

**THE RELATIONSHIP BETWEEN DIVIDEND GROWTH AND RISK
FOR COMPANIES LISTED AT THE NSE**

BY

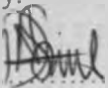
NDIANG'UI DOROTHY WAIRIMU

**A MANAGEMENT RESEARCH PROJECT PRESENTED IN PARTIAL
FULFILLMENT OF THE REQUIREMENTS FOR THE AWARD OF MASTER OF
BUSINESS ADMINISTRATION DEGREE, SCHOOL OF BUSINESS OF THE
UNIVERSITY OF NAIROBI**

OCTOBER, 2011

DECLARATION

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

Signed: 

Date: 10/11/2011

NDIANG'UI DOROTHY WAIRIMU

D61/60001/2010

This management research project has been submitted with my approval as the candidate's university supervisor.

Signed: 

Date: 11/11/11

DR. ADUDA JOSIAH

Department of Accounting and Finance

SCHOOL OF BUSINESS, UNIVERSITY OF NAIROBI

DEDICATION

This work is lovingly dedicated to my husband for believing in me and providing unwavering love and support when I was working on this project. God truly gave me the best. To my son Liam who has made me a proud mum. Love you too much

ACKNOWLEDGEMENTS

For the success of this research I am heavily indebted to various people and organization without whose material and non material support this research would have come to naught. I take this opportunity to express my sincere thanks to each of these people and organizations.

The staff of the Jomo Kenyatta Library provided the opportunity to use the facilities especially in the MBA and the Electronic Library section. From these able staff I was able to access not only research reports from earlier MBA research findings but I was able to access scholarly publication from the wider academic sphere.

Much of the direction on what to do at each stage of this research from the generation of the research idea, to its conceptualization, to the drafting of the research proposal, to the analysis of samples and preparation of the report was provided by my supervisor Dr. Josiah Aduda.

The data of analysis was got from the Nairobi Stock Exchange. It would not have been possible to conduct an analysis and extract out the relevant finding if the data was not available in the first place. This data was well kept by the staff of the NSE who then availed it to me when I needed it to conduct this research

In my literature review I have cited quite a lot of scholarly publication. Some are from earlier research finding from project done by other MBA students. I have used scholarly papers from the wider academia. These are works without which I could not have had a scholarly insight into this research

Finally I would wish to thank my family that provided me with encouragement throughout the period I was conducting this research

NDIANG'UI DOROTHY

ABSTRACT

This research goes further than simply investigating the relationship between dividend and stock return volatility. This is because the research was carried out to investigate how the growth in dividend affects risk on the stock market, in this case the Nairobi Stock Exchange. Specifically the research endeavored to find out whether there is a causal relationship between annual dividend growth rate and risk. The return values were calculated for every Wednesday in the period of study. The annual standard deviation of these values of return was then calculated to estimate the values of risk. Dividend growth values for each firm were then calculated by finding the rate of change from the dividend of one year for a company to the next. The values of risk and dividend growth per company were then paired on annual basis and a regression conducted to establish the relationship

After analysis the research found evidence of the relationship between dividend growth and risk not being linear as indicated by low values of R^2 and values of T and F Statistics that were less than critical. This study established that there is a weak negative relationship between risk and annual dividend growth as a majority of the companies analyzed recorded a negative coefficient of the independent variable. This meant that when firms increase their dividend the prices of their shares not only increase but also stabilize. The stability reduces risk. On the contrary when firms reduce the rates at which their dividends grow (in effect sometimes reducing the dividend), the result is increased volatility in the market of its stocks.

It was concluded from the results that the relationship between risk and dividend growth is not linear. This was based on the fact that the T-Values and F-values were less than critical values. Further the distribution of the variables was not normal, the explanation power of the dividend growth to the variation in risk was weak meaning either there is no relationship, or the relationship is non-linear. Within this context of there not being a linear relationship between risk and annual dividend growth evidence suggested that companies paying high levels of dividend annually had lower levels of risk while those that had low levels of dividend showed comparatively higher levels of risk.

LIST OF ABBREVIATIONS

AIMS	Alternative Investments Market Segment
APT	Arbitrage Pricing Theory
CAPM	Capital Asset Pricing Model
CDS	Central Depository System
CMA	Capital Market Authority
DASS	Delivery And Settlement System
EMH	Efficient Market Hypothesis
ICAPM	Inter-temporal Capital Asset Pricing Model
IT	Information Technology
KBS	Kenya Bureau of Statistics
MBA	Master of Business Administration
MIMS	Main Investment Market Segment
NSE	Nairobi Stock Exchange
T-Bill	Treasury Bill

Table of Contents

DECLARATION	ii
DEDICATION	iii
ACKNOWLEDGEMENTS.....	iv
ABSTRACT.....	v
LIST OF ABBREVIATIONS.....	vi
CHAPTER ONE.....	1
INTRODUCTION	1
1.1 Background of the Study	1
1.2 Statement of the Problem	4
1.3 Objectives of the Study.....	6
1.4 Significance (Value) of the Study.....	7
CHAPTER TWO.....	8
LITERATURE REVIEW.....	8
2.1 Introduction	8
2.2 Review of Theories	8
2.2.1 Gordon's Dividend Capitalization Model	8
2.2.2 Signaling Theory of Modigliani and Miller (1961).	9
2.2.3 Prospect Theory of Kahneman and Tversky (1979).....	9
2.2.4 Clientele Effect Theory.....	10
2.2.5 Agency Theory (Jensen & Meckling, 1976)	10
2.3 Empirical Literature Review	11
2.4 Conclusions	18

CHAPTER THREE	19
RESEARCH METHODOLOGY	19
3.1 Introduction	19
3.2 Research Design.....	19
3.3 Target Population.....	19
3.4 Sample	19
3.5 Data Collection.....	20
3.6 Data Analysis.....	20
CHAPTER FOUR	22
DATA PRESENTATION AND ANALYSIS OF FINDINGS	22
4.1 Introduction	22
4.2 Presentation and analysis of Findings	22
4.2.1 Risk and Dividend Growth Rate.....	22
4.2.2 Descriptive Analysis.	23
4.2.3 Correlation.	24
4.2.4 Regression analysis.....	24
4.3 Summary and Interpretation of Findings.....	25
CHAPTER FIVE	28
SUMMARY CONCLUSIONS AND RECOMMENDATIONS	28
5.1 Summary.....	28
5.2 Conclusions	29
5.3 Policy Recommendations	30
5.4 Limitations of the Study.....	31
5.5 Suggestions for Further Research	31

References.....33

APPENDICES36

Table 1: DESCRIPTIVE STATISTICS.....36

Table 2: VALUES FOR ANNUAL DIVIDENDS AND DIVIDEND GROWTH RATES.....38

Table 3: VALUES OF PEARSON CORRELATION BETWEEN ANNUAL RISK AND ANNUAL DIVIDEND GROWTH RATE40

Table 4: REGRESSION RESULTS.....41

Table 5: LIST OF COMPANIES ON THE NSE THAT WERE STUDIED42

Table 6: VALUES OF ANNUAL RISK43

Table 7A: COMPANIES PAYING HIGH DIVIDENDS44

Table 7B: VALUES OF CORRELATION, COEFFICIENTS AND AVERAGE RISK FOR HIGH DIVIDEND COMPANIES.....44

Table 7C: COMPANIES PAYING LOW DIVIDENDS45

Table 7D: VALUES OF CORRELATION, COEFFICIENTS AND AVERAGE RISK FOR LOW DIVIDEND COMPANIES.....45

CHAPTER ONE

INTRODUCTION

1.1 Background of the Study

Because of the way the stock market works, the bids people make for stock purchases are traded against the number of shares available at any one time. If everyone knows that something good has just happened at some company, for instance a fabulous new product or high dividend, they feel optimistic about the company's prospects, and will be willing to pay more for a share in that company. Because buying and selling of stock goes on quickly due to the current IT changes at the NSE (NSE, 2011), shareholders' and potential shareholders' beliefs and emotions are transmitted almost immediately to the market, affecting the price of the stock much faster. When something bad befalls a company, investors (often and quickly) want to return their shares in exchange for cash in the hope of avoiding sinking with the ship (NSE, 2011).

A lot of things can affect how the public perceives a corporation. One of the things that stock traders rely on is information especially when they believe that not everyone knows about the new information. They therefore react by wanting to get in, or get out before everyone else does depending on whether the information is about a loss or a gain (Dionne & Ouederni, 2010). Any indicator of information about a company is interpreted in some way-accurately or inaccurately leading to variations in the prices of stocks. One such indicator of information is the dividend (Myers, 1984). Every time dividends are announced they stimulate feelings of optimism, overconfidence, anchoring etc. while lack of dividend (or reduction in dividend) creates feelings of loss, regret and wanting to jump out (Kahneman & Tversky, 1979).

With this in context, both the management and the public are careful about which kind of signal is given and how each is interpreted (Myers, 1984). Dividends are part of such signals and therefore their nature in terms of growth rate causes variation in stock prices. This research intends to establish the nature of the relationship between dividend growth rates and return risk. Risk is assumed to be dependent on growth rate (Dionne & Ouederni, 2010).

In this study the key terms to be used will be Efficient Market Hypothesis (EMH), risk, dividend growth and return. The EMH is an idea partly developed by Fama (1965). It states that it is impossible to beat the market because prices already incorporate and reflect all relevant information i.e. past, public and private (Fama, 1965). There are three forms of market efficiency: the weak in which prices rely on past information; the semi strong in which prices rely on past and publicly available information; and the strong in which all information is incorporated in the asset price (Fama, 1965). In an efficient market, like stock exchanges are believed to be, it is pointless to search for undervalued stocks or try to predict trends in the market through fundamental analysis or technical analysis (Fama, 1965).

Risk is the quantifiable variability in expected returns from an investment as measured by the standard deviation in return (Markowitz, 1952). Dividend is a distribution of a portion of a company's earnings, decided by the board of directors, to a class of its shareholders (Investopedia, 2011). The dividend is most often quoted in terms of Kenya Shillings per share received (dividends per share). It can also be quoted in terms of a percentage of the current market price, referred to as dividend yield (NSE, 2011). Dividend growth is the annualized percentage rate of growth that a particular stock's dividend undergoes over a period of time (Investopedia, 2011).

Return refers to the gain or loss on a security in a given period. The return consists of the income and the capital gains relative on an investment, usually quoted as a percentage (Modigliani & Miller, 1961). The dividend growth rate is used in the dividend discount model, which is a security pricing model that assumes that a stock's price is determined by the estimated future dividends, discounted by the excess of internal growth over the firm's estimated dividend growth rate. A history of strong dividend growth could mean that future dividend growth is likely, which can signal long-term profitability for a given company (Investopedia, 2011).

Various models have been put in place to explain the relationship between stock price volatility and dividend pay-outs (but a lot is yet to be done on how dividend growth affects return risk). The theories include Gordon's Dividend Capitalization Model, the Signaling Theory of Modigliani and Miller, the Prospect Theory of Kahneman and Tversky, the Clientele Effect Theory, and the Agency Theory of Jensen and Meckling. The theories take different approaches in the explanation of how stock prices react to dividend policy of firms. The Dividend

Capitalization Model assumes that dividend policy of the firm is relevant and that investors put a positive premium on current dividends (McClure, 2011). Consequently investors would pay a higher price for shares on which current dividends are paid as opposed to those firms that do not. The Signaling Theory posits that changes in dividend policy convey information about changes in future cash flows (Dionne & Ouederni, 2010) and therefore any changes in dividend policy will draw a reaction from stock prices.

The Prospect Theory uses the behavioral approach to explain how investors irrationally react to information. Under this theory the investors have traits that make them respond to dividend policies in an irrational manner (Kahneman & Tversky, 1979). The Clientele Effect Theory explains how the varied characteristics of the shareholders determine how they react to the policy of dividends in a firm - some clients will want more dividends others will not want dividend thus affecting the stock prices (Investopedia, 2011). Agency theory explains the nature reaction to dividend policy within the context of the firm being a nexus of stakeholders with principal-agent relation, the asymmetry of information and discord of interests causing conflict (Jensen & Meckling, 1976).

Generally there is a positive relation linking expected dividend growth to expected returns (Mele, 2005). This means that when investors expect an increase in dividend growth then they expect higher returns and therefore exert upward influence on asset prices and stock prices drop when investors expect a drop in dividend (Nishat & Irfan, 2003). When there is an investor friendly environment therefore, for instance an increase in dividend growth the prediction is that there should be lower risk in returns. However, when dividend growth falls there is expected an increase in risk (Lombardo & Pagano, 2000). Despite being stated that dividend growth affects risk, it is not clear whether the relationship is linear or non-linear (Lombardo & Pagano, 2000).

The firms to be studied are those listed on the NSE. According to The Nairobi Stock Exchange (2011), the NSE in Kenya was formed in 1954 as a voluntary organization of stockbrokers. The Nairobi Stock Exchange is now one of the most active securities markets in Africa. The site acknowledges that NSE developed from the efforts of Francis Drummond in 1951, who was an Estate Agent, who had approached Sir Ernest Vasey (at that time the Finance Minister of Kenya), and impressed upon him the idea of setting up a stock exchange in East Africa. The two, together approached London Stock Exchange officials in July of 1953 and as a result the Nairobi

Stock Exchange was set up as an overseas stock exchange attached to the London Stock Exchange (NSE, 2011)

In 1954, the NSE was registered under the Societies Act as a voluntary association of stockbrokers. Africans and Asians were not permitted to trade, until after the attainment of independence in 1963. In 1988 the first privatization through the NSE was realized, and the successful sale of a 20% government stake in Kenya Commercial Bank was done (NSE, 2011). February 18, 1994 recorded the highest 20-Share Index in NSE history (NSE, 2011). More improvements took place on the NSE which had moved to more spacious premises at the Nation Centre in July 1994, set up a computerized delivery and settlement system (DASS), the number of stockbrokers increased with the licensing of 8 new brokers (NSE, 2011).

According to the NSE (2011), the securities are divided into Main investments market Segment (MIMS) made up of firms in the Agricultural sector, Commercial and Services sector, the Industrial and allied sector, the Finance and Investment sector, Alternative investment markets segment (AIMS). The fifth segment (not relevant to this study) deals with Fixed Income Securities like bonds (NSE, 2011). The NSE is subordinate to the Capital Market Authority (CMA). Among other things the Capital Market Authority is charged with the role of protecting investor interests (NSE, 2011).

Part IV of the Nairobi Stock Exchange (2011) Listing Manual sets out issuers' continuous listing obligations including disclosures on periodical financial information and general disclosures to ensure that the investors and shareholders have access to information on the issuer. The type of information includes information on annual dividends. Given the dividend information and the history of a firm's dividends, the investors may have a reaction that may result in price variation and therefore risk in returns of the stock market (Rimbey & Officer, 1992).

1.2 Statement of the Problem

The publication of the "Capital Structure Puzzle" by Myers (1984) discussed the idea of the information-laden nature of dividend countering the Modigliani-Miller proposition of dividend irrelevance. Litzenberger & Ramaswamy (1982) also agreed that there is a non-linear relationship between return and expected dividend providing evidence that dividend causes variation in asset prices, and therefore returns, as people react to the perceived information

contained in the dividend announcement. Woolridge, (1983) argued that a negative change on dividend has a reducing effect on common stock prices while a positive change has an increasing effect.

Jensen & Meckling (1976) defined agency relationship as a contract under which one or more persons (the principals) engage another person (the agent) to perform some service on their behalf which involves delegating some decision making authority to the agent. If both parties to the relationship are utility maximizers, there is good reason to believe that the agent will not always act in the best interests of the principal (Jensen & Meckling, 1976). They further posit that the principal can limit divergences from his interest by establishing appropriate incentives for the agent and by incurring monitoring costs designed to limit the aberrant activities of the agent.

Agency theory therefore is mainly concerned with resolving two problems that can occur in agency relationships. The first is the agency problem that arises when (a) the desires or goals of the principal and agent conflict and (b) it is difficult or expensive for the principle to verify what the agent is actually doing. The problem here is that the principal cannot verify that the agent has behaved appropriately. The second is the problem of risk sharing that arises when the principal and agent have different attitudes towards risk. The problem here is that the principal and the agent may prefer different actions because of the different risk preferences. Some of these agency issues manifest in the dividend policy. The question is whether it is possible to get a model that can be used as a mechanism of deciding between the management and the shareholders as concerns dividend (Jensen & Meckling, 1976).

Mbaka (2010) sought to establish if there is any relationship between announcement of dividends and share prices on the NSE. The study found out that among the 20 firms that were used to calculate the NSE 20 share index, those firms that had announced dividend reduction showed a price fall while those that announced dividend increase showed price increase (Mbaka, 2010). This research did not explain whether or not there is any relationship between growth of dividend and risk. Ngunjiri (2010) conducted a study to determine the relationship between dividend payment policies and stock volatility. The sampled 40 quoted companies studied by Ngunjiri showed that earnings and firm size had a significant effect on a firm's stock prices. Earlier, Kalui (2004) had analyzed factors that caused stock price volatility for quoted firms and

found out that payment ratio, firm size, earnings volatility and asset growth cause stock price volatility. Mulwa (2006) examined whether the signaling efficiency of dividend changes the future profitability of quoted companies at the NSE. The study established that the relationship existed in the first year of dividend payment but this relationship was insignificant in subsequent years. The issue of how dividend growth rate relates to risk is left out by these studies yet stock prices are sensitive to changes in dividend growth

Dividend growth indicates that the value of dividend paid to ordinary shareholders is bound to increase or decrease at some future date. This in effect raises optimism or despair among the investor towards the returns expected from holding investments in such firms. Those who currently hold shares in firms with increasing dividend (rates greater than one) will be more reluctant to sell their shares while those who may wish to have more shares in such firms will want to buy. The increase in the demand for shares of firms with dividend growth causes a variation (actually a rise) in the price of the shares.

On the contrary, if the growth in dividend is depressing (with rates less than one or sometimes negative) in the view of the investor, for example, a drop in dividend growth rate is expected, there is likely to be a tendency to have the supply of the shares of the firm in question to increase while their demand to reduce. This instability can cause the prices of the shares to fall. This behavior shown between the changes in growth rates of dividend and the reaction to these changes in the stocks market needs to be investigated. The important questions that this research therefore seeks to answer are: is there a relationship between dividend growth rate and risk? If there is, is it linear? If it is linear is it a significantly linear relationship?

1.3 Objectives of the Study

1. To determine the annual dividend growth rates for the quoted public companies listed at the Nairobi stock exchange.
2. To determine the annual risks of the returns on the shares of the quoted public companies listed at the Nairobi stock exchange.

3. To establish whether the relationship between dividend growth and risk in the returns on the shares of a quoted public company on the NSE is linear or non linear.

1.4 Significance (Value) of the Study

The findings of this research are important in various ways. The management of firms will know that not only does declared dividends affect stock price risk but that they can use a regression analysis of the growth of dividend to assess the effect of the size of the change (growth) in the risk. This will enable the management of the organization be able to forecast the level of dividend needed at a given rate of market volatility by simply predicting the dividend growth rate and multiplying it by the preceding dividend value. This method will also enable to set profitability targets that can be matched with the dividend level. Further the targets can be used as a measure of the performance of the management.

Investors will be able to look at the past dividends, ascertain the growth rate of a firm and be able to determine which firms are more risky, which ones are not and make investment decisions accordingly. In line with risk-return trade-off, the investors will be able to use the model to determine which levels of dividend from the firm will be able to fairly compensate investors who bear more risk caused by the volatility in dividends. This model will provide a standard upon which information asymmetry management can be based. Given that the data about dividends and stock prices will be public information, investors can conduct their own analysis and come up with expected levels of dividend. This then provides fair ground to the investors to question the performance of the management based on dividend pay-out.

Agency issues that may arise can be controlled as a result of the stakeholders having similar basis upon which to demand pay-out. This in turn may be a good control measure to control how much is paid out in dividend vis-à-vis how much is retained in the firm. During time of abundance of profitability there will be no temptation to pay out larger dividend but the extra can be saved to pay out for future times when profits dwindle. This actually is a plausible dividend smoothing out policy based on level of risk. Further scholars will be able to use this research as evidence of there being either a linear or non linear relationship to advance the arguments of the nature of interaction between risk and growth.

CHAPTER TWO

LITERATURE REVIEW

2.1 Introduction

In this chapter two things are discussed Part one discusses Gordon's Dividend Model, the Signaling Theory, the Prospect Theory, Clientele Effect Theory and the Agency Theory which make the main theories behind this research. The second part looks at risk (variation in return), dividend growth rate and the empirical work that is related to this research.

The chapter takes a look at the model of Gordon that relates the price of an asset, the dividend, required return and the growth rate. It also looks at the prospect theory that explains investor irrationalities with respect to risk and return; the signaling theory that asserts the information-laden nature of dividend and how they cause investor reaction; the clientele effect theory that explains how the nature of investors can cause variation in price due to attitude towards a firm change in dividend policy; and the agency theory that provides an explanation based on the principal-agent relationship.

2.2 Review of Theories

2.2.1 Gordon's Dividend Capitalization Model

Gordon's theory contends that dividends are relevant and that dividend policy of a firm affects its value (Articlesbook, 2011). This model assumes that the firm is an all equity firm so that no external financing is used and investment programmes are financed exclusively by retained earnings. Also that return on investment and Cost of equity are constant. Further the firm has perpetual life; the retention ratio is constant once decided upon making the growth rate constant. The model also assumes cost of equity is greater than dividend growth rate (articlesbook, 2011).

This model assumes that dividend policy of the firm is relevant and that investors put a positive premium on current dividends (McClure, 2011). This model further assumes that investors are risk averse and they put a premium on a certain return and discount uncertain returns, investors are rational and are therefore expected to prefer current dividend (articlesbook, 2011). They would discount future dividends and the retained earnings are evaluated risky promise (McClure,

2011). In case the earnings are retained, the market price of the shares would be adversely affected (McClure, 2011). Consequently investors would be willing to pay a higher price for shares on which current dividends are paid. The dividends declared and in effect dividend growth contribution to risk (articlesbook, 2011).

2.2.2 Signaling Theory of Modigliani and Miller (1961).

Signaling theory states that changes in dividend policy convey information about changes in future cash flows (Dionne & Ouederni, 2010). Dionne & Ouederni (2010) go on to say dividend signaling suggests a positive relation between information asymmetry and dividend policy. In other words, they say, the higher the asymmetric information level, the higher is the sensitivity of the dividend to future prospects of the firm. There are disagreements about the nature of the sign and the significance of the effect of information asymmetry on dividend policy (Dionne & Ouederni, 2010). According to signaling theory, dividends affect share prices as they communicate information about the firm in the context of information asymmetry between management and investors (Rimbey & Officer, 1992)

2.2.3 Prospect Theory of Kahneman and Tversky (1979)

Kahneman and Tversky (1979) proposed a descriptive theory called Prospect Theory to explain decision making under conditions of uncertainty. This theory focuses on how people choose among alternatives based on psychological evidence (Han & Hsu, 2004). Kahneman and Tversky (1979) found empirically that people underweight outcomes that are merely probable in comparison with outcomes that are obtained with certainty; also that people generally dismiss components that are common to all prospects under consideration. Under prospect theory, they say, value is assigned to gains and losses rather than to final assets. Consequently, when firms set dividends, the investors are likely to react in a manner to push up the prices of some shares while pulling down the prices of others due to psychological and indeed irrational reasons (Kahneman and Tversky, 1979).

According to Phung (2011) irrational issues like January Effect (the phenomenon in which the average monthly return for small firms is consistently higher in January than any other month of the year), the winner's curse (a tendency for the winning bid in an auction setting to exceed the intrinsic value of the item purchased), and the Equity Premium Puzzle (myopic loss aversion,

where investors are overly preoccupied by the negative effects of losses in comparison to equivalent amount of gains take a very short-term view on an investment). Such and more such irrationalities cause variations in stock prices therefore having an effect on stock market risk (Phung, 2011).

2.2.4 Clientele Effect Theory

The Free Dictionary (2011) defines Clientele effect as the theory that a company's stock price will move according to the demands and goals of investors in reaction to a tax, dividend or any other policy change affecting the company. The clientele effect assumes that investors are attracted to different company policies and that when a company's policy changes, investors will adjust their stock holdings accordingly (The Free Dictionary, 2011)). As a result any adjustment causes the stock price to move (Investopedia, 2011).

According to Clientele Effect theory if a company that currently pays a high dividend (attracting certain clientele whose investment goal is to obtain stock with a high dividend payout) made a decision to decrease its dividend, this will cause such clientele to sell their stock and move to another company that pays a higher dividend (The Free Dictionary, 2011)). As a result, the company's share price will decline. However the same company might attract investors who are more interested in growth benefits (Investopedia, 2011).

2.2.5 Agency Theory (Jensen & Meckling, 1976)

Agency theory is about the relationship between the principle and the agent (Jensen & Meckling). According to them the principal in agency theories represents someone who delegates while the agent represents someone to whom authority is delegated. When a shareholder delegates authority to management, the shareholder is the principal and the management is the agent. Agency theory is mainly about the unharmonious relationship between agents and principles (Jensen & Meckling).

Agency loss is the difference between the consequences of delegation for the principal and the best possible consequence and it provides a common metric for their distinctions (Eisenhardt, 1989). Eisenhardt, (1989) argues that agency loss is zero when the agent takes actions that are entirely consistent with the principal's interests. As the agent's actions diverge from the

principal's interests, agency loss increases. When the agent does things that are bad for the principal, agency loss is high. One area where agency issues arise is in the payment of dividend and how it compensates the risk borne by shareholders (Eisenhardt, 1989).

2.3 Empirical Literature Review

Risk is generally return volatility, or the degree of ups and downs of returns. It is the day-to-day potential for an investor to experience losses from fluctuations in securities prices. But there is more to risk volatility. Risk and long-term reward are generally related. Risk is the chance that your actual return will be less than expected. Risk is a complex multidimensional concept that manifests itself in many ways. Risk is omnipresent and includes things like stock market crashes, bankruptcies, currency devaluations, changes in sentiment, inflation and interest rates etc. in the context of this study risk is the variation in the return on investors' stocks. The return is the sum of asset price changes (capital gains) and the dividend (Modigliani & Miller, 1961).

Firms are generally reluctant to change dividends and for this reason dividends are considered sticky because the variability in dividends is significantly lower than the variability in (say) earnings or cash flows. The unwillingness to change dividends is accentuated when firms have to reduce dividends and, empirically, increases in dividends outnumber cuts in dividends by at least a five-to-one margin in most periods. As a consequence of this reluctance to cut dividends, firms will often refuse to increase dividends even when earnings go up, because they are uncertain about their capacity to maintain these higher dividends. This leads to a lag between earnings increases and dividend increases. Similarly, firms frequently keep dividends unchanged in the face of declining earnings. The main reason is that dividends are information laden and could trigger negative sentiment. The change in dividend can be expressed as dividend growth rate from a period to another, while the effect expressed in terms of return variation capturing variation in both stock prices and dividend change (Grullon & Swaminathan, 2002).

Dividends experience a significant decline (increase) in their systematic risk. Dividend increasing firms also experience a decline in profitability in the years after the dividend change and there is no evidence that firms that pay more dividends increase their investments in future projects. The announcement-period (positive) market reaction to a dividend increase is significantly related to the subsequent decline in systematic risk. These findings suggest that

dividend increases may be an important element of a firm's long-term transition from growth phase to a more mature phase. In the long run, dividend-increasing firms with the largest decline in systematic risk also experience the largest increase in price over the next three years, suggesting that the market reaction to dividend changes may not incorporate the full extent of the decline in the cost of capital associated with dividend changes (Grullon & Swaminathan, 2002).

Empirical studies of wide classes of securities have mainly focused on and confirmed that there is a relationship between risk and return (Malkiel, 1982). It is generally assumed that the level of return is higher for investors who also invest in more risky assets within the context of risk aversion (Malkiel, 1982). The first model to simplify the relationship between risk and return on the stock market was the Capital Asset Pricing Model by Sharpe (1964), Lintner (1965), and Mossin (1966). This model divided risk into systematic (that cannot be diversified) and the non-systematic risk (that can be diversified away) (Sharpe, 1964). The CAPM, based on the works of Markowitz (1952) asserts that the relation between an asset's risk and return is linear and positive with the return for assets with no risk estimated by the risk free rate and the gradient of the linear relation being the rate at which bearing of an extra unit of risk is rewarded by the asset market (Sharpe, 1964). The market does not reward unsystematic risk as it can simply be managed away through diversification as their source is company specific (Malkiel, 1982). The riskiness of an asset is measured by the standard deviation of the returns (Markowitz, 1952)

Sharpe (1964) acknowledges that the issue of risk has pervaded the older methods of analysis of investments under conditions of risk and into the positive approaches that analyze investments under conditions of uncertainty. Since Markowitz (1952) formalized the portfolio theory and used the mean-variance criterion to discuss risk and hence diversification, there have been a constellation of risk measurement proxies and approaches. These methods of risk measurement are what Sharpe (1964) referred to as mere assertions. Since Markowitz (1952) much of the definition of risk is anchored upon variance, the causes of the variance notwithstanding.

Fama (1965) added to the empirical analysis of risk by developing the Efficient Market Hypothesis (EMH) to provide the base for a scientific approach to risk and return. Under the EMH return observation were assumed to be random and normally distributed around the mean return thus providing thrust to the CAPM (Sharpe, 1964). The deficiencies cited in the CAPM and EMH led to more research into the issue of risk and to other models rivaling both the EMH

and the CAPM. Behavioral Finance (Kahneman & Tversky, 1979), Intertemporal CAPM (Myers, 1973), Arbitrage Pricing Theory (Ross, 1976), Adaptive Market Hypothesis (Lo, 2005) are a few of such models.

The Adaptive Market Hypothesis, by Lo (2004), attempts to reconcile economic theories based on the EMH with those based on behavioral economics, by applying the principles of evolution (competition, adaptation and natural selection) to financial interactions: Under this approach, the EMH can coexist with Behavioral models. Lo asserts that much of what behaviorists cite as counterexamples to economic rationality are, in fact, consistent with an evolutionary model of individuals adapting to a changing environment using simple heuristics (Lo, 2004). This hypothesis unites the EMH and the Behavioral finance hypothesis into one market environment with the irrationalities contributing significantly to risk (Lo, 2004). Higher risk is a measure of the market being informationally inefficient (Lo, 2004).

The sources of risk in asset returns are widely varied. Some are purely random according to the Efficient Market Hypothesis (EMH) formally presented by (Fama, 1965), while others are systematic and based on human irrationalities as discussed by behavioral finance theorists like Kahneman and Tversky (1979). From whichever source of risk, the semi-strong form of market efficiency (Fama, 1964) posits that the information made public is embodied quickly in the prices of the stocks of such firms in effect causing a variation in the price. One such piece of information made public by the management of a company is the level of dividend. Dividend is believed to provide information about the future prospects of the company according to signaling theory (Myers, 1984). Myers declares that, "We know stock prices respond to unanticipated dividend changes, so it is clear that dividends have information content," (Myers, 1984, pp 1).

According to Stock Market Investing for Beginners (2008), Dividend Yield equals Dividends per Share / Share Price. This yield is part of the earnings made if the share is sold after some period and should therefore be added to the percentage price change to get the total return on the stock. Finance Terms (2011) confirms that an investor can calculate the dividend adjusted return by first computing the raw return on the underlying stock (i.e. the current closing price, minus the previous closing price), plus any dividends on ex-dividend dates, then, divide the raw return by the previous closing stock price this is expressed as

$$\bar{R} = \frac{D_0}{P_0} + \frac{P_1 - P_0}{P_0}$$

In this formula, \bar{R} is the dividend adjusted return, D_0 is the dividend earned during the period in question, P_0 is the previous closing price, P_1 is the current closing price. Usually the return with dividend is more than return without dividend and many firms adjust dividend upward as dividends provide information about future prospects (Myers, 1984). Reduction of dividend is usually avoided (Myers, 1984).

Ross (1977) represented a form of signaling theory shows the relevance of dividends. Under the Ross scenario, investors interpret signals from management and adjust the value of the firm accordingly. Further, through a disciplinary mechanism that holds management accountable for its actions, the market is capable of discerning whether such signals are valid (Ross 1977). Although signaling theory necessarily predicts a uniform share price response to news of initiations or omissions, the evidence to date suggests a consistent tendency for some firms' share prices to respond opposite the predicted response (Ross 1977).

Krainer (1971) posits that for some time there has been disagreement among financial economists as to the effect of dividend policy on the valuation of a firm under conditions of uncertainty. On one side of the debate Miller and Modigliani argue that the capitalization rate on shares is independent of the dividend policy of the firm (Krainer, 1971). On the other hand Gordon and others, reject this proposition and present theories of valuation where share prices and capitalization rates are very much dependent upon the dividend policies of firms (Krainer, 1971).

Participants on both sides of the debate, continues Krainer (1971), however, seem to agree that the day for comparing the logical structure of contending models is over and that our efforts now should be directed towards empirically testing the contending models against the data. With respect to dividend policy attempts at empirical verification seemed to suffer from at least two shortcomings: first, the possibility that the assumptions underlying the statistical techniques used might not be met; and second, the possibility that many of the relevant variables are not directly observable, and consequently imperfect proxy variables are used in the statistical experiment (Krainer, 1971).

The announcements of cash dividends signal information to investors that include the company's efficiency such as the profitability, liquidity and investment opportunity (Hansen, Kumar & Shome, 1994; Miller, 1999; Black, Ketcham & Schweitzer, 1995; DeAngelo & DeAngelo, 1990; Alli, Khan & Ramirez, 1993). According to Gonedes (1978) and Watts (1973, 1976), unexpected dividends do not influence the stock markets. Managers usually establish a stable cash dividend policy to avoid sending negative information to investors (Dewenter & Warther, 1998; Nadler, 1977, Escherich, 2000). Companies with an unstable cash flow pay a greater proportion of cash dividends than companies with stable cash flow (Bradley, Capozza & Sequin, 1998).

The announcement of cash dividends signals information to investors that include the company's efficiency such as the profitability, liquidity and investment opportunity (Juma'h & Pacheco, 2008). Unexpected dividends do not influence the stock markets opportunity (Juma'h & Pacheco, 2008). Managers usually establish a stable cash dividend policy to avoid sending negative information to investors (Juma'h & Pacheco, 2008). Companies with an unstable cash flow pay a greater proportion of cash dividends than companies with stable cash flow (Bradley, Capozza & Sequin, 1998).

Asymmetry of information exists on the future of the company's profits and the effects of the announcement of cash dividend policy (Juma'h & Pacheco, 2008). The investors' reaction to changes in cash dividends influences companies to be cautious to increase cash dividends except that the increase will remain for longer term (Lintner, 1956). It is assumed that companies with unstable profits pay little cash dividends to maintain cash dividends constant, to minimize the cost of external financing and to signal positive information to investors (Lintner, 1956).

In a study, Collins & Kemsley (2000) sought to explain why investors often reward firms for paying fully taxable dividends rather than allowing them to realize profits through tax-favored capital gains. In the resulting publication they assert that potentially important expenses for many shareholders are proprietary-level capital gains and dividend taxes. In their study, Collins & Kemsley (2000) accounted for these shareholder-level taxes by adding them to a residual-income equity valuation model and empirically examining the resulting properties. They found that capital gains and dividend taxes have substantial, distinct effects on the valuation of retained and current earnings, as well as on dividends (Collins & Kemsley, 2000). These findings suggested

that proprietary-level taxes drive wedges between entity-level accounting variables and firm value (Collins & Kemsley, 2000). Accounting for these taxes removes the valuation wedges and helps bridge the gap from entity-level accounting measures to shareholder-level valuation (Collins & Kemsley, 2000).

Both capital gains and dividend taxes reduce investors' implicit valuation of the reinvested portion of current earnings (Collins & Kemsley, 2000). Dividend taxes reduce the valuation of the portion of earnings distributed as dividends, but capital gains taxes do not (Collins & Kemsley, 2000). Further, dividend taxes reduce the valuation of existing retained-earnings equity, but again, capital gains taxes do not (Collins & Kemsley, 2000). Capital gains taxes are not expected to reduce the valuation of existing retained-earnings equity because buyers implicitly pay for the accumulated equity when they purchase stock (Collins & Kemsley, 2000). By paying for the accumulated equity, buyers establish the tax basis necessary to protect them from future taxes upon eventual sale of the purchased equity (Collins & Kemsley, 2000). Litzenberger & Ramaswamy (1982) acknowledge that there is a positive and non-linear relationship between common stock returns and expected dividend yield based solely on information that would have been available to the investor ex-ante.

Woolridge (1983) delved into the discussion of the effect of unexpected dividend changes on wealth transfer. Woolridge (1983) argued that a positive unexpected change in dividend causes a positive change on wealth transfer in common stocks, but a negative effect on preferred stock and debt. Such a change signals positively on common stocks, preferred stocks and debt (Woolridge, 1983). On the contrary, a negative change on dividend has a negative effect on common stocks, but a positive effect on both preferred stocks and debt (Woolridge, 1983). A negative change in dividend had negative effect on the signaling and therefore negatively affecting common stocks, preferred stocks and debt (Woolridge, 1983). Woolridge, (1983) attributes this to the presence of information asymmetries between managers and investors causing securities to sell at prices other than their true values in effect causes a variation on stock prices.

The analysis of the clientele effect of the dividend is associated to a market imperfection, the existence of taxes, and is related to the discussion on the relevance of dividend distributions

(Borges, 2011). Because there are economic agents with different fiscal framings, this can mean that some will prefer dividends, while others will prefer capital gains (Borges, 2011).

Hussainey, Mgbame & Chijoke-Mgbame (2010) conducted a study to examine the relationship between dividend policy and share price changes in the UK stock market. This was done for a period of 10 years (1998 through 2007). It was based on a sample of publicly quoted companies in the UK. It also examined the relationship between stock price volatility and other variables such as size, growth, earnings volatility and debt. In the study the relationship between ordinary stock price volatility and dividend policy was analyzed utilizing multiple least square regressions. The regression model basically related price volatility with the two main measures of dividend policy – dividend yield and dividend payout ratio.

Their results showed that the correlation between price volatility and dividend yield was negative (-0.2583). Also the correlation between price volatility and dividend payout was negative (-0.4446). The overall findings suggested that the higher the payout ratio the less volatile a stock price would be. That payout ratio was the main determinant of the volatility of stock price. Among the control variables, it was discovered that size and debt had the highest correlation with price volatility (Hussainey et al, 2010). This indicated that the dividend paid out had a great influence on stock prices but the effect of how changes in dividend relate to stock prices was not investigated.

Mbaka (2010) sought to establish if there is any relationship between announcement of dividends and share prices on the NSE. He sampled 20 firms that were used to calculate the NSE 20 share index. This study found a significant difference between abnormal returns before and after the dividend announcement showing that the dividends had an effect on price variation. Those firms that had announced dividend reduction showed a price fall while those that announced dividend increase showed price increase (Mbaka, 2010). Beyond this conclusion nothing further is said concerning dividend growth and risk.

Ngunjiri (2010) conducted a study to determine the relationship between dividend payment policies and stock volatility. The sample of 40 quoted companies showed that earnings and firm size had a significant effect on a firm's stock prices. Earlier, Kalui (2004) had analyzed factors that caused stock price volatility for quoted firms and found out that payment ratio, firm size,

earnings volatility and asset growth cause stock price volatility. Effect of dividend growth on asset prices was not analyzed.

Mulwa (2006) examined whether the signaling efficiency of dividend changes on the future profitability of quoted companies at the NSE. The population consisted of the 48 companies listed at the NSE for the period 1998 to 2002. Secondary data was obtained from NSE, Stockbrokers, and KBS & CMA. The study established that the relationship existed in the first year of dividend payment but this relationship was insignificant in subsequent years. This study gave a hint that a change in dividends caused variation in stock prices without establishing an empirical nature of this relationship.

2.4 Conclusions

In this chapter theories behind dividend and risk have been discussed and evidence of research done on the issue of dividend and risk delved into. There are those who believe dividends are irrelevant to firm value, there are those who believe in the relevance of dividend to firm value. Further, there are those who believe unexpected changes in dividends have no effect on firm value while there are those who believe changes in dividend have an effect. There is clearly a need to conduct a research analyzing the exact relationship between how changes in dividend from year to year (explained by dividend growth rate) affects the risk in the return of a stock.

CHAPTER THREE

RESEARCH METHODOLOGY

3.1 Introduction

This section discusses the method that were be used in the collection and analysis of data and presentation of findings. It also discusses how the objectives of the study were met. It specifically covers issues to do with the research design, definition of the population of study, how sampling was done, how data was collected and how the data was analyzed.

3.2 Research Design

This research was a causal study of the Nairobi Stock Exchange to investigate the effect of dividend growth on risk in the returns to investors. This research used regression as used by Hussainey et al (2010) in their study of the relationship between dividend policy and share price changes in the UK stock market. This study by Hussainey et al was done with stock price volatility as the dependent variable and the dividend policy as the independent. In this study, though, dividend growth rate was the independent variable.

3.3 Target Population

The population of this study included all the companies that were listed on the NSE. These are those in the Main Investment Market Segment (MAIMS); those in the Financial Investment Market Segment (FIMS); those in the Agriculture and Allied Market Segment (A&AMS) and those in the Alternative Investment Market Segment (AIMS).

3.4 Sample

The period between January 1, 2000 and December 31, 2010 was considered for analysis for all the listed companies at the NSE but only thirty were considered (see table 5 in the appendices) due to the unavailability of relevant data. Wednesday average prices of stocks and annual dividends of companies from January 1, 2000 to December 31, 2010 were used. Wednesday

average prices were chosen as they suffer less effect from irrationalities like the weekend and Monday effect making them fairly normal (French 1980).

3.5 Data Collection

Secondary data on annual dividends and Wednesday average stock prices were collected from the NSE. All the Wednesday average prices for all companies from January 1, 2000 to December 31 2010 were collected. This led to an expected 28520 price observations (51 companies*10 years*52 weeks in a year) and 561 dividend observations (51 companies*1 dividend per year*11 years). The number of stocks traded on each Wednesday for each of the 51 companies was also captured leading to 28520 observations. This data was collected from NSE databank. The data was captured, organized and analyzed in MS EXCEL 07 format.

3.6 Data Analysis

In the analysis of this data the first task was to establish the time series data on annual dividend growth rate and this will be done by the single period Gordon dividend growth model:

$$g_t = \frac{D_t}{D_{t-1}} - 1 \dots \dots \dots (i)$$

Where g_t is the current dividend growth rate, D_t is the current dividend and D_{t-1} the dividend of the last year. This was done for each company for 10 year though 22 companies had data for a less number of years. Those that generated less than three annual dividend growth rates were dropped from analysis. The next task was generating annual risk for each company. This was done by first calculating weekly dividends per firm by taking [(dividend declared) ÷ (52 weeks)]. The weekly rate of return was calculated by the Modigliani & Miller (1961) model:

$$R_n = \frac{D_n}{P_n} + \frac{P_{n+1} - P_n}{P_n} \dots \dots \dots (ii)$$

Where R_n is the current return, D_n is the current dividend, P_n is the current stock price and P_{n+1} the price one period later. The annual risk in return for every firm was calculated by getting the standard deviation of returns giving 10 results per firm (Markowitz, 1952). The formula below was used to calculate risk:

$$Risk_{i,t} = \sqrt{\sum_{n=1}^{n=52} w_{i,n} (R_{i,n} - \bar{R}_{i,t})^2} \dots \dots \dots (iii)$$

Where $Risk_{i,t}$ is the risk of company i in year t , $w_{i,n}$ is the weight of the stocks of the year with respect to the stocks of the company i sold during the week n in year t and

$$\sum_{n=1}^{n=52} w_{i,n} = 1$$

$R_{i,n}$ is the return of firm i in week n , $\bar{R}_{i,t}$ is the weighted average risk of the firm i in the year t (Lucey, 2002).

A regression analysis was conducted for each firm and the values of A (constant) and B recorded in a table. In the regression R (risk) is the dependent variable while g (growth) is the independent variable the model being

$$R = A + (B \times g) + \epsilon \dots \dots \dots (iv)$$

The value B for each firm will be tested for its significance of difference from Zero using T-test at 95% confidence level. The relationship was concluded as linear if $B_i \neq 0$, i.e. if $T_{calculated} > T_{critical}$. The normality of the two distributions (risk and dividend growth) used in the regression was tested by finding the Kurtosis (for peakness) and the skewness. The coefficient of determination r^2 was used to test how much of the variation in risk was explained by variation in dividend growth. A value of $r^2 > 50\%$ indicated a strong level of explanation. The significance of the regression was tested by use of the F-test. If $F_{calculated} > F_{critical}$ then the regression was significant. Otherwise it was not. The existence of a linear relationship was concluded if $B_i \neq 0$, $r^2 > 50\%$, and $F_{calculated} > F_{critical}$. (Lucey, 2002).

CHAPTER FOUR

DATA PRESENTATION AND ANALYSIS OF FINDINGS

4.1 Introduction

This chapter discusses the findings of the research. The objective of this research was to find out whether the relationship between risk as the dependent variable and dividend growth as the independent variable is linear or not. The chapter therefore discusses how the two variables were operationalized, it provides a statistical description of the distribution of the data on the variables and how the variables correlated. Further the regression analysis findings are presented. An interpretation of the results is presented in the last subtitle of this chapter.

4.2 Presentation and analysis of Findings

4.2.1 Risk and Dividend Growth Rate

The annual dividend growth rates g_t , were computed from the data collected for each of the companies for which there was data on the dividends declared between 2001 and 2010 (see Table 2 in the appendix). This was done by applying the Gordon single period dividend growth model. The values of the dividend growth for each company quoted on the NSE were paired with corresponding annual risk values (see Table 6 in the appendix) of the firm in order to allow an analysis to establish whether the relationship between them was linear. This analysis was done on thirty companies for which data was available to enable such an analysis. Twenty-two companies were disqualified for they had no data on dividend or had only given one or two dividend during the study period; other companies had been listed during the period of study and therefore had deficient data. The regressed linear models relating annual company dividend growth rates with their risk values were established.

4.2.2 Descriptive Analysis.

Descriptive statistics of the variables were calculated to provide an insight into their nature. Specifically arithmetic mean, variance, skewness, kurtosis, maximum and minimum values of each of the variables for the thirty companies analyzed were calculated and the findings tabulated into Table 1 in the appendix. The highest level of growth in dividend was 10 times which was achieved by Mumias sugar Co. Ltd when it increased dividend from Sh. 0.1 in 2003 to Sh. 1.1 in 2004 while the lowest growth rate was -0.9 achieved by Kapchorwa Tea co. Ltd when it reduced dividend from Sh. 5 in 2007 to Sh. 0.5 in 2008 Car & General (K) Ltd never changed its dividend of Sh. 0.67 since 2004.

A total of thirteen companies had negative skewness in growth rate of dividend with East African Breweries Ltd being the most negatively skewed (with -2.2410) while Diamond Trust Bank Kenya Ltd was the least negatively skewed (-0.1303) Mumias Sugar Co. Ltd had the highest level of positive skewness (3.0789) while Pan Africa Insurance Holdings Ltd had the least skewness in dividend growth rate Equity Bank Ltd and KenGen Ltd were the only companies to record negative skewness in risk (-0.4518 and -0.5598 respectively). On the contrary, Limuru Tea Co. Ltd was the most positively skewed in risk (3.1226) while B.O.C Kenya Ltd was the least positively skewed in risk (0.1602).

Thirteen companies recorded kurtosis of more than three with Mumias sugar Co. Ltd, Nation Media Group and TPS Eastern Africa (Serena) Ltd recording kurtosis of 9.6271, 8.3353 and 9.0000 respectively in dividend growth rates. A total of nine companies recorded a kurtosis level of more than three in risk with Barclays Bank Ltd, East African Breweries Ltd and Limuru Tea Co. Ltd recording 7.8355, 7.6003 and 9.8118 respectively.

Only seven companies British American Tobacco Kenya Ltd, Diamond Trust Bank Kenya Ltd, Jubilee Holdings Ltd, KenGen Ltd, Pan Africa Insurance Holdings Ltd, Sasini Ltd, and Scangroup Ltd had skewness in dividend growth of about zero while only eight companies had skewness in return risk of about zero. Jubilee Holdings Ltd had both skewness and kurtosis of about zero (-0.4534 and 0.3444 respectively) meaning it had the most normal distribution in risk. British American Tobacco (K Ltd), Diamond Trust Bank Kenya Ltd and Jubilee Holdings Ltd had the most normal distribution in dividend growth rate.

4.2.3 Correlation.

For each of the thirty companies the Pearson Correlation coefficients were calculated and the findings tabulated into Table 3 in the appendix. Seventeen companies showed a negative correlation between risk and annual dividend growth rate. East African Breweries Ltd and NIC Bank Ltd recorded the strongest negative correlation (they recorded correlation of -0.9518 and -0.6553 respectively). Twelve companies had a positive correlation with the strongest recorded by Nation Media Group (0.7153) and Scangroup Ltd (0.7949). Only one company, Car & General (K) Ltd, had a correlation coefficient of zero though a total of twenty one companies recorded a correlation coefficient of less than an absolute value of 0.5. This indicates that there is a weak co-movement between dividend growth rate and return risk.

4.2.4 Regression analysis

With the data on annual risk and annual dividend growth rate, regression analysis for each of the thirty companies were conducted with risk as the dependent variable and annual dividend growth rate as the independent variable. The key results recorded were the coefficient of the annual dividend growth rate g_r , the P-Value of the coefficient, the coefficient of determination R^2 , and the F-Value. The results are presented in Table 4 in the appendix.

Out of the thirty companies nineteen had a negative coefficient of the independent variable with TPS Eastern Africa (Serena) Ltd recording the highest value (-0.2839) while Jubilee holdings Ltd recorded the most gentle negative slope (-0.0042). The remaining eleven companies had positive slopes out of which the highest value was recorded by Total Kenya Ltd (with a slope of 0.2582) with the lowest being recorded by Bamburi cement Ltd (0.0013). In effect the coefficients ranged between 0.2582 and -0.2839.

The T-Values were used to test the significance of the coefficients for each company. The T-Values from the data were compared with critical T-values having the same degrees of freedom. Only two companies Nation Media Group and Total Kenya Ltd had their T-value greater than the critical. The remaining twenty eight companies had their T-values less than the critical. All T-values were greater than 0.05 except East African Breweries Ltd which had 0.0003

The coefficients of determination were calculated to determine the level to which the independent variable explained the variation in the dependent variable. Only one company, East African Breweries Ltd, had a strong coefficient of determination standing at 0.9060 (90.60 %). The rest had values of R^2 less than 0.5 which was weak. The F-values had results showing that only East African Breweries Ltd had a value more than the corresponding F critical. The F-value for East African Breweries Ltd was 57.84 which is higher than the critical value of 5.9874 indicating that the relationship between annual risk and annual dividend growth rate was significantly linear.

4.3 Summary and Interpretation of Findings

Of the thirty companies analyzed nineteen had a negative coefficient of the independent term with only eleven recording a positive coefficient. Eighteen out of the nineteen companies also had a negative correlation between dividend growth and risk. The meaning is that when the dividend of a company increases at higher rate the volatility in return is reduced while a reduction in dividend growth generates higher volatility for most companies. For all the companies analyzed the main source of variation in return was from stock price changes. The weekly value of dividend was equally distributed for the fifty-two weeks in a year giving a constant term, but the stock prices kept varying. This means that stock prices stabilize as the growth rate of dividend increases while they become more volatile as the dividend growth rate reduces.

Assets in a highly volatile market are generally not desirable. They are majorly avoided by many investors and give poor rating to firms that have such levels of volatility. Based on the negative nature of the Pearson correlations and the negative nature of the coefficients it means that firms with poor dividend growth are the ones again with higher levels of volatility. The companies that have achieved the highest negative gradients were East African Breweries Ltd (-0.1518), NIC Bank Ltd (-0.1498), TPS Eastern Africa (Serena) Ltd (-0.2839). Two of them, East African Breweries Ltd and NIC Bank Ltd, recorded strong correlation between risk and dividend growth (-0.9518 and -0.6553 respectively). The highest risk levels of these companies were 18.22 % and 19.02 % respectively which were among the high levels of risk.

On the contrary those with low levels of correlation like Bamburi Cement Ltd (0.0296), City Trust Ltd (-0.0903), Diamond Trust Bank Kenya Ltd (-0.0811) and Kenya Airways Ltd (0.0964) also had low coefficients as Bamburi Cement Ltd had 0.00134, City Trust Ltd had -0.0186, Diamond Trust Bank Kenya Ltd had -0.0168 and Kenya Airways Ltd had 0.0036 which are generally low when compared with firms like Pan Africa Insurance Holdings Ltd (0.2571), Total Kenya Ltd (0.2582) and TPS Eastern Africa (Serena) Ltd (-0.2839) whose gradients were higher and with higher levels of average risk of 0.0829, 0.1062 and 0.0630 respectively.

Those companies with higher dividend history tend to have low gradients and coefficients. As a result the values of firms that pay higher dividend showed low average risk. Table 7A shows a history of the companies that have a record of not only paying dividends annually, but paid comparatively handsome amounts (Carbacid Investments Ltd and East African Breweries Ltd once paid Ksh. 23.10 and Ksh. 18 respectively) between 2001 and 2010. Table 7B shows the correlation, coefficients and average risk values of the same companies. With an exception of East African Breweries Ltd and Nation Media Group and B.O.C Kenya Ltd, all the rest had low correlations. All the companies had comparatively low coefficients coupled with low level of average risk.

The tables 7C and 7D are made from a few selected companies with a history of low dividends between 2001 and 2010. Companies in this category paid as little as Ksh. 0.10 Cents (or sometimes nothing at all). Contrary to the companies identified in tables 7A and 7B these companies recorded higher coefficient of annual dividend growth rates and higher levels of average risk (generally above those of companies in Tables 7A and 7B). The resulting conclusion is that much as the analysis showed a weak relationship between risk and dividend growth rate, firms with higher values of dividend recorded even weaker results unlike firms that paid lower dividends.

The fact that there is a weak linear relationship between return and dividend growth indicates that dividend growth is not a strong driver of market volatility. This could mean that investment for dividend is not very important as much of the return variation comes from the sale and purchase of stock. This simply demonstrates the insensitivity of the investors to dividend in firms but it cannot be argued based on this research how this insensitivity arises. It is not clear from this research whether this is attributable to the efficiency of the market or whether the investors

are simply unresponsive to the changes in dividend (Is it from the market inefficiency or is it the nature of the investors themselves?).

This raises questions poking at the theory that dividend are information laden. Variation in dividend is one such signal that should draw market reaction but this study showed weak relationship an indication that variation in risk is not a strong driver of market risk. But dividends in themselves are. This is shown by the high prices of the stock of companies like Nation Media group, Standard Chartered Bank and others like Limuru Tea Co. Ltd. Beyond this the market seems not to care much about variations in dividend as long as there is a dividend.

CHAPTER FIVE

SUMMARY CONCLUSIONS AND RECOMMENDATIONS

5.1 Summary

Every investor is interested in the behavior of return to the amounts of money held out in investments. Those who decide to hold shares of listed firms in their investment form the clientele of the company and will be very much interested in any information relating to the company in reference. Either all or a section of this clientele will be keen on the dividend trends as one key factor to determine whether they will still want to hold or sell their stocks. Those who are more inclined towards dividend are likely to sell out their share possibly at a profit and invest in other firms that have better records of dividend. In consequence this instability affects the prices of stocks on the market affecting the volatility of returns.

Given that dividend is not uniform throughout the years for most firms, and due to the fact that dividend decisions affect investor and hence risk, this research sought to find out how the investors respond to the variation in dividend as captured by growth. Dividend growth shows the expected direction of future dividend and this is expected to have an effect on the market. Specifically it was to find out the nature (if there is) between investor sentiments as captured by the market and pair it with an expected future dividend (in the next one year).

The investigation started with the collection of historical data on annual dividends and Wednesday stock prices (with their corresponding turnover) for the NSE. These data would enable the calculation of return using the Modigliani and Miller model for each Wednesday for each company. The Wednesday returns were weighted by the number of stocks sold during the year to find the standard deviation which operationalized risk for each company in a year. The annual dividend growth rates per company were generated using the Gordon single period growth model. The paired result per company made it possible to carry out a linear regression analysis. Companies whose values of dividend growth and risk could not enable regression were dropped leaving thirty out of the possible fifty-two companies.

The results indicated that the distributions of the variables were not normal in the sense that they were either leptokurtic or platykurtic and were either negatively or positively skewed at the same time. Regression assumes normal distribution of variables. The coefficients in nineteen out of the thirty firms analyzed were negative an indication that risk level negatively varied with dividend growth rate. The coefficients of determination, T-values and the F-values indicated non-linear relationship.

5.2 Conclusions

This study established that there is a weak negative relationship between risk and annual dividend growth as a majority of the companies analyzed recorded a negative coefficient of the independent variable. This means that when firm increase their dividend the prices of their shares not only increase but also stabilize. The stability reduces risk. On the contrary when firms reduce the rates at which their dividends grow (in effect sometimes reducing the dividend), the result is increased volatility in the market of its stocks.

It is concluded from the results that the relationship between risk and dividend growth is not linear. This is based on the fact that the T-Values and F-values failed the regressions. Further the distribution of the variables was not normal, the explanation power of the dividend growth to the variation in risk was weak meaning either there is no relationship, or the relationship is non-linear.

The weak nature of the regression results indicates the insensitivity of the market to dividends. Indeed some companies like Marshalls (E.A) Ltd have never changed their dividend from 67 Kenyan cents giving a growth rate of 0.00 % yet there has been variation in return of its shares on the market. This argument is supported by the low values of the Pearson correlation coefficient despite being negative.

A closer look at the nature of the regression results indicated a difference between firms that paid low or no dividends and those that paid high dividends. The firms that paid higher dividends were found to have higher coefficient values and also showed comparatively lower levels of average risk. On the other hand firms that paid low or no dividends recorded higher coefficients coupled with comparatively higher levels of average risk. This indicates that though the relationship between risk and return is not simply linear (according to these findings) there is a

higher reaction of risk to dividend growth among firms with poor dividend figure. Further, given that much of variation in return comes from market prices then it can be argued that not only the low figures of dividend, but also the weak growth prospects drive the market price volatility and hence risk. Firms that paid higher dividends have lower variation in return an indication that the investors are more satisfied with the dividend figure more than investors in the firms paying low dividends.

5.3 Policy Recommendations

This study utilized the regression model to study the relationship between dividend growth and risk of stocks of listed firms. This study established that the relationship is not linear but weakly negative as demonstrated by the negative coefficients and the negative correlations. This study therefore can provide an insight into what firms could do with dividend and select a policy without necessarily fearing serious market upsets. For instance selecting a policy with a constant dividend growth rate may at some point be stressful to the company especially when there are no earnings to sustain such a policy. As has been found from the results of the study there may not be a direct causal relationship between changes in dividend and market risk (at least not in the linear manner) All a firm may need to do is have a policy that may avoid dividend reduction within the brackets of good corporate governance as reducing dividend is undesirable.

Though both the management and the public are careful about which kind of signal is given and how each is interpreted (Myers, 1984), dividends are part of such signals and therefore their nature in terms of growth rate causes variation in stock prices. The study gets support to this argument up to a limit by companies like Limuru Tea Co Ltd selling for up to Ksh. 400 in 2006. EA Cables Ltd paid a dividend of Ksh. 5 in 2006 its share price raised to Ksh. 586 on 16th August the same year. When the price of a share of East African Breweries Ltd sold for Ksh.552 in October 2006, the dividend that year had been Ksh. 18. Kapchorwa Tea Co. Ltd had been paying low dividends of Ksh. 0.5 when its price varied about Ksh. 100, but the price shot up to Ksh. 400 on Wednesday 28th march 2007 the year in which the dividend had increased to Ksh. 5. Firms like Mumias Sugar Ltd are known to pay low dividends and as a result their shares are cheap (with an all time high Wednesday price of Ksh. 64.50 on 12th December 2006) sometimes falling to a low of Ksh. 2.20 in 2002. However this is the farthest the signaling theory goes

according to the findings of this research. Variation in dividend seems not to have an effect on risk

5.4 Limitations of the Study

The strength of the findings of this research is weakened by the nature of the data. Twenty-two companies were disqualified from analysis due to the fact that data was not enough to provide enough numbers of observations to enable regression. Further the data is historical which raises the question of whether the results are applicable in any other time and circumstances other than the sample period and population.

The data covers a period of ten years from 2001 to 2010 and only thirty of the firms listed on the NSE. Despite the period being long enough the research has not delved into the periods before 2001 and further the results are time and NSE specific. This in itself raises the question of the generalizability of the findings across time, across all the firms listed on the NSE, and across other stock markets.

The variable used to operationalize risk is weak as it may not be able to capture risk in its entirety. According to the EMH of Fama (1965) security prices should be able to properly measure market sentiment and information value in an efficient market. It is not possible to tell through this research whether the NSE was an efficient market during the period of study and how this assumption affected stock pricing in response to information (like on dividend). In fact the issue is simply whether stock prices capture investor sentiment accurately on the NSE.

5.5 Suggestions for Further Research

This research did confirm that the relationship between risk and dividend growth on the NSE is not linear. There is therefore an issue of finding out the exact relationship if any.

The research period is only 10 years between 2001 and 2010 yet the NSE has been in existence for a longer period of time. What would the results be if the period of study was earlier than 2010? Would the results be the same? What if the study was to cover a longer period of time, say twenty years? A study can be conducted with respect to the time-related questions raised here.

The issue of the NSE accurately capturing risk based on return is to be investigated. Given that the NSE (and Kenya as a whole) is not technologically advanced like the markets in the developed countries there are grounds to motivate an investigation to ascertain the level of efficiency. This will indeed determine whether the risk is properly captured by return volatility.

References

- Alli, K. L., Khan, A. Q. & Ramirez, G. G. (1993), Determinants of corporate dividend policy: a factorial analysis, *The Financial Review*, 28 (4), 523-547.
- Articlesbook (2011), *Gordon's Dividend Capitalization Model*, retrieved on July 9, 2011, from <http://www.articlesbook.com>
- Borges, M. R. (2011), *Clientele Effects in Dividends Distributions –The Portuguese Case*, retrieved on June 29, 2011 from <http://www.univ-orleans.fr/deg/GDRecomofi/Activ/doclyon/borges.pdf>
- Bradley, M., Capozza, D. R. & Sequin, P. J. (1998). Dividend policy and cash-flow uncertainty, *Real Estate Economics*, 26 (4), pp. 555-572.
- Collins J. H. & Kemsley, D. (2000), Capital gains and dividend taxes in firm valuation: evidence of triple taxation, *The Accounting Review*, 75(4), pp. 405-427
- DeAngelo, H. & DeAngelo, L. (1990). Dividend policy and financial distress: An empirical investigation of troubled NYSE firms, *Journal of Finance*, 45, pp.1415-1431.
- Dewenter, K. L. & Warther, V. A. (1998), Dividends asymmetric information, and agency conflicts: Evidence from a comparison of the dividend policies of Japanese and U S. firms, *Journal of Finance*, 53, pp. 879-904.
- Dionne, G. & Ouederni, K. (2010), Corporate risk management and dividend signaling theory, *CIRPÉE, Working Paper 10-08*.
- Eisenhardt, M. K. (1989). Agency theory: An assessment and review, *Academy of Management Review*, 14(1), 57).
- Escherich, F. (2000), Deliberating on dividend policy, *Directors & Boards*, 25 (1), pp. 33-38.
- Finance Terms (2011), *What is a Dividend Adjusted Return?*, retrieved on June 29, 2011 from <http://financeterms.hubpages.com/hub/What-is-a-Dividend-Adjusted-Return>
- French, K. R. (1980), Stock returns and the weekend effect, *Journal of Financial Economics*, 8
- Gonedes, N. (1978), Corporate signaling, external accounting and capital market equilibrium: evidence on dividends income and extraordinary items, *Journal of Accounting Research*, Spring, pp.26-38.
- Grullon, G. & Swaminathan, B. (2002). Are Dividend Changes a Sign of Firm Maturity? *The Journal of Business*

- Hansen, R. S., Kumar, R. & Shome, D. K (1994), Dividend policy and corporate monitoring: evidence from the regulated electric industry, *Financial Management*, 23 (1), 16-22.
- Hussainey K., Mgbame C. O. & Chijoke-Mgbame A. M. (2010), Dividend policy and share price volatility: UK evidence, *Journal of Risk Finance*
- Investopedia, (2011), *Gordon Growth Model*, retrieved on July 9, 2011 from <http://www.investopedia.com/terms/g/gordongrowthmodel.asp>
- Jensen M. C. & Meckling W. H. (1976), Theory of the firm: managerial behavior, agency costs and ownership structure, *Journal of Financial Economics*, 3(4), pp. 305-360.
- Kahneman, D. & Tversky A. (1979), Prospect theory: an analysis of decision under risk, *Econometrica*, 47(2).
- Kalui, F. M. (2004), Determinants of stock price volatility: an empirical investigation of the NSE, *unpublished MBA project UON*
- Krainer, R. E. (1971), A pedagogic note on dividend policy, *Journal Of Financial And Quantitative Analysis*, 6(4), pp. 1147-1154.
- Lintner, J. (1956), Distribution of incomes of corporations among dividends, retained earnings and taxes, *American Economics Review*, 46 (2), pp. 97-113.
- Lintner, J. (1965), The valuation of risk assets and the selection of risky investments in stock portfolios and capital budgets, *Review of Economics and Statistics*, 47(1)
- Litzenberger, R. H. & Ramaswamy K. (1982), The effects of dividends on common stock prices tax effects or information effects? *The Journal of Finance*, 33(2)
- Lucey T. (2002). *Quantitative Techniques*, TJ International, UK, sixth edition.
- Malkiel, B. G. (1982), Risk and return: a new look, *University of Chicago Press*
- Markowitz, H. M. (1952), Portfolio selection, *Journal of Finance*, 7(1).
- Mbaka, M. (2010), An empirical study into the applicability of dividend signaling theory at the NSE, *Unpublished MBA project UON*
- McClure, B. (2011), *Digging into the Dividend Discount Model*, retrieved on July 9, 2011 from <http://www.investopedia.com>
- Mele A. (2005), Rational stock-market fluctuations, *London School of Economics*
- Merton, R. C. (1973), An intertemporal capital asset pricing model, *Econometrica*, 41(5).

- Miller M. H. & Modigliani F. (1961), Dividend policy, growth, and the valuation of shares, *The Journal of Business*, 34(4), pp. 411-433
- Mossin, J. (1966), Equilibrium in a capital asset market, *Econometrica*, 35(4).
- Mulwa (2006), An analysis of the relationship between dividend changes & future profitability of companies quoted at the NSE. *Unpublished MBA Project UON*.
- Myers, S. C. (1984), The capital structure puzzle, *National Bureau Of Economic Research, Working Paper No. 1393*
- Nadler, P. S. (1977), Banks confronted with dilemma in deciding dividend policy, *American Banker, November, 1-4*.
- Ngunjiri, M. (2010). The relationship between dividend distribution policies and stock price volatility, *Unpublished MBA Project UON*.
- Ngunjiri, M. (2011), The relationship between dividend payment policies and stock volatility for companies quoted on the NSE, *unpublished MBA project UON*
- Nishat M. & Irfan C. M. (2003). Dividend policy and stock price volatility in Pakistan, *Applied Economics Research Centre University of Karachi*.
- NSE (2011), *History of Organization*, retrieved on June 29, 2011 from <http://www.nse.co.ke/about-nse/history-of-organisation.html>
- Phung A. (2011), *Behavioral Finance: Anomalies*, retrieved on July 9, 2011 from <http://www.investopedia.com>
- Rimbey, J. N. & Officer D. T. (1992), Market response to subsequent dividend actions of dividend-initiating and -omitting firms, *University of Nebraska-Lincoln College of Business Administration*, 31(1), pp.3-20
- Ross, S. (1977), The determination of financial structure: the incentive- signaling approach, *Bell Journal of Economics*, 8, pp. 23-40.
- Ross, S. A. (1976), The arbitrage theory of capital asset pricing, *Journal of Economic Theory*, 13(3).
- Sharpe, W. F. (1964), Capital asset prices: A theory of market equilibrium under conditions of risk, *The Journal of Finance*, 19(3).
- Stock Market Investing For Beginners (2008), *How to Calculate Dividend Yield*, retrieved on June 29, 2011 from, <http://beginnersstockinvesting.blogspot.com/2008/03>
- Watts, R. (1973), The information contents of dividends, *Journal of Business*, 46 (2), pp. 191-211.
- Woolridge J. R. (1983), Dividend changes and security prices, *The Journal of Finance*, 38(5)

APPENDICES

Table 1: DESCRIPTIVE STATISTICS

COMPANY		Sample		Kurt	Skew	Min	Max
		Mean	Variance				
1. Athi River Mining	risk	0.0738	0.0016	0.2205	0.9288	0.0237	0.1547
	growth	0.3009	0.1583	-0.0103	0.8912	-0.2000	1.0000
2. B.O.C Kenya Ltd	risk	0.0246	0.0007	-2.2723	0.1602	0.0000	0.0575
	growth	0.1613	0.1542	3.0143	1.5044	-0.3103	1.0000
3. Bamburi Cement Ltd	risk	0.0421	0.0004	1.6776	1.2648	0.0216	0.0836
	growth	0.5953	1.5467	5.5663	2.2785	-0.2453	3.6667
4. Barclays Bank Ltd	risk	0.0581	0.0027	7.8355	2.6880	0.0159	0.1991
	growth	-0.0986	0.1148	-0.6531	-0.7803	-0.7000	0.2727
5. B.A.T (K) Ltd	risk	0.0384	0.0002	0.6673	0.3210	0.0166	0.0642
	growth	0.0616	0.2535	0.4191	0.1907	-0.7353	0.9231
6. Car and General (K) Ltd	risk	0.1205	0.0074	-0.3161	0.8696	0.0230	0.2750
	growth	0.0000	0.0000	#DIV/0!	#DIV/0!	0.0000	0.0000
7. Carbacid Investments Ltd	risk	0.0662	0.0068	1.6440	1.5613	0.0000	0.2450
	growth	0.8469	5.9094	7.3026	2.6012	-0.8268	7.4000
8. CFC Stanbic Holdings Ltd	risk	0.0680	0.0026	4.4106	1.9723	0.0184	0.1937
	growth	0.0692	0.2131	3.8949	0.9250	-0.7143	1.0833
9. City Trust Ltd	risk	0.0921	0.0081	6.4223	2.3293	0.0000	0.3296
	growth	0.0692	0.2131	3.8949	0.9250	-0.7143	1.0833
10. CMC Holdings Ltd	risk	0.0725	0.0013	-0.3115	0.5175	0.0211	0.1308
	growth	0.0582	0.1624	2.0970	-1.1475	-0.8478	0.5333
11. Diamond Trust Bank Kenya Ltd	risk	0.1021	0.0029	-0.7813	0.1706	0.0177	0.1850
	growth	0.1248	0.0670	-0.0654	-0.1303	-0.3548	0.5000
12. E.A.Cables Ltd	risk	0.1327	0.0075	0.5176	1.1645	0.0420	0.3129
	growth	0.6711	5.6582	6.4604	2.5156	-0.6400	6.0000
13. East African Breweries Ltd	risk	0.0585	0.0028	7.6003	2.6461	0.0189	0.2011
	growth	0.0867	0.1292	5.3519	-2.2410	-0.7500	0.3111
14. Equity Bank Ltd	risk	0.0931	0.0022	-2.5844	-0.4518	0.0343	0.1420
	growth	1.0917	0.3225	1.9939	-0.9349	-0.8667	0.5000
15. Jubilee Holdings Ltd	risk	0.0684	0.0014	-0.4534	0.3444	0.0169	0.1353
	growth	0.0980	0.1117	-0.3908	-0.3781	-0.4167	0.6000

Table 1 cont. ...

16. Kapchorwa Tea Co. Ltd	risk	0.0813	0.0087	0.4007	1.0280	0.0000	0.2741
	growth	1.4233	12.0699	0.4265	1.2446	-0.9000	9.0000
17. KenGen Ltd	risk	0.0689	0.0007	-0.0287	-0.5598	0.0301	0.0985
	growth	0.0270	0.1040	1.5764	-0.3198	-0.4444	0.4545
18. Kenya Airways Ltd	risk	0.0730	0.0004	1.6928	1.1087	0.0428	0.1183
	growth	0.0848	0.3182	4.9096	1.8782	-0.5833	1.5000
19. Kenya Commercial Bank Ltd	risk	0.0907	0.0026	4.2351	1.9179	0.0465	0.2177
	growth	0.0922	0.4361	0.5594	-0.7726	-0.8833	1.0000
20. Limuru Tea Co. Ltd	risk	0.0136	0.0014	9.8118	3.1226	0.0000	0.1180
	growth	0.0548	2.6260	3.4612	1.7902	-0.6667	4.0000
21. Mumias Sugar Ltd	risk	0.0886	0.0024	-0.7553	0.3010	0.0116	0.1600
	growth	0.0795	10.4135	9.6271	3.0789	-0.8592	10.0000
22. Nation Media group	risk	0.0574	0.0013	2.1443	1.4745	0.0214	0.1407
	growth	0.0704	0.7837	8.3353	2.7783	-0.4762	2.7076
23. NIC Bank Ltd	risk	0.1013	0.0045	-0.2832	0.9702	0.0257	0.2160
	growth	-0.0573	0.0871	2.3285	-1.6330	-0.7037	0.2500
24. Pan Africa Insurance Holdings Ltd	risk	0.0829	0.0023	-1.3424	0.2746	0.0255	0.1552
	growth	0.0956	0.0083	-2.1084	0.1972	0.0000	0.2000
25. Rea Vipingo Plantations Ltd	risk	0.0803	0.0003	-1.1167	0.6956	0.0634	0.1113
	growth	0.2604	0.4830	0.5683	0.6851	-0.7590	1.5000
26. Sasini Ltd	risk	0.0733	0.0018	-0.0158	0.8748	0.0214	0.1528
	growth	0.0367	0.2468	1.2654	0.2090	-0.8333	1.0000
27. Scangroup Ltd	risk	0.0834	0.0037	4.4383	2.0753	0.0436	0.1903
	growth	-0.0938	0.0398	-1.5178	-0.2393	-0.3333	0.1250
28. Standard Chartered Bank Ltd	risk	0.0443	0.0005	-1.3093	0.2186	0.0166	0.0790
	growth	0.1165	0.0799	2.1752	-1.1681	-0.4941	0.4783
29. Total Kenya Ltd	risk	0.1062	0.0103	5.4332	2.2298	0.0310	0.3677
	growth	-0.0162	0.0828	3.7248	-0.6691	-0.6000	0.4706
30. TPS Eastern Africa (Serena) Ltd	risk	0.0630	0.0022	4.4871	1.9319	0.0158	0.1795
	growth	0.0152	0.0021	9.0000	3.0000	0.0000	0.1364

Table 2: VALUES FOR ANNUAL DIVIDENDS AND DIVIDEND GROWTH RATES

Key: D= annual dividend, G= annual growth rate in dividend

		2001	2002	2003	2004	2005	2006	2007	2008	2009	2010
Athi River Mining	D	0.2000	0.4000	0.5000	0.4000	0.7500	0.7500	1.0000	1.2500	1.5000	-
	G	1.0000	0.2500	-0.2000	0.1750	0.0000	0.3333	0.2500	0.2000	0.0000	-
B.O.C Kenya Ltd	D	3.5500	4.3500	4.3500	3.0000	6.0000	6.0000	6.0000	8.2500	0.0000	-
	G	0.2254	0.0000	-0.3103	1.0000	0.0000	0.0000	0.3750	0.0000	-	-
Bamburi Cement Ltd	D	0.7500	3.5000	2.8000	6.250	5.3000	4.0000	6.0000	6.0000	9.5000	-
	G	3.6667	-0.200	1.1875	-0.135	-0.2453	0.5000	0.0000	0.5833	0.0000	-
Barclays Bank Ltd	D	14.000	9.000	11.000	14.000	14.000	4.2000	2.1500	2.1500	2.5000	-
	G	-0.357	0.2222	0.2727	0.0000	-0.7000	-0.4881	0.0000	0.1628	0.0000	-
B.A.T (K) Ltd	D	7.9000	6.5000	12.500	13.000	9.0000	12.000	17.000	4.5000	-	-
	G	-0.177	0.9231	0.0400	-0.308	0.3333	0.4167	-0.7353	0.0000	-	-
Car and General (K) Ltd	D	-	-	-	0.6700	0.6700	0.6700	0.6700	0.6700	0.6700	0.6700
	G	-	-	-	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Carbacid Investments Ltd	D	2.7500	23.100	4.0000	2.2500	6.0000	3.0000	5.0000	10.000	10.000	5.0000
	G	7.4000	-0.827	-0.4375	1.6667	-0.5000	0.6667	1.0000	0.0000	-0.5000	0.0000
CFC Stanbic Holdings Ltd	D	0.6700	0.6700	0.8400	0.8400	0.8400	1.7500	0.5000	0.5000	0.5000	-
	G	0.0000	0.2537	0.0000	0.0000	1.0833	-0.7143	0.0000	0.0000	0.0000	-
City Trust Ltd	D	2.0000	2.0000	2.2500	2.2500	2.7500	3.1000	3.7500	0.5000	1.0000	4.0000
	G	0.0000	0.1250	0.0000	0.2222	0.1273	0.2097	-0.8667	1.0000	3.0000	0.0000
CMC Holdings Ltd	D	0.7500	0.7500	1.0000	1.0000	1.0000	1.5000	2.3000	0.3500	0.4500	0.3500
	G	0.0000	0.3333	0.0000	0.0000	0.5000	0.5333	-0.8478	0.2857	-0.2222	0.0000
Diamond Trust Bank Kenya Ltd	D	0.4000	0.6000	0.7000	0.7000	0.7000	1.0000	1.4000	1.4000	1.5000	1.0000
	G	0.5000	0.1667	0.0000	0.0000	0.4286	0.4000	0.0000	0.1071	-0.3548	0.0000
E.A.Cables Ltd	D	1.1000	1.0000	0.5000	3.5000	5.0000	2.5000	0.9000	0.0000	0.0000	0.0000
	G	-0.091	-0.500	6.0000	0.4286	-0.5000	-0.6400	0.0000	-	-	-
East African Breweries Ltd	D	9.0000	11.500	15.000	15.000	4.5000	5.9000	7.7000	8.0500	0.0000	0.0000
	G	0.2778	0.3043	0.2000	-0.750	0.3111	0.3051	0.0455	0.0000	-	-
Equity Bank Ltd	D	-	-	-	-	-	2.0000	2.0000	3.0000	0.4000	0.0000
	G	-	-	-	-	-	0.0000	0.5000	-0.8667	0.0000	-
Jubilee Holdings Ltd	D	3.0000	1.7500	2.2500	2.5000	4.0000	4.2500	5.2500	3.2500	4.5000	0.0000
	G	-0.417	0.2857	0.1111	0.6000	0.0625	0.2353	-0.3810	0.3846	0.0000	-

Table 2 cont...

Kapchorwa Tea Co. Ltd	D	2.5000	0.5000	3.7500	3.7500	5.0000	0.5000	5.0000	0.5000	2.5000	7.5000
	G	-0.800	6.5000	0.0000	0.3333	-0.9000	9.0000	-0.9000	4.0000	2.0000	0.0000
KenGen Ltd	D	-	-	-	-	-	0.5500	0.8000	0.9000	0.5000	0.5000
	G	-	-	-	-	-	0.4545	0.1250	-0.4444	0.0000	0.0000
Kenya Airways Ltd	D	1.2500	1.2000	0.5000	0.5000	1.2500	1.7500	1.7500	1.7500	1.0000	1.0000
	G	-0.0400	-0.5833	0.0000	1.5000	0.4000	0.0000	0.0000	-0.4286	0.0000	0.0000
Kenya Commercial Bank Ltd	D	0.0000	0.0000	0.0000	1.0000	2.0000	4.0000	6.0000	0.7000	1.0000	1.0000
	G	-	-	-	1.0000	1.0000	0.5000	-0.8833	0.4286	0.0000	0.0000
Limuru Tea Co. Ltd	D	0.0000	0.0000	3.0000	15.000	5.0000	10.000	5.0000	10.000	7.5000	0.0000
	G	-	-	4.0000	-0.6667	1.0000	0.5000	1.0000	-0.2500	0.0000	-
Mumias Sugar Ltd	D	0.7100	0.1000	0.1000	1.1000	1.5000	1.7500	1.5000	0.4000	0.4000	0.4000
	G	-0.8592	0.0000	10.0000	0.3636	0.1667	-0.1429	-0.7333	0.0000	0.0000	0.0000
Nation Media group	D	1.9500	2.3600	8.7500	8.7500	12.0000	13.0000	13.0000	10.5000	5.5000	5.5000
	G	0.2103	2.7076	0.0000	0.374	0.0833	0.0000	-0.1923	-0.4762	0.0000	0.0000
NIC Bank Ltd	D	1.6000	2.0000	2.2500	2.4000	2.5000	2.7000	0.8000	0.5000	0.5000	0.0000
	G	0.2500	0.1250	0.0667	0.047	0.0800	-0.7037	-0.3750	0.0000	0.0000	-
Pan Africa Insurance Holdings Ltd	D	0.0000	0.0000	0.0000	1.0000	1.2000	1.4400	1.6000	1.6000	1.7000	0.0000
	G	-	-	-	0.2000	0.2000	0.1111	0.0000	0.0625	0.0000	-
Rea Vipingo Plantations Ltd	D	0.0000	0.0000	0.3000	0.4000	0.8000	0.8000	0.8000	0.8000	0.2000	0.5000
	G	-	-	0.3333	1.0000	0.0000	0.0000	0.0000	-0.7500	1.5000	0.0000
Sasini Ltd	D	1.0000	0.5000	0.5000	1.0000	1.0000	1.2000	1.2000	1.2000	0.2000	0.3000
	G	-0.5000	0.0000	1.0000	0.0000	0.2000	0.0000	0.0000	-0.8333	0.5000	0.0000
Scangroup Ltd	D	-	-	-	-	-	0.8000	0.9000	0.7500	0.5000	0.0000
	G	-	-	-	-	-	0.1250	-0.1667	-0.3333	0.0000	-
Standard Chartered Bank Ltd	D	6.2500	8.2500	8.5000	4.3000	5.7500	8.5000	10.0000	10.0000	12.0000	0.0000
	G	0.3200	0.0303	-0.4941	0.3372	0.4783	0.1765	0.0000	0.2000	0.0000	-
Total Kenya Ltd	D	0.0000	1.7000	2.5000	2.5000	2.5000	2.5000	2.5000	2.5000	1.0000	0.0000
	G	-	0.4706	0.0000	0.0000	0.0000	0.0000	0.0000	-0.6000	0.0000	-
TPS Eastern Africa (Serena) Ltd	D	1.1000	1.1000	1.1000	1.1000	1.2500	1.2500	1.2500	1.2500	1.2500	0.0000
	G	0.0000	0.0000	0.0000	0.1364	0.0000	0.0000	0.0000	0.0000	0.0000	-

Table 3: VALUES OF PEARSON CORRELATION BETWEEN ANNUAL RISK AND ANNUAL DIVIDEND GROWTH RATE

COMPANY	CORRELATION
1. Athi River Mining	-0.26378
2. B.O.C Kenya Ltd	-0.5411
3. Bamburi Cement Ltd	0.0296
4. Barclays Bank Ltd	-0.1786
5. B.A.T (K) Ltd	-0.4443
6. Car and General (K) Ltd	0.0000
7. Carbacid Investments Ltd	-0.2595
8. CFC Stanbic Holdings Ltd	-0.2446
9. City Trust Ltd	-0.0903
10. CMC Holdings Ltd	-0.2865
11. Diamond Trust Bank Kenya Ltd	-0.0811
12. E.A.Cables Ltd	0.2887
13. East African Breweries Ltd	-0.9518
14. Equity Bank Ltd	-0.2084
15. Jubilee Holdings Ltd	0.2824
16. Kapchorwa Tea Co. Ltd	0.3545
17. KenGen Ltd	0.5154
18. Kenya Airways Ltd	0.0964
19. Kenya Commercial Bank Ltd	0.5843
20. Limuru Tea Co. Ltd	-0.3784
21. Mumias Sugar Co. Ltd	0.5281
22. Nation Media Group	0.7153
23. NIC Bank Ltd	-0.6553
24. Pan Africa Insurance Holdings	0.4011
25. Rea Vipingo Plantations Ltd	-0.3081
26. Sasini Ltd	-0.1224
27. Scangroup Ltd	0.7949
28. Standard Chartered Bank Ltd	-0.2866
29. Total Kenya Ltd	0.6678
30. TPS Eastern Africa (Serera) Ltd	-0.2172

Table 4: REGRESSION RESULTS

COMPANY	degrees of freedom	COEFF	t-Value	T _{critical}	P-Value	R ²	F-Value	F _{critical}
1. Athi River Mining	7	-0.02744	0.7236	1.894579	0.4928	0.069596	0.523616	5.59145
2. B.O.C Kenya Ltd	6	-0.03524	-1.576	1.94318	0.166	0.29284	2.484639	5.987
3. Bamburi Cement Ltd	6	0.00134	0.2198	1.94318	0.8333	0.007989	0.048322	5.987
4. Barclays Bank Ltd	7	-0.04669	-0.85	1.894579	0.4235	0.093553	0.722463	5.591
5. B.A.T (K) Ltd	7	-0.01013	0.9519	1.894579	0.3729	0.1146	0.906028	5.591
6. Car and General (K) Ltd	-	-	-	-	-	-	-	-
7. Carbacid Investments Ltd	8	-0.06111	-1.974	1.859548	0.089	0.357524	3.895352	5.318
8. CFC Stanbic Holdings Ltd	8	-0.01242	0.4361	1.859548	0.6759	0.026455	0.190219	5.318
9. City Trust Kenya Ltd	7	-0.01859	-0.24	1.894579	0.8172	0.008162	0.057604	5.591
10. CMC Holdings Ltd	8	-0.07543	-2.212	1.859548	0.0626	0.411463	4.893897	5.318
11. Diamond Trust Bank Kenya Ltd	8	0.0168	0.2303	1.859548	0.8237	0.006584	0.053023	5.318
12. E.A.Cables Ltd	5	0.010556	0.6743	2.015048	0.5301	0.083348	0.454632	6.608
13. East African Breweries Ltd	6	-0.15185	-7.605	1.94318	0.0003	0.906013	57.83846	5.987
14. Equity Bank Ltd	2	-0.0145	-0.3015	2.919986	0.7915	0.043466	0.090881	18.5128
15. Jubilee Holdings Ltd	6	-0.00416	0.08389	1.94318	0.9359	0.001172	0.007038	5.987
16. Kapchorwa Tea Co. Ltd	8	0.010015	1.102	1.859548	0.3026	0.13175	1.213934	5.318
17. KenGen Ltd	3	-0.04672	-0.5698	2.353363	0.6087	0.097663	0.324699	10.13
18. Kenya Airways Ltd	8	0.003606	0.2738	1.859548	0.7911	0.009287	0.074993	5.318
19. Kenya Commercial Bank Ltd	5	0.053603	1.61	2.015048	0.1683	0.341463	2.592589	6.608
20. Limuru Tea Co. Ltd	5	-0.01028	-0.914	2.015048	0.4027	0.143153	0.835346	6.608
21. Mumias Sugar Co. Ltd	8	0.008021	1.759	1.859548	0.1166	0.278878	3.093828	5.318
22. Nation Media Group	8	0.022711	2.158	1.859548	0.0629	0.368036	4.658942	5.318
23. NIC Bank Ltd	7	-0.14979	-2.295	1.894579	0.0554	0.429394	5.267663	5.591
24. Pan Africa Insurance Holdings	5	0.257143	1.149	2.015048	0.3024	0.208988	1.321021	6.608
25. Rea Vipingo Plantations Ltd	7	-0.00777	-0.8129	1.894579	0.4431	0.086249	0.660734	5.591
26. Sasini Ltd	8	-0.01053	-0.3489	1.859548	0.7362	0.014988	0.121728	5.318
27. Scangroup Ltd	2	0.095099	1.025	2.919986	0.413	0.344532	1.051254	18.5128
28. Standard Chartered Bank Ltd	7	-0.0232	-0.7915	1.894579	0.4546	0.082141	0.626441	5.591
29. Total Kenya Ltd	6	0.258172	2.198	1.94318	0.0703	0.445958	4.829506	5.987
30. TPS Eastern Africa (Serena) Ltd	6	-0.2839	-0.7597	1.94318	0.4762	0.087745	0.577109	5.987

Values for Car & General could not be calculated as all *g* values were zero

Table 5: LIST OF COMPANIES ON THE NSE THAT WERE STUDIED

1.	Athi River Mining
2.	B.O.C Kenya Ltd
3.	Bamburi Cement Ltd
4.	Barclays Bank Ltd
5.	British American Tobacco Kenya Ltd
6.	Car and General (K) Ltd
7.	Carbacid Investments Ltd
8.	CFC Stanbic Holdings Ltd
9.	City Trust Ltd
10.	CMC Holdings Ltd
11.	Diamond Trust Bank Kenya Ltd
12.	E.A.Cables Ltd
13.	East African Breweries Ltd
14.	Equity Bank Ltd
15.	Jubilee Holdings Ltd
16.	Kapchorwa Tea Co. Ltd
17.	KenGen Ltd
18.	Kenya Airways Ltd
19.	Kenya Commercial Bank Ltd
20.	Limuru Tea Co. Ltd
21.	Mumias Sugar Co. Ltd
22.	Nation Media Group
23.	NIC Bank Ltd
24.	Pan Africa Insurance Holdings Ltd
25.	Rea Vipingo Plantations Ltd
26.	Sasini Ltd
27.	Scangroup Ltd
28.	Standard Chartered Bank Ltd
29.	Total Kenya Ltd
30.	TPS Eastern Africa (Serena) Ltd

Table 6: VALUES OF ANNUAL RISK

COMPANY	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010
1. Athi River Mining	0.0634	0.0237	0.1547	0.0955	0.1210	0.0880	0.0511	0.0533	0.0452	0.0426
2. B.O.C Kenya Ltd	0.0389	0.0542	0.0537	0.0000	0.0403	0.0000	0.0000	0.0000	0.0017	0.0575
3. Bamburi Cement Ltd	0.0452	0.0836	0.0616	0.0346	0.0268	0.0359	0.0444	0.0245	0.0430	0.0216
4. Barclays Bank Ltd	0.0320	0.0650	0.0665	0.0418	0.0159	0.1991	0.0423	0.0426	0.0430	0.0327
5. B A T Kenya	0.0320	0.0399	0.0469	0.0642	0.0393	0.0249	0.0488	0.0316	0.0166	0.0401
6. Car and General (K) Ltd	-	-	0.0230	0.1818	0.2750	0.0591	0.0785	0.0721	0.1921	0.0823
7. Carbacid Investments Ltd	0.0487	0.2450	0.0699	0.0426	0.0277	0.0000	0.0000	0.0000	0.1801	0.0482
8. CFC Stanbic Holdings Ltd	0.0346	0.0504	0.1082	0.0688	0.0184	0.0541	0.1937	0.0562	0.0311	0.0649
9. CITY TRUST	0.1010	0.0000	0.0908	0.3298	0.0498	0.0365	0.0703	0.0601	0.1226	0.0599
10. CMC Holdings Ltd	0.0797	0.0404	0.1283	0.1308	0.0211	0.0647	0.0647	0.0703	0.0846	0.0401
11. Diamond Trust Bank Kenya	0.0177	0.0503	0.1530	0.0918	0.0893	0.1850	0.1126	0.0909	0.0620	0.1688
12. E.A.Cables Ltd	0.3129	0.0840	0.2205	0.1338	0.1035	0.2081	0.0758	0.0700	0.0732	0.0420
13. East African Breweries Ltd	0.0189	0.0492	0.0589	0.2018	0.0433	0.0378	0.0372	0.0741	0.0418	0.0233
14. Equity Bank Ltd	-	-	-	-	-	0.1470	0.1115	0.1261	0.0516	0.0343
15. Jubilee Holdings Ltd	0.0169	0.0219	0.1353	0.0899	0.0800	0.1114	0.0755	0.0558	0.0538	0.0437
16. Kapchorwa	0.0000	0.0000	0.0000	0.0000	0.0791	0.2741	0.1739	0.0409	0.0984	0.1471
17. KenGen Ltd	-	-	-	-	-	0.0985	0.0887	0.0650	0.0624	0.0301
18. Kenya Airways Ltd	0.0577	0.0681	0.1183	0.0688	0.0974	0.0637	0.0478	0.0641	0.0740	0.0750
19. Kenya Commercial Bank Ltd	0.0812	0.1291	0.0893	0.0888	0.2177	0.0543	0.0617	0.0918	0.0476	0.0465
20. Limuru Tea	0.0000	0.0000	0.0000	0.1180	0.0037	0.0064	0.0000	0.0000	0.0000	0.0081
21. Mumias Sugar Co. Ltd	0.0116	0.0736	0.1600	0.1388	0.0879	0.0548	0.1582	0.0746	0.0788	0.0483
22. Nation Media Group	0.0714	0.1407	0.0511	0.0388	0.0596	0.0346	0.0384	0.0930	0.0246	0.0214
23. NIC Bank Ltd	0.0572	0.0856	0.2111	0.0894	0.0257	0.2160	0.1410	0.0600	0.0844	0.0427
24. Pan Africa Insurance Hldg	0.1111	0.0949	0.1078	0.0258	0.1485	0.1552	0.0552	0.0296	0.0339	0.0672
25. Rea Vipingo Plantations Ltd	0.0649	0.1008	0.0804	0.0658	0.0841	0.0987	0.0634	0.0683	0.0656	0.1113
26. Sasin Ltd	0.0214	0.0363	0.0397	0.1358	0.0654	0.1528	0.0840	0.0732	0.0448	0.0803
27. Scangroup Ltd	-	-	-	-	-	0.1903	0.0436	0.0495	0.0673	0.0662
28. Standard Chartered Bank Ltd	0.0680	0.0450	0.0599	0.0598	0.0166	0.0239	0.0790	0.0321	0.0194	0.0390
29. Total Kenya Ltd	0.1199	0.3677	0.0457	0.1664	0.0566	0.0392	0.1153	0.0636	0.0559	0.0310
30. TPS (Serena) Ltd	0.0158	0.0482	0.1795	0.0399	0.0552	0.0483	0.0476	0.0858	0.0858	0.0241

Table 7A: COMPANIES PAYING HIGH DIVIDENDS

DIVIDENDS	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010
B.O.C Kenya Ltd	3.55	4.35	4.35	3.00	6.00	6.00	6.00	8.25	0.00	-
Bamburi Cement Ltd	0.75	3.50	2.80	6.13	5.30	4.00	6.00	6.00	9.50	-
Barclays Bank Ltd	14.00	9.00	11.00	14.00	14.00	4.20	2.15	2.15	2.50	-
B AT Kenya Ltd	7.90	6.50	12.50	13.00	9.00	12.00	17.00	4.50	-	-
Carbacid Investments	2.75	23.10	4.00	2.25	6.00	3.00	5.00	10.00	10.00	5.00
East African Breweries	9.00	11.50	15.00	18.00	4.50	5.90	7.70	8.05	0.00	0.00
Limuru Tea	0.00	0.00	3.00	15.00	5.00	10.00	5.00	10.00	7.50	0.00
Nation Media Group	1.95	2.36	8.75	8.75	12.00	13.00	13.00	10.50	5.50	5.50
Standard Chartered	6.25	8.25	8.50	4.30	5.75	8.50	10.00	10.00	12.00	0.00

Table 7B: VALUES OF CORRELATION, COEFFICIENTS AND AVERAGE RISK FOR HIGH DIVIDEND COMPANIES

COMPANY	CORRELATION	COEFFICIENT	AVERAGE RISK
B.O.C Kenya Ltd	-0.5411	-0.0352	0.0246
Bamburi Cement Ltd	0.0296	0.0013	0.0421
Barclays Bank Ltd	-0.1786	-0.0467	0.0581
British American Tobacco Kenya Ltd	-0.4443	-0.0101	0.0384
Carbacid Investments Ltd	-0.2595	-0.0611	0.0662
East African Breweries Ltd	-0.9518	-0.1518	0.0585
Limuru Tea	-0.3784	-0.0103	0.0136
Nation Media Group	0.7153	0.0227	0.0574
Standard Chartered Bank Ltd	-0.2866	-0.0232	0.0443

Table 7C: COMPANIES PAYING LOW DIVIDENDS

COMPANY	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010
Athi River Mining	0.20	0.40	0.50	0.40	0.75	0.75	1.00	1.25	1.50	-
Car and General (K) Ltd	-	-	-	0.67	0.67	0.67	0.67	0.67	0.67	0.67
CFC Stanbic Holdings Ltd	0.67	0.67	0.84	0.84	0.84	1.75	0.50	0.50	0.50	-
CMC Holdings Ltd	0.75	0.75	1.00	1.00	1.00	1.50	2.30	0.35	0.45	0.35
Mumias Sugar Co. Ltd	0.71	0.10	0.10	0.10	1.50	1.75	1.50	0.40	0.40	0.40
Pan Africa Insurance Holdings	0.00	0.00	0.00	1.00	1.20	1.44	1.60	1.60	1.70	0.00

Table 7D: VALUES OF CORRELATION, COEFFICIENTS AND AVERAGE RISK FOR LOW DIVIDEND COMPANIES

COMPANY	CORRELATION	COEFFICIENT	AVERAGE RISK
Athi River Mining	-0.2638	-0.0274	0.0738
Car and General (K)	0.0000	-	0.1205
CFC Stanbic Holdings Ltd	-0.2446	-0.0124	0.0680
CMC Holdings Ltd	-0.2865	-0.0754	0.0725
Mumias Sugar Co. Ltd	0.5281	0.0080	0.0886
Pan Africa Insurance Holdings	0.4011	0.2571	0.0829