with the agency problem and information asymmetry in the capital market. This is the reason managers are usually reluctant to reduce dividend or even omit altogether unless the move is temporary (Dhahani, 2005).

An analysis of the relationship between DPS_{it} and market value of a share (MPS) yielded results at the 0.05 level indicating that with 425 observation 2 tailed test, the correlation coefficient between market price per share and dividend per share is 0.701 or 0.7 and P = 0.000 (Table 4.22).

Table 4.22: Correlation between Dividends and Market value

		Current Market price per share
Current dividend per share	**Pearson Correlation**	**.701****
	Sig. (2-tailed)	.000
	N	425

**. Correlation is significant at the 0.01 level (2-tailed).

This correlation is strong indicating a strong positive association between MPS and DPS Hence dividends do signal information about the market for investors. Consequently failure to pay dividend would signal problem with a company. This may result in reduced market value of the share. The outcome is consistent with a Brav et al. (2005), Ochieng and Kinyua (2013), Maniagi et al. (2013). Listed companies would improve value by consistently paying dividend since this shall signal better prospects for the company in future and reduce variability in market price. The standard deviation of change in market price per share across the nine sectors ranges from 10.2 to 88.43 for investment to Agriculture respectively with mean statistics of between -1.2 to +1.9. This is testimony that stock prices are quite highly variable due to the variability of dividends paid per share.

When the correlation coefficient is computed for the firms based on whether firm belong to a bank or a non- bank (Table 4.23) sector the correlation coefficient between market price per share (MPS) and dividend per share (DPS) is higher (0.77) for bank than non -bank 0.70 at the 0.05 level. Both coefficients were statistically significant.

Table 4.23: Correlation Coefficient for Bank and Non-Bank firms

Correlations

Banking or non- banking			Current market price per share	Current dividend per share
Non – bank	current market price per share	**Pearson Correlation**	**1**	**.700****
		Sig. (2-tailed)		.000
		N	338	332
	Current dividend per share	Pearson Correlation	.700**	1
		Sig. (2-tailed)	.000	
		N	332	332
Banking	current market price per share	**Pearson Correlation**	**1**	**.770****
		Sig. (2-tailed)		.000
		N	93	93
	Current dividend per share	Pearson Correlation	.770**	1
		Sig. (2-tailed)	.000	
		N	93	93

**. Correlation is significant at the 0.01 level (2-tailed).
a. Cannot be computed because at least one of the variables is constant.

4.13 Dividend Payout and Market value for Paying and Non- Paying Firms

The relationship between dividend payment and market value of a firm was explored for firms that paid dividend and those that did not. Descriptive statistics reveal that the mean market price of a share for a dividend paying company is Kshs70.85 compared to Kshs38.47 for the non-paying firms. The corresponding standard deviation is 72.29 and 75.82 respectively. This means that for firms that pay dividend, variability in market price was significantly lower than for those firm that do not pay dividends. The coefficient of variation for the two categories of companies based on risk and return is0.88 and -8.3 for paying and nonpaying firms respectively. Therefore paying companies have lower risk per unit of return of 0.88 compared to the nonpaying company with the risk return ratio of -8.30**.** Descriptive statistics in the Table 4.24 show that return on equity on average was 10% with a standard deviation of 1.46.

Table 4.24: Descriptive Statistics ROE

	N	Minimum	Maximum	Sum	Mean		Std. Deviation
	Statistic	Statistic	Statistic	Statistic	Statistic	Std. Error	Statistic
Return on equity	430	-305.91	126.65	4367.14	10.1561	1.46405	30.35924
Valid N	430						

4.14 Dividend Changes and Firm Value

An ANOVA (*Post-hoc*) test for multiple comparison shown in Table 4.25 between changes in current DPS for firms in the nine sectors returned significant value between those that increase dividends and those that do not change dividends. The difference in market value was not statistically significant between firms that either increase or reduce dividends as evidenced by absence of an asterisk in the mean difference column. So firms that make a dividend decision (Increase or decrease) may expect their stock value to rise or remain stable due to signaling mechanism.

Those firms that omit dividends had their value significantly reduced compared to those that change payout. This may be indication that declining dividends is temporary (signaling role). Therefore rather than omit or fail to change dividends, a stable dividend conveys better information to the market.

Table 4.25: ANOVA Post Hoc Result for Changes between Dividends and Market Value

Multiple Comparisons

Dependent Variable: current market price per share

Tukey HSD

(I) dividend per share change	(J) dividend per share change	Mean Difference (I-J)	Std. Error	Sig.	95% Confidence Interval Lower Bound	95% Confidence Interval Upper Bound
No change	dividend increase	-36.21424*	7.69995	.000	-54.3302	-18.0982
	dividend decrease	-35.95645*	9.73393	.001	-58.8579	-13.0550
dividend increase	No change	36.21424*	7.69995	.000	18.0982	54.3302
	dividend decrease	.25780	9.67630	1.000	-22.5080	23.0236
dividend decrease	No change	35.95645*	9.73393	.001	13.0550	58.8579
	dividend increase	-.25780	9.67630	1.000	-23.0236	22.5080

*. The mean difference is significant at the 0.05 level.

4.15 Industry Effects

Modeling industry effects test involved application of the dummy variable technique to separate sectors/industry and study their effect on dividend payout on a multiple linear regression. Hence with nine sectors under study, eight dummies were created to compare against the banking sector. The sectors were recorded using 1 and 0 to represent observation that either belong to a sector or not. Regression result is presented in summary Table 4.26.

Table 4.26: Differential Intercept for Market segments

Industry/Sector	Intercept coeff	P.value
Banking	0.185	0.003
Agriculture	0.058	0.452
Automobile	0.105	0.241
Commercial	-0.024	0.769
Construction	0.054	0.505
Energy	0.052	0.605
Investment	-0.151	0.32
Insurance	0.021	0.854
Manufacturing	0.038	0.682

$R^2 = 0.764$ F= 103.941 (12, 369) P=0.000DW= 2.055

The coefficients above representing the eight dummies indicate that all the eight sectors have p- values higher than 0.05 which means all industries or sectors paid dividends not statistically different from what the banking sector paid (kshs0.185). This contrasts with findings by Horace (2002); Ho (2003) Baker and Powell (2000). Ho (2003) posited that industry effects are significant to dividend decision in Australia and Japan. The model was valid since F value is 103.941 (12, 369), R^2 =0.764 and DW =2.055.

4.16 Key Factors Predicting DPS at the NSE

The factors predicting DPS in the market according to the analysis done so far are; previous dividend with the strongest contribution followed by current earnings after tax and lastly business risk. From correlation Table 4.14, prior dividend has the strongest positive correlation coefficient of 0.855 followed by current earning (0.575), MTB (.368) and P/E (.096) with current dividends paid. All the coefficients are statistically significant at 0.05 level of significance. A Look at effects of the factors by sector, the commonest predictor across all sectors is previous dividends paid and risk (Table 4.27). This is then followed by current earnings which influence payout in only three sectors namely Agriculture, Banking and construction. Growth

opportunity proxied by MTB was not significantly associated with dividend decisions across the sectors of the market.

Table 4.27: Summary of Predictors of Dividend Payout

	EPS_{it}	DPS_{it-1}	GO_{it}	$RISK_{it}$
a) Agriculture	√	√	X	√
b) Automobile	X	√	X	√
c) Banking	√	√	X	√
d) Commercial	X	√	X	√
e) Construction	√	√	X	√
f) Energy	X	√	X	√
g) Insurance	X	√	X	√
h) Manufacturing	X	√	X	√

4.17 Dividend Patterns between Payers and Non payers

An analysis of dividend payment pattern by the listed firms for the period was also done to determine payment pattern between dividend payers and non-payers. Figure 4.22 provides a picture of whether the firms over time paid dividends or not. Results further buttress the argument for or against dividend decisions among public firms at the NSE. The number of firms analysed were 40 divided into the nine sectors and categorized into dividend payers and non-payers.

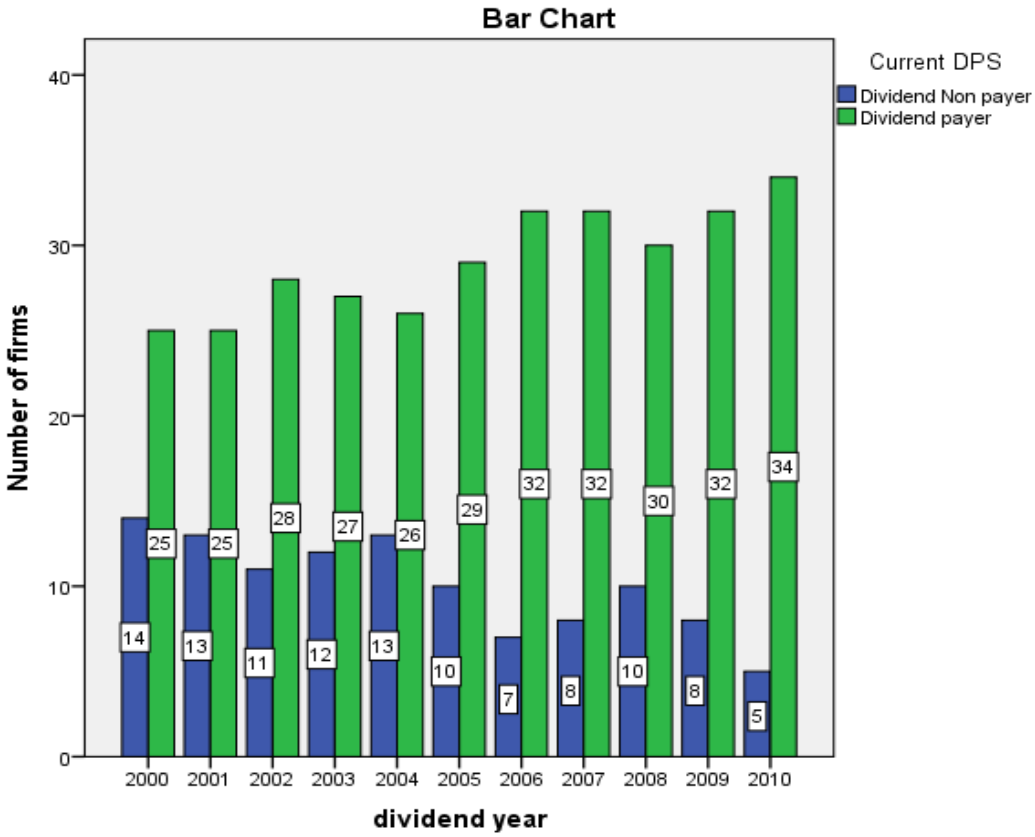

Figure 4.22: DPS Pattern between Payers and Non payers

Figure 4.22 shows that the number of companies that paid dividends from the year 2000 to 2010 increased from 25 to 32 while those that failed to pay dividends declined from 14 to 5.Theworst year for dividend payment in this market was 2000 where only 25 firms paid dividends while the best was 2010 with the highest number of firms paying dividends (34).

Dividends therefore appear important to investors and so corporate managers tried to provide it to the shareholders. A strong correlation coefficient of 0.7 was derived between current dividends paid and market value of a share (stock price). Perhaps this explains the reason firms have been increasingly paying dividends even as earnings fluctuate. Authors (Al Malkawi 2007, Ahmed & Javid, 2009, Alber & Ahmed 2017) have argued that dividends convey information that investors require about company's earnings potential and future prospects.

4.18 Dividend Payout Pattern by Industry

Figure 4.23 show dividend payout layered by industry. It indicates that in the agriculture sector, dividend payout by firms for the period occurred 71.6% of the time (11 years) but 12% overall in the market. Target payout ratio is 32%. Automobile and accessories sector firms paid dividends 54.5% of the time but this represented only 5.6% for the market as a whole. Targeted ratio in this sector was 7.5%. In the banking sector, target payout is 39% while DPS was paid 78.5% of the time representing 16.9% in the entire market. When the commercial sector is considered, dividend payments happened 70.9% of the time for the industry but 9% of the time for the entire market. Industry target payout is 28% Construction and allied sector firms paid dividends 89.1% of the time for industry representing 11.4% of the market. The target payout here is 55%. It further emerge that petroleum sector paid dividends 78.8% of the time in the sector representing only 6% of the time in the market. Sector target payout ratio is 22%. The insurance industry paid dividend 77% of the period but as percent of total it was 3.9%. Target payout ratio for this sector is 22%. Investment sector payout was took place 81.8 percent of the time but only 2 percent as proportion of the total market payment. The payout ratio was 36%. Manufacturing sector dividend payout ratio is 68% and paid dividends 68% of the time in the industry which represented only 7% of payout for the entire market. When overall performance is measured, firms paid dividends 74% of the period at a ratio of 34% represented by 320 observed cases.

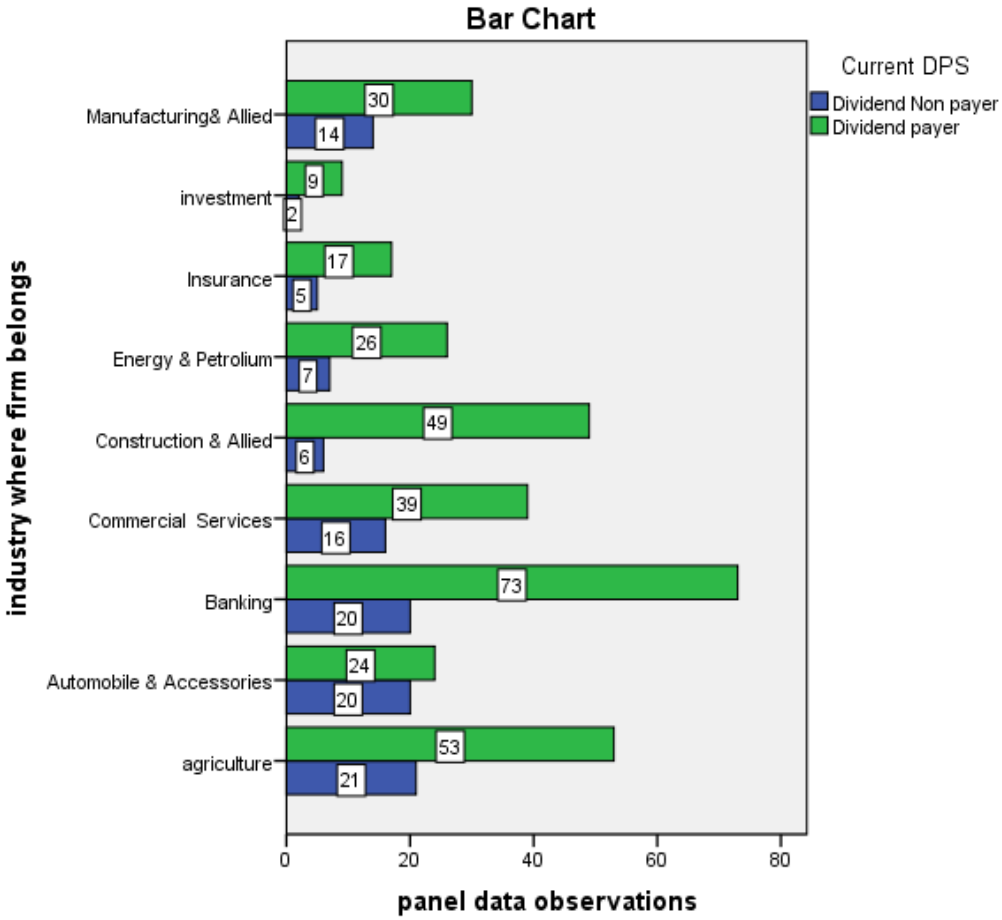

Figure 4.23: Dividend Payout Observations by Sector

From the Figure 4.23, banking sector leads in dividend payout while the insurance sector was poorest in paying dividends for the period studied. Investmentsector is ignored because it was represented by only one company. Agriculture sector came second in dividend payment followed by construction, commercial and manufacturing in that order.

4.19 Dividend changes in the period.

The bar chart (Figure 4.24) shows that the number of firms that decreased dividends was highest in the year 2009 and lowest in the year 2004. This is probably because of the political events of the year 2007/ 2008 which affected many companies

financial performance. The year 2004 saw the lowest number of firms decreased dividends most likely because of the political climate that was favorable to business after 2002 political transition. The number of companies that maintained their level of dividends payout unchanged was highest in the year 2000 and lowest in 2006. This same year was best for many listed firms since it's the year the market realized the highest number of firms that increased dividends paid in the entire period.

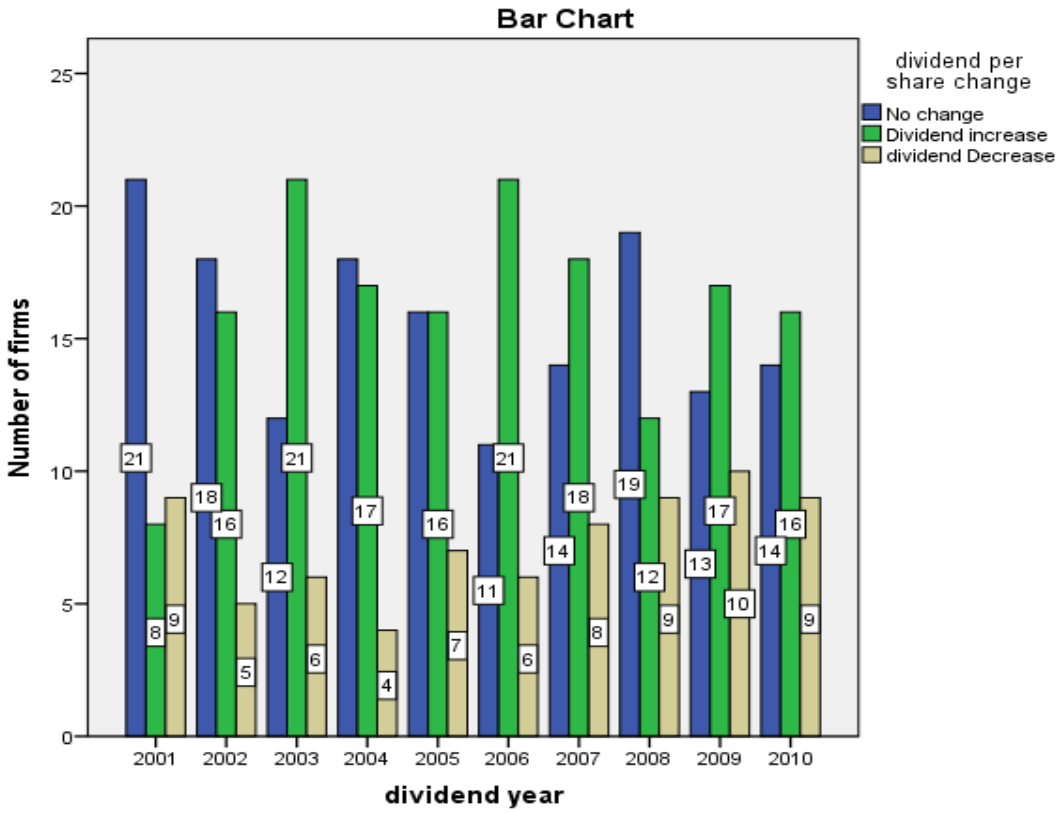

Figure 4.24: DPS Changes for the Period

4.20 Earnings per Share Change Pattern by Firms at the NSE

Looking at the changes in earnings per share for firms in each of the year 2000-2010, it is apparent that in the year 2004, earnings increased for the highest number of firms listed at the exchange (Figure 4.25). A decrease in earnings was noted for the highest number of firms in the year 2009. This corresponds to data on dividend

change pattern showing lowest number of firms that decreased dividends paid per share in year 2004. Hence the year 2004 also saw the lowest number of firms reporting decrease in earnings. Overall earnings per share increased among 63.4 percent of the 40 firms and decreased among 34 percent of them.

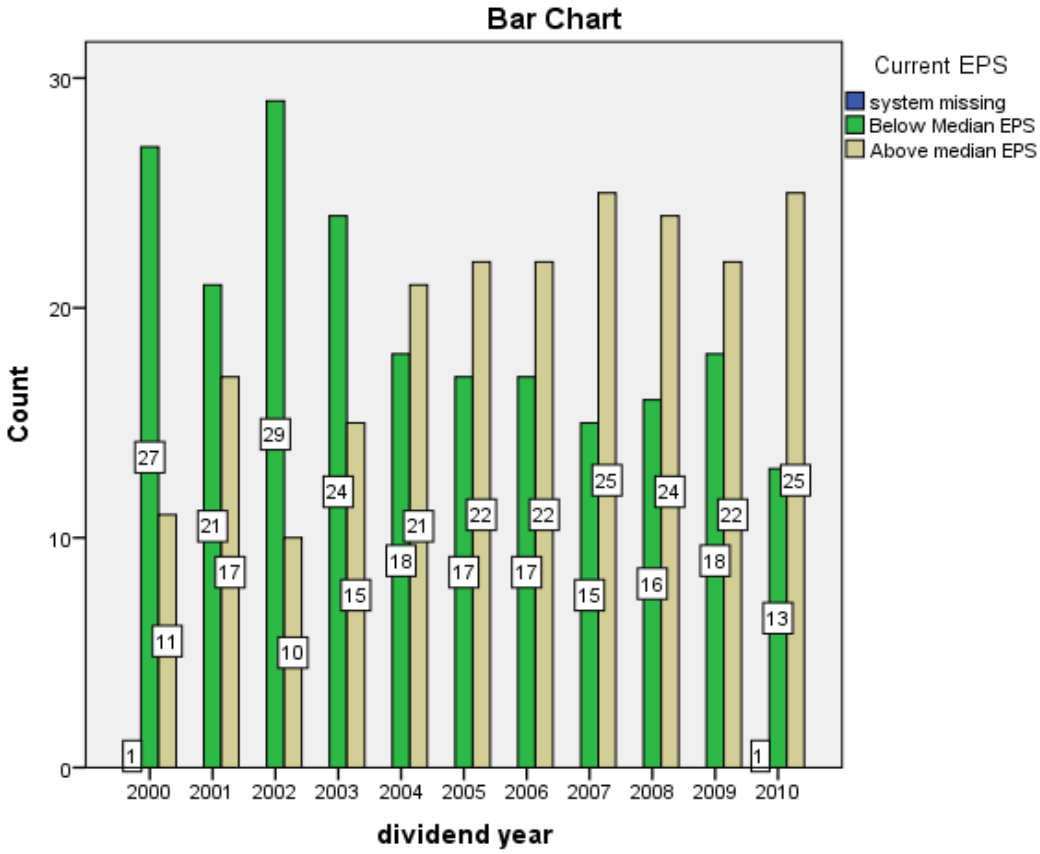

Figure 4.25: EPS Changes for the period

Again year 2009 show that 21 firms recorded increased earnings while 18 had decreased earnings out of the total 40 firms studied. This was the worst year in terms or earnings for companies at the exchange. The best year (2004) show that 30 companies posted increased earnings while 8 recorded decreased earnings.

4.21 Growth Opportunity Pattern for Quoted Firms

From the panel data analyzed, growth opportunity was low and dominating between years 2000-2002 (Figure 4.26). After year 2002 opportunities for growth increased reaching its peak in the year 2006 with 34 of the 40 firms experienced high growth opportunities conversely year 2001 posted the highest number of firms (34) with low growth opportunities. This was the worst year in terms of growth prospects for the listed firms. Overall 54.1 percent of the 40 firms experienced high growth opportunities while 46 percent had low growth opportunities. The opportunities declined sharply in 2008 and 2009 but picked up again in the year 2010. This could be linked to the violence that occurred between end of the year 2007 and beginning of year 2008 which may have affected many firms.

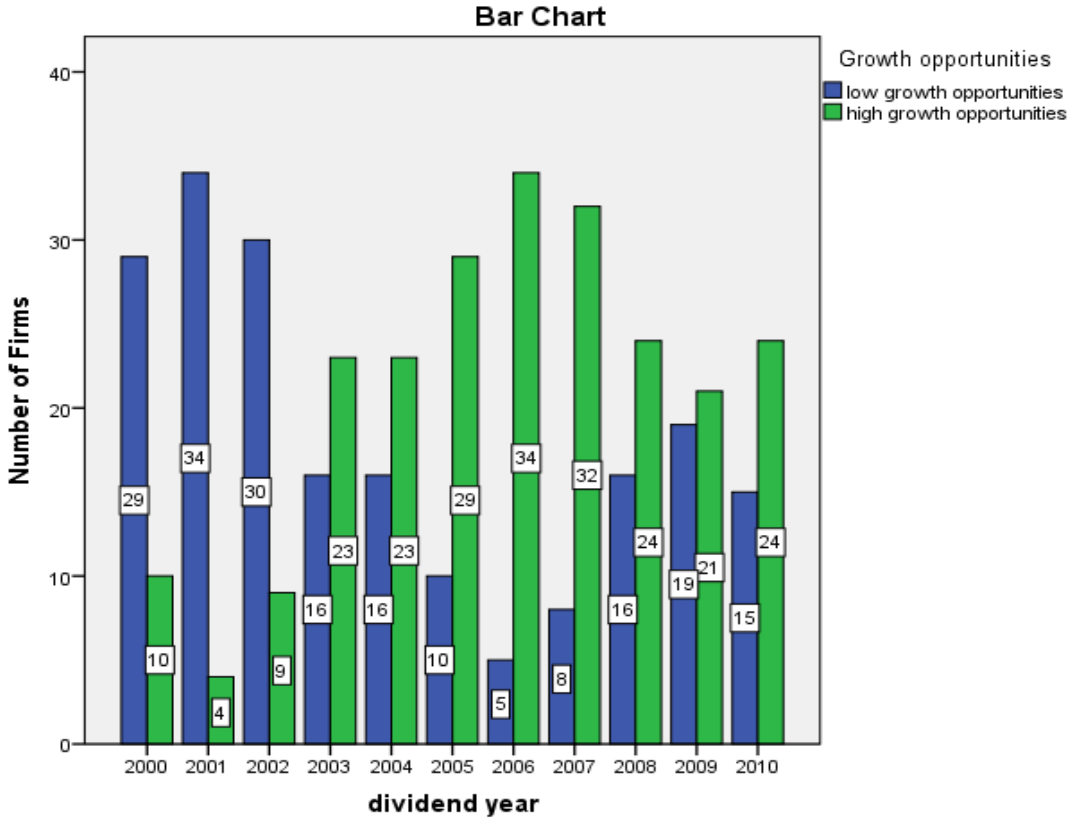

Figure 4.26: Growth Opportunity Prospects in the period

4.22 Pattern of previous DPS by listed firms.

The year 2007 had the largest number of firms (33) indicating they paid dividends the previous year 2006. This year was noted to have been the best year in terms of growth opportunities. Hence suffice it to say that firms are partly influenced by growth opportunities and previously paid dividends when paying out dividends. A look at the pattern of paying dividends one notes a steady increase in number of firms paying dividends from the year 2001 to 2007. Some Variation is observed from 2004 to 2006 and again 2008 to 2010. The number of firms that did not pay dividends is seen to have dropped from 14 in 2002 to 7 (2007) but increased slightly to 9 in 2009 for reasons which can closely be related to the political climate in the year 2007-2008. In sum, 66 percent of the firms paid dividend in previous year while 23 percent did not pay any dividends the previous year. The year 2007 was best in terms of previous dividends paid by 33 firms while worst year was 2002 when highest number of companies (14) indicated they had not paid any dividends in the prior year. (Figure 4.27)

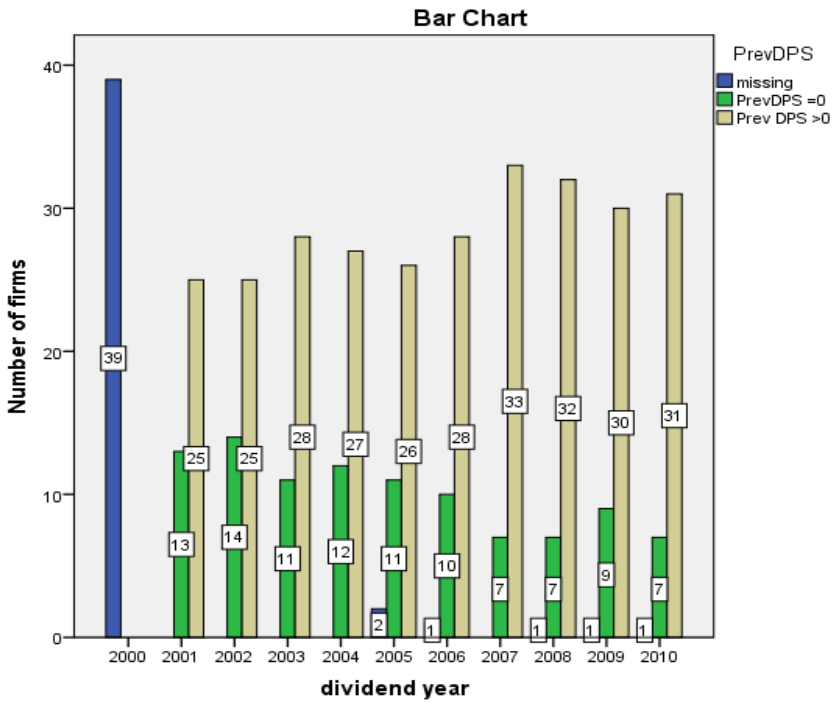

Figure 4.27: Lagged DPS for the Period

4.23 Risk Pattern among Firms Listed at the Exchange

In terms of business risk firms listed at the exchange show that the highest number of firms that recorded low risk was in the year 2006 with 34 of the 40 companies. High risk was reported by largest number of firms in the year 2001 (Figure 4.28). Risk patterns indicate a gradual decline in risk as reported by steadily rising number of firms from year 2001 to 2006 to reach 34. The riskiest year for firms at the exchange was 2001. However risk has been seen to drop as reported by declining number of firms indicating high risk from2001 to 2006 after which a spike in number of firms facing high risk is noted to reach highest level in 2008 and 2010. Risk is hypothesized to inversely affect dividend payout although measurement proxy (P/E ratio) is expected to be positive.

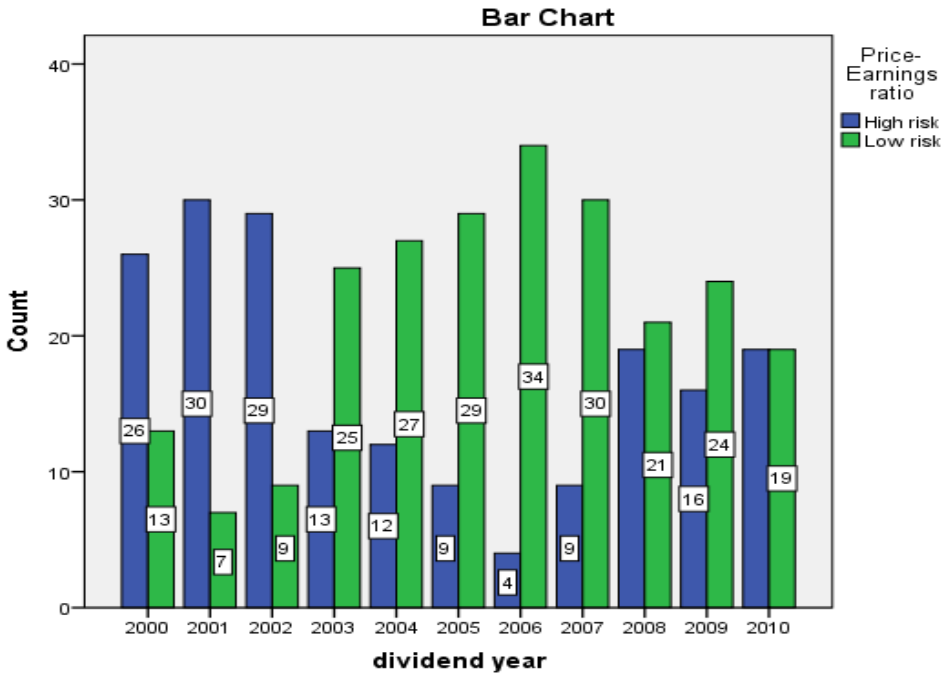

Figure 4.28: Risk pattern for firms in the market

Table 4.28: Summary Table of Overall Performance by Firms.

Variable	Best Year	Worst Year
Current Dividend per/share	2010	2000
Dividend per share change	2006	2009
Earnings per share change	2004	2009
Growth opportunity	2006 (High)	2001(Low)
Previously paid dividends	2007	2002
Business Risk	2006 (Low)	2001 (High)

From the year–on-year summary Table 4.28 above, it is clear that NSE firms have been increasingly paying a regular dividend to reach its highest number in the year 2010 from lowest in 2000. Positive dividend per share change was recorded by majority of firms in the year 2006 and least number of firms in the year 2009. The explanation is that in 2006 growth opportunities were at their highest and so earnings were at the highest. This led to positive change (increase) of dividend reported by majority of firms. However in 2009 fewer firms reported dividend change. Earnings per share change were recorded by majority of firms' in year 2004 and lowest number in 2009. In the year 2004 a new government had already assumed office back in 2002 and there was so much optimism among local and foreign investors. Policies that were pro-economic development, right tax regime and legal and regulatory requirements must have bolstered economic performance from year 2002 and reaching peak in 2006.Stabilityof economy and growth created more opportunities for even more investment. This is captured in the year 2006 within the highest growth opportunities. However, growth opportunities were lowest in 2001 with the poor economic performance and market sentiment at the time.

In terms of previously paid dividends best results were noted in 2007. This related to the best performance for many listed companies in the previous year 2006. Therefore previously paid dividends occurred for the largest number of firms in

2006 as opposed to 2009. This is testimony that dividends are not only dependent on past payments but on past earnings as well. The year 2002 was worst in terms of prior dividends per share paid drawing from the bad financial reports of the year 2001.

Finally business risk show that for the listed firm at the exchange and especially for those that were part of the sample, best year (low risk) was also the year with the highest growth opportunities. This is because there exists an inverse relationship between risk and growth opportunity. Lowest risk also appears to encourage more dividend payments (signaling reason) looking at DPS for year 2006. The worst year in terms of risk was 2001 when risk levels were considered highest. This is the same year that recorded lowest growth opportunities. However this could not be as bad as 2009 after the post-election violence when most companies reported their poorest earnings and consequently very low dividend per share change. Industry performance has shown that the banking sector has the largest number of firms' paying dividends followed by agriculture, construction, commercial while sectors with least number of payers were insurance and investment. The analysis was been based on number of firms reporting an attribute as opposed to level of attribute. Popularity of earnings, dividends, growth prospects or risk was measured by number of firms reporting it. Any period considered bad would also mean a majority of the firms reporting low values or minority posting high values for an attribute. For instance a good earnings period mean majority of firms reporting positive earning change and vice versa.

4.25 Summary

A summary of the regression statistics so far reveal that estimated coefficients for earnings, prior or lagged dividends and business risk could be applied in predicting DPS in general. Therefore it is apparent that prior dividends and current earnings are critical predictors of DPS_{it}. This is already documented by several scholars led by Lintner (1956) in his US study and supported by Fama and Babiak (1968). Other supporting studies are; Fahhim et al. (2015) among Saudi Arabian financial firms, Abbas et al. (2016), Turakpe and Fiiwe (2017). However findings are inconsistent

with those of Kazuku (2015) whose study of Turkish listed firms arrived at different contrary findings.

Prior dividends results from this study have indicated that it influenced dividend payout of nearly all listed firms at NSE. A history of paying dividends guides current dividend decisions. This is consistent with studies by Alber et al. (2017) in Saudi Arabia and Ahmad and Attiya (2009) who realized a positive relationship between current dividends and previously paid dividends.

In Nigeria, a study by Olantudun (2000) concluded that growth prospects was one of the significant determinants of dividend payout. While the relationship is negative between growth opportunities and payout in this study and in agreement with Musiega, et al. (2013) on non-financial firms at Nairobi Securities Exchange (NSE), Kazuku (2015) on Turkish firms, Gill et al. (2010) on American firms, but inconsistent with Waswa (2014), Issa (2015), and Abbas et al. (2016) who discovered a positive relationship between growth prospects and dividend payment.

Business risk on the other hand is hypothesized as negatively associated with dividend payments from extant literature and this is supported by this study although the extent of effect is significantly reduced. The findings are consistent with Turki and Ahmed (2013), Issa (2015) on Malaysian firms. However, Ochieng and Kinyua (2013) in their study of listed firms at NSE did not find any significant relationship between dividend payout and business risk.

The sensitivities of the coefficients in different markets are indeed not similar as argued by Wolmoran, (2003) who contend that dividend models in both developed and developing countries is similar in form but dissimilar in structure. In addition, while they also posited that growth prospects is important in the sampled firms drawn mainly from the countries in the east, this proved irrelevant at the Nairobi Securities Exchange as a predictor. It also emerges that no significant difference was observed in dividend policy between bank and non-bank firms sampled in this study.

So how well do current earnings, prior dividends, growth prospects and business risk predict dividends paid by firms listed at the NSE? The question is answered by the

results so far obtained showing only two variables; previously paid dividend and current earnings are significant predictors of dividend decisions made by listed firms at the NSE. Risk is significant too but the effect is weak and negative.

Panel data results for each individual firm in the 9 sectors of the market have shown that only three sectors namely Manufacturing, Agriculture and Construction sector recorded one firm each paying significantly higher dividends compared to the peers. In the Manufacturing sector, BOC (K) paid DPS on average shs0.565 against the comparison company of E.A Breweries while her peers paid Kshs. 0.182 over the period. Agriculture sector also had Kapchorua Tea paying current DPS_{it} of Kshs. 0.525 compared to Kakuzias others paid Kshs. 0.18 per share. This payout was statistically different from the mean DPS_{it}. Additionally for construction sector, Bamburi Cement Company stood out by paying a mean DPS_{it} of Kshs 0.475 against peer (Athi River Mining) paying kshs. 0.18 per share. Other sector firms paid on average what ARM was paying, that is sh0.18 per share over the study period. What is also apparent is that dividend changes have significantly differentiated firms based on market value.

Finally an investigation of the time effects revealed no significant effects on DPS based on time period studied. The comparison year (2002) had DPS_{it} paid on average ksh 0.168 and this did not change significantly over the entire 11 year period.

4.26 Cross Section Data Analysis

4.26.1 Introduction

Cross section data was similarly used to examine dynamics of dividend behavior of listed companies at Nairobi Securities Exchange. A mixed approach was chosen to improve reliability of results. Analysis of qualitative data from 40 sampled firm representatives was done by descriptive and inferential approach. A logistic regression and factor analysis was done to predict the odds in favour of firms reporting dividend payout and also simplify results. Each company provided a responder who is either financial director, accountant, officer or share registrar. The questionnaire was divided into four sections A, B, C and D. Section A captures

general information, Section B contain items on dividend decisions, section C investigates dividend determinants while section D comprise items on dividend stability. Forty questionnaires were administered out of which 39 were returned.

Thus far data collected on general information of respondents reveal that most of the respondents had a Master degree with 20 out of the 38 representing 53% followed by bachelors qualification who were 16 (42%). In terms of length of service, majority had served in their companies for between 3 and 6 years (47%) followed by those having served for between 6-9 years (32%).

4.27 Dividend Decisions

The first question in this subsection asked respondents to rank distribution method(s) used in the last five years. Figure 4.29 below indicates 30% of the respondents or 81% had employed regular dividends this is then followed by share repurchase 16% and lastly 3% having used special dividends.

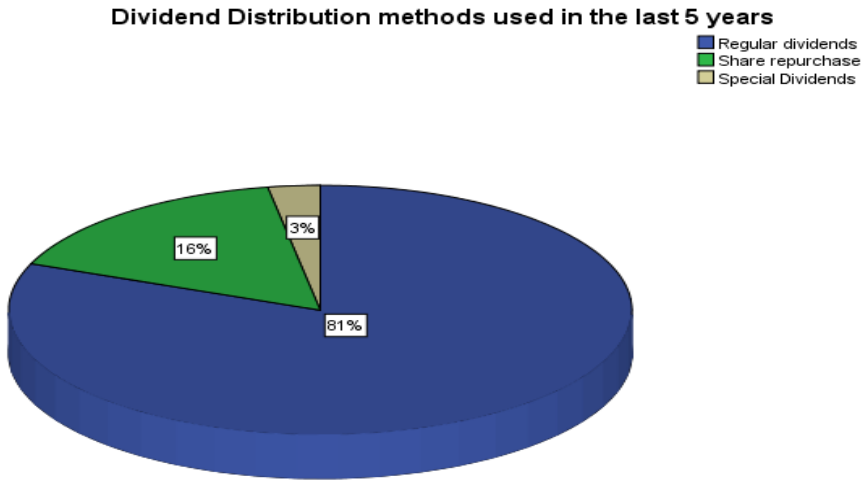

Figure 4.29: Dividend Distribution Method Used in the Last five years

Frequency of the method preferred above was investigated and results of analysis show from Figure 4.30 that 80% or 22 companies of the 38 sampled used regular

dividend often times. This was followed by 5 or 14% who used the method fairly often (moderately). Two companies used the method very often and only one used regular dividends less often.

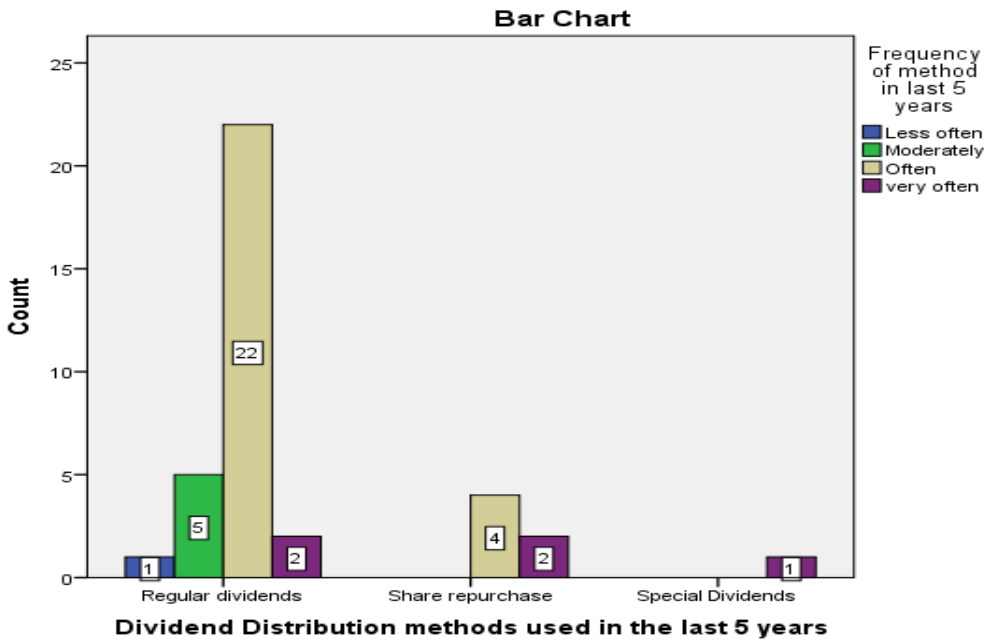

Figure 4.30: Frequency of use of the popular method

Therefore most listed companies prefer paying regular cash dividend to their shareholders. This is consistent with empirical findings realized in the previous section revealing that over the period 2000 to 2010 increasingly more companies paid regular cash dividends.

When asked about how many dividend they had paid on the financial year ending 31, December 2015, 62% of the company respondents indicated they paid dividends once while 8 (33%) paid twice from a total of 33 respondents. Nine finance officers stated they did not pay any dividends in this period. So dividend payment is largely a discretionary decision.

Conversely in interim dividends were paid once by 11 companies and twice by 6 companies corresponding to 61% and 33% respectively as shown in Table 4.29.

Generally fewer interim dividends were paid by companies at the stock exchange from the response presented.

Table 4.29: Companies paid an interim dividends in the last financial Year

Company Paid Interim div in the last financial year * How many dividends paid in last Financial year Cross Tabulation

			How many dividends paid in last Financial year			Total
			Once	Twice	N/A	
Company Paid Interim dividend in the last financial year	No	Count	13	2	0	15
		% within Company Paid Interim div in the last financial year	86.7%	13.3%	0.0%	100.0%
	Yes	Count	11	6	1	18
		% within Company Paid Interim div in the last financial year	61.1%	33.3%	5.6%	100.0%
Total		Count	24	8	1	33
		% within Company Paid Interim div in the last financial year	72.7%	24.2%	3.0%	100.0%

4.28 Method of Distribution

In this section of the questionnaire respondents were asked to rate the importance of signaling role, flexibility, tax efficiency, attractiveness to inventor when choosing a distribution method. Results show from the Table 4.30 that signaling role was either important or very important to 21 companies representing 59% of the total sampled companies. Flexibility of the method is considered important to 27 companies (73%), tax efficiently guides method of distribution for 23 firms (60%) and lastly attractiveness to different inventors 35 (98%). Reliability coefficient for these items was 0.7 which is satisfactory.

Table 4.30: Dividend Decisions are made based on (N=40)

Factor	Very important (5)	Important (4)	Somehow important (3)	Less important (2)	Not important at all.(1)
Signaling role	6	15	10	5	-
	17%	42%	28%	14%	
Flexibility in changing level of distribution	4	23	9	1	-
	11%	62%	24%	3%	
Tax efficiency of the alternatives	7	16	8	4	3
	18%	42%	21%	11%	8%
Attractiveness to different investors	27	8	-	1	-
	75%	22%		3%	

Dividend payment decisions were also rated on a five point scale from strongly agree to strongly disagree. Results from the twelve items describing dividend payment decision were as follows: Regular dividend payment is considered important by all the sampled companies divided into 30(79%) that "agreed strongly" and 8 (21%) "Agree". In addition 14 or 37% of the sampled companies "strongly Agreed" that dividends influenced stock price of a firm. Forty two percent also "Agreed". It was also agreed either strongly or just agreed that dividends paid are based on payout ratio by 28firms or 71% of sampled firms.

Another item was whether current dividends are based on previous dividends. Here 12 firms or 31% of the sampled firms stated they agreed either strongly or in principle. However 68% comprising of 34% each agreed somehow or did not agree. Similarly dividends are also thought to be based on growth rate per share. On this point 25 firms (62%) indicate either "strongly agree" or just "agree". Another item was "Do dividends get affected by dividends yield"? Those who agreed were 17 (44.7%) and those who agreed strongly 2(5.3%). Eighteen firms (47%) only agreed

somehow while one disagreed. This is consistent with dividends that are influenced by previous dividends.

Another item on DPO sought to find out if dividends are cut or reduced when profits decline in any year. Result showed that 36 companies or 94% of the sampled firms "agreed strongly" (73%) and "agree" (21%). Only 2 firms were torn between "agree" or "disagree". So dividends are likely to be reduced if profits reduce in any financial year. This make payout rather unsystematic hence irregular.

More so 53% (20) companies "strongly agreed" that dividends are cut or reduced if faced by cash shortage for investments. Fifteen firms (40%) "Agreed" to this while 2 were only fairly sure representing 2%. This happens when profits decline consistently over two to three years where 16 firms (44%) "Strongly agreed" that dividends would be reduced while 9 (25%) "Agreed". Therefore there is a strong chance that dividends would be reduced if profits decline consistently. Substitutability between dividends and share repurchase is strong as reported by 21 companies (54%) but 14 firms were indifferent representing 37% of sampled firms.

Cash dividends may be supplemented with stock dividends for 12 firms (32%) who "strongly agree", 11 firms (29%) "Agree", 12 companies "Somehow agree" while 3 (7.9%) "Disagreed". Finally company representatives were asked if dividends are influenced by industry average. Of the 35 companies that responded, one of them strongly agreed, 9 firms "Agreed", 20 companies (57%) "Somehow agreed" and 5(14%) "Disagree". Therefore industry dividend average does not strongly influence dividend decisions of public companies ot the NSE. All the items listed under this factor yielded an alpha coefficient of 0.7 which is supported by Pallant, (2005). The factor variables are to be reduced further to arrive at fewer dimensions to define it.

Regular dividends paid by sampled companies are influenced by a number of factors. The following factors were selected to test strength of influence; liquidity of the firm which influence 33 companies representing 86%. Previous dividends affect dividends of 9 companies (23%). Twenty one firms representing (55%) of all

the sampled firms indicated they only "somehow agreed". Those who disagreed were 7(18%) with 7 or 2.6% "strongly disagreeing"(Table 4.31).

Growth opportunity strongly influence dividends decisions of 11 firms (29%), 18 or 47% "Agree", 7 "somehow agreed" and 2 "disagreed". Conversely business risk was reported to influence dividends paid by 4 firms (11%), 21 firms or 55% "agree", 11 (29%) "Somehow agreed" while 2 "disagreed". This factor is not thought to be very significant in affecting dividend payout since a greater proportion of respondents lie on either "agree" or "somehow agree"

Investment opportunities as a predictor influence dividends of 14 firms (37%) "Very strongly", those that agreed were 16 (42%) while 7 or 18% only somehow agreed. Tax preference of the investor influence dividend decisions of 27 firms (71%) who stated "strongly agree" or "agree". Reliability statistics (Cronbach Alpha) for the items in this section was 0.7 (satisfactory).

Table 4.31: Dividend Payout Decisions are influenced by (N=40)

Factor	**Strongly Agree (5)**	**Agree (4)**	**Somehow agree (3)**	**Disagree (2)**	**Strongly disagree(1)**
Liquidity of the firm	21	12	2	3	-
	55%	32%	5%	8%	
Previous dividends paid	3	6	21	7	1
	8%	16%	55%	18%	3%
Growth opportunities	11	18	7	2	-
	29%	47%	18%	5%	
Business Risk	4	21	11	2	-
	11%	55%	29%	5%	
Investment opportunities	14	16	7	-	1
	37%	42%	18%		3%
Tax preference between dividends and capital gains	5	22	9	2	-
	13%	58%	24%	5%	

4.29 Dividend Determinants

The determinants of dividend payout in this study were earnings, previous dividends, growth opportunities and business risk. Earnings were measured by five items, previous dividends by four items, growth opportunities by four items and business risk by four items. All the items except earnings returned good levels for coefficient alpha of about 0.70.

a) **Current Earnings**

Current earnings relationship with current dividends range from strong to very strong as agreed to by 36 sampled firms representing 98% of all firms studied (Table 4.31). When asked whether dividends depend on earnings stability, 21(55%) stated they "strongly agreed" while 17(44%) "Agreed". Future earnings influence current dividends of the company. Companies that agreed were 10 (26%) with one (2.6%) strongly, 16 (42%) "Somehow agreed" 9 or 24% disagree while 3 strongly disagreed. Current dividends and previously paid dividends are linked strongly for 28(72%) firms but 3(8%) disagreed. When earnings drop temporarily, dividends are still paid by 11 companies representing 28% of all sampled firms. Ten percent "somehow agreed" while 17 (44%) disagreed. This is evidence of dividend instability or lack of smoothing (resident decision). Dividends also depend more on previous dividends and earnings stability.

Table 4.32: Current Dividends Relationship with Earnings

Statement	Strongly Agree (5)	Agree (4)	Somehow agree (3)	Disagree (2)	Strongly Disagree (1)
a) Dividend payout depends on current level of earnings.	22 58%	14 37%	2 5%	-	-
b) Dividends depend on earnings stability.	21 55%	17 45%	-	-	-
c) Dividends depend on future earnings	1 2.6%	9 24%	16 42%	9 24%	3 8%
d) Dividends are influenced by previous profits	13 34%	15 40%	7 18%	3 8%	-
e) Dividends are paid even when earnings drop temporarily.	2 5%	9 24%	10 26%	17 45%	-

b) Previous Dividends

Additionally current dividends paid are related with previous dividends. This factor was investigated in the study and results (Table 4.32) from cross section data show that 3 or (8%) “Strongly agree” that current dividends is influenced by previous dividends paid. Ten companies (26%) “Agreed”, 14 or 37% “somehow agree” while 7(29%) “Disagreed”.

When changes in dividends are considered, 13(34%) either “agree” or “strongly agree” that current dividends are influenced by changes in past dividends. Thirty seven percent somehow agree and 10(26%) disagreeing. Out of the 38 sampled firms, 28 or 78% agreed to current dividends associating with dividend yield. Those that thought the relationship is only somehow were 9 or 24% as 1(3%) strongly disagreed. For this set of items, alpha coefficient is 0.603.

Table 4.32: Current Dividends relationship with Previous Dividends

Statement	Strongly Agree (5)	Agree (4)	Somehow Agree (3)	Disagree (2)	Strongly Disagree(1)
a) Current dividends paid are influenced by previous dividends	3	10	14	7	-
	8%	26%	37%	29%	
b)Dividends paid depend on changes in past dividends	1	12	14	10	1
	3%	32%	37%	27%	3%
c) Dividend payout depend on dividend yield.	7	21	9	-	1
	18%	55%	24%		3%
d) Current dividends are not related to previous dividends	1	14	7	16	-
	3%	37%	18%	42%	

c) Growth Opportunities

Growth opportunities are also linked to dividend decision of public firms. A negative relationship was hypothesized between growth opportunities and dividends. According to the findings, available growth opportunities influence dividends payout for 23 firms representing 60% of the sampled firms who agreed either strongly or just agreed (Table 4.33). Investment opportunities also affect dividends decisions for 20 firms (52%). Sixteen firms (42%) somehow agree while 2(5%) disagree. Earnings growth also influenced dividends for 32 firms (81%) of sampled firms. Growth in sales also influences dividends for 31 or 81% of sampled firms with 46% strongly agreeing. The coefficient alpha for this factor was 0.7.

Table 4.33: Current Dividend Relationship with Growth Opportunities

Statement	Strongly agree	Agree	Somehow Agree	Disagree	Strongly Disagree
a)Dividend payout depends on available growth opportunities	10 26%	13 34%	10 26%	5 13%	-
b) Dividends depend on investment opportunities	7 18%	13 34%	16 42%	2 5%	-
c)Dividends depend on earnings growth	17 45%	15 40%	6 16%	-	-
d)Dividends depend on sales growth	17 46%	14 38%	6 16%	-	-

c) Business Risk

Business risk was investigated for linkage with dividend decisions too and the results presented on Table 4.34. Out of the 38 sampled firms for business risk, 11(29%) "strongly agreed" that dividends payout is affected by business risk, 15 or 40% "Agree" to this as well while 10(26%) indicated they "somehow agreed". Looking at the variability of earnings as a measure of business risk, 32 companies or 86% agreed to this as most significant measure of risk. A Further 6 companies strongly agreed they paid dividends because the market expect them to. Eight companies (22%) also agreed to this. Sixteen firms (43%) somehow agreed as 7 firms (18%) disagreed. Dividends are also paid to avoid negative effect on share price (28% strongly agree), 26% (10 firms) agree and 29% (11) somehow agree. Overall 54 (21 companies) of the 38 sampled firms agree that they pay dividends to avoid adverse price movement.

Table 4.34: Current Dividend Relationship with Business Risk

Factor /items	Strongly Agree	Agree	Somehow Agree	Disagree	Strongly Disagree
a)Dividend payout depend on business risk	11 29%	15 40%	10 26%	2 5%	-
b) Dividend payout depends on variability of earnings	8 22%	24 65%	5 14%	-	-
c) Dividend are paid due to market expectation	6 16%	8 22%	16 43%	7 19%	-
d) Dividends are paid to avoid negative effect on share price.	11 29%	10 26%	11 29%	5 13%	1 3%

4.30 Dividend Stability

Stability of dividends indicates whether firms listed of the NSE care about stabilizing of dividends. Smoothing which is a term used to refer to stability of dividends is a consistent approach to paying dividends by firms in the stock market. Payout of dividends in the last five years was reported to be either steadily rising, fluctuating, constant or declining. The first item from Table 4.35 show that 10 firms or 26% of the 38 firms sampled strongly agreed to dividends steadily rising. Those that agree are 13 or 34 % while 26% somehow agree. The other five disagreed with 1 strongly. Companies reporting fluctuating dividends over the last five years were 6 (16%) strongly agree, 13 (34%) agree. The other 6 (16%) somehow agree, 11 or 29% disagreed with 2 (5%). As to whether dividends were maintained at a constant level, only 13 representing 34% agreed, 17 firms were not quite sure. From the foregoing, dividends pattern by most firms at the exchange has been steady and rising consistent with empirical findings obtained previously.

Table 4.35: Dividend Pattern for the Past Five years

Dividend Pattern	Strongly Agree	Agree	Somehow Agree	Disagree	Strongly Disagree
a)Steadily rising each year	10	13	10	4	1
	26%	34%	26%	11%	3%
b) Fluctuating year after year	6	13	6	11	2
	16%	34%	16%	29%	5%
c) Maintained at a constant level.	5	8	17	8	-
	13%	21%	45%	21%	
d)Steadily declining in each successive year	2	6	7	19	4
	5%	16%	18%	50%	11%

When funds are not enough to pay dividends, 28 companies or 73% would cut dividends while 6 (15%) would not. In addition 23 companies or 57% would cut companies defer investment if cash is insufficient. On the question of borrowing to finance dividend payout, 16 or 43% would borrow up to the limit of credit limit. While about 11 or 30% would somehow borrow as 10 or 26% would not borrow to finance cash payout. Those that would sell assets at their fair value to finance dividend payout were 16% (6) who strongly agreed, 45% or 17companies "agreed" while 16% would only somehow choose to sell assets. Nine firms (24%) would not sell their assets to pay dividends. Cutting strategic investments is another option for raising funds to pay dividend when funds are insufficient. Here 20 companies or 53% of sampled firms indicated they would cut strategic investments. On the other hand 13 of the firms or 34% would not cut their strategic investment. At the center were 5 firms representing 13% that may cut strategic investment in order to fund dividends.

Raising new equity (issuing new equity) is similarly an available option for funding dividend payout. In this respect, 27 firms representing 72% indicated they would

issue equity as away of funding dividends when cash is inadequate. Seven of the remaining firms representing 19% may raise new equity to fund dividend payout. Conversely, borrowing beyond a firm credit limit in order to raise adequate cash to fund dividends can only happen among 14 companies sampled or 38% of sampled firms. Thirteen companies representing 35% would not borrow to finance dividends. The other 10 companies may borrow if cash is insufficient to pay dividends. Lastly selling of assets at a discount to raise funds to pay dividends appeal to 14 companies making up 37% of total number of sampled firms. Thirteen other firms (34%) would not do this. However 10 firms may consider this option out of the 38 sampled companies.

4.31 Correlation Statistics

Non-Parametric techniques of analysis were applied in analyzing relationship between the variables in the cross section data. One of the most popular non-parametric test for correlation coefficient known as Spearman rank order correlation test was conducted on the factor sums for earnings, previous dividends, growth, opportunities and business risk. Factor items were summed up to arrive at each total. Correlation matrix Table 4.36 reveal that previous dividends have the strongest positive association with payout at 0.502 (p=0.001) at the 0.05 level of significance. This is followed by a negative association with growth opportunity at 0.26 then business risk (0.229) and lastly earnings with 0.179. However a part from the relationship of between previous dividends and current dividend payout which is statistically significant of 0.05 level, all others are statistically insignificant. Earnings has a p-value of 0.169, growth opportunity with a P-value of 0.072 and lastly business risk with a P-value of 0.100. Therefore dividend payments by firms at the NSE are only statistically related with previous dividends paid. This is what creates some consistency with panel data results.

Table 4.36: Correlation Table for Dividend Determinants

Correlations			
			DPS total sum
Spearman's rho	Earnings factor sum of items	Correlation Coefficient	.170
		Sig. (1-tailed)	.169
		N	34
	Previous Dividends Factor Sum	Correlation Coefficient	.502**
		Sig. (1-tailed)	.001
		N	34
	Growth Opportunity Factor Sum	Correlation Coefficient	-.260
		Sig. (1-tailed)	.072
		N	33
	Business Risk Factor sum	Correlation Coefficient	.229
		Sig. (1-tailed)	.100
		N	33

**. Correlation is significant at the 0.01 level (1-tailed).

4.32 Logistic Regression Result

The questionnaire items were of the Likert scale type. Analysis of the data was done using logistic regression because the assumption of normality of distribution of the responses could not be confirmed. The Logitic technique for regression tests the relationship between dividend payout and selected factors affecting payout. However, since the technique is sensitive to outlier and multi-collinearly problems in the independent variables. Data was hence prepared to reduce these problems before applying binary logistic regression technique. The dependent variable was organized into a binary response variable with a code =1for yes and 0 for No dividend paid. The other independent variables remained with their rank sums in the expression.

A logistic model therefore answers the questions “how well do the after tax earnings, prior dividends, growth opportunities and Business risk predict the likelihood that a firm would report dividend payment as opposed to nonpayment”?

From the Logistic regression Table 4.36, only prior dividends predicts dividend payout in this stock market with a p-value of 0.022. Current earnings after tax, growth opportunity and business risk have a P-value greater than 5% which indicate non- significant. In the same equation, a rise in previous dividend paid by one shilling decreases the likelihood of a firm paying dividends currently by nearly half (47 percent) as shown.. This indicates that corporate managers do not favour large variation in dividend payout probably because of the prominent role it plays to inform the market or investors about future prospects. Suffice it to say there is a fair chance of dividend smoothing among listed firms at the NSE. A Kruskal-Wallis difference test for current dividends paid between firms in various industries indicate a non-significant outcome (P=0.269) consistent with a one way ANOVA test for difference between sectors/industries in panel data showing non-significance P=0.9719. Listed firms in the different sectors at NSE do not pay significantly varied dividends based on analysed data. However some individual differences between firms in the same industry/sector have been observed to be significant.

Table 4.36: Logistic Table for the Odds Ratio and Coefficients

```
Logistic regression                               Number of obs   =         35
                                                  LR chi2(4)      =       7.70
                                                  Prob > chi2     =     0.1033
Log likelihood = -19.707102                       Pseudo R2       =     0.1634
```

DPSRecBinary	Odds Ratio	Std. Err.	z	P>|z|	[95% Conf.	Interval]
EPSFactor	1.571395	.4393941	1.62	0.106	.908389	2.718308
PrevDivFactor	.471355	.1545044	-2.29	0.022	.2479332	.8961106
GrowthOppFactor	.9807063	.1849027	-0.10	0.918	.6777243	1.419139
BusRiskFactor	1.257199	.2200505	1.31	0.191	.892105	1.771706
_cons	.0298884	.1246933	-0.84	0.400	8.40e-06	106.3374

```
. logit

Logistic regression                               Number of obs   =         35
                                                  LR chi2(4)      =       7.70
                                                  Prob > chi2     =     0.1033
Log likelihood = -19.707102                       Pseudo R2       =     0.1634
```

DPSRecBinary	Coef.	Std. Err.	z	P>|z|	[95% Conf.	Interval]
EPSFactor	.4519635	.2796205	1.62	0.106	-.0960826	1.00001
PrevDivFactor	-.7521438	.3277878	-2.29	0.022	-1.394596	-.1096915
GrowthOppFactor	-.0194823	.1885404	-0.10	0.918	-.3890147	.3500501
BusRiskFactor	.2288859	.1750324	1.31	0.191	-.1141714	.5719431
_cons	-3.510285	4.171966	-0.84	0.400	-11.68719	4.666617

In conclusion based on cross section data analysis results, prior dividends continue to guide dividend decisions at the NSE. Other factors are irrelevant in this respect. Dividend decisions are also variable, so smoothing or stability is fairly embraced by corporate managers. This result is consistent with empirical findings on dividend determinants. Also evident is that corporate manager's do all they can to pay regular dividends but would not hesitate to cut dividends for investments if funds are insufficient or profits decline over two years or more.

As already realized cash dividends are the most common method of sharing profits of a company followed by share repurchase. The dividend payout can hence be described as somehow consistent although some large fluctuation is observed. Therefore only moderate levels of smoothing are evident.

CHAPTER FIVE

SUMMARY, CONCLUSION AND RECOMMENDATIONS

5.1 Introduction

This chapter consolidates findings realized from the previous chapter highlighting results linked to the objectives of study. The summary, conclusion and recommendation is based on the pooled time series and cross section data analyzed and presented in chapter four. Emerging issues that would require further investigation are highlighted at the end of the chapter.

5.2 Summary of Findings

Findings of the study based on panel data analysed provide valuable insights about determinants of dividends decisions, payout pattern and significance in the market. Prediction models were derived for each market segment with good explanatory power. These models may be used by both corporate managers, financial analysts, asset managers and investors to forecast expected dividends.

As a summary obtained from the analyses captured in greater detail in chapter 4, descriptive statistics of current dividends per share DPS_{it} have shown that dividends paid by the nine sectors were on average ranging from ksh 0.48 (automobile) to ksh 1.88 paid in the manufacturing sector. When ranked by risk coefficient insurance and construction sector rank high with low risk coefficient for DPSt. Bottom sectors by risk (high) are automobile and banking.

Previous dividend is the key factor influencing dividend payout at the NSE. The coefficient of correlation is positive and very strong. This finding is consistent with original theorists (Fama & Babiak, 1968; Lintner, 1956). Other scholars who also derived similar results are Alber et al. (2017), Ahmad and Attiya (2009), Farsio et al., (2004) and Al-Twaijry (2007). Market statistics for this factors indicate that on average previous dividends range from a low of ksh 0.46(automobile) to a high of

ksh 2.00(manufacturing). Construction sector led in this factor given a lowest risk coefficient. The riskiest sector is agriculture sector.

Current earnings per share (EPS_{it}) came second as key determinant for dividend payout after previous dividend. The correlation coefficient for earnings was positive, fairly strong and significant. This is in line with Abbas et al. (2016), Ailber et al (2017), Fahim et al. (2015),Baker and Powell (2001); Mc Cluskey, et al. (2007),Musa (2009),Bulla (2013) and Amidu and Abor (2006). Summary statistics from respective sectors reveal that current EPS has a mean ranging from a low of ksh 1.17 (Investment) to a high of ksh 7.84 (energy).

The third factor in the regression model was growth opportunities. This factor is associated significantly and negatively with dividend payout. This is consistent with Alber et al. (2017), Macharia and Mwangi, (2015); Kanwal and Kapoor (2008); Gill, Biger and Tibrewala (2010). However as a predictor, growth opportunities is not significant since its p-value was higher than 0.05. This outcome is inconsistent with Issa (2015), Abbas (2016), Waswa (2014), and Aivazian et al. (2003) who realized either a positive relationship or insignificant effect. The correlation coefficient was low but significant. Descriptive statistics summary indicate that sectors with high growth opportunities during the period were manufacturing, banking, commercial, construction and investment. The rest had experienced low growth opportunities. Agency cost and information asymmetry theories explain dividend payout based on growth prospects available in the market for the different sectors consistent with Muller and Svensson (2014), Leary and Michaely (2011).

Business risk was the fourth driver of dividends hypothesized to explain payout. The relationship with DPS_{it} isnegative and significant although the strength of association was very weak. This result agrees with Mehta (2012), D'Souza (1999), Kyles and frank (2013), Turki and Ahmed, (2013), Fama and French, (1998) Farooq, Saoud and Agnaou (2012) but contrasts with that of Aivazian et al. (2003). However Macharia and Mwangi, (2015) arrived at inconsistent results for the same period which returned a positive coefficient probably because of specification problems or nature of data used. The descriptive statistics identifies sectors with

high risk as insurance, energy, automobile and agriculture. Conversely, low risk sectors were identified as manufacturing, banking, commercial and construction. By incorporating risk in the dividend model, payout behavior is explained by asymmetric information and signaling theories of dividends in this market.

The results thus far show that listed firms pay dividend guided by three factors which have varied influence on individual firms and sectors. The factors are current earnings, prior dividends, and business risk but could be reduced to two (Prior dividends and current earnings) without significantly affecting predictive power. It is also evident that sectors with high growth opportunities are also the ones with low risk. This is consistent with available literature and hypothesis of study regarding expected sign. Dividend payout in this stock market can be explained by information asymmetry, agency cost and signaling theories.

Information asymmetry concerns characterize high growth firms/sectors and high risk sectors/firms. Agency cost explanation support low growth sector firms and finally signaling arguments apply to low risk sectors and firms. Those sectors facing asymmetric information problems need to smooth more by reducing or maintaining low payout (SOA) in relation to target ratios of dividends which may be the median dividend payout ratio. Conversely, sectors experiencing agency and signaling challenges need to smooth less by raising or maintaining high payout (SOA) relative to target ratios.

Hausman (1978) specification test was conducted to select between fixed effects and random effects coefficients. A higher chi-square statistic above critical value mean that regression coefficients from the random effects model are inefficient in predicting dividends payout. Consequently fixed effects model coefficients are most appropriate and efficient. Thus individual firm characteristics were isolated by fixed effect technique to gain perspectives on firm-industry performance. This was done by least square dummy variable technique (LSDV) and results are discussed below.

In the manufacturing sector, fixed effect regression result show that only BOC paid significantly higher dividends compared to other firms in the manufacturing

industry. Commercial sector firms paid nearly the same dividends as Comparison Company (Kenya airways). No significant difference was observed in payout by firms in the Insurance sector. Similar results are reported for the banking sector DPS when compared with KCB. Kapchorua Tea in the Agriculture sector paid a significantly higher dividend per share compared to peers in the industry. Automobile sector firms paid dividend per share that did not differ from peer firms in the industry. Construction sector dividend payout was significantly higher for Bamburi Cement in the period. Energy and petroleum sector dividend history show that none of the companies paid dividends that would be considered significantly different from what Kenol Kobil paid.

Conversely cross section data analysis summary indicates that listed firms prefer paying a regular cash dividend above any other distribution method available. Many firms pay a regular annual dividend compared to those paying interim dividends. Share repurchase is the alternative to cash dividends for many firms at the bourse. The dividends paid based on this data are similarly influenced by previous dividend with a relationship that is fairly strong and positive. However, the likelihood of a firm to increase dividend payment only decreases by about 47 percent with every shilling increase in previous dividends paid. This is evidence of some consistency (stability) in payout.

In addition, when cash to pay dividends are insufficient, firms are ready to sell assets, borrow, or even cut dividends to be able to meet the obligation to pay. Sometimes firms would issue new security to finance payout although this ranked low. It is also evident that firms may cut dividends or even investments if cash is inadequate to finance dividends. Consequently the study objectives are fulfilled as follows;

5.2.1 Effects of current after tax earnings on dividend payout

Overall, the regression equation for the market indicate that current dividends are positively and moderately related to current earnings after tax. Earnings are especially significant predictor of dividend payout in three sectors namely

Agriculture, Banking, and Construction. However while Aivazian et al. (2003) identified earnings as most important variable in the dividend model, it comes second to prior dividends at the NSE. Variability of earnings in this stock market is higher compared to that of dividend payout. In the study model, after tax earnings contribute about two cents thirty for each shilling rise in dividends paid. Alternatively the amount increases to three cents for each shilling change in earnings from Fama and Babiak (1968) dividend model. Therefore with absolute level of earnings, an investor would use the fixed effect model developed in equation (3). An alternative model is Fama and Babiak (1968) model that consider changes in earnings from previous year (equation 19b).

5.2.2 Effects of lagged dividends on current dividends

Previously paid dividends is the most critical factor predicting current dividends from results obtained so far. The association was positive, very strong and significant. As a predictor of payout, this factor is the strongest of the four selected in this study this applies to all the nine sectors of the market. For every shilling paid in current dividends, seventy two cents is related to each shilling paid the previous year per share according to the model developed by the author. Conversely, from Fama's model, the contribution is eighty two cents of each shilling previously paid per share as shown in equation 19 b. Previous dividends coefficient from equation 15 is similar to Lintners (1956) coefficient which represented large industrial firms in North America.

5.2.3 Effects of growth prospects on dividend payout

The third objective sought to assess how well growth opportunity predicts current dividends paid by companies. Results show that while the variable is moderately and significantly associated with payout, it is aninsignificant predictor of dividends in this stock market.

5.2.4 Effects of business risk on dividend payout

Does business risk impact dividend decisions of listed firms at the NSE? This is the question the forth objective sought to answer. Findings indicate that business risk is negatively and significantly associated with dividends although the strength is low. Further the factor proved significant in predicting dividends for all the sectors of the market. This impact of risk is therefore significant but weak in the model developed for the market and sectors. An increase of risk by a unit of P/E ratio reduces dividend payment by two cents. This happens so as to mitigate asymmetric information and agency cost problems.

5.2.5 Industry effects on dividend payout

This objective was to examine whether there are significant industry effects on dividend policy by listed firms. Panel data analysed reveal that influence of sectors was not significant on the dividend paid by the firms listed at the exchange for the period. Time effects were also not significant for the years 2000 to 2010. Hence the investment function by firms did not influence decisions on dividends in any significant way. Differences between sectors was not statistically significant. A few firms had unique firm level differences in form of better managerial talent, style and philosophy resulting in super dividends paid by BOC, Kapchorua Tea and Bamburi Cement.

Stability tests reveal that the listed firms pay attention to smoothing to varied degree when paying dividends from moderate to strong. This is however inconsistent with the augmenting hypothesis that emerging market firms do not smooth dividends (Aivazian, Booth &Clearly, 2003). Sectors that smooth more like banking but face low risk need to ease the smoothing while those facing high risk but moderate smoothing would do better by smoothing more for enhance stock value. Conversely, while (ibid) concluded that earnings are the key to explaining dividend behavior, this study identifies prior dividends as key factor that explain dividend decisions. The speed of adjusted coefficients were all higher than the target payout ratio except for banking sector which showed some level of smoothing.

On the nature and strength of association between current dividends and market value of a share, results indicate dividends being significantly associated with market price of a share. The difference in market value was significant between those firms increasing or decreasing dividends than those that leave it unchanged. This means dividends signal to investors the future prospects of a firm and are ready to pay a premium for stocks that pay dividends. Hence one of the roles played by dividends is to bridge the information gap between agents (managers) and shareholders. Another role is reduce agency conflicts related to external debt financing as argued by Aivazian et al. (2003). Debt constraints may lead to unstable payout.

Therefore key predictors of dividends payout at the NSE are; earnings especially for sectors like Agriculture, banking and construction, prior dividends drive dividends for all sectors and have a strong correlation. Finally risk also influences all sectors but has a weak association with dividend payout.

Firm performance in term of best and worst year reveals that best year for current dividends per share was 2010 and worst year was 2006. Earnings per share change, best year was 2006 while worst was 2009. Earnings per share change were best in year 2004 and worst 2009. Growth prospects were excellent in 2006 and worst in 2007 while previously paid dividend were best in 2007 and worst in 2002. Lastly, business risk was highest (worst) in 2001 and lowest (best) year in 2006.

5.3 Conclusions

5.3.1 Managerial perspectives

The investigation thus concludes generally that NSE firms pay dividends mainly guided by prior dividends. While the firms face apparent agency, signaling and asymmetric information problems, managers seemed to care about smoothing dividends in a number of firms. This resulted in dividends that are not highly variable for many sectors of the market. The following detailed conclusions are drawn from the summary of findings discussed herein.

Generally, listed firms dividend payments are explained mainly by previously paid dividends, current after tax earnings and lastly risk. First, current earnings after tax positively influence and predict dividend payout **(**hypothesis one is not rejected**)**. Secondly, prior dividends is also positively related and significantly predict dividend payout by listed firms at the NSE (hypothesis two is also not rejected).Thirdly, growth opportunity is negatively related to current dividends but is a poor predictor of payout(Hypothesis three is rejected)**.**Forth, risk is negatively and significantly related to payout and is not a significant predictor of current dividends (Hypothesis four is rejected).Lastly Industry and time effects do not play any role in the decisions to pay dividends (Hypothesis five is hence rejected)since no significant influence was noted on payout policy when industry characteristics were accounted for in the dividend model. Time effects also proved unimportant when tested between years 2000 to 2010.

Overall corporate managers of listed firms are motivated by smoothing to varied degrees. Dividend policy pursued could be that of the pure residual which address the investment and financing needs of the firm and to reduce agency costs. Aivazian et al (2003) posited that emerging market firms' dividend behavior is irregular compared to that of the developed markets. The findings of this study therefore failed to support fully this hypothesis. Investors appear to look out for dividends as incomes. The information content conveyed by dividends about future prospects have been supported by stable dividends although the degree differ across sectors. Hence dividends play an important signaling role in the market.

Performance of firms in the stock market was very good between years 2006 and 2007 in terms of dividend per share change, previously paid dividends and business risk. The best year was 2006 for many firms at the exchange. In addition it made a big difference in terms of firm value between firms that paid dividends and those that did not pay any dividends.

5.3.2 Policy Implications

Since wealth maximization is a fundamental objective of finance managers, some public firms at the exchange do not appear to pursue dividend policy consistent with market expectations. When it comes to the decision to either increase, decrease or leave dividends unchanged, investors favour dividend changes rather than leaving them unchanged. This was signified by adverse market reaction when dividends are left unchanged compared to value of firms that make changes in dividends.

Based on cross section data analysis results, prior dividends guide dividend decision in this stock market. The rest of the factors are irrelevant. Dividend decisions were not highly variable so smoothing or stability was a motivation for corporate managers. This outcome was similarly arrived at by empirical tests for stability. Also evident is that corporate manager's do all they can to pay regular dividends but would not hesitate to cut dividends for investments if funds are insufficient or profits decline over two years or more. The odds in favor of firm dividend payout decrease by about one half with every shilling rise in prior dividends paid. The findings indicate evidence of moderate level of stability in payout possibly to reduce uncertainties in the market. Reducing uncertainty enhances share value for investors through decrease in the cost of equity.

On the matter of choice of distribution, cash dividends was the most common method of sharing profits of a company followed by share repurchase. Dividends can also be described as somehow consistent although some large fluctuation is also noted. Therefore only moderate levels of smoothing is evident.

Overall the result of analysis of questionnaire items was largely consistent with empirical findings derived from time series data despite different periods used. However, other factors are insignificant under the cross section analysis. This may not be a big surprise because cross section data was relatively small (38) and hence amenable to type 1 error. More so non parametric techniques (logistic regression) may not be as powerful as the parametric counterpart (panel estimation methods). In sum, there is consistency in the findings of the two techniques applied thus far in the

sense that dividend decisions by firms at the NSE is somehow stable and largely guided by previously paid dividends.

5.4 Recommendations from Study

The following recommendations are made from the conclusions above.

1) Corporate managers should pay more attention to prior dividends and level of current earnings relative to previous earnings after tax when making dividends decisions on expected dividends in the current year.
2) Growth prospects and Business risk may be ignored because there effects are largely insignificant.
3) Investors and corporate managers may apply the proposed study regression model to forecast dividend payout in the short term to medium term. Fama and Babiak (1968) partial adjustment dividend model is also appropriate for application to dividend decisions at NSE.
4) Results of study showed that dividend payout decisions are made with some level of consideration for stability or smoothing. It was evident that investorsare willing to pay a premium for stocks paying dividends. Therefore, corporate managers may need to consider establishing a more steady or consistent dividend policy (low SOA) especially for high growth firms/sectors (Banking, Commercial, Construction, and Manufacturing) to signal the market and to mitigate information asymmetry problems.
5) There should be less smoothing (high SOA) in sectors experiencing less growth opportunities (Agriculture, Automobile, Energy and Insurance) to control agency costs. This will most likely improve corporate value by reducing volatility of stock price in the market. On the basis of risk which is a significant predictor of payout, more smoothing should be seen in high risk industries like Agriculture, Automobile, Energy and Insurance to mitigate agency costs due to diminished investment opportunities and information asymmetry between investors and managers. Less smoothing should be applied to low risk industries like Banking, Commercial, Construction, and Manufacturing sectors due to signaling expectation.

6) In the period under study companies like BOC, Kapchorua Tea and Bamburi Cement were firms with superior managerial talent since their payout was significantly higher than industry average. Dividend paying firms consistently outperformed non-dividend paying firms. Therefore value could be maximized for those listed firms that are paying dividends by either increasing or decreasing to a lesser extent but not for those firms that maintain dividends at the same level.

7) Investors do not have to pay so much attention to industry characteristics or even time factor when considering their investment decisions guided by dividend history and earnings. Firm classification failed to affect the predictive power of the dividend model developed in any significant way. The time factor also failed to influence dividend decisions in any significant way hence irrelevant to the investigation.

5.5 Suggestion for Further Study

Thus far the study has raised further questions regarding dividend decisions by listed firms at the NSE. The questions would be important to guide further inquiry so as to deepen our understanding of the market and extend literature on determinants and dynamics of dividend policy. The questions constitute a puzzle yet to fit in together with other pieces. They are;

1. Why corporate managers do not share a common view toward stabilizing dividends at the NSE when the market appear to prefer stable dividends?
2. What other factors can be captured in the dividend model for the market and sectors to improve model efficiency? For instance would inclusion of leverage improve it since many emerging market firms are known to carry significant levels of debt in their balance sheets?
3. What specific circumstances prevailed between the year 2004 and 2006 to make the period very good for listed firms at the exchange in terms of dividend payout?
4. What unique talent, philosophy, characteristics can be found in the management of listed firms BOC, Kapchorua Tea and Bamburi Cement at the time that they

were capable of paying consistently higher dividends compared to peers in their respective industries? This would be very important to learn from and to transfer knowledge and skills to other managers to improve overall market performance and attract more investors.

5. Would further empirical studies confirm these results covering the period 2011 to 2016?
6. Would an event study for the period confirm that dividends plug the information gap in the market by eliciting significant positive price reaction for securities in the capital market thus making it possible for investors to secure excess returns upon acting on this information?

5.6 Contribution to Theory and Literature

The study makes significant contribution to dividend theory and literature on the determinants, stability and significance of dividends to the capital market (NSE). First, the partial adjustment dividend model by Fama and Babiak (1968) is supported as the model applicable to dividend decisions in the market. The study reveals that Prior dividends is the most important determinant of dividend policy in this market then followed by after tax level of earnings. Secondly, asymmetric information, agency and signaling theories explain dividend payout at the NSE given prevailing conditions for growth and business risk, earnings and prior dividends. Third, dividends decisions by corporate managers of listed firms are fairly stable to enhance value. Last, empirical evidence show that a change in payout is preferred by the market rather than dividend omission.

REFERENCES

Adaoglu, C. (2000).Instability in dividend policy of the Instanbul stock exchange (ISE) corporations: Evidence from an emerging market. *Emerging Markets Review*, 252-270.

Abbas, A., Hashmi, S.H., & Anwar, C. (2016). Dividend policy and capital structure: Testing endogeneity. Retrieved from: www.ssrn.com/abstract/id=2770541

Ahmed, H & Attiya, ,J.Y.(2009).Determinants of dividend policy of Pakistan. *International Research Journal of Finance and Economics, 29,* 110-125.

Ahmed, H. & Javid, A. (2009). Dynamics and determinants of dividend policy in Pakistan: Evidence from Karachi Stock Exchange non-financial listed firms. *International Research Journal of Finance and Economics, 2,* 148 -171..

Alber, N. & Ahmed, A. (2017). Determinants of dividend policy in Saudi listed companies Retrieved from: www.ssrn.com/abstract/id=2909270

Aivazian, V., Booth, L., & Clearly, S. (2003). Do emerging market firms follow different dividend policies from U.S. firms? *Journal of Financial Research, 26*(3), 371– 387.

AL-Malkawi, H.N., Rafferty, M., & Pillai, R. (2010). Dividend policy: A review of theories and empirical evidence. *International Bulletin of Business Administration (9)* 171-200.

Al-Malkawi, H.N. (2007). Determinants of corporate dividend policy in Jordan: An application of the Tobit model. *Journal of Economic & Administrative Sciences, 23*(2), 44 – 70.

AL- Shubiri F. (2011). *Determinants of changes dividend behavior policy: Evidence from the Amman stock exchange*. Unpublished Master's Thesis, Groppelli and Nikbakht: Amman Arab University Jordan College of business.

Al-Twaijry, A.A. (2007).Dividend policy and payout ratio: Evidence from the Kuala Lumpur Stock Exchange. *Journal of Risk Management, 8*(4), 349-363.

Al-Kuwari, D. (2009). Determinants of the dividend policy in emerging stock exchanges. *Global Economy & Finance Journal*, 2(2), 38 – 63

Allen F., & Michaely, R. (2003). Payout Policy. *Handbook of the Economics of Finance and Statistics*, 41, 99-105.

Amidu, M. (2007). How does dividend policy affect performance of the firms on Ghana stock exchange? *Investment Management and Financial Innovations, 4*(2), 104 – 112.

Amidu, M., & Abor, J. (2006). Determinants of dividend payout ratios in Ghana. *The Journal of Risk Finance, 7*(2), 136-145.

Ang, J.S. (1987). Do dividends matter? *A review of corporate dividend theories and evidence* New York: Salomon Brothers Center for the Study of Financial institutions and the Graduate Schools of Business Administration.

Anupam. M. (2012). An empirical analysis of determinants of dividend policy - Evidence from the UAE companies. *Global Review of Accounting and Finance. 3*(1), 18 – 31.

Aroni, J., Namusonge, G.S, & Sakwa, M. (2014). Influence of dividend payout on investment in shares in Kenya. *International Journal of Business and Social Science, 5*(1), 155-163.

Arnott, D. R., & Asness, S. C. (2003). Surprise higher dividends is higher earnings growth. *Financial Analyst Journal*, 70 – 87.

Arumba, G.A. (2014). *Determinants of dividend payout for companies listed at Nairobi Securities Exchange*. Unpublished MSC thesis, Nairobi: University of Nairobi.

Asif, Rasool & Kamal (2011). Impact of financial leverage on dividend policy: Empirical evidence from Karachi Stock Exchange listed companies. *African Journal of Business Management, 5*(4), 1312-1324.

Azhagaiah, R., & Priya, S. N. (2008). The impact of dividend policy on shareholders' wealth. *International Research Journal of Finance and Economics, 20*, 180 – 187.

Baker, H. K., & Powell, G. E. (1999). How corporate managers view dividend policy? *Quarterly European Scientific Journal,* 38(2), 17-35.

Baker, H. K., & Powell, G.E, (2000). Determinants of corporate dividend policy: A Survey of NYSE Firms. *Financial Practice and Education, 10*(1), 29-40.

Baker, H. K., Veit, E. T., & Powell, G. E. (2001). Factors influencing dividend policy decisions of NASDAQ firms. *The Financial Review, 36*(3), 19-37.

Baker, M. & Jeffrey, W. (2004). A catering theory of dividends. *Journal of Finance, 59*, 1125-1165.

Bartram, S. M., Brown, P.R., How, J., & Verhoeven, P. (2009). Agency Conflicts and Corporate Payout Policies: A Global Study. *Journal of Finance* 18, 280-291.

Bhattacharya, S. (1979). Imperfect information, dividends policy and the "Bird-in-the-Hand"fallacy. *Journal of Economics, 10*, 259-270.

Bishop, S. R., Harvey, R. Crapp, R., Faff, W. & Twite, G. J. (2000). *Corporate finance.* Sydney: Prentice Hall Inc.

Black, F (1976).The dividends Puzzle. *Journal of Portfolio Management, 2*, 5-8.

Bose, S. & Husain, Z. (2011). Asymmetric dividend policy of Indian Firms: An econometric analysis. *International Journal of Applied Economics and Finance, 5*(3).

Brav, A, Graham, J, Harvey, C & Michaely, R. (2005). Payout Policy in the 21st Century, *Journal of Financial Economics*, *77*, 383-527.

Brealey, R., & Myers, S. (2005). Dividend policy and capital structure, *Principles of Corporate Finance.* London: McGraw-Hill.

Bulla, D. (2013). Determination of optimum dividend policy: Empirical evidence from listed firms at the Nairobi Security Exchange. *African Journal of Education, Science and Technology, 1*(2), 60-66.

D 'Souza. J. (1999). Agency cost, market risk, investment opportunities and dividend Policy, *Journal of Managerial Financials*, 25.

De'Angelo, H., De'Angelo, L. & Skinner, J.D. (2004). Are dividends disappearing? Dividend concentration and the consolidation of earnings. *Journal of Financial Economics* 72, 425-456.

De'angelo, H., & De'angelo, L. (2004).The irrelevance of the MM dividend irrelevance theorem. *Journal of Financial Economics, 79*(2), 293-315.

DeAngelo, H., & DeAngelo, L. (2006). Payout policy pedagogy: What matters and why. Working paper, University of Southern California.

Dhanani, A. (2005). Corporate dividend policy: The views of British financial managers. *Journal of Business Finance & Accounting, 37*(7&8), 1625 – 1672.

Dobrovolsky, S.P. (1951). Corporate income retention, quoted from NBER. *Economics of Corporate Finance,* New Delhi: Tata McGraw Hill Pvt. Ltd.

El-Sady, H.M., Hamdy, H.I., Al-Mawaziri, K. & Al-Shamari, T. (2012).Dividend policies in an emerging market. *International Review of Business Research*, *8*(2)12- 28.

Eriotis, N. (2005).The effect of distributed earnings and size of the firm to its dividend policy: Some Greek data. *International Business & Economics, 4*, (167).

Fahim, L., Khurshid, M. K. & Tahir, H. (2015). Determinants of dividend payout: Evidence from financial sector of Pakistan. *Journal of Poverty Investment and Development, 17*, 5-16

Fama, E.F & Babiak, H. (1968). Dividend policy: An empirical analysis. *Journal of the American Statistical Association*, 1132-1161.

Fama, E.F., & French, K.R., (2001). Disappearing dividends: Changing firm characteristics or lower propensity to pay. *Journal of Financial Economics, 60*, 3-43.

Farooq, O., Saoud, S., & Agnaou, S. (2012). Dividend policy as a signaling mechanism under different market conditions: Evidence from the Casablanca Stock Exchange. *International Research Journal of Finance & Economics, 83*,187-198.

Farrelly, G. E.H., Kent B., Richard B., & Edelman, (1986). Corporate dividends: Views of policy makers. *Akron Business and Economic review, 17*(4), 62-74.

Farsio, F., Geary, A., & Moser, J. (2004). The relationship between dividends and earnings. *Journal for Economic Educators, 4*(4), 1 – 5.

Frankfurter, G.M. & Wood, B.G. (1997). The evolution of corporate dividend policy. *Journal of Financial Education, 23* 16-23.

Friend, I. & Puckett, M. (1964). Dividends and stock prices. *The American Economic Review*, *54*(5), 656-682.

Gill, B. & Tibrewala, R. (2010). Stock market liquidity and firm dividend policy. *The Open Business Journal*, *3*, 8-14.

Gordon, M. (1959), Dividends, earnings and stock prices. *Review of Economics.* 23, 99- 105

Gordon, M. J. (1963). Optimal Investment and financing policy. *The Journal of Finance, 18* (2), 264 – 272.

Gordon, M. & Shapiro, E. (1956). Capital Equipment Analysis: The Required Rate of Profit. *Management Science, 3*(1), 102-110

Grullon, G., Michaely, R., & Swaminathan, B. (2002). Are dividend changes a sign of firm maturing? *Journal of Business, 75* (3), 387-424.

Gujarati (2004). *Basic Econometrics.* (4th ed). Retrieved from: www. egei.vse.cz/…/ basic econometrics.pdf.

Gul, S., Sajid, M., Razzaq, N., Faruk, I. M. & Khan, B. M. (2012).The relationship between dividend policy and shareholders wealth: evidence from Pakistan. *Economics and Finance Review 2*(2), 55-59.

Habib, Y., Kiani, Z. I., & Khan, M. A. (2012). Dividend policy and share price volatility: Evidence from Pakistan. *Global Journal of Management and Business Research, 12*(5).

Hafeez, A. & Attiya, Y. (2008). Dynamics and determinants of dividend policy in Pakistan evidence from Karachi stock exchange for non-financial listed firms. *MPRA paper 37342*

Hauseman, J.A (1978). Specification test in econometrics, *Econometrica 46,* 1251-1271

Horace, H. (2003). Dividend policies in Australia and Japan.*IAER, 9*(2).

Howatt, B., Zuber, R. A., Gandar, J. M., & Lamb, R. P. (2009). Dividends, earnings volatility and information. *Applied Financial Economics*, *19*(7), 551-562.

Hussainey, K., Mgbame, C. Chijoke-Mgbame.,O. & Aruoriwo, M. (2011). Dividend policy and share price volatility: UK evidence. *Journal of Risk Finance, 12*(1).

Issa, A. (2015). The determinants of dividend policy: Evidence from Malaysian firms. *Research Journal of Finance and Accounting, 6*(18), 69-86.

Jensen, M.C & Meckling, W.H. (1976). Theory of the firm: managerial behavior, agency costs and ownership structure. *Journal of Financial Economics, 3*, (4), 305-360.

Jiraporn, P., Kim, J., & Kim, S. Y. (2011). Dividend payouts and corporate governance quality: an empirical investigation. *The Financial Review, 46*, 251 – 279.

Kamal S. & Frank,F. (2005).What factors motivated corporate dividend decision? *ASSBE-Journal 1*(1), 18-39.

Kanwal, A & Kapoor, S. (2008). Determinants of dividend payout ratios-A study of Indian information technology sector. *International Research Journal of Finance and Economics, 15,* 63-71.

Kazuku, N. (2015). Determinants of dividend policy: A panel data analysis for Turkish listed firms. *International Journal of Business and Management 10*, (11), 149-160.

Kaur, B.S. & Kaur, P. (2012). Empirical validity of Dividend policy models in the Indian manufacturing MSME'S. *International Journal of Multidisciplinary Management Studies.* 2(1).

Kenya Gazette Supplement No. 40 (2002). *The Capital Markets (Securities) (Public Offers, Listing and Disclosures) Regulations,* 2002. Legal Notice No. 60, May 3, 2002

Kibet, B., Tenai, J., Cheruiyot, T., Maru, L. & Kipsat, M. (2010). The level of corporate dividend payout to stockholders: Does optimal dividend Policy

exist for firms quoted at the Nairobi Stock Exchange? *International Business & Economics Research Journal*. *9*(3), 71-83.

Kinyua, I. (2013). *The relationship between earning volatility and the dividend payout of firms listed at the Nairobi Securities Exchange*, Unpublished MBA Project, Nairobi: University of Nairobi.

Koch, P. D., & Shenoy, C. (1999). The Information Content of Dividend and Capital Structure Policies, *Financial Management,* 28, 16-35.

Kiyondi, D., & Oyugi, L. (2013). The Effect of dividend policy on financial performance of firms listed in the Nairobi Securities Exchange. Proceedings of *1st JKUAT SHRD Research Conference.* 218-228. Nairobi: JKUAT.

Kyle, A.P. & Frank W.B. (2013). Dividend policy and stock price volatility in the US Equity capital market. *ASBBS Annual Conference 20*(1), 219-231.

Leary, M., & Michaely, R. (2011). Determinants of dividend smoothing: Empirical evidence. *The Review of Financial Studies, 24 (10),* 3197-3249.

Lintner, J (1962). Dividends, earnings, leverage, stock prices and the supply of capital to corporations. *Review of Economics and Statistics, 4*(4), 243-269.

Lintner, J. (1956). Distribution of income of corporations among dividends, retained earnings and taxes. *American Economic Review, 60*, 1–40.

Macharia, E.W. & Mwangi, C.W. (2015). Factors influencing dividend payout in profitable companies in the Nairobi Securities Exchange. *International Journal of Science and Research, 4*(12), 1472-1477.

Mahira K. (2012) Factors affecting dividend payout evidence from listed non-financial firms of Karachi stock exchange *Business Management Dynamics,1*(11) 76-92.

Maniagi, G.M., Ondieki, B.A., Musiega,D., Maokomba, O.C., & Egessa, R.(2013)Determinants of dividend policy among non-financial firms at

Nairobi Securities Exchange. *International journal of scientific & Technology Research, 2* (10), 253-266.

McCluskey, T., Bruce, B., & Power, D. (2007). Evidence on Irish financial directors:views about dividends, *Quantitative Research in Accounting &Management*, *4*(2), 15-132.

Mehta A. (2012). An empirical analysis of determinants of dividend policy: Evidence from the UAE companies. *Global Review of Accounting and Finance 3* (1) 18 – 31.

Michaely, R. & Roberts, M.R. (2012).*Corporate Dividend Policies: Lessons from Private firms.* Retrieved from www.oxfordjournals.org.

Michaely, R., Thaler, R.H. & Womack, K.(1995).Shareholder heterogeneity, adverse selection, and payout policy. *Journal of Finance, 50*, 573–608.

Miller, M. & Scholes, M., (1978).Dividends and taxes. *Journal of Financial Economics, 6*(4).

Miller, M. H., & Modigliani, F.(1961). Dividend policy, growth, and the valuation of shares.*Journal of Business 34*, 411-433.

M'rabet, R. & Boujjat, W. (2016). The relationship between dividend payments and firm performance: A study of listed companies in Morocco. *European Scientific Journal*, *12*(4), 469-482.

Mokaya, S.O., Nyangara, D.M., & Lillian, J. (2013). The effect of dividend policy on market share value in the banking Industry: The case of National Bank of Kenya. *International journal of Arts and Commerce, 2* (2), 91- 101.

Mudassar, H. (2015). *Theoretical Economics Letters*, 5, 441-445.

Muller, N. & Svensson, T. (2014). *Dividend smoothing in Sweden: An empirical investigation of determinants of dividend smoothing*. Unpublished Master thesis, Lunds: Lunds University..

Murekefu, T.M &. Ochuodho, P. O. (2012). The relationship between dividend payout and firm performance: A study of listed companies in Kenya. *European Scientific Journal, 8* (9)199-215.

Musa, I. (2009). The dividend policy of firms quoted on the Nigerian Stock Exchange: Anempirical analysis. *African Journal of Business management, 3*(10), 555-566.

Naceur, S.B., Goaied, M. & Belanes, A. (2006). On the determinants and dynamics of dividend Policy. *International Review of Finance, 6*(1-2), 1-23.

Nairobi Stock Exchange Report. (2013). Retrieved; from www.nse.org

Nazir, M.S., Nawaz, M.M., Anwar, W. & Ahmed, F. (2010). Determinants of stock price volatility in Karachi stock exchange: the mediating role of corporate dividend policy. *International Research Journal of Finance & Economics, 55*, 100-107.

Nissim, D., & Ziv, A. (2001). Dividend changes and future profitability. *Journal of Finance*, *56*(6), 2019–2065.

Nkobe, D., Kundu, A. & Limo, K. (2013). Dividend Policy and share price volatility in Kenya. *Research Journal of Finance and Accounting, 4*(6), 115-120.

Ochieng, D. & Kinyua, W.H. (2013). Relationship between inflation and dividend payout for companies at the NSE. *International Journal of Education and Research,* 6, 1-8.

Omet.G. (2004). Dividend policy behavior in the Jordanian capital market. *International journal of Finance, 9*(3).

Ozuomba, C.N., Anichebe, A.S., & Okoye, P.V.C. (2016). The effect of dividend policies on wealth maximization – a study of some selected Plcs. *Cogent Business & Management* (2016), 3, 1-15.

Pallant, J. (2005). *SPSS survival manual*: A step by Step guide to data analysis. (2nd ed) New York: Allen & Unwin.

Pruitt, S.W. & Gitman, L.W (1991). The interactions between the investment, financing and dividend decisions of major US firms, *Financial review*, *26*(33), 409-30.

Rozeff, M.S (1982). Growth, beta and agency costs as determinants of dividend payout ratios. *Journal of Financial Research, 5*(3), 249-59.

Servaes, H. & Tufano, P. (2006). The theory and practice of corporate dividend and share repurchase policy (ed). *Liability Strategies Group. Deutsche Bank,* 1-73.

Stulz, R. M. (2000). Merton Miller and modern finance. *Financial Management, 29*(4), 119–131.

Tabachnick, B. G., & Fidell, L. S. (2001). *Using multivariate statistics* (4th edn). New York: Harper Collins.

Turakpe, M. & Fiiwe, J.L. (2017). Dividend policy and corporate performance: A multiple model analysis. *Equatorial Journal of Finance and Management Sciences, 2*(2), 1-16.

Turki, S. & Ahmed, A. (2013). Determination of dividend policy: The evidence from Saudi Arabia. *International Journal of Business and Social Science, 4*(1).

Van Horne, J. & Dhamija, S. (2012). *Financial management and policy* (12th ed). New Delhi: Pearson.

Walter, J. E. (1963). Dividend Policy: It's Influence on the value of the enterprise, Policy and international perspective, *Managerial Finance, 25*(6), 35-43

Walter, J. E. (1956). Dividend policies and common stock prices. *the Journal of Finance*, *11*(1), 29-41.

Waswa, C.W., Ndede F.W.S. & Jagongo, A.O. (2014). Dividend payout by agricultural firms in Kenya: An empirical analysis of listed firms at NSE. *International Journal of Busisness and Social Science. 5*(11), 63-74.

Wolmaran, H.P. (2003). Does Lintner's dividend model explain South African dividend payments? *Meditari Accountancy Research, 11*, 243-254.

Wooldridge, J. (2003). Econometric analysis of cross section and panel data. Retrieved from :http//jrvargas.files.wordpress.com/woodridge_j_2002_ econometric_analysis_of_cros_section_and_panel_data.pdf.

Zhou, P. & Ruland, W. (2006). Dividend payout and future earnings growth. *Financial Analysts Journal, 62*(3), 58 – 69.

APPENDICES

Appendix I: Introduction Letter

I am Dennis Bulla, a PhD student in Business Administration-Finance at Jomo Kenyatta University of Agriculture and Technology, Nakuru Campus. As part of the requirement for my academic achievement, I am carrying out research titled, *"Determinants of Dividend Policy in Emerging Markets: Evidence from Listed firms at the Nairobi Securities Exchange."* You have been selected as a responder in this study. The purpose of this letter is to request you to assist me by filling in the questionnaire attached and/or enable me to access financial data (firm-year observations) for listed companies between the period 2000 and 2010 at the Nairobi Securities Exchange related to; dividends, accounting earnings per share, sales, Market price of stock, return on equity, book value per share and share capital.

The information collected shall be kept confidential and used only for the purpose stated. Results of the study can be made available to any interested party upon a written request made to;

Dennis Bulla.

P.O. Box 18530, 20100

Nakuru, Kenya.

e-mail: dennisbulla@yahoo.com.

Cell phone: 0724 911 963 / 0733 878 855

Appendix II: Questionnaire

This questionnaire should be filled in by either a finance manager, director or officer. Please spare a few minutes to answer the questions asked honestly and accurately so that the researcher who is pursuing his PhD studies at JKUAT can be assisted to provide answers and insights into corporate dividend behavior of listed companies at our Securities exchange (NSE). All the parts should be filled in where necessary by use of any clear mark preferably a tick, cross, or circle. Information provided remains anonymous and confidential. Results are likely to help public companies make better dividend decisions in future.

Note

Please mail back the questionnaire using the envelope enclosed after completing all the sections.

SECTION A

General information

Company name ……

Gender male [ ] Female [ ]

Designation……

Length of service at the company

Less than 3 years [ ]

Between 3 – 6 years [ ]

Between 6 – 9 years [ ]

More than 9 years [ ]

Highest education qualification

College Diploma [ ]

Bachelor degree [ ]

Master degree [ ]

Doctorate degree [ ]

Other, specify ……..

SECTION B

Dividend Decisions

1 a) which distribution method did you employ in the last five years? If more than one method has been used please rank in order of preference with, 1- top ……..5 - bottom.

i. Regular dividends [ ]
ii. Share Repurchase [ ]
iii. Special dividends [ ]
iv. Split or reverse split [ ]
v. Stock or scrip dividend [ ]

b) How often has the leading (top) method indicated above been employed in the last five years?

i) Very often [ ]
ii) Often [ ]
iii) Moderately [ ]
iv) less often [ ]
v) Not at all [ ]

c) How many dividends did you pay in the financial year ending December 31, 2014?

i) Once
ii) Twice
iii) Three times
iv) Four times
v) None

2). State your level of agreement with each of the following statements on dividend payout decisions. Mark ONCE only against each statement.

Statement	**Strongly Agree**	**Agree**	**Somehow Agree**	**disagree**	**Strongly disagree**
Regular dividend payment is important					
Dividends influence stock price of the firm					
Dividends are based on dividend per share growth					
Dividends are cut or reduced when profits decline in any year.					
Dividends are cut or reduced if faced by increased need for cash for new investments					
Dividends are cut or reduced if profits decline consistently over two or three years.					

3**).**Payment of regular dividends by your company is influenced by;

Factor	**Strongly**	**Agree**	**Somehow**	**Disagree**	**Strongly**

	Agree		**agree**		**disagree**
Level of current earnings					
Previous dividends paid					
Growth opportunities					
Business Risk					
Investment opportunities					

SECTION C

Explanatory Variables.

In the questions 4 to 9, please mark by ticking once your level of agreement with the statements regarding dividend decisions in your organization.

4) Current dividends relationship with profitability/Earnings. Mark ONCE in each row.

Statement	**Strongly Agree**	**Agree**	**Somehow agree**	**Disagree**	**Strongly Disagree**
Dividend payout depends on current level of earnings.					
Dividends depend on earnings stability.					
Dividends depend on future earnings					
Dividends are influenced by previous profits					
Dividends are paid even when earnings drop temporarily.					

5) Current dividends relationship with Previous Dividends. Mark ONCE in each row

Statement	Strongly Agree	Agree	Somehow Agree	Disagree	Strongly Disagree
Current dividends paid are influenced by previous dividends					
Dividends paid depend on changes in past dividends					
Dividend payout depend on dividend yield.					
Current dividends are not related to previous dividends					

6) Current dividends relationship with growth opportunities. Mark ONCE across each row.

Statement	Strongly agree	Agree	Somehow Agree	Disagree	Strongly Disagree
Dividend payout depends on available growth opportunities					
Dividends depend on investment opportunities					
Dividends depend on earnings growth					
Dividends depend on sales growth					

7) Current dividends relationship with Business Risk. Mark ONCE across each row.

	Strongly Agree	Agree	Somehow Agree	Disagree	Strongly Disagree
Dividend payout depend on business risk					
Dividend payout depends on variability of earnings					
Dividend are paid due to market expectation					
Dividends are paid to avoid negative effect on share price.					

SECTION D

Dividend Stability

8) Actual dividend level paid by the company in the last five successive years has been;

Dividend Pattern	Strongly Agree	Agree	Somehow agree	Disagree	Strongly Disagree
Steadily rising each year					
Fluctuating year after year					
Maintained at a constant level.					
Steadily declining in each successive year					

9) What is your level of agreement with the following actions taken when you do not have enough funds to pay dividends? Mark ONCE in each row.

Action	Strongly	Agree	Somehow	disagree	Strongly

	Agree		**agree**		**agree**
Cut dividends					
Cut deferrable investment					
Borrow up to the limit of the credit rating					
Sell assets at their fair value					
Cut strategic investment					
Raise new equity					
Borrow and allow credit rating to fall					
Sell assets at a discount to their fair value					

10) In your own words, how would you describe your company's dividend paying behavior in the last five years?

.....

.....

.....

Thank you very much for your time!!

Appendix III: Research Permit

NATIONAL COMMISSION FOR SCIENCE, TECHNOLOGY AND INNOVATION

Telephone: +254-20-2213471,
2241349, 310571, 2219420
Fax: +254-20-318245, 318249
Email: secretary@nacosti.go.ke
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When replying please quote

9th Floor, Utalii House
Uhuru Highway
P.O. Box 30623-00100
NAIROBI-KENYA

Ref: No. **NACOSTI/P/16/5452/9601**

Date:
17th February, 2016

Dennis Morara Bulla
Masinde Muliro University of
Science and Technology
P.O. Box 190-50100
KAKAMEGA.

RE: RESEARCH AUTHORIZATION

Following your application for authority to carry out research on ***"Dynamics of dividend payout in emerging stock markets: Evidence from listed firms at Nairobi Securities Exchange"*** I am pleased to inform you that you have been authorized to undertake research in **Nairobi County** for a period ending **17th February, 2017.**

You are advised to report to **the County Commissioner and the County Director of Education, Nairobi County** before embarking on the research project.

On completion of the research, you are expected to submit **two hard copies** and **one soft copy in pdf** of the research report/thesis to our office.

DR. S. K. LANGAT, OGW
FOR: DIRECTOR-GENERAL/CEO

Copy to:

The County Commissioner
Nairobi County.

COUNTY COMMISSIONER
NAIROBI COUNTY
P. O. Box 30124-00100, NBI
TEL: 341666

The County Director of Education
Nairobi County.

09 MAR 2016

Appendix IV: Regression Results

COMMERCIAL SECTOR FIXED EFFECT RESULT

2 A) Model Summary[b]

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Change Statistics					Durbin-Watson
					R Square Change	F Change	df1	df2	Sig. F Change	
1	.878[a]	.771	.766	.44404	.771	156.903	8	373	.000	2.035

a. Predictors: (Constant), DumEXPKeCom, Price to Earnings ratio, DumDGMcom, DumNMGcomm, DumTPScom, Current earnings per share, market to book ratio, Prev DPS

b. Dependent Variable: Current DPS

2 B) Coefficients[a]

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.	95.0% Confidence Interval for B		Correlations			Collinearity Statistics	
		B	Std. Error	Beta			Lower Bound	Upper Bound	Zero-order	Partial	Part	Tolerance	VIF
1	(Constant)	.195	.039		5.013	.000	.118	.271					
	Current earnings per share	.023	.003	.207	7.262	.000	.017	.029	.575	.352	.180	.758	1.319
	Previous DPS	.695	.030	.729	23.062	.000	.635	.754	.855	.767	.572	.615	1.626
	market to book ratio	.018	.017	.031	1.047	.296	-.016	.053	.368	.054	.026	.705	1.418
	Price to Earnings ratio	.001	.001	.052	2.065	.040	.000	.003	.096	.106	.051	.960	1.041
	DumNMGcomm	.139	.148	.024	.940	.348	-.152	.429	.122	.049	.023	.952	1.051
	DumDGMcom	-.202	.154	-.035	-1.315	.189	-.505	.100	-.136	-.068	-.033	.877	1.140
	DumTPScom	.029	.145	.005	.201	.841	-.256	.314	-.006	.010	.005	.990	1.010
	DumEXPKeCom	-.169	.146	-.029	-1.156	.248	-.457	.119	-.170	-.060	-.029	.970	1.031

a. Dependent Variable: Current DPS

INSURANCE SECTOR FIXED EFFECT RESULT

3 A) Model Summary[b]

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Change Statistics					Durbin-Watson
					R Square Change	F Change	df1	df2	Sig. F Change	
1	.877[a]	.768	.765	.44467	.768	249.517	5	376	.000	2.045

a. Predictors: (Constant), DumPANAFins, market to book ratio, Price to Earnings ratio, Current earnings per share, Prev DPS

b. Dependent Variable: Current DPS

3 B) Coefficients[a]

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.	95.0% Confidence Interval for B		Correlations			Collinearity Statistics	
		B	Std. Error	Beta			Lower Bound	Upper Bound	Zero-order	Partial	Part	Tolerance	VIF
1	(Constant)	.180	.038		4.750	.000	.105	.254					
	Current earnings per share	.023	.003	.206	7.231	.000	.017	.029	.575	.349	.179	.760	1.315
	Prev DPS	.709	.029	.744	24.307	.000	.652	.767	.855	.782	.603	.657	1.521
	market to book ratio	.014	.016	.024	.873	.383	-.018	.046	.368	.045	.022	.813	1.229
	Price to Earnings ratio	.001	.001	.054	2.121	.035	.000	.003	.096	.109	.053	.962	1.040
	DumPANAFins	.014	.145	.002	.093	.926	-.272	.299	-.069	.005	.002	.988	1.012

a. Dependent Variable: Current DPS

BANKING SECTOR FIXED EFFECT RESULT

4 A) Model Summary[b]

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Change Statistics					Durbin-Watson
					R Square Change	F Change	df1	df2	Sig. F Change	
1	.879[a]	.772	.765	.44497	.772	113.765	11	370	.000	2.036

a. Predictors: (Constant), DumNICBank, Current earnings per share, DumBARCBank, DumDTBBank, DumCFCBank, DumEQUITYBank, DumNBKBank, Price to Earnings ratio, DumHFCBank, market to book ratio, Prev DPS

b. Dependent Variable: Current DPS

4 B) Coefficients[a]

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.	95.0% Confidence Interval for B		Correlations			Collinearity Statistics	
		B	Std. Error	Beta			Lower Bound	Upper Bound	Zero-order	Partial	Part	Tolerance	VIF
1	(Constant)	.205	.040		5.149	.000	.127	.284					
	Current earnings per share	.023	.003	.211	7.366	.000	.017	.029	.575	.358	.183	.755	1.325
	Previous DPS	.693	.030	.727	22.871	.000	.633	.752	.855	.765	.568	.611	1.637
	market to book ratio	.014	.017	.024	.818	.414	-.020	.048	.368	.042	.020	.739	1.354
	Price to Earnings ratio	.001	.001	.055	2.187	.029	.000	.003	.096	.113	.054	.958	1.044
	DumEQUITYBank	-.162	.218	-.019	-.744	.457	-.591	.266	-.068	-.039	-.018	.951	1.051
	DumBARCBank	.177	.149	.030	1.186	.236	-.117	.471	.089	.062	.029	.936	1.069
	DumCFCBank	-.057	.145	-.010	-.395	.693	-.342	.228	-.038	-.021	-.010	.993	1.007
	DumDTBBank	-.036	.145	-.006	-.250	.803	-.321	.249	-.021	-.013	-.006	.991	1.009
	DumHFCBank	-.154	.147	-.026	-1.044	.297	-.443	.136	-.140	-.054	-.026	.963	1.038
	DumNBKBank	-.228	.148	-.039	-1.538	.125	-.519	.063	-.179	-.080	-.038	.951	1.051
	DumNICBank	.002	.145	.000	.015	.988	-.283	.287	.024	.001	.000	.995	1.005

a. Dependent Variable: Current DPS

INVESTMENT SECTOR FIXED EFFECT RESULT

5 A) Model Summary[b]

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Change Statistics					Durbin-Watson
					R Square Change	F Change	df1	df2	Sig. F Change	
1	.877[a]	.768	.766	.44409	.768	312.716	4	377	.000	2.044

a. Predictors: (Constant), Price to Earnings ratio, Previous DPS, market to book ratio, Current earnings per share

b. Dependent Variable: Current DPS

5 B) Coefficients[a]

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.	95.0% Confidence Interval for B		Correlations			Collinearity Statistics	
		B	Std. Error	Beta			Lower Bound	Upper Bound	Zero-order	Partial	Part	Tolerance	VIF
1	(Constant)	.180	.037		4.819	.000	.107	.254					
	Current earnings per share	.023	.003	.206	7.242	.000	.017	.029	.575	.349	.180	.761	1.315
	Previous DPS	.709	.029	.744	24.437	.000	.652	.766	.855	.783	.606	.663	1.508
	market to book ratio	.014	.016	.024	.880	.379	-.018	.046	.368	.045	.022	.816	1.226
	Price to Earnings ratio	.001	.001	.054	2.122	.035	.000	.003	.096	.109	.053	.964	1.037

a. Dependent Variable: Current DPS

AGRICULTURE SECTOR FIXED EFFECT RESULT

6 A) Model Summary[b]

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Change Statistics					Durbin-Watson
					R Square Change	F Change	df1	df2	Sig. F Change	
1	.880[a]	.775	.769	.44165	.775	127.487	10	371	.000	2.056

a. Predictors: (Constant), DumWILLIAMSONAgr, Current earnings per share, DumKAPCHAgri, DumREAVAgr, DumEAGADSAgr, DumSASINIAAgr, DumLIMURUAgr, Price to Earnings ratio, market to book ratio, Previous DPS

b. Dependent Variable: Current DPS

6 B) Coefficients[a]

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.	95.0% Confidence Interval for B		Correlations			Collinearity Statistics	
		B	Std. Error	Beta			Lower Bound	Upper Bound	Zero-order	Partial	Part	Tolerance	VIF
1	(Constant)	.180	.040		4.462	.000	.101	.259					
	Current earnings per share	.023	.003	.210	7.432	.000	.017	.029	.575	.360	.183	.757	1.320
	Previous DPS	.681	.030	.714	22.449	.000	.621	.741	.855	.759	.553	.600	1.667
	market to book ratio	.023	.017	.038	1.341	.181	-.011	.056	.368	.069	.033	.752	1.329

	Price to Earnings ratio	.002	.001	.059	2.297	.022	.000	.003	.096	.118	.057	.929	1.077
	DumREAVAgr	-.048	.145	-.008	-.334	.738	-.333	.236	-.082	-.017	-.008	.982	1.018
	DumSASININAAgr	-.066	.146	-.011	-.451	.652	-.352	.221	-.124	-.023	-.011	.968	1.033
	DumEAGADSAgr	-.082	.145	-.014	-.565	.573	-.367	.203	-.133	-.029	-.014	.975	1.026
	DumKAPCHAgri	.345	.148	.059	2.330	.020	.054	.637	.125	.120	.057	.934	1.070
	DumLIMURUAgr	.178	.164	.028	1.084	.279	-.145	.500	.211	.056	.027	.929	1.076
	DumWILLIAMSONAgr	.288	.154	.047	1.865	.063	-.016	.592	.119	.096	.046	.944	1.059

a. Dependent Variable: Current DPS

AUTOMOBILE SECTOR FIXED EFFECT RESULT

7 A) Model Summary[b]

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Change Statistics					Durbin-Watson
					R Square Change	F Change	df1	df2	Sig. F Change	
1	.877[a]	.770	.765	.44453	.770	178.660	7	374	.000	2.052

a. Predictors: (Constant), DumSAMEERAutu, market to book ratio, DumCMCAuto, DumMARSHALLSAuto, Price to Earnings ratio, Current earnings per share, Prev DPS

b. Dependent Variable: Current DPS

7 B) Coefficients[a]

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.	95.0% Confidence Interval for B		Correlations			Collinearity Statistics	
		B	Std. Error	Beta			Lower Bound	Upper Bound	Zero-order	Partial	Part	Tolerance	VIF
1	(Constant)	.196	.039		4.960	.000	.118	.273					
	Current earnings per share	.023	.003	.207	7.193	.000	.017	.029	.575	.349	.178	.745	1.342
	Previous DPS	.703	.029	.737	23.922	.000	.645	.760	.855	.778	.593	.649	1.542
	market to book ratio	.015	.016	.025	.894	.372	-.017	.047	.368	.046	.022	.813	1.231
	Price to Earnings ratio	.001	.001	.052	2.039	.042	.000	.003	.096	.105	.051	.954	1.048
	DumCMCAuto	-.196	.146	-.034	-1.349	.178	-.483	.090	-.110	-.070	-.033	.982	1.018
	DumMARSHALLSAuto	-.053	.147	-.009	-.357	.721	-.343	.237	-.159	-.018	-.009	.957	1.045
	DumSAMEERAutu	-.093	.146	-.016	-.636	.525	-.379	.194	-.093	-.033	-.016	.978	1.022

a. Dependent Variable: Current DPS

FIXED EFFECTS FOR CONSTRUCTION SECTOR

8 A) Model Summary[b]

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Change Statistics					Durbin-Watson
					R Square Change	F Change	df1	df2	Sig. F Change	
1	.878[a]	.771	.766	.44387	.771	157.059	8	373	.000	2.053

a. Predictors: (Constant), DumEAPORTLANDConst, Previous DPS, DumEACABLESConst, Price to Earnings ratio, DumCROWNBConst, DumBAMBURIconst, market to book ratio, Current earnings per share

b. Dependent Variable: Current DPS

8 B) Coefficients[a]

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.	95.0% Confidence Interval for B		Correlations			Collinearity Statistics	
		B	Std. Error	Beta			Lower Bound	Upper Bound	Zero-order	Partial	Part	Tolerance	VIF
1	(Constant)	.184	.038		4.821	.000	.109	.259					
	Current earnings per share	.023	.003	.208	7.301	.000	.017	.029	.575	.354	.181	.758	1.319
	Previous DPS	.702	.029	.736	23.955	.000	.644	.759	.855	.778	.593	.650	1.538
	market to book ratio	.012	.016	.021	.739	.460	-.020	.045	.368	.038	.018	.792	1.263
	Price to Earnings ratio	.001	.001	.051	2.022	.044	.000	.003	.096	.104	.050	.961	1.040
	DumBAMBURIconst	.291	.147	.050	1.984	.048	.003	.579	.192	.102	.049	.966	1.036
	DumCROWNBConst	.031	.145	.005	.217	.828	-.253	.316	-.025	.011	.005	.989	1.011
	DumEACABLESConst	.044	.145	.008	.302	.763	-.242	.330	.014	.016	.007	.983	1.017
	DumEAPORTLANDConst	-.078	.145	-.013	-.536	.592	-.362	.207	-.017	-.028	-.013	.990	1.010

a. Dependent Variable: Current DPS

FIXED EFFECTS REGRESSION FOR ENERGY SECTOR

9 A) Model Summary[b]

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Change Statistics					Durbin-Watson
					R Square Change	F Change	df1	df2	Sig. F Change	
1	.877[a]	.770	.766	.44392	.770	209.012	6	375	.000	2.036

a. Predictors: (Constant), DumTOTALEnergy, Price to Earnings ratio, DumKPLCEnergy, Previous DPS, market to book ratio, Current earnings per share

b. Dependent Variable: Current DPS

9 B) Coefficients[a]

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.	95.0% Confidence Interval for B		Correlations			Collinearity Statistics	
		B	Std. Error	Beta			Lower Bound	Upper Bound	Zero-order	Partial	Part	Tolerance	VIF
1	(Constant)	.170	.038		4.463	.000	.095	.245					
	Current earnings per share	.023	.003	.207	7.275	.000	.017	.029	.575	.352	.180	.759	1.317
	Prev DPS	.706	.029	.741	24.294	.000	.649	.763	.855	.782	.602	.660	1.515
	market to book ratio	.018	.016	.030	1.098	.273	-.014	.050	.368	.057	.027	.797	1.254
	Price to Earnings ratio	.001	.001	.053	2.112	.035	.000	.003	.096	.108	.052	.964	1.037
	DumKPLCEnergy	.214	.146	.037	1.467	.143	-.073	.500	.023	.076	.036	.977	1.023
	DumTOTALEnergy	.058	.144	.010	.403	.687	-.226	.342	.016	.021	.010	.996	1.004

a. Dependent Variable: Current DPS

TIME EFFECTS REGRESSION RESULTS FOR PANEL DATA.

10 A) Model Summary[b]

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Change Statistics				Durbin-Watson
					R Square Change	F Change	df1	df2	Sig. F Change	
1	.877[a]	.768	.762	.44813	.768	112.853	11	374	.000	2.070

a. Predictors: (Constant), Previous DPS, Time Dummy 2005, Time Dummy 20004, Time Dummy 2006, Time Dummy 2007, Time Dummy 2003, Time Dummy 2009, time dummy 2001, Time Dummy 2010, Current earnings per share, Time dummy 2008

b. Dependent Variable: Current DPS

10 B) Coefficients[a]

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.	95.0% Confidence Interval for B		Correlations			Collinearity Statistics	
		B	Std. Error	Beta			Lower Bound	Upper Bound	Zero-order	Partial	Part	Tolerance	VIF
1	(Constant)	.177	.059		3.000	.003	.061	.293					
	Current earnings per share	.023	.003	.206	7.071	.000	.016	.029	.575	.343	.176	.727	1.375
	time dummy 2001	.021	.094	.006	.219	.827	-.164	.205	-.082	.011	.005	.735	1.360
	Time Dummy 2003	.154	.093	.048	1.649	.100	-.030	.337	-.011	.085	.041	.730	1.371
	Time Dummy 20004	-.050	.093	-.016	-.540	.590	-.234	.133	-.038	-.028	-.013	.727	1.376
	Time Dummy 2005	.062	.093	.020	.667	.505	-.121	.246	.026	.034	.017	.724	1.382
	Time Dummy 2006	.067	.093	.021	.712	.477	-.117	.250	.027	.037	.018	.724	1.380
	Time Dummy 2007	.020	.093	.006	.212	.832	-.163	.202	.039	.011	.005	.716	1.396
	Time dummy 2008	-.065	.093	-.021	-.699	.485	-.247	.118	.019	-.036	-.017	.719	1.391
	Time Dummy 2009	.047	.094	.015	.503	.615	-.137	.231	.063	.026	.013	.704	1.420
	Time Dummy 2010	.042	.095	.013	.443	.658	-.144	.229	.092	.023	.011	.703	1.422
	Previous DPS	.722	.027	.757	26.478	.000	.668	.775	.855	.808	.659	.758	1.320

a. Dependent Variable: Current DPS

LINTNERS (1956) MODEL RESULT

11 A) Model Summary[b]

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Change Statistics					Durbin-Watson
					R Square Change	F Change	df1	df2	Sig. F Change	
1	.391[a]	.153	.149	1.36616	.153	34.944	2	387	.000	2.064

a. Predictors: (Constant), Square root of Previous DPS, Current earnings per share

b. Dependent Variable: dividend per share change

11 B) Coefficients[a]

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.	95.0% Confidence Interval for B		Correlations			Collinearity Statistics	
		B	Std. Error	Beta			Lower Bound	Upper Bound	Zero-order	Partial	Part	Tolerance	VIF
1	(Constant)	.408	.104		3.905	.000	.203	.613					
	Current earnings per share	.075	.010	.421	7.861	.000	.056	.094	.257	.371	.368	.764	1.309
	Previous DPS	-.519	.082	-.337	-6.304	.000	-.681	-.357	-.133	-.305	-.295	.764	1.309

a. Dependent Variable: dividend per share change

FAMA & BABIAK (1968) MODEL RESULT

12 A) Model Summary[b]

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Change Statistics					Durbin-Watson
					R Square Change	F Change	df1	df2	Sig. F Change	
1	.882[a]	.779	.778	.43292	.779	672.203	2	382	.000	2.155

a. Predictors: (Constant), Earnings per share change ,Previous DPS

b. Dependent Variable: Current DPS

12 B) Coefficients[a]

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.	95.0% Confidence Interval for B		Correlations			Collinearity Statistics	
		B	Std. Error	Beta			Lower Bound	Upper Bound	Zero-order	Partial	Part	Tolerance	VIF
1	(Constant)	.154	.034		4.576	.000	.088	.219					
	Previous DPS	.824	.023	.865	35.894	.000	.779	.869	.855	.878	.864	.998	1.002
	Earnings per share change	.030	.003	.219	9.072	.000	.024	.037	.180	.421	.218	.998	1.002

a. Dependent Variable: Current DPS

OVERALL REGRESSION RESULT

13 A) Model Summary[b]

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Change Statistics					Durbin-Watson
					R Square Change	F Change	df1	df2	Sig. F Change	
1	.876[a]	.768	.766	.44396	.768	416.945	3	378	.000	2.061

a. Predictors: (Constant), Price to Earnings ratio, Prev DPS, Current earnings per share

b. Dependent Variable: Current DPS

13 B) Coefficients[a]

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.	95.0% Confidence Interval for B		Correlations			Collinearity Statistics	
		B	Std. Error	Beta			Lower Bound	Upper Bound	Zero-order	Partial	Part	Tolerance	VIF
1	(Constant)	.192	.035		5.532	.000	.124	.261					
	Current earnings per share	.023	.003	.205	7.229	.000	.017	.029	.575	.348	.179	.761	1.314
	Previous DPS	.718	.027	.753	26.583	.000	.665	.771	.855	.807	.659	.764	1.309
	Price to Earnings ratio	.002	.001	.057	2.312	.021	.000	.003	.096	.118	.057	.995	1.005

a. Dependent Variable: Current DPS

DIVIDEND STABILITY REGRESSIONS FOR SECTORS

14 A) Model Summary[b]

Industry where firm belongs	Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Change Statistics					Durbin-Watson
						R Square Change	F Change	df1	df2	Sig. F Change	
agriculture	1	.788[a]	.621	.609	.58023	.621	50.801	2	62	.000	2.141
Automobile & Accessories	1	.607[a]	.369	.335	.35069	.369	10.812	2	37	.000	1.857
Banking	1	.966[a]	.933	.932	.24095	.933	565.695	2	81	.000	1.884
Commercial Services	1	.944[a]	.890	.886	.26730	.890	190.726	2	47	.000	1.938
Construction & Allied	1	.820[a]	.672	.658	.42690	.672	48.200	2	47	.000	2.172
Energy & Petroleum	1	.723[a]	.522	.487	.67980	.522	14.752	2	27	.000	2.059
Insurance	1	.656[a]	.430	.363	.42368	.430	6.412	2	17	.008	2.224
Investment	1	.531[a]	.282	.076	.22838	.282	1.373	2	7	.314	1.595
Manufacturing& Allied	1	.974[a]	.949	.946	.29215	.949	306.123	2	33	.000	1.052

a. Predictors: (Constant), Square root of Previous DPS, Earnings per share change

b. Dependent Variable: Current DPS

14 B) Coefficients[a]

Industry where firm belongs	Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.	95.0% Confidence Interval for B		Correlations			Collinearity Statistics	
			B	Std. Error	Beta			Lower Bound	Upper Bound	Zero-order	Partial	Part	Tolerance	VIF
		(Constant)	.330	.104		3.159	.002	.121	.539					
agriculture	1	Earnings per share change	.036	.007	.397	5.071	.000	.022	.050	.379	.541	.396	.999	1.001
		Prev DPS	.638	.072	.691	8.839	.000	.493	.782	.681	.747	.691	.999	1.001
		(Constant)	.178	.081		2.188	.035	.013	.343					
Automobile & Accessories	1	Earnings per share change	.009	.009	.118	.906	.371	-.011	.028	.101	.147	.118	.999	1.001
		Prev DPS	.594	.129	.599	4.595	.000	.331	.856	.596	.602	.599	.999	1.001
		(Constant)	.028	.040		.681	.498	-.053	.108					
Banking	1	Earnings per share change	.048	.012	.116	4.031	.000	.025	.072	.100	.409	.116	1.000	1.000
		Prev DPS	.972	.029	.961	33.455	.000	.914	1.029	.959	.966	.961	1.000	1.000
		(Constant)	.073	.061		1.198	.237	-.049	.195					
Commercial Services	1	Earnings per share change	.005	.008	.028	.566	.574	-.012	.021	.150	.082	.027	.983	1.017
		Square root of Prev DPS	.936	.049	.940	19.284	.000	.838	1.033	.943	.942	.932	.983	1.017
		(Constant)	.230	.122		1.884	.066	-.016	.475					
Construction & Allied	1	Earnings per share change	.063	.012	.464	5.476	.000	.040	.086	.335	.624	.457	.971	1.030
		Prev DPS	.787	.088	.760	8.963	.000	.610	.964	.681	.794	.749	.971	1.030
		(Constant)	.320	.235		1.358	.186	-.163	.802					
Energy & Petrolium	1	Earnings per share change	.021	.010	.279	2.025	.053	.000	.041	.085	.363	.269	.932	1.073
		Prev DPS	.742	.138	.743	5.394	.000	.460	1.025	.670	.720	.718	.932	1.073
		(Constant)	.340	.186		1.829	.085	-.052	.732					
Insurance	1	Earnings per share change	.033	.016	.386	2.067	.054	-.001	.067	.268	.448	.379	.963	1.039
		Prev DPS	.624	.191	.610	3.269	.005	.221	1.026	.535	.621	.599	.963	1.039
		(Constant)	.120	.213		.564	.590	-.384	.625					
Investment	1	Earnings per share change	.019	.052	.122	.374	.720	-.103	.142	.016	.140	.120	.962	1.040
		Prev DPS	.662	.400	.541	1.656	.142	-.283	1.608	.517	.531	.531	.962	1.040
		(Constant)	.074	.092		.808	.425	-.113	.262					
Manufacturing& Allied	1	Earnings per share change	-.008	.019	-.018	-.440	.663	-.046	.030	-.180	-.076	-.017	.972	1.029
		Prev DPS	.889	.037	.971	24.319	.000	.814	.963	.974	.973	.957	.972	1.029

a. Dependent Variable: Current DPS

15 a) Model Summary[b]

INDUSTRY EFFECTS REGRESSION

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Change Statistics					Durbin-Watson
					R Square Change	F Change	df1	df2	Sig. F Change	
1	.878[a]	.772	.764	.44567	.772	103.941	12	369	.000	2.055

a. Predictors: (Constant), Dum for Manufacturing, Price to Earnings ratio, Dummy for investment, Dummy for insurance, Dummy for energy, Current earnings per share, Dummy for construction, Dummy for Automobile, market to book ratio, Dummy for Commercial, Dummy for Agriculture , Previous DPS

b. Dependent Variable: Current DPS

16 B) Coefficients[a]

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.	95.0% Confidence Interval for B		Correlations			Collinearity Statistics	
		B	Std. Error	Beta			Lower Bound	Upper Bound	Zero-order	Partial	Part	Tolerance	VIF
	(Constant)	.185	.062		2.984	.003	.063	.306					
	Previous DPS	.690	.032	.724	21.902	.000	.628	.752	.855	.752	.545	.566	1.767
	Current earnings per share	.023	.003	.207	7.191	.000	.017	.029	.575	.351	.179	.748	1.337
	market to book ratio	.019	.017	.033	1.122	.263	-.015	.054	.368	.058	.028	.720	1.388
	Price to Earnings ratio	.001	.001	.050	1.976	.049	.000	.003	.096	.102	.049	.954	1.048
	Dummy for Agriculture	.058	.077	.024	.752	.452	-.093	.209	-.012	.039	.019	.620	1.612
1	Dummy for Automobile	-.105	.089	-.035	-1.173	.241	-.280	.071	-.233	-.061	-.029	.713	1.403
	Dummy for Commercial	-.024	.081	-.009	-.294	.769	-.182	.135	-.033	-.015	-.007	.718	1.392
	Dummy for construction	.054	.082	.020	.667	.505	-.106	.215	.052	.035	.017	.701	1.426
	Dummy for energy	.052	.100	.015	.517	.605	-.145	.249	.104	.027	.013	.734	1.362
	Dummy for investment	-.151	.152	-.026	-.996	.320	-.450	.147	-.111	-.052	-.025	.907	1.103
	Dummy for insurance	.021	.114	.005	.184	.854	-.203	.246	-.051	.010	.005	.828	1.207
	Dum for Manufacturing	.038	.091	.012	.410	.682	-.142	.217	.270	.021	.010	.679	1.473

a. Dependent Variable: Current DPS

Appendix V: Descriptive Statistics

APPENDIX V (a)

1) Dividend year * Current DPS

			Current DPS Recoded		Total
			Dividend Non payer	Dividend payer	
dividend year	2000	Count	14	25	39
		% within dividend year	35.9%	64.1%	100.0%
		% of Total	3.2%	5.8%	9.0%
	2001	Count	13	25	38
		% within dividend year	34.2%	65.8%	100.0%
		% of Total	3.0%	5.8%	8.8%
	2002	Count	11	28	39
		% within dividend year	28.2%	71.8%	100.0%
		% of Total	2.6%	6.5%	9.0%
	2003	Count	12	27	39
		% within dividend year	30.8%	69.2%	100.0%
		% of Total	2.8%	6.3%	9.0%
	2004	Count	13	26	39
		% within dividend year	33.3%	66.7%	100.0%
		% of Total	3.0%	6.0%	9.0%
	2005	Count	10	29	39
		% within dividend year	25.6%	74.4%	100.0%
		% of Total	2.3%	6.7%	9.0%
	2006	Count	7	32	39
		% within dividend year	17.9%	82.1%	100.0%
		% of Total	1.6%	7.4%	9.0%
	2007	Count	8	32	40
		% within dividend year	20.0%	80.0%	100.0%
		% of Total	1.9%	7.4%	9.3%
	2008	Count	10	30	40
		% within dividend year	25.0%	75.0%	100.0%
		% of Total	2.3%	7.0%	9.3%
	2009	Count	8	32	40
		% within dividend year	20.0%	80.0%	100.0%
		% of Total	1.9%	7.4%	9.3%
	2010	Count	5	34	39
		% within dividend year	12.8%	87.2%	100.0%
		% of Total	1.2%	7.9%	9.0%
Total		Count	111	320	431
		% within dividend year	25.8%	74.2%	100.0%
		% of Total	25.8%	74.2%	100.0%

2) Industry where firm belongs * Current DPS

			Current DPS Recoded		Total
			Dividend Non payer	Dividend payer	
industry where firm belongs	agriculture	Count	21	53	74
		% within industry where firm belongs	28.4%	71.6%	100.0 %
		% of Total	4.9%	12.3%	17.2%
	Automobile & Accessories	Count	20	24	44
		% within industry where firm belongs	45.5%	54.5%	100.0 %
		% of Total	4.6%	5.6%	10.2%
	Banking	Count	20	73	93
		% within industry where firm belongs	21.5%	78.5%	100.0 %
		% of Total	4.6%	16.9%	21.6%
	Commercial Services	Count	16	39	55
		% within industry where firm belongs	29.1%	70.9%	100.0 %
		% of Total	3.7%	9.0%	12.8%
	Construction & Allied	Count	6	49	55
		% within industry where firm belongs	10.9%	89.1%	100.0 %
		% of Total	1.4%	11.4%	12.8%
	Energy & Petrolium	Count	7	26	33
		% within industry where firm belongs	21.2%	78.8%	100.0 %
		% of Total	1.6%	6.0%	7.7%
	Insurance	Count	5	17	22
		% within industry where firm belongs	22.7%	77.3%	100.0 %
		% of Total	1.2%	3.9%	5.1%
	investment	Count	2	9	11
		% within industry where firm belongs	18.2%	81.8%	100.0 %
		% of Total	0.5%	2.1%	2.6%
	Manufacturing& Allied	Count	14	30	44
		% within industry where firm belongs	31.8%	68.2%	100.0 %
		% of Total	3.2%	7.0%	10.2%
Total		Count	111	320	431
		% within industry where firm belongs	25.8%	74.2%	100.0 %
		% of Total	25.8%	74.2%	100.0 %

3) Dividend year * dividend per share change

			dividend per share change recoded			Total
			No change	Dividend increase	dividend Decrease	
dividend year	2001	Count	21	8	9	38
		% within dividend year	55.3%	21.1%	23.7%	100.0%
		% of Total	5.4%	2.0%	2.3%	9.7%
	2002	Count	18	16	5	39
		% within dividend year	46.2%	41.0%	12.8%	100.0%
		% of Total	4.6%	4.1%	1.3%	10.0%
	2003	Count	12	21	6	39
		% within dividend year	30.8%	53.8%	15.4%	100.0%
		% of Total	3.1%	5.4%	1.5%	10.0%
	2004	Count	18	17	4	39
		% within dividend year	46.2%	43.6%	10.3%	100.0%
		% of Total	4.6%	4.3%	1.0%	10.0%
	2005	Count	16	16	7	39
		% within dividend year	41.0%	41.0%	17.9%	100.0%
		% of Total	4.1%	4.1%	1.8%	10.0%
	2006	Count	11	21	6	38
		% within dividend year	28.9%	55.3%	15.8%	100.0%
		% of Total	2.8%	5.4%	1.5%	9.7%
	2007	Count	14	18	8	40
		% within dividend year	35.0%	45.0%	20.0%	100.0%
		% of Total	3.6%	4.6%	2.0%	10.2%
	2008	Count	19	12	9	40
		% within dividend year	47.5%	30.0%	22.5%	100.0%
		% of Total	4.9%	3.1%	2.3%	10.2%
	2009	Count	13	17	10	40
		% within dividend year	32.5%	42.5%	25.0%	100.0%
		% of Total	3.3%	4.3%	2.6%	10.2%
	2010	Count	14	16	9	39
		% within dividend year	35.9%	41.0%	23.1%	100.0%
		% of Total	3.6%	4.1%	2.3%	10.0%
Total		Count	156	162	73	391
		% within dividend year	39.9%	41.4%	18.7%	100.0%
		% of Total	39.9%	41.4%	18.7%	100.0%

4) Dividend year * Earnings per share change

			Earnings per share change recoded			Total
			No earnings change	Earnings increase	Earnings decrease	
dividend year	2000	Count	0	1	0	1
		% within dividend year	0.0%	100.0%	0.0%	100.0%
		% of Total	0.0%	0.3%	0.0%	0.3%
	2001	Count	1	24	13	38
		% within dividend year	2.6%	63.2%	34.2%	100.0%
		% of Total	0.3%	6.1%	3.3%	9.7%
	2002	Count	1	21	16	38
		% within dividend year	2.6%	55.3%	42.1%	100.0%
		% of Total	0.3%	5.4%	4.1%	9.7%
	2003	Count	1	24	14	39
		% within dividend year	2.6%	61.5%	35.9%	100.0%
		% of Total	0.3%	6.1%	3.6%	10.0%
	2004	Count	1	30	8	39
		% within dividend year	2.6%	76.9%	20.5%	100.0%
		% of Total	0.3%	7.7%	2.0%	10.0%
	2005	Count	0	25	14	39
		% within dividend year	0.0%	64.1%	35.9%	100.0%
		% of Total	0.0%	6.4%	3.6%	10.0%
	2006	Count	1	24	13	38
		% within dividend year	2.6%	63.2%	34.2%	100.0%
		% of Total	0.3%	6.1%	3.3%	9.7%
	2007	Count	1	28	11	40
		% within dividend year	2.5%	70.0%	27.5%	100.0%
		% of Total	0.3%	7.2%	2.8%	10.2%
	2008	Count	0	24	16	40
		% within dividend year	0.0%	60.0%	40.0%	100.0%
		% of Total	0.0%	6.1%	4.1%	10.2%
	2009	Count	1	21	18	40
		% within dividend year	2.5%	52.5%	45.0%	100.0%
		% of Total	0.3%	5.4%	4.6%	10.2%
	2010	Count	1	26	12	39
		% within dividend year	2.6%	66.7%	30.8%	100.0%
		% of Total	0.3%	6.6%	3.1%	10.0%
Total		Count	8	248	135	391
		% within dividend year	2.0%	63.4%	34.5%	100.0%
		% of Total	2.0%	63.4%	34.5%	100.0%

5) Dividend year * Growth opportunities

			Growth opportunities		Total
			low growth opportunities	high growth opportunities	
dividend year	2000	Count	29	10	39
		% within dividend year	74.4%	25.6%	100.0%
		% of Total	6.7%	2.3%	9.0%
	2001	Count	34	4	38
		% within dividend year	89.5%	10.5%	100.0%
		% of Total	7.9%	0.9%	8.8%
	2002	Count	30	9	39
		% within dividend year	76.9%	23.1%	100.0%
		% of Total	7.0%	2.1%	9.0%
	2003	Count	16	23	39
		% within dividend year	41.0%	59.0%	100.0%
		% of Total	3.7%	5.3%	9.0%
	2004	Count	16	23	39
		% within dividend year	41.0%	59.0%	100.0%
		% of Total	3.7%	5.3%	9.0%
	2005	Count	10	29	39
		% within dividend year	25.6%	74.4%	100.0%
		% of Total	2.3%	6.7%	9.0%
	2006	Count	5	34	39
		% within dividend year	12.8%	87.2%	100.0%
		% of Total	1.2%	7.9%	9.0%
	2007	Count	8	32	40
		% within dividend year	20.0%	80.0%	100.0%
		% of Total	1.9%	7.4%	9.3%
	2008	Count	16	24	40
		% within dividend year	40.0%	60.0%	100.0%
		% of Total	3.7%	5.6%	9.3%
	2009	Count	19	21	40
		% within dividend year	47.5%	52.5%	100.0%
		% of Total	4.4%	4.9%	9.3%
	2010	Count	15	24	39
		% within dividend year	38.5%	61.5%	100.0%
		% of Total	3.5%	5.6%	9.0%
Total		Count	198	233	431
		% within dividend year	45.9%	54.1%	100.0%
		% of Total	45.9%	54.1%	100.0%

6) Dividend year * Previous DPS

			PrevDPSRec			Total
			missing	PrevDPS =0	Prev DPS >0	
dividend year	2000	Count	39	0	0	39
		% within dividend year	100.0%	0.0%	0.0%	100.0%
	2001	Count	0	13	25	38
		% within dividend year	0.0%	34.2%	65.8%	100.0%
	2002	Count	0	14	25	39
		% within dividend year	0.0%	35.9%	64.1%	100.0%
	2003	Count	0	11	28	39
		% within dividend year	0.0%	28.2%	71.8%	100.0%
	2004	Count	0	12	27	39
		% within dividend year	0.0%	30.8%	69.2%	100.0%
	2005	Count	2	11	26	39
		% within dividend year	5.1%	28.2%	66.7%	100.0%
	2006	Count	1	10	28	39
		% within dividend year	2.6%	25.6%	71.8%	100.0%
	2007	Count	0	7	33	40
		% within dividend year	0.0%	17.5%	82.5%	100.0%
	2008	Count	1	7	32	40
		% within dividend year	2.5%	17.5%	80.0%	100.0%
	2009	Count	1	9	30	40
		% within dividend year	2.5%	22.5%	75.0%	100.0%
	2010	Count	1	7	31	39
		% within dividend year	2.6%	17.9%	79.5%	100.0%
Total		Count	45	101	285	431
		% within dividend year	10.4%	23.4%	66.1%	100.0%

7) Dividend year * Price- Earnings Ratio

			Price- Earnings ratio recoded		Total
			High risk	Low risk	
dividend year	2000	Count	26	13	39
		% within dividend year	66.7%	33.3%	100.0%
		% of Total	6.1%	3.1%	9.2%
	2001	Count	30	7	37
		% within dividend year	81.1%	18.9%	100.0%
		% of Total	7.1%	1.7%	8.7%
	2002	Count	29	9	38
		% within dividend year	76.3%	23.7%	100.0%
		% of Total	6.8%	2.1%	9.0%
	2003	Count	13	25	38
		% within dividend year	34.2%	65.8%	100.0%
		% of Total	3.1%	5.9%	9.0%
	2004	Count	12	27	39
		% within dividend year	30.8%	69.2%	100.0%
		% of Total	2.8%	6.4%	9.2%
	2005	Count	9	29	38
		% within dividend year	23.7%	76.3%	100.0%
		% of Total	2.1%	6.8%	9.0%
	2006	Count	4	34	38
		% within dividend year	10.5%	89.5%	100.0%
		% of Total	0.9%	8.0%	9.0%
	2007	Count	9	30	39
		% within dividend year	23.1%	76.9%	100.0%
		% of Total	2.1%	7.1%	9.2%
	2008	Count	19	21	40
		% within dividend year	47.5%	52.5%	100.0%
		% of Total	4.5%	5.0%	9.4%
	2009	Count	16	24	40
		% within dividend year	40.0%	60.0%	100.0%
		% of Total	3.8%	5.7%	9.4%
	2010	Count	19	19	38
		% within dividend year	50.0%	50.0%	100.0%
		% of Total	4.5%	4.5%	9.0%
Total		Count	186	238	424
		% within dividend year	43.9%	56.1%	100.0%
		% of Total	43.9%	56.1%	100.0%

Appendix VI: Normality Distribution

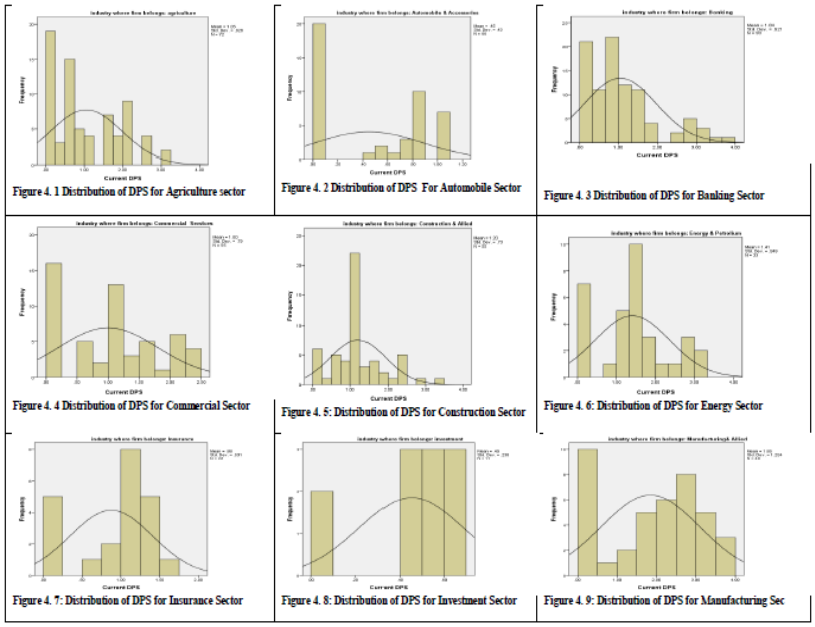

Figure 4. 1 Distribution of DPS for Agriculture sector

Figure 4. 2 Distribution of DPS For Automobile Sector

Figure 4. 3 Distribution of DPS for Banking Sector

Figure 4. 4 Distribution of DPS for Commercial Sector

Figure 4. 5: Distribution of DPS for Construction Sector

Figure 4. 6: Distribution of DPS for Energy Sector

Figure 4. 7: Distribution of DPS for Insurance Sector

Figure 4. 8: Distribution of DPS for Investment Sector

Figure 4. 9: Distribution of DPS for Manufacturing Sec

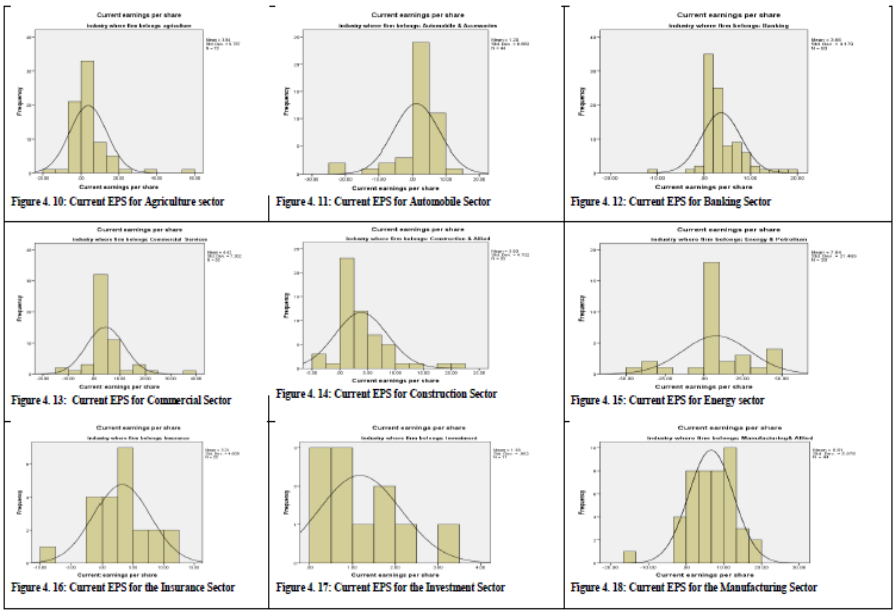

Figure 4. 10: Current EPS for Agriculture sector

Figure 4. 11: Current EPS for Automobile Sector

Figure 4. 12: Current EPS for Banking Sector

Figure 4. 13: Current EPS for Commercial Sector

Figure 4. 14: Current EPS for Construction Sector

Figure 4. 15: Current EPS for Energy sector

Figure 4. 16: Current EPS for the Insurance Sector

Figure 4. 17: Current EPS for the Investment Sector

Figure 4. 18: Current EPS for the Manufacturing Sector

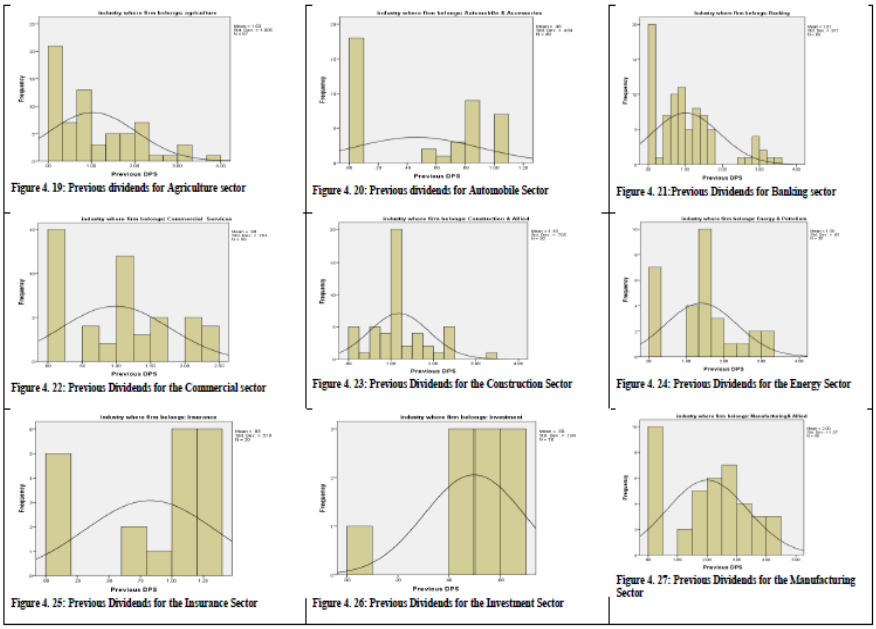

Figure 4. 19: Previous dividends for Agriculture sector

Figure 4. 20: Previous dividends for Automobile Sector

Figure 4. 21:Previous Dividends for Banking sector

Figure 4. 22: Previous Dividends for the Commercial sector

Figure 4. 23: Previous Dividends for the Construction Sector

Figure 4. 24: Previous Dividends for the Energy Sector

Figure 4. 25: Previous Dividends for the Insurance Sector

Figure 4. 26: Previous Dividends for the Investment Sector

Figure 4. 27: Previous Dividends for the Manufacturing Sector

Appendix VII: Hauseman Specification Test

```
  ___  ____  ____  ____  ____ (R)
 /__    /   ____/   /   ____/
___/   /   /___/   /   /___/   13.0   Copyright 1985-2013 StataCorp LP
  Statistics/Data Analysis            StataCorp
                                      4905 Lakeway Drive
                                      College Station, Texas 77845 USA
                                      800-STATA-PC        http://www.stata.com
                                      979-696-4600        stata@stata.com
                                      979-696-4601 (fax)

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                       Bullah enterprise

Notes:

. use "C:\Users\Dennis Bulla\Documents\desktop\Bulla Finance Thesis 1\STATA DATA\New STATA Data input sheet.dta"

. xtset CompName Year
       panel variable:  CompName (unbalanced)
        time variable:  Year, 2000 to 2010, but with gaps
                delta:  1 unit

. xtreg CurrDPS CurrEPS SQRTPrevDPS MTB PER, fe

Fixed-effects (within) regression               Number of obs      =       384
Group variable: CompName                        Number of groups   =        40

R-sq:  within  = 0.4477                         Obs per group: min =         4
       between = 0.8472                                        avg =       9.6
       overall = 0.6813                                        max =        10

                                                F(4,340)           =     68.91
corr(u_i, Xb)  = 0.6064                         Prob > F           =    0.0000

------------------------------------------------------------------------------
     CurrDPS |      Coef.   Std. Err.      t    P>|t|     [95% Conf. Interval]
-------------+----------------------------------------------------------------
     CurrEPS |   .1048163   .0088639    11.83   0.000     .0873813    .1222514
 SQRTPrevDPS |   .9332339   .1327292     7.03   0.000     .6721602    1.194308
         MTB |   .0508289   .0529284     0.96   0.338    -.0532794    .1549372
         PER |  -.0014395   .0014292    -1.01   0.315    -.0042507    .0013718
       _cons |   .7104268   .1606502     4.42   0.000     .3944333     1.02642
-------------+----------------------------------------------------------------
     sigma_u |  1.8305238
     sigma_e |  1.1627354
         rho |   .7125198   (fraction of variance due to u_i)
------------------------------------------------------------------------------
F test that all u_i=0:     F(39, 340) =     10.53              Prob > F = 0.0000

. estimates store fixed

. xtreg CurrDPS CurrEPS SQRTPrevDPS MTB PER, re

Random-effects GLS regression                   Number of obs      =       384
Group variable: CompName                        Number of groups   =        40

R-sq:  within  = 0.4307                         Obs per group: min =         4
       between = 0.8775                                        avg =       9.6
       overall = 0.7287                                        max =        10

                                                Wald chi2(4)       =    446.69
corr(u_i, X)   = 0 (assumed)                    Prob > chi2        =    0.0000

------------------------------------------------------------------------------
     CurrDPS |      Coef.   Std. Err.      z    P>|z|     [95% Conf. Interval]
-------------+----------------------------------------------------------------
     CurrEPS |   .1002253   .0095874    10.45   0.000     .0814344    .1190161
 SQRTPrevDPS |   1.541554   .1230694    12.53   0.000     1.300342    1.782766
         MTB |   .0879926   .0543733     1.62   0.106    -.0185771    .1945622
         PER |  -.0011297    .001551    -0.73   0.466    -.0041696    .0019103
       _cons |   .0127867     .21035     0.06   0.952    -.3994918    .4250651
-------------+----------------------------------------------------------------
     sigma_u |  .84629183
     sigma_e |  1.1627354
         rho |  .34630236   (fraction of variance due to u_i)
------------------------------------------------------------------------------

. hausman fixed ., constant

                 ---- Coefficients ----
             |      (b)          (B)            (b-B)     sqrt(diag(V_b-V_B))
             |    fixed            .          Difference          S.E.
-------------+----------------------------------------------------------------
     CurrEPS |   .1048163     .1002253        .0045911               .
 SQRTPrevDPS |   .9332339     1.541554       -.6083201        .0497088
         MTB |   .0508289     .0879926       -.0371637               .
         PER |  -.0014395    -.0011297       -.0003098               .
       _cons |   .7104268     .0127867        .6976401               .
------------------------------------------------------------------------------
                           b = consistent under Ho and Ha; obtained from xtreg
            B = inconsistent under Ha, efficient under Ho; obtained from xtreg

    Test:  Ho:  difference in coefficients not systematic

                  chi2(5) = (b-B)'[(V_b-V_B)^(-1)](b-B)
                          =      124.84
                Prob>chi2 =      0.0000
                (V_b-V_B is not positive definite)
```

Appendix VIII: NSE Listed Companies

SAMPLED COMPANIES	E-mail	Phone (+254)	Address
Agricultural Sector			
1. Eaagads Limited.			Box 10, 00232 Nairobi
2. Kakuzi Limited.	mail@kakuzi.co.ke	602033012	Box 24, 01000, Thika
3. Kapchorua Tea Company Limited.		53643012	Box 12, 30301, Kapsabet
4. Limuru Tea Company Limited.		204229951	Box 20, 20200, kericho
5. Rea Vipingo Plantations Limited.	info@reavipingo.co.ke		Box 17648,00500, Nairobi
6. Sasini Tea and Coffee Limited.	info@sasini.co.ke		Box 30151,00100,Nairobi
7. Williamson Tea Kenya Limited.		203882522	Box 20092, 00100,Nairobi
Automobiles and Accessories			
8. Car and General (Kenya) Limited.	info@cargen.com		Box 20001, 00200, Nairobi
9. CMC Holdings Limited.	info@cmcmotors.com		Box 30135, 00100,Nairobi
10. Marshalls (EA) Limited.		20536597	Box 30366, 00100,Nairobi
11. Sameer Africa Limited.	info@sameerafrica.com		Box 30429,00100, Nairobi
Banking			
12. Barclays Bank of Kenya Ltd.	barclays.kenya@barclays.com		Box 0120,00100Nbi
13. CFC Stanbic Bank Limited.		203268000	Box 30550,00100, Nairobi
14. Diamond Trust Bank (Kenya) Limited.	info@dtbafrica.com		Box61711,00200,Nairobi
15. Equity Bank Limited.	info@equitybank.co.ke		Box 75104,00200, Nairobi
16. Housing Finance Company Limited.		20317474	Box 30088,00100,nairobi
17. Kenya Commercial Bank Limited.	contactcentre@kcb.co.ke		Box 48400,00100 Nrb
18. National Bank of Kenya Limited.	corporateaffairs@nationbank.co.ke		Box 72866, 00200, Nairobi
19. NIC Bank Limited.	customercare@nic-bank.com		Box 44599,00100, Nairobi
20. Standard Chartered Bank limited.		203293000	Box 30003,00100, Nairobi
Commercial and Services			
21. Express Kenya Limited.		203002372	Box 40433, 00100,Nairobi
22. Kenya Airways Limited.		206422000	Box 19002, 00501, Nairobi
23. Nation Media Group Limited.		203288000	Box 49010, 00100,Nairobi
24. Standard Group Limited.	corporate@standardmedia.co.ke		Box 30080,00100,Nairobi
25. TPS Eastern Africa Limited.	adm@serena.co.ke		Box 48690,00100, Nairobi
Construction and Allied Sector			
26. ARM Cement Limited.	info@armafrica.com		Box 41908,00100, Nairobi
27. Bamburi Cement Company Limited.	corp.info@lafarge.com		Box 10921,00100,Nrb
28. Crown Paints Kenya Limited.	marketing@crownpaints.co.ke		Box 78848,00507,Nrb
29. East African Cables Limited.		206607000	Box 18243,00500, Nairobi
30. East African Portland Cement Company.	info@eapcc.co.ke		Box 2000204 Athi River.
Energy and Petroleum			
31. Kenol Kobil Limited.	info@ke.kenolkobil.com		Box 44202,00100,Nairobi
32. The Kenya Power & Lighting Co. Limited.		20221251	Box 30099,00100,Nairobi

33. Total Kenya Limited.	customerservice@total.co.ke	Box 30736,00100, Nairobi
Insurance		
34. Jubilee Holdings Limited.	info@jubileekenya.com	Box 30376, 00100, Nairobi
35. Pan Africa Insurance Co. Ltd (now Sanlam), 202247600,Box 44041,00100, Nrbi.		
Investment		
36. Centum Investment Co. Limited.	info@centum.co.ke	Box 10518,00100, Nairobi.
Manufacturing and Allied		
37. BOC Kenya Limited.	206944000	Box 18010,00500, Nairobi
38. British American Tobacco Kenya Ltd.	Info_ke@bat.com	Box 30000, 00100, Nrbi.
39. East African Breweries Limited.	208644000	Box 30161, 00100, Nairobi
40. Unga Group Limited.	203933000	Box 30096, 00100, Nairobi.

Appendix IX: Publications

Bulla,D., Namusonge, G.S., & Kanali, C.L.(2017).Key determinants of dividend payout among listed firms at Nairobi Securities exchange.*(IOSR) Journal of Business & management. 19* (8) 23-28. ISSN 2319-7668.

Bulla,D., Namusonge, G.S., & Kanali, C.L.(2017). Stability and role of dividend payout among public firms at Nairobi Securities Exchange. *(IOSR) Journal of Economics & Finance. 8* (4) 72-77. ISSN 2321-5925.