

**THE RELATIONSHIP BETWEEN DIVIDEND PER SHARE AND FIRM VALUE:
CASE OF COMPANIES LISTED AT NAIROBI STOCK EXCHANGE**

BY:

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DECLARATION

This project is my original work and has never been submitted for examination in any other Institution.

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DEDICATION

This project is dedicated to my beloved family.

ACKNOWLEDGEMENT

I am heartily thankful to my supervisor Mrs. W. Nyamute, whose encouragement, guidance and support from the initial to the final level enabled me to develop an understanding of the subject

I owe my deepest gratitude to my family, whose encouragement and understanding played a major role in the completion of this project.

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LIST OF ABBREVIATIONS

DPS	Dividend per Share
NSE	Nairobi Stock Exchange
PE	Price Earning
REPS	Retained Earning per share

ABSTRACT

Dividends payment has always been one of the main topics in the studies of Finance scholars. Many researchers have developed and empirically tested various models to explain dividend behavior. Its importance derives from the fact that Dividends are related to the ability of firms to fulfill the needs of various stakeholders. After many years of studies, economists have not reached an agreement on how, and to what extent the Dividend policy of a firm impacts value, performance and governance. However, studies and empirical findings of the last decades have at least demonstrated that Dividend policy has more importance than the simple Miller Modigliani model. This study looks at dividend per share of a firm and its impact on firm value for firms quoted at Nairobi Stock Exchange. The study sought to answer the question. "Does dividend per share influence firm value?" The prime objective of the study is to determine the relationship between dividend per share and firm value and to determine impact of dividend per share on firm value, in attempt to address the question.

The targeted population was all the 55 listed companies at the NSE between the periods 2005 to 2009. The final sample size was made up of 25 companies, all the companies that met the fulfillment of continuously paying dividend were included in the study. The firm should have continuously been paying dividend for all the five years under the period of observation. The companies that did not meet the requirement of continuously paying dividend, not listed, suspended, or has incomplete information during period of study were not considered in the final sample. Data on dividend payment and share price was collected for the five years period of study. Secondary data was used for study and data was sourced from Nairobi stock exchange hand book (2006 & 2009) and data base. Only companies that have continuously been paying dividend and met sample requirement were considered for study. Firm value was represented by share price. To analyze the data, the multiple regression technique method was used to ascertain best fitted model for predicting the dividend per share impact on share price, Independent variable like retained earnings were introduced to avoid bias in testing the relationship as net earnings of companies are split into dividend distributed to share holders or ploughed back into the company with share holder hoping to get more dividend into the future. Lagged price

earning ratio and lagged share price ratio were also introduced to test the impact of previous dividends and share price on firm value. To determine the proportion of explained variation in the dependent variable, the coefficient of determination (R^2) was worked out. The significance of R^2 has been tested with the help of F-Value. The study evaluated stocks that have continuously paid dividend over the period 2005 to 2009 and its effect on firm value.

Results show that Overall for firms quoted at the Nairobi Stock Exchange the impact of dividend per share (DPS) on firm value is stronger than that of retained earnings per share (REPS), when DPS and REPS are the only two explanatory variables. This is represented by the coefficient of regression for DPS 14.818 compared to that of REPS 1.490 a difference of 894.5 %. When lagged price is introduced as a variable, the impact of DPS (14.811) on share price was higher than that of REPS (1.383) by 970.93% represented by the coefficient of regression. When lagged price earning ratio is introduced as a variable The Impact of DPS (7.682) on share price was higher than that of REPS (0.988) by 677.53% represented by the coefficient of regression. It is also found that the impact of DPS and REPS is above the other two explanatory variables lagged price earning ratio and lagged share price. Industry wise study reveals mixed results. Apart from agricultural sector, for all other sectors DPS had a stronger impact on share price when compared to REPS represented by coefficient of regression. The difference in percentages between DPS and REPS was 1747.21%, 289.28%, 136.39 and 881.35% for commercial and service sector, Finance & investment, Industrial & allied and AIMS respectively. It is also found that the impact of DPS and REPS is above the other two explanatory variables lagged price earning ratio and lagged share. In conclusion the DPS of the listed firms do not play an important role in determination of firm value in all industries.

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CHAPTER ONE:

1.0

INTRODUCTION

1.1 Background study

The study looks at stocks that have continuously paid dividends and its impact on firm value. Over the last couple of years at the Nairobi stock exchange we have seen listed companies with mixed dividend payments behavior with companies failing to raise their dividends, cut their dividends, and even stop paying their dividends. In some cases their financial positions do not necessitate any dividend changes. From the investor's perspective, dividends are beneficial since they represent a regular income stream which will enhance self-control by avoiding any irrational trades (Shefrin & Statman, 1984). On the other hand from managerial perspective, dividends can serve as a tool to mitigate agency problem by digesting extra free cash flows (Jensen 1986), or to signal to the market that only good quality firms afford to pay dividends (Bhattacharya, 1979).

Dividends are not just an outcome of a firm payout policy; rather they reflect a complicated combination of investment strategy, financial decision and private information (Miller and Rock 1985). They developed a model in which higher dividends are associated with higher current earnings. In their model, the information asymmetry pertains to current earnings and the level of investment. Dividends convey information about current earnings through the sources and uses identity. In the model, earnings are assumed to be correlated through time and once current earnings are revealed, future earnings can be inferred by the investors. Therefore, dividends indirectly serve as a signal of future earnings of the firm.

The study of Modigliani and Miller (1958) shows that without taxes, dividend policy is effectively irrelevant since shareholder can in principle offset any change in dividend policy by buying or selling shares. The implication of MM study is that dividend payments should not increase in share prices (firm value). However from academic knowledge in a world where dividend is unfavorably taxed, firms should distribute no dividend in order to maximize share prices.

Baker and Powell (1999) conducted a survey on dividend policy. Most respondents think dividend policy affects firm value. Respondents had the highest level of agreement with statements involving dividend signaling. Cash dividends announcements convey valuable information about management's assessment of a firm's future profitability. The survey results suggest that investors may use dividend announcements as information to assess a firm's stock price. For example, steep drops in stock prices often accompany dividend cuts, is signaled as bad news about the future prospects of the firm. Respondents were most uncertain about statements involving the tax-preference and the bird-in-hand explanations of dividend relevance. The bird in hand theory claims a high dividend yield will maximize a firm's value. Dividends represent a sure thing relative to share price appreciation because dividends are less risky than capital gains. The study respondents also suggested that managers are highly concerned about the continuity of dividends. Dividend continuity suggests stability and constant growth in the firm's earnings. This increases investor confidence by insuring a constant of return on investments.

Lintner (1956) hypothesized that dividends are based primarily on net income levels and are adjusted slowly in response to income changes. Lintner provides evidence that a rise in individual tax rates encourages stockholders to prefer corporate savings over a dividend payment as a tax shelter since retained earnings are not taxed immediately as dividends are. The shareholder only pays capital gains taxes at the time of the sale of the stock. Allen Bernado and Welch model (2000). Their model focused on two dimensions, the market reaction to dividend announcements and the relation between dividend changes and at the same time future earnings. On the first dimension, empirical evidences are consistent with the signaling theory. Studies document that stock prices tend to increase or decrease when dividends are increased or decreased respectively. However, on the second dimension, empirical researches cannot significantly conclude that changes in dividend are related to future earnings.

Dividends payment has always been one of the main topics among the studies of Finance scholars. Many researchers (Baker & Powell, 1999) have developed and empirically tested various models to explain dividend behavior. Its importance derives from the fact that

dividends are related to the ability of firms to fulfill the needs of various stakeholders. After many years of studies, economists have not reached on how and to which extent the Dividend policy of firm impacts value, performance and governance. However, studies and empirical findings of the last decades have at least demonstrated that Dividend policy has more importance than in the simple Miller Modigliani model. Baker and Powell (1999) conducted a survey on dividend policy. Most respondents think dividend policy affects firm value. Probably economists are far from reaching a consensus to answer the question “ why companies pay dividend?” but efforts of years of studies have provided the evidence that Dividend policy does affect firm’s value, executives’ behavior, and does affect future company performance. In a world of financial market imperfections dividends and investment are often strongly correlated.

1.1.1 Nairobi Stock Exchange

The Nairobi stock exchange (NSE) was established in 1954, and among its other roles serves as a market that deals in the exchange of securities issued by publicly quoted companies and the government of Kenya. The stock exchange assists in transfer of savings to invest in productive enterprises as an alternative to avoid idle savings. The market is regulated by the Capital Markets Authority of Kenya CMA (K). The regulation authority is under a government body the Ministry of Finance and governed through the Capital Markets Authority Act Cap 485A (the CMA Act). The Authority was established to regulate and oversee the orderly development of Kenya’s capital markets (2006, NSE hand book).

Stock broking activities in Kenya started back in 1920 with no formal market, rules and regulation. The first professional stock broking firm was established in 1951 by an estate agent named Francis Drummond, who later impressed the minister of finance in Kenya, Sir Earnest Vasey (1951) with the idea of setting up stock exchange in E.Africa. In 1953 London stock exchange officials recognized the setting up of the Nairobi stock exchange as an overseas stock exchange after being approached by Francis Drummond and Sir Ernest Vasey in the year 1953. The business of dealing in shares was then confined to European community until after independence in 1963 when Asians and Africans were

permitted to trade in securities. Instruments trade at the Market include equities, preference shares, treasury bonds & corporate bond (2006, NSE handbook).

The market helps in the growth of the economy and facilitates good management of companies by asking companies to provide periodic reports of their performance. Investors get an understanding of their worth of investment (assets) at all times through the Nairobi Stock Exchange daily market report and pricelist of the listed companies .The listed equity companies at the Nairobi stock exchange are categorized into five segments; Agriculture , Commercial and Services, Financial and Investments, Industrial and Allied and finally Alternative Investment Market Segment (AIS) (2006, NSE handbook). Investors expect returns on their investments and given a certain level of risks a rational investor will expect to maximize his returns. The dividend policy and performance of the Quoted firms at NSE results on variation of dividend distributed to shareholders. While this is happening the market always responded with mixed reactions with price volatility on some shares and price stagnation for others.

1.2 Statement of the Problem

Despite the recognized importance of dividend and its link to firm's valuation, there has been little exploration on company's dividend per share and effect on firm value (for firms quoted at NSE). Holding firm's investment policy constant dividend payments are expected to increase share prices in the Kenyan market. Constant dividend payments also translate into company's good performance current and future.

Global empirical evidence between dividend and firm value is contradictory and mixed. The Modigliani and Miller (1961) and Miller (1977) result is that firm value is independent of dividend policy and has been examined extensively. Bhattacharya (1979) and others show that firm dividend policy can be a costly device to signal a firm's state, and hence relevant, in a class of models with asymmetric information about stochastic firm earnings, shareholder liquidity, and deadweight costs (to pay dividends, refinance cash flow shocks or cover underinvestment). In a separating equilibrium, only firms with high anticipated earning pay high dividends, thus signaling their prospects to the stock market.

Bitok (2004) who did a study on the effect of dividend policy on firm value for firm quoted at NSE with payout ratio as the only variable for period 1998-2003. His findings were that there is a relationship between the dividend payout ratio and share price.

Nura (2000) in his study on the impact of Dividend Payments on shareholders wealth sought to establish whether there was a relationship between dividend paid and the share prices. He found that dividend payment had significant impact on shareholders wealth.

Effect of stocks that continuously pay dividend on firm value has not been explored and this study therefore contributes toward filling this research gap. It evaluates stocks that have continuously paid dividend over the period 2005 to 2009 and effect on firm value. The study attempted to answer the question: Does dividend per share influence firm value?

1.3 Objectives of the study

The study was guided by the following objectives:

1. To determine the relationship between dividend per share and firm value
2. To determine impact of dividend per share on firm value

1.4 Importance of the study

The effect of dividend policy on firm's value is of importance to the following:

The study will be beneficial to investors who are planning their portfolio. The objective of any investor is maximization of portfolio returns given a certain level of risk. The dividend-loving investors will get to evaluate dividend paying equity and the impact on shareholders' value (Firm value).

This is important to managers when setting dividend policy. Dividend policy is one of the most controversial subjects in corporate finance. Empirical evidence on whether dividend policy affects a firm's value offers contradictory advice to corporate managers. According to signaling theory managers use dividend actions to convey important information to the public about of a firm's future profitability that other means cannot fully communicate. The study will offer a guide on dividend policy share and firm's value.

It is important to Stock broker managers when advising and managing investor's portfolio. A broker not only performs the buying and selling instructions of the client but also advises the investor about which stock to buy and which stock to sell.

The study is important to the economists who are seeking to understand and appraise the functioning of capital markets. The most important function of capital markets is to allow issuers of securities to raise money from investors in the primary market. This provides a mechanism for funding expansion and new ventures. Capital markets also encourage investors because they have an exit mechanism: when you need the money back from your investment, there is a market to sell your investment.

To the academicians the study will provide a useful basis upon which further studies on variables of dividend policy in Kenya will be conducted. Similar study could be carried out on un-quoted companies. Finance scholars have engaged in extensive studies theorizing to explain why companies should pay or not pay dividends but there are no conclusive answers. Why company pay dividend is still a puzzle.

CHAPTER TWO

2.0 LITERATURE REVIEW

2.1 Introduction

This chapter summarizes information from other researchers who have earlier carried out their research on Dividends and effect on firm's value. The specific areas covered here are the dividend policy theories and empirical evidence on earlier works

2.2 Theories of Dividend policy

The subject of corporate dividend policy has captivated economists for a long time, resulting in intensive theoretical modeling and empirical examinations. A number of conflicting theoretical models lacking strong empirical support define current attempts to explain the puzzling reality of corporate dividend behavior.

2.2.1 Dividend Irrelevance theory by Miller and Modigliani

Miller and Modigliani (1961) have shown that, in perfect market conditions, given a firm's investment policy, the dividend payout policy the firm chooses to follow will affect neither the current share price nor the total return of its shareholders. He further explained that value of a firm is determined solely by the earning power of its asset and investment policy and not how fruits of earning power as "packaged" for distribution. His theory was based on the following fundamental of valuation assumption that the value of all shares will be governed by the fundamental principle that the price of each share must be such that the rate of return (dividend plus capital gain per dollar invested) on every share will be the same throughout the market over any given time. Otherwise holders of low returns (high priced) shares could increase their terminal wealth by selling these shares and investing these proceeds in the share offering high returns. This process will tend to drive down the prices of low -return shares and drive up the prices of high-return shares until the differential in the rate of return has been eliminated.

2.2.2 Bird in hand theory

Bird in the hand theory proposition is that, "Paying out some cash today reduces risk of future payoff uncertainty". Some of the advocates of dividends are good theory include Myron Gordon, (1959) John Lintner (1956)

Myron Gordon: According to Myron Gordon dividend capitalization model, the market value of a share is equal to the present value of an infinite stream of dividends received by the share holders. Gordon's work was based on the following assumptions, all equity firm, no external financing, constant return on constant capital, perpetual earnings, no taxes, Constant retention hence constant growth and cost of capital greater than growth rate.

Myron Gordon and John Lintner (1956) supported the bird in the hand theory and argued that share holders are risk averse and they prefer certainty. Dividends payments are more certain than capital gains which rely on demand and supply forces to determine share price. Therefore one bird in the hand (certain dividend) is better than two birds in the bush (uncertain capital gains). Therefore a firm paying high dividends will have a high value since shareholders will require to use lower discounting rates.

2.2.3 Tax preference

According to the tax-preference theory, investors may favor retention of funds over the payment of dividends because of tax-related reasons. The favorable treatment of capital gains over dividends may lead investors to prefer a low dividend payout to a high payout. This theory suggests that firms should keep dividend payments low if they want to maximize prices.

Because the tax effect differs among various types of investors, investors may be attracted to firms that have dividend policies appropriate to their particular tax circumstances. Researchers call this notion the tax clientele effect. Other things being equal, stocks with low payouts should attract investors in high tax brackets, leaving high payout stocks to investors subject to low or zero tax rates. The empirical evidence on the tax-preference explanation of dividends is inconclusive.

Major proponents were Litzenberger and Ramaswamy (1982). Their study presented empirical evidence consistent with the Tax-Clientele. The empirical tests presented here assume that individuals fall into five tax clienteles and that each clientele holds one-fifth of the market of all New York Stock Exchange (NYSE) stocks. They concluded that there is a positive but non-linear association between common stock returns and dividend yields.

2.5 Dividend per share

Over the last couple of years at the NSE we have seen listed companies with mixed dividend payments behavior with companies failing to raise their dividends, cut their dividends, and even stopping to pay their dividends. In some cases their financial positions do not necessitate any dividend changes. From the investor's perspective, dividends are beneficial since they represent a regular income stream which will enhance self-control by avoiding any irrational trades (Shefrin & Statman, 1984). On the other hand from managerial perspective, dividends can serve as a tool to mitigate agency problem by digesting extra free cash flows (Jensen 1986), or to signal to the market that only good quality firms afford to pay dividends (Bhattacharya, 1979).

Shareholders' wealth is represented in the market price of the company's common stock, which in turn, is the function of the company's investment, financing and dividend decisions. Managements' primary goal is shareholders' wealth maximization, which translates into maximizing the value of the company as measured by the price of the company's common stocks (Azhagaiah & Priya, 2008). Shareholders like cash dividends, but they also like the growth in EPS that results from ploughing earning back into the business. Azhagaiah and Priya, (2008) intended to study how far the dividend payout has impact on shareholders' wealth in general; and in particular to study the relationship between the shareholders' wealth and the dividend payout and to analyze whether the level of dividend payout affects the wealth of the shareholders.

2.6 Empirical studies

Global empirical evidence between dividend and firm value is contradictory and mixed. The Miller and Modigliani (1961) and Miller (1977) result that firm value is independent

of dividend policy has been examined extensively. Bhattacharya (1979) and Miller and Rock (1985) argue that information asymmetries between firms and outside shareholders may induce a signaling role for dividends. They show that dividend payments communicate private information in a fully revealing manner. The most important element in their theory is that firms have to pay out funds regularly.

Kumar and Lee (2001) examined the determinants of dividend smoothing. Dividend smoothing is the method of maneuvering the time profile of earnings or earnings reports to make the reported income stream less variable. They found that by making the stream of dividend payments constant, shareholders are not disappointed or upset by changes in dividend payout. By testing earnings variance, financial distress or bankruptcy risk, and return on firm capital investment they report a significant connection between dividend smoothing and dividend policy. The empirical model is consistent with the constancy of dividends over time.

Brennan (1970), Litzenberger and Ramaswamy (1979) showed that it is not optimal for the investors to receive dividends if their marginal tax rate is greater than zero, and investors' after-tax expected rate of return (discount rate) depends on the dividend yield and systematic risk. This leads to an idea that at least dividend might have some tax-induced effect on the share prices. Average investors, subject to their personal tax rates, would prefer to have less cash dividend if it is taxable, size of optimal dividend inversely related to personal income tax rates (Pye, 1972). Hence, stocks prices tend to decline after announcement of dividend increase.

Fedelstein and Green (1983) showed that the combination of the conflicting preferences of shareholders in different tax brackets and their desire for portfolio diversification in the face of uncertainty that together cause all firms to pay dividends. In their study they developed a simple model of market equilibrium to explain firms that maximize the value of their shareholders pay dividends and not retaining funds which will subsequently be distribute to shareholders and get taxed more favorably as capital gains.

Melissa and Frank (2004), in their study "determinant of corporate dividend policy" showed the importance of dividend cash flow as a signaling device to stockholders. They showed from their sample that even with high growth, a firm is willing to increase debt to fund increasing dividends. "The firms in the sample desire to "put their money where their mouth is" by sending a strong positive signal to institutional owners to enhance reputation and maintain access to capital." the purpose of their study was to investigate factors that motivate the dividend decision. The study analyzed selected financial variables on the dividend decision using OLS Regression. The study also showed that that the higher the firm's PE, the lower its risk, and the higher the payout ratio. The greater the degree of insider ownership the lower is the dividend payout.

Nura (2000) in his study on the Impact of Dividend Payments on shareholders wealth sought to establish whether there was a relationship between dividend paid and the share prices. He considered companies consistently quoted on the Nairobi Stock Exchange from 1997 to 2000. He used daily stock price data to compute excess stockholder returns and to examine dividend announcement for each company in the database. From the analysis presented it appeared that dividend payment had a significant impact on share prices, and hence shareholders wealth.

Bitok (2004) evaluated the effect of dividend policy on the value of the firms quoted at the Nairobi Stock Exchange. The objective of the study was to establish the effect of the dividend policy on the value of the firms quoted at the Nairobi stock exchange (NSE). The population of interest in this study consisted of all firms quoted at the Nairobi Stock Exchange. This study was limited to quoted companies due to lack of readily available data from the private company. The sample consisted of all the firms quoted consistently at N.S.E for a period of 6 years from 1998 – 2003. The data collected was analyzed using simple linear regression and correlation analysis. The significance of each independent variable was tested at a confidence level of 95%. The findings were that the period level of 95%. The findings were that for the period 1998 to 2003, the results indicated that there is a relationship between the dividend payout ratio (DPOR) and the value of the firm.

Odak (2006) undertook an empirical investigation to determine the difference between dividend policies of locally owned firms and foreign owned firms (multinationals) and also to establish whether the foreign owned firms have higher dividend yields than locally owned firms. He surveyed public companies incorporated in Kenya and consistently listed on the Nairobi Stock Exchange's both Main Investment Segment (MIMS) and Alternative Investment Segment (AIMS). The firms were divided into two categories; foreign owned those having 51% or more foreign ownership and control, and locally owned those with 50.9% or less in foreign ownership and control, companies Act, (Cap 487). He concluded that there is a difference in the dividend policies on the foreign firms and those of local firms. A general trend was reported that foreign firms have higher dividend payout ratio as well as higher dividend yield. This would signify higher returns to investors more so to the foreign owners who could repatriate profits to their home countries.

Farida (1993) carried out a study to identify the factors which are most important in the determination of dividends among Kenyan firms. The population under study was made up of all companies quoted at the Nairobi Stock Exchange as at December 1992. From this population a sample of companies which had been continuously quoted for 8 years (1984 – 1991) was drawn. A period of eight years was chosen because the researcher considers that period to be adequate time for any relationship to exist between dividends and a certain parameter to be detected. This study was limited to quoted companies due to lack of readily available data among private companies as well as lack of time to wait for data to be made available by the private companies. His findings was that liquidity, working capital, cash flow, profits and investments were found to be the most significant factors determining dividends in public quoted companies.

Studies that have been carried out show mixed relationship between dividend and earnings. Mozes and Rapaccioli (1998) utilized data for 681 firms during the time period 1980-1990 and examined the relationship between dividends and corporate earnings. Regressing earnings on lagged dividends, they provided evidence that large dividend increases lead to a decline in future earnings and small dividend increases lead to an

increase in future earnings. They further argued that if a firm reported a loss, a decrease in dividends would have to reach a certain amount before it provided enough information that the firm would continue to report a loss. Mozes and Rapaccioli suggested that the relationship between the dividend decrease and future earnings would not be positive and linear.

Carroll (1995) used quarterly data of 854 firms over the 1975-1984 periods and examined whether quarterly dividend changes predicted future earnings. He found a significant positive relationship between earnings forecast revisions and dividend changes.

Dividends play an essential role in traditional stock valuation models. In such models, stocks have value because they hold the promise of future cash payments. In Gordon's model (1961, 1962) it is argued that dividends are relevant, under the less restrictive assumptions of the Dividend Growth Model. These economic modeling approaches have dominated the subsequent literature, both in developing hypotheses and in empirical investigations of dividend policy. According to the model shareholders prefer a high dividend policy. Hence firm's value increases with increase in dividends.

Kapoor (2006) in his study impact of dividend policy on share holders' value done on Indian firms suggested that, it cannot be concluded that a carefully managed dividend policy will be rewarded by higher share price even as manager view divided decisions important. In India, managers view dividend as important part of the job. Typical firms manage their dividends as proposed by Lintner model and partially follow stable dividend. A typical firm does not follow a residual policy nor leave its dividend payout to chance.

Khan (2009) studied the relative importance of dividends, retained earnings, and other determinants in the explanation of stock prices in Bangladesh with particular stock price of the companies related with Dhaka Stock Exchange (DSE), an emerging capital market of Bangladesh. The prime objective of this study is to was determinants of market share price and to examine their functional relationships with the market price of common stocks trades in DSE. Khan used existing models to explain the dynamic relationships of

market price of common stocks with the determinants of market share price like dividends, retained earnings, lagged price earnings ratio and market price of previous year. His conclusion from the results of empirical analysis is that dividends, retained earnings and other determinants have dynamic relationship with market share price. He also found that the overall impact of dividend on stock prices is comparatively better than that of retained earnings and expected dividends play an important role in the determination of stock prices whatever determinants, like lagged price earnings ratio or lagged price, that were considered.

2.7 Conclusion

From the studies reviewed there seems to be a general agreement that payment of dividend is essential. Even where a company does not pay dividends, investors hold such stocks believing that reinvestment of earnings will result to higher dividends in the future. Dividend relevance and firm value supported in most studies since Linter's 1956 study. What we need to establish is continuous payment of dividend per share and firm value.

CHAPTER THREE

3.0 RESEARCH METHODOLOGY

3.1 Introduction

This chapter sets out the methodology that was used in gathering the data, analyzing the data and reporting the results. Here the researcher aims at explaining the methods and tools that were used to collect and analyse data in order to get proper and maximum information related to the subject under study.

3.2 Research and design

This study was Explanatory in nature. It aimed at explaining relationship between the variables (dividend and firm value). The emphasis here was to study stock paying dividends aiming at evaluating relationship of the effect of dividend per share on firm value for firms quoted at NSE.

3.3 Population

The targeted population was all the 55 listed companies at the NSE between the periods 2005 to 2009. A period of five years was chosen, as this was sufficient to establish relationship between dividends and firm value.

3.4 Sample

The sample frame work was all the 55 listed companies in 2009 at the NSE. All the companies that met the fulfillment of continuously paying dividend were included in the study. The firm should have continuously been paying dividend for all the five years under the period of observation. The reason of choosing listed companies is because of the availability of information. Unlike private companies, listed companies are required by law to have their financials published. The companies that did not meet the requirement of continuously paying dividend, not listed, suspended, or has incomplete information during period of study were not considered in the final sample.

The final sample size was 25 as follows:

Industry (sectors)	Number of companies
Agriculture	1
Commercial & service	5
Finance & investment	6
Industrial & Allied	10
Alternative Investment Market Segment	3
Total	25

3.5 Data collection

Data on dividend payment and share price was collected for the five years period of study. Secondary data was used for study and data was sourced from Nairobi stock exchange hand book (2006 & 2009) and data base. Only companies that have continuously been paying dividend and met sample requirement were considered for study. Firm value was represented by share price.

3.6 Data analysis and methodology

The equations and variables to be used for the study are given below:

$$MPS_{it} = a + b DPS_{it} + c REPS_{it} + e_{it} \dots\dots\dots (1)$$

$$MPS_{it} = a + b DPS_{it} + c REPS_{it} + d(PE)_{t-1} + e_{it} \dots\dots\dots (2)$$

$$MPS_{it} = a + b DPS_{it} + c REPS_{it} + d(MPS)_{it-1} + e_{it} \dots\dots\dots (3)$$

Where,

MPS_{it} -- Market price per share

DPS_{it} -- Dividend per share

$REPS_{it}$ -- Retained Earnings per share

PE_{t-1} -- Lagged Price Earnings Ratio

MPS_{it-1} -- Lagged Market Price (MVit-1)

The subscript 'i' denotes the ith company in a sample of 'n' companies selected from a Particular industry, and all variables are measured in the ith time period. Market price per share is the closing prices for the year.

To analyze the data, the multiple regression technique method was used to ascertain best fitted model for predicting the dividend per share impact on share price. To determine the proportion of explained variation in the dependent variable, the coefficient of determination (R^2) was worked out. The significance of R^2 has been tested with the help of F-Value.

CHAPTER FOUR

4.0 DATA ANALYSIS, RESULTS AND DISCUSSIONS

4.1 Introduction

The value of the firm (stock price) and its relation with dividends and retained earnings are analyzed in this section. Pool data has been used to take care of short term influences of transitory effects of the dependent and independent variables. Also the combination of cross section and time series has been used to prove the effective coefficient estimates. The study aims to analyze using existing theoretical models to explain the effect of dividend on firm value. Independent variable like retained earnings were introduced to avoid bias in testing the relationship as net earnings of companies are split into dividend distributed to share holders or ploughed back into the company with share holder hoping to get more dividend into the future. Lagged price earning ratio and lagged share price ratio were also introduced to test the impact of previous dividends and share price on firm value.

Like Khan (2009), the study has incorporated dividend, retained earnings, lagged price and lagged price earnings ratio to determine the impact on share price. Unlike Khan (2009), his prime objective of the study was to study determinants of market share price and to examine their functional relationships with the market price of common stocks trades in DSE. This study is guided by the following objectives: to determine the relationship between dividend and the firm value and impact of dividend on firm value. Analysis of the results is done based on the entire market (overall) and also sector wise (industry wise).

4.1 Empirical Results and Discussions

4.1.1 Overall results (for the entire industry)

The following tables represents the simple linear relationships among share prices, dividends, retained earnings, lagged prices earning ration and lagged price of the sample observations during period of study. The Retained earnings per share were computed as the difference between earnings per share and dividends per share. Independent variable like retained earnings were introduce as control to avoid bias in testing the relationship as net earnings of companies are split into dividend distributed to share holders or ploughed back into the company with share holder hoping to get more dividend into the future. Lagged price earning ratio and lagged share price ratio were also introduced as a control to test the impact of previous dividends and share price on firm value. Details results shown on table 1 Appendix I.

Linear Relationship between Share Price, DPS and REPS.

Table-1

	$MPS_{it} = a + b DPS_{it} + c REPS_{it} + e_{it}$						
	A	B	C	R ²	F	e	N
	44.988	14.818	1.490	0.469	55.695	61.913	125
t-values	5.378	10.418	1.653				

Where:

M, D and RE Represents share price, dividends and retained earnings.

R² refers to coefficient of determination adjusted for degrees of freedoms.

t values of regression coefficient are shown in the last row.

n represents number of observations.

The results show that, overall companies at Nairobi stock exchange indicate stronger dividend than retained earnings effect on share price during period of study. The coefficient of dividend per share (DPS) was 14.818 compared to retained earnings per

share (REPS) with coefficient of 1.490. The relationship exist with a positive R^2 of 0.49, hence at 5 percent level, the statistical significance of regression coefficient of dividends is higher than that of retained earnings.

Linear relationship between Share Price, DPS, RE and Lagged Price Earning Ratio.

Table-2

$MPS_{it} = a + b DPS_{it} + c REPS_{it} + d(PE)_{t-1} + e_{it}$								
	A	B	C	D	R2	F	E	N
	44.759	14.811	1.383	0.046	0.465	36.940	62.123	125
t-values	5.322	10.377	1.473	0.423				

Details results shown on table 2 Appendix 1.

Where:

M, D and RE Represents share price, dividends and retained earnings.

$(PE)_{t-1}$ refers to price earnings ratio of previous year.

R^2 refers to coefficient of determination adjusted for degrees of freedoms.

t values of regression coefficient are shown in the last row.

n represents number of observations.

Table 2 represents overall regression relationship with earning price ratio of previous year as an additional independent variable in explaining share price. The impact of dividend and retained earnings are found to be the same, relatively stronger dividend (with coefficient of 14.811) and weaker retained earnings (with coefficient of 1.383). The results shows adjusted R^2 of 0.465 with inclusion of previous year price ratio, which remains almost the same without inclusion of lagged price earnings ratio which has R^2 of 0.469 as indicated on table 1. This implies that at 5 percent level of significance regression coefficient are statistically significant.

Linear relationship between Share Price, DPS, RE and Lagged Price.

Table-3

$MPS_{it} = a + b DPS_{it} + c REPS_{it} + d(MPS)_{it-1} + e_{it}$								
	A	B	C	D	R2	F	F	N
	15.817	7.682	0.988	0.527	0.678	88.100	48.186	125
t-values	2.173	5.635	1.405	8.967				

Details results shown on table 3 Appendix I.

Where:

M, D and RE: Represents share price, dividends and retained earnings.

$(MPS)_{t-1}$ refers to share price of the previous year.

R^2 refers to coefficient of determination adjusted for degrees of freedoms.

t values of regression coefficient are shown in the last row.

n represents number of observations.

Finally table-3 show the overall regression results after adding lagged prices along with dividends and retained earnings as additional explanatory variable of stock price. The impact of dividend and retained earnings are found to be the same, relatively stronger dividend (with coefficient of 7.682) and weaker retained earnings (with coefficient of 0.988). However these coefficient are lower when compared to table 1, where DPS and REPS are the only variable. The results show adjusted R^2 of 0.678 with inclusion of previous year share price, which has slightly increases when compared without inclusion of lagged price which has R^2 of 0.469 as indicated on table 1. This implies that at 5 percent level of significance regression coefficient are statistically significant.

4.1.2 Industry wise results

Table 4 to table 6 show the simple linear relationships (industry wise) among share price, DPS, REPS, lagged price earnings ratio & lagged price under study period. The Retained earnings per share were computed as the difference between earnings per share and dividends per share. Independent variable like REPS were introduced as control to avoid bias in testing the relationship as net earnings of companies are split into dividend distributed to share holders or ploughed back into the company with share holder hoping to get more dividend into the future. Lagged price earning ratio and lagged share price ratio were also introduced as a control to test the impact of previous dividends and share price on firm value. Details results shown in Appendix II.

Linear relationship between share price, DPS and REPS.

Table -4A

	MPS _{it} = a + b DPS _{it} + c REPS _{it} + e _{it}						
	A	B	C	R ²	F	E	n
Agriculture	122.120	-74.972	-35.346	0.321	1.943	4.339	5
Commercial & Service	17.959	25.510	1.381	0.909	120.490	25.053	25
Finance & investment	28.539	16.778	4.310	0.580	20.991	51.248	30
Industrial & allied	42.015	10.134	4.287	0.586	35.738	43.034	50
Alternative investment market segment (AIMS)	26.649	30.754	-3.936	0.343	4.659	98.705	15

Where:

M, D and RE Represents share price, dividends and retained earnings.

R² refers to coefficient of determination adjusted for degrees of freedoms

n represents number of observations.

TABLE- 4B t-Values of coefficients: Linear relationship between share price, DPS and REPS

$MPS_{it} = a + b DPS_{it} + c REPS_{it} + e_{it}$			
	A	B	C
Agriculture	1.497	-1.168	-1.359
Commercial & Service	2.255	15.498	1.206
Finance & investment	1.725	6.404	2.180
Industrial & allied	4.325	7.392	4.399
Alternative investment market segment (AIMS)	0.482	3.041	-1.273

Details results shown in Appendix III.

Where:

M, D and RE Represents share price, dividends and retained earnings.

$(MPS)_{t-1}$ refers to share price of the previous year.

R^2 refers to coefficient of determination adjusted for degrees of freedoms.

t values of regression coefficient are shown in the last row.

n represents number of observations.

Table 4A show regression relationship industry wise of share price as dependent variable with DPS, REPS as only independent variable and table 4B shows t-values of the regression coefficients of the sample selected during study period. The results show mixed effect of DPS and REPS on share prices. DPS has stronger effect in some industries and while REPS has stronger effect in some other industries. Commercial & service sectors has DPS coefficient 25.510 which is higher than that of REPS with coefficient of 1.381, this means that DPS has stronger effect than REPS on share price in commercial sector. Same stronger DPS impact on share price compared to REPS is observed under Finance and Investment, Industrial & allied and Alternative investment. The effect of REPS (-35.346) is stronger than DPS (-74.972) effect on share price for the Agriculture sector. t-values are higher in case of REPS when compared to DPS with the

exception of agricultural sector, where t-value for DPS is higher than REPS. R² was strongest in commercial & service sector(0.909) with the weak relationship in AIMS sector(0.343) & agricultural sector (0.321). Analysis of f- ratios shows that at 5 percent significant level, the statistical significance of regression coefficients of dividends are found higher than that of retained earnings in all industries, with the exception on Agriculture sector where the effect of REPS is stronger than DPS effect on share price.

Linear relationship between share price, DPS and REPS and lagged price.

Table-5A

$MPS_{it} = a + b DPS_{it} + c REPS_{it} + d(MPS)_{it-1} + e_{it}$								
	A	B	C	D	R ²	F	E	N
Agriculture	290.496	-194.843	-83.998	-0.854	0.874	10.277	1.866	5
Commercial & Service	18.503	26.059	1.464	-0.025	0.905	76.892	25.610	25
Finance & investment	22.433	15.721	4.063	0.099	0.572	13.904	51.726	30
Industrial & allied	25.842	6.362	2.894	0.357	0.696	38.471	36.869	50
Alternative investment market segment (AIMS)	9.855	-4.853	2.154	1.035	0.912	49.244	36.172	15

Details results shown in Appendix IV.

Where:

M, D and RE Represents share price, dividends and retained earnings.

(MPS)_{t-1} refers to share price of the previous year.

R² refers to coefficient of determination adjusted for degrees of freedoms.

n represents number of observations.

Table-5B t-values of Coefficients: Linear relationship between Share Price, DPS, REPS and Lagged Price

T- Values	$MPS_{it} = a + b DPS_{it} + c REPS_{it} + d(MPS)_{it-1} + e_{it}$			
	A	B	C	D
Agriculture	4.526	-4.129	-4.388	-3.133
Commercial & Service	2.185	9.009	1.196	-0.233
Finance & investment	1.194	5.180	2.006	0.710
Industrial & allied	2.823	4.321	3.226	4.246
Alternative investment market segment (AIMS)	0.484	-0.887	1.625	8.852

Where:

M, D and RE Represents share price, dividends and retained earnings.

(MPS)_{t-1} refers to share price of the previous year.

R² refers to coefficient of determination adjusted for degrees of freedoms.

t values of regression coefficient are shown in the last row.

n represents number of observations.

Table 5A show regression relationship industry wise of share price as dependent variable while DPS, REPS and lagged price as independent variable and table 5B shows t-values of the regression coefficients of sample selected during study period. The results showed the same impact of mixed effect of DPS and REPS on share prices. The coefficient of regression are lower when lagged price was introduced as variable when compared to table 4A, however the impact is the same DPS has stronger effect in some industries and while REPS has stronger effect in some other industries. Commercial & service sectors has DPS coefficient 26.059 which is higher than that of REPS with coefficient of 1.464, this means that DPS has stronger effect than REPS on share price in commercial sector.

Same stronger DPS impact on share price compared to REPS is observed under Finance and Investment, Industrial & allied and Alternative investment. The effect of REPS (-83.998) is stronger than DPS (-194.843) effect on share price for the Agriculture sector. t-values are higher in case of REPS when compared to DPS with the exception of agricultural sector and AIMS, where t-value for DPS is higher than REPS. R² has increased for Agricultural, industrial & allied, AIMS, when compared to table 4A. All industries demonstrate a linear relationship with the strongest relationship in commercial & service sector (0.905). Analysis of f-ratios shows that at 5 percent significant level, the statistical significance of regression coefficients of dividends are found higher than that of retained earnings in all industries, with the exception on Agriculture sector where the effect of REPS is stronger than DPS effect on share price.

Linear relationship between Share Price, DPS, REPS and lagged PE Ratio.

Table-6A

$MPS_{it} = a + b DPS_{it} + c REPS_{it} + d(PE)_{t-1} + e_{it}$								
	A	B	C	d	R ²	F	E	N
Agriculture	252.783	-169.969	-74.186	-1.046	0.200	1.333	4.709	5
Commercial & Service	14.237	25.541	1.524	0.136	0.913	84.933	24.464	25
Finance & investment	25.513	16.892	4.393	0.119	0.564	13.513	52.180	30
Industrial & allied	12.970	10.456	4.718	1.645	0.600	25.513	42.315	50
Alternative investment market segment (AIMS)	33.074	30.945	-6.890	0.387	0.446	4.757	90.657	15

Where:

M, D and RE Represents share price, dividends and retained earnings.

(PE)_{t-1} Lagged Price Earnings Ratio.

R² refers to coefficient of determination adjusted for degrees of freedoms.

n represents number of observations.

TABLE -6B

t- VALUES	$MPS_{it} = a + b DPS_{it} + c REPS_{it} + d(PE)_{t-1} + e_{it}$			
	A	B	C	D
Agriculture	1.407	-1.275	-1.364	-0.836
Commercial & Service	1.737	15.889	1.357	1.440
Finance & investment	1.152	6.205	2.142	0.211
Industrial & allied	0.637	7.673	4.744	1.616
Alternative investment market segment (AIMS)	0.650	3.332	-2.099	1.796

Where:

M, D and RE Represents share price, dividends and retained earnings.

$(PE)_{t-1}$ Lagged Price Earnings Ratio.

R^2 refers to coefficient of determination adjusted for degrees of freedoms.

t values of regression coefficient are shown in the last row.

n represents number of observations.

Table 6A show regression relationship industry wise of share price as dependent variable with DPS, REPS and lagged price earning ratio as independent variable and table 6B shows t-values of the regression coefficients of the regression of sample selected during study period. The results showed the same impact of mixed effect of DPS and REPS on share prices. The coefficient of regression are lower when lagged price was introduced as variable when compared to table 4A, however the impact is the same DPS has stronger effect in some industries and while REPS has stronger effect in some other industries. Commercial & service sectors has DPS coefficient 25.541 which is higher than that of REPS with coefficient of 1.524, this means that DPS has stronger effect than REPS on

share price in commercial sector. Same stronger DPS impact on share price compared to REPS is observed under Finance and Investment, Industrial & allied and Alternative investment. The effect of REPS (-74.186) is stronger than DPS (-169.969) effect on share price for the Agriculture sector. t-values are higher in case of DPS when compared to REPS for all sectors with the exception of agricultural sector, where t-value for REPS is higher than DPS. R^2 has increased for Commercial & service, industrial & allied, AIMS, when compared to table 4A where DPD & REPS are the only variable. All industries demonstrate a linear relationship with the strongest relationship in commercial & service sector (0.909). Analysis of f-ratios shows that at 5 percent significant level, the statistical significance of regression coefficients of dividends are found higher than that of retained earnings in all industries, with the exception on Agriculture sector and AIMS where the effect of REPS is stronger than DPS effect on share price.

CHAPTER FIVE

5.0 SUMMARY, CONCLUSION AND RECOMMENDATIONS

5.1 Summary and conclusion

Results show that overall for firms quoted at the NSE the impact of dividend per share (DPS) on firm value is stronger than that of retained earnings per share (REPS), when DPS and REPS are the only two explanatory variables. This is represented by the coefficient of regression for DPS 14.818 compared to that of REPS 1.490 a difference of 894.5 %. When lagged price is introduced as a variable, the impact of DPS (14.811) on share price was higher than that of REPS(1.383) by 970.93% represented by the coefficient of regression as shown in table 2. The impact is the same when lagged price earning ratio was introduced as an independent variable. The Impact of DPS (7.682) on share price was higher than that of REPS (0.988) by 677.53% represented by the coefficient of regression as shown in table 3. This means that overall DPS is important in explaining firm value.

Industry wise study reveals mixed results as shown on table 4 A, when DPS and REPS are taken as the only independent variable. Apart from agricultural sector, for all other sectors DPS had a stronger impact on share price when compared to REPS represented by coefficient of regression. The difference between DPS and REPS was 1747.21%, 289.28%, 136.39 and 881.35 for commercial and service sector, Finance & investment, Industrial & allied and AIMS respectively. Agricultural sector had a negative correlation of coefficient of the regression analysis. The mixed results and impact is still the same when lagged price per share is introduced as an independent variable as shown in table 5A .The effect DPS is stronger than REPS in the following sectors ; commercial & service, Finance & investment and Industrial & allied by 1679.99%,286.93% and 119.83%. When lagged price earnig ratio per share was introduced as an independent variable as shown in table 6A. The effect of DPS is stronger than REPS in the following sectors; commercial & service. Finance & investment and Industrial & allied by 1575.92%, 284.52% and 121.62%. The study also reveals that the impact of DPS &

REPS on share price is above the effect of additional explanatory variables; share price for the previous year and the lagged price earning ratio.

The study was conducted on sector basis and the overall market. The study reveals controversial results on the impact of DPS and REPS on share price. Overall DPS and REPS affect share price, DPS demonstrates stronger impact compared to REPS. However industry wise there were mixed results with some industries reporting a stronger DPS compared to REPS and other industries showing a stronger REPS compared to DPS. Agricultural industry DPS and REPS both had a negative impact on share price. These are results of the model used to predict the relationship, though in reality the position may not be necessarily the same. However the model was used to try and predict the impact of DPS on share price, while introducing REPS, lagged variable and lagged price earning ratio as control.

In conclusion, announcement of expected dividend of the firms listed at NSE do not play an important role in the determination of firm value in all industries. The study does not attempt to explain the importance of dividend but to give an explanation of dividend and effect on firm value.

5.2 Limitation of the study

The study was restricted to firms quoted at NSE and concentrated on the firms that have continuously been paid dividends resulting to a small sample size. Omitting firms that choose not to pay dividends may bias the findings in several instances. Therefore, readers should be careful in generalizing the findings to other industry groups and to firms whose characteristics differ from those of the current sample.

NSE handbook and data base was used as the source of data. The reliability of the data depends on the accuracy and care taken by the person preparing the hand book and data base. There was no second source to compare the accuracy of the figures. This comparison limitation was due to time factor which was not enough to collect financial data from individual firms.

DPS and REPS are accounting figures which could be exposed to possibility of manipulation by the firms in order to influence performance of the firm; also Market anomalies do play a role in share prices and DPS and REPS effect on share price cannot be explained in isolation.

Any limitations on the module used will be applicable to the results obtained from the used modules. Simple linear regression was used, but it is known that relationship between dividend and share price is not simple as there could be other factors such as capital structure and investment decision that will also affect dividend decision and not just its dividend impact on share price.

5.3 Suggestions for further Research

Study can be carried on all quoted company including the non paying dividend companies and comparison of the two can be done with respect to impact of DPS and REPS on share price. Comparison can also be made between locally owned and foreign owned quoted firm. Further across markets analysis can be conducted to verify the results and compare with other markets such as Tanzania stock exchange and other developed markets like Johannesburg exchange.

Similar study can be performed with other financial modules such as OLS regression which can be used to analyze the data. Different control environment such as clientele effect can be introduced to evaluate dividend per share relevance on share price.

A study can be conducted analyzing the market segment wise, so as to determine why the impact of DPS on share price varies on different sectors. Determination of other contributing factors and characteristic of the various sectors can be determined in explaining DPS and its impact on firm value.

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APPENDIXES

Appendix 1:

Overall Results

Linear relationship of share price DPS & REPS, lagged price, & lagged PE ratio

Table 1 with DPS and REPS as only variable

$$MPS_{it} = a + b \text{DPS}_{it} + c \text{REPS}_{it} + e_{it}$$

SUMMARY OUTPUT

Regression Statistics	
Multiple R	0.690846
R Square	0.477268
Adjusted R Square	0.468699
Standard Error	61.91342
Observations	125

ANOVA

	df	SS	MS	F	Significance F
Regression	2	426984.9559	213492.4779	55.6945927	6.53169E-18
Residual	122	467659.0858	3833.271195		
Total	124	894644.0417			

	Coefficients	Standard Error	t Stat	P-value	Lower 95%	Upper 95%	Lower 95.0%	Upper 95.0%
Intercept	44.9876	8.36452293	5.37838177	3.69186E-07	28.42918927	61.546006	28.4291893	61.54600601
X Variable 1	14.81825	1.422398346	10.41779246	1.44256E-18	12.00247121	17.63403	12.0024712	17.63403033
X Variable 2	1.489888	0.901157588	1.653304993	0.100839839	-0.294043089	3.2738198	-0.29404309	3.273819769

Table 2 with lagged PE ratio as additional variable

$$MPS_{it} = a + b DPS_{it} + c REPS_{it} + (PE)_{t-1} + e_{it}$$

SUMMARY OUTPUT

Regression Statistics	
Multiple R	0.691484451
R Square	0.478040115
Adjusted R Square	0.465098961
Standard Error	62.12279902
Observations	125

ANOVA					
	df	SS	MS	F	Significance F
Regression	3	427675.7406	142558.5802	36.93952709	5.08855E-27
Residual	121	466968.3011	3859.242158		
Total	124	894644.0417			

	Coefficients	Standard Error	t Stat	P-value	Lower 95%	Upper 95%	Lower 95.0%	Upper 95.0%
Intercept	44.75878601	8.410217679	5.321953333	4.79166E-07	28.10854202	61.40903	28.10854202	61.40903
X Variable 1	14.83121489	1.427305575	10.37704549	1.96861E-18	11.98548706	17.63694271	11.98548706	17.63694271
X Variable 2	1.382889843	0.938907824	1.472870721	0.14338243	-0.475925819	3.241705506	-0.47592582	3.241705506
X Variable 3	0.045925095	0.108549569	0.423077915	0.672989405	-0.168978198	0.260828387	-0.1689782	0.260828387

Table 3 with lagged price as additional variable

$$MPS_{it} = a + b DPS_{it} + c REPS_{it} + d(MPS)_{it-1} + e_{it}$$

SUMMARY OUTPUT

Regression Statistics	
Multiple R	0.828226717
R Square	0.685959495
Adjusted R Square	0.678173367
Standard Error	48.18648921
Observations	125

ANOVA					
	df	SS	MS	F	Significance F
Regression	3	613689.5749	204563.1916	88.10020523	2.71269E-30
Residual	121	280954.4668	2321.937742		
Total	124	894644.0417			

	Coefficients	Standard Error	t Stat	P-value	Lower 95%	Upper 95%	Lower 95.0%	Upper 95.0%
Intercept	15.81680677	7.277556272	2.173367842	0.0317006	1.408964762	30.22464978	1.408964762	30.22464878
X Variable 1	7.682312262	1.363382399	5.634745078	1.16359E-07	4.981137227	10.3814873	4.981137227	10.3814873
X Variable 2	0.98837654	0.703586797	1.404768458	0.162652111	-0.404559887	2.381312167	-0.404559887	2.381312167
X Variable 3	0.527084177	0.05877975	8.967104806	4.63044E-15	0.41071416	0.643454195	0.41071416	0.643454195

Table 2 with lagged PE ratio as additional variable

$$MPS_{it} = a + b DPS_{it} + c REPS_{it} + (PE)_{i,t-1} + e_{it}$$

SUMMARY OUTPUT

Regression Statistics	
Multiple R	0.691404451
R Square	0.478040115
Adjusted R Square	0.465098961
Standard Error	62.12279902
Observations	125

ANOVA					
	df	SS	MS	F	Significance F
Regression	3	427675.7406	142558.5802	36.93952709	5.08855E-17
Residual	121	466968.3021	3859.242158		
Total	124	894644.0417			

	Coefficients	Standard Error	t Stat	P-value	Lower 95%	Upper 95%	Lower 95.0%	Upper 95.0%
Intercept	44.75878601	8.410217679	5.321953333	4.79166E-07	28.10854202	61.40903	28.10854202	61.40903
X Variable 1	14.81121489	1.427305575	10.37704549	1.96865E-18	11.98548706	17.63694271	11.98548706	17.63694271
X Variable 2	1.382889843	0.938907824	1.472870721	0.14338243	-0.475925819	3.241705506	-0.47592582	3.241705506
X Variable 3	0.045925095	0.108549969	0.423077915	0.672989405	-0.168978198	0.260828387	-0.1689782	0.260828387

Table 3 with lagged price as additional variable

$$MPS_{it} = a + b DPS_{it} + c REPS_{it} + d(MPS)_{i,t-1} + e_{it}$$

SUMMARY OUTPUT

Regression Statistics	
Multiple R	0.828226717
R Square	0.685959495
Adjusted R Square	0.678173367
Standard error	48.18648921
Observations	125

ANOVA					
	df	SS	MS	F	Significance F
Regression	3	613689.5749	204563.1916	88.10020523	2.71269E-30
Residual	121	260954.4668	2321.937742		
Total	124	894644.0417			

	Coefficients	Standard Error	t Stat	P-value	Lower 95%	Upper 95%	Lower 95.0%	Upper 95.0%
Intercept	15.81680677	7.277556272	2.173367842	0.0317006	1.408964762	30.22464878	1.408964762	30.22464878
X Variable 1	7.682312262	1.363382399	5.634745078	1.16359E-07	4.983137227	10.3814873	4.983137227	10.3814873
X Variable 2	0.98837654	0.703586797	1.404768458	0.162652111	-0.404559087	2.381312167	-0.404559087	2.381312167
X Variable 3	0.527084177	0.058779375	8.967104806	4.63044E-15	0.41071416	0.643454195	0.41071416	0.643454195

Appendix II:

Industry Wise Results

Linear relationship between share price, DPS and REPS

$$MPS_{it} = a + b DPS_{it} + c REPS_{it} + e_{it} \text{ with } DPS \text{ and } REPS \text{ as only variable}$$

AGRICULTURE SUMMARY OUTPUT

Regression Statistics	
Multiple R	0.812565674
R Square	0.660261974
Adjusted R Squar	0.320525948
Standard Error	1.339306964
Observations	5

ANOVA

	df	SS	MS	F	Significance F
Regression	2	73.18883015	36.59441508	1.943453094	0.339737016
Residual	2	37.65916985	18.82958492		
Total	4	110.848			

	Coefficients	Standard Error	t Stat	P-value	Lower 95%	Upper 95%	Lower 95.0%	Upper 95.0%
Intercept	122.1196548	81.54990305	1.497483752	0.272968272	-228.7612582	473.0005677	-228.7612582	473.0005677
X Variable 1	-74.97195387	64.19786601	-1.167826162	0.363260223	-351.1930773	201.2491696	-351.1930773	201.2491696
X Variable 2	-35.34508967	26.01666156	-1.358590516	0.307217311	147.2866496	76.59467023	-147.2866496	76.59467023

COMMERCIAL AND SERVICES SECTOR

SUMMARY OUTPUT

Regression Statistics	
Multiple R	0.957258406
R Square	0.916343655
Adjusted R Squar	0.908738533
Standard Error	25.05310538
Observations	25

ANOVA

	df	SS	MS	F	Significance F
Regression	2	151253.4544	75626.72722	120.4903251	1.40439E-12
Residual	22	13808.47796	627.6580892		
Total	24	165061.9324			

	Coefficients	Standard Error	t Stat	P-value	Lower 95%	Upper 95%	Lower 95.0%	Upper 95.0%
Intercept	17.95940676	7.963264778	2.25528188	0.034400349	1.444606482	34.47420704	1.444606482	34.47420704
X Variable 1	25.51042391	1.64601306	15.49831197	2.54047E-13	22.09680177	28.92404605	22.09680177	28.92404605
X Variable 2	1.380630134	1.145068172	1.205718811	0.240734114	-0.994095797	3.755356266	-0.994095797	3.755356266

FINANCE AND INVESTMENT

SUMMARY OUTPUT

Regression Statistics

Multiple R	0.784872416
R Square	0.616024709
Adjusted R Squ	0.571719868
Standard Error	51.72595488
Observations	30

ANOVA

	df	SS	MS	F	Significance F
Regression	3	111605.407	37201.80235	13.90423015	1.32361E-05
Residual	26	69564.93462	2675.574408		
Total	29	181170.3417			

	Coefficients	Standard Error	t Stat	P-value	Lower 95%	Upper 95%	Lower 95.0%	Upper 95.0%
Intercept	22.43336289	18.78881967	1.193974038	0.243268318	-16.18760868	61.05433446	-16.18760868	61.05433446
X Variable 1	15.72064007	3.034963654	5.179844593	2.09192E-05	9.482183	21.95909715	9.482183	21.95909715
X Variable 2	4.062733468	2.025262159	2.006028429	0.055361722	0.100252481	8.225719417	-0.100252481	8.225719417
X Variable 3	0.099002619	0.139524163	0.709573285	0.484284207	-0.187793404	0.385798641	-0.187793404	0.385798641

INDUSTRIAL AND ALLIED

SUMMARY OUTPUT

Regression Statistics

Multiple R	0.776721519
R Square	0.603296317
Adjusted R Squar	0.58641531
Standard Error	43.03413011
Observations	50

ANOVA

	df	SS	MS	F	Significance F
Regression	2	132369.6308	66184.81539	35.73816953	3.66401E-10
Residual	47	87041.00867	1851.936355		
Total	49	219410.6395			

	Coefficients	Standard Error	t Stat	P-value	Lower 95%	Upper 95%	Lower 95.0%	Upper 95.0%
Intercept	42.01499559	9.714609349	4.324928989	7.89049E-05	22.47172271	61.55826847	22.47172271	61.55826847
X Variable 1	10.13395308	1.371019915	7.391543313	2.08848E-09	7.375816823	12.89208935	7.375816823	12.89208935
X Variable 2	4.286943269	0.974430503	4.399434601	6.19392E-05	2.326641982	6.247244557	2.326641982	6.247244557

ALTERNATIVE INVESTMENTS
SUMMARY OUTPUT

Regression Statistics	
Multiple R	0.66111801
R Square	0.437017023
Adjusted R Square	0.34326527
Standard Error	98.70514957
Observations	15

ANOVA					
	df	SS	MS	F	Significance F
Regression	2	90775.75472	45387.87736	4.658651795	0.031819537
Residual	12	116912.4786	9742.706551		
Total	14	207688.2333			

	Coefficients	Standard Error	t Stat	P-value	Lower 95%	Upper 95%	Lower 95.0%	Upper 95.0%
Intercept	26.64831075	55.26395033	0.482211832	0.638331399	93.76087311	147.0587346	93.76087311	147.0587346
X Variable 1	30.75152157	10.11207152	3.041268204	0.010249691	8.721210444	52.7858327	8.721210444	52.7858327
X Variable 2	-3.93632441	3.092135069	-1.273014391	0.227122724	-10.67351599	2.80085111	-10.67351599	2.80085111

Appendix III:

Industry Wise Results

Linear relationship between share price, DPS and REPS and lagged price.

$$MPS_{it} = a + b DPS_{it} + c REPS_{it} + d(MPS)_{it-1} + e_{it} \text{ with lagged price as additional variable}$$

AGRICULTURAL SECTOR								
SUMMARY OUTPUT								
Regression Statistics								
Multiple R	0.984166118							
R Square	0.968582947							
Adjusted R Squ	0.97433179							
Standard Error	1.866150433							
Observations	5							
ANOVA								
	df	SS	MS	F	Significance F			
Regression	3	107.3654826	35.78849419	10.27661593	0.224491546			
Residual	1	3.482517438	3.482517438					
Total	4	110.848						
	Coefficient	Standard Error	t Stat	P-value	Lower 95%	Upper 95%	Lower 95.0%	Upper 95.0%
Intercept	190.4959616	64.17818106	4.526397551	0.138422538	-524.9651465	1105.95707	-524.9651465	1105.95707
X Variable 1	-194.8417119	47.18484307	-4.1293496	0.151257505	-794.3829893	-404.6975635	-794.3829893	-404.6975635
X Variable 2	-83.99812379	19.1418962	-4.388370599	0.142634169	-327.2089109	159.2124633	-327.2089109	159.2124633
X Variable 3	0.854128098	0.272681542	3.132694978	0.196708994	4.318975603	2.618519406	4.318975603	2.618519406

COMMERCIAL AND SERVICES								
SUMMARY OUTPUT								
Regression Statistics								
Multiple R	0.957371317							
R Square	0.916559839							
Adjusted R Squ	0.904639816							
Standard Error	15.60951665							
Observations	25							
ANOVA								
	df	SS	MS	F	Significance F			
Regression	3	151289.1382	50429.71273	76.89245564	1.71915E-11			
Residual	21	13772.7942	655.8473431					
Total	24	165061.9324						
	Coefficients	Standard Error	t Stat	P-value	Lower 95%	Upper 95%	Lower 95.0%	Upper 95.0%
Intercept	18.50325054	8.467444551	2.185222222	0.040346736	0.894235688	36.11226539	0.894235688	36.11226539
X Variable 1	16.85921873	2.892487068	9.009277524	1.16519E-08	28.0439626	32.07447486	28.0439626	32.07447486
X Variable 2	1.464415524	1.224374841	1.196052411	0.245806718	-1.081809673	4.010648722	-1.081809673	4.010648722
X Variable 3	-0.025188302	0.107985385	-0.233256588	0.817820791	-0.249756203	0.199379598	-0.249756203	0.199379598

FINANCE AND INVESTMENT

SUMMARY OUTPUT

Regression Statistics

Multiple R	0.784872436
R Square	0.616024709
Adjusted R Squ	0.571719868
Standard Error	51.72595488
Observations	30

ANOVA

	df	SS	MS	F	Significance F
Regression	3	111685.407	37201.80235	13.90423015	1.32361E-05
Residual	16	69564.93462	2675.574408		
Total	29	181170.3417			

	Coefficients	Standard Error	t Stat	P-value	Lower 95%	Upper 95%	Lower 95.0%	Upper 95.0%
Intercept	22.433326289	18.78881967	1.193974038	0.243268218	-16.18760868	61.05433446	-16.18760868	61.05433446
X Variable 1	15.72064007	3.034963654	5.179844593	2.09191E-05	9.482183	21.95909715	9.482183	21.95909715
X Variable 2	4.062733468	2.025162159	2.006028429	0.055361722	0.108252481	8.225719417	-0.108252481	8.225719417
X Variable 3	0.099002619	0.139524163	0.709573285	0.484284207	-0.187793404	0.385798641	-0.187793404	0.385798641

INDUSTRIAL AND ALLIED

SUMMARY OUTPUT

Regression Statistics

Multiple R	0.845585612
R Square	0.715015044
Adjusted R Squ	0.696429068
Standard Error	36.86896051
Observations	50

ANOVA

	df	SS	MS	F	Significance F
Regression	3	156881.908	52293.96933	38.47067632	1.35495E-12
Residual	46	62528.73147	1359.320249		
Total	49	219410.6395			

	Coefficients	Standard Error	t Stat	P-value	Lower 95%	Upper 95%	Lower 95.0%	Upper 95.0%
Intercept	15.84249536	9.152832955	2.82344226	0.006998523	7.418798477	44.26619225	7.418798477	44.26619225
X Variable 1	6.362442141	1.47158146	4.310601694	8.23343E-05	3.398187434	9.326596848	3.398187434	9.326596848
X Variable 2	2.893785857	0.896980834	3.226140122	0.002313038	1.088257112	4.699314601	1.088257112	4.699314601
X Variable 3	0.25675116	0.084010672	4.246498122	0.000104438	0.187646451	0.525855869	0.187646451	0.525855869

ALTERNATIVE INVESTMENT MARKET SEGMENT

SUMMARY OUTPUT

Regression Statistics	
Multiple R	0.964728546
R Square	0.930701168
Adjusted R Squ	0.911801487
Standard Error	36.17208316
Observations	15

ANOVA

	df	SS	MS	F	Significance F
Regression	3	193295.6814	64431.8938	49.24427821	1.15195E-06
Residual	11	14392.55194	1308.413813		
Total	14	207088.2333			

	Coefficients	Standard Error	t Stat	P-value	Lower 95%	Upper 95%	Lower 95.0%	Upper 95.0%
Intercept	9.854806208	20.54099245	0.480465079	0.637558258	-34.91572198	54.624725	-34.91572198	54.624725
X Variable 1	-4.853043136	5.469283906	-0.887326974	0.393890284	-16.89085584	7.184769569	-16.89085584	7.184769569
X Variable 2	2.153725466	1.328669061	1.624632821	0.13252313	-0.764052463	5.071503394	-0.764052463	5.071503394
X Variable 3	1.035299880	0.116959252	8.851799807	2.46518E-06	0.777874309	1.292725467	0.777874309	1.292725467

ALTERNATIVE INVESTMENT MARKET SEGMENT

SUMMARY OUTPUT

Regression Statistics	
Multiple R	0.964728546
R Square	0.930701168
Adjusted R Squ	0.911801487
Standard Error	36.17200316
Observations	15

ANOVA

	df	SS	MS	F	Significance F
Regression	3	193295.6814	64431.8938	49.24427821	1.15195E-06
Residual	11	14392.55194	1308.413813		
TOTAL	14	207088.2333			

	Coefficients	Standard Error	t Stat	P-value	Lower 95%	Upper 95%	Lower 95.0%	Upper 95.0%
Intercept	9.854800208	20.34099245	0.484485077	0.63258238	-34.01572198	54.624723	-34.91572198	54.624723
X Variable 1	-4.853043136	5.469283906	-0.887326974	0.393890284	-16.89085584	7.184769569	-16.89085584	7.184769569
X Variable 2	2.153725466	1.325669061	1.624632821	0.13152313	0.764052463	5.071503394	0.764052463	5.071503394
X Variable 3	1.035299883	0.116959252	8.851799807	2.46518E-06	0.777874309	1.292725467	0.777874309	1.292725467

Appendix IV:

Industry Wise Results

Linear relationship between Share Price, DPS, REPS and lagged PE Ratio.

$MPS_{it} = a + b DPS_{it} + c REPS_{it} + (PE)_{t-1} + e_{it}$ with lagged PE ratio as additional variable

AGRICULTURE								
SUMMARY OUTPUT								
Regression Statistics								
Multiple R	0.894422068							
R Square	0.799990835							
Adjusted R Square	0.199963341							
Standard Error	4.708568348							
Observations	5							
ANOVA								
	df	SS	MS	F	Significance F			
Regression	3	88.67738411	29.5591204	1.33256664	0.540826813			
Residual	1	22.17061589	22.17061589					
Total	4	110.848						
	Coefficients	Standard Error	t Stat	P-value	Lower 95%	Upper 95%	Lower 95.0%	Upper 95.0%
Intercept	152.7820734	179.6354165	1.467100085	0.393319792	2029.701466	2535.267353	-2029.70141	2535.267353
X Variable 1	-149.9689602	132.3056145	1.27503227	0.423409696	1863.77739	1523.83947	-1863.77739	1523.83947
X Variable 2	74.18620929	54.37254991	1.364410577	0.402648117	765.0524191	614.6800005	-765.052419	614.6800005
X Variable 3	-1.045811183	1.251128776	0.835827311	0.556780014	-16.94418018	14.85255781	16.9441802	-14.85255781

COMMERCIAL AND SERVICES

SUMMARY OUTPUT

Regression Statistics								
Multiple R	0.961174896							
R Square	0.923857181							
Adjusted R Square	0.912979636							
Standard Error	24.46404629							
Observations	25							
ANOVA								
	df	SS	MS	F	Significance F			
Regression	3	152493.6516	50831.21721	84.93356431	6.59994E-12			
Residual	21	12568.28078	598.4895609					
Total	24	165061.9324						
	Coefficients	Standard Error	t Stat	P-value	Lower 95%	Upper 95%	Lower 95.0%	Upper 95.0%
Intercept	14.23658527	8.194885987	1.73726935	0.096985969	-2.805446652	31.27861719	-2.80544665	31.27861719
X Variable 1	25.54184	1.60745202	15.8891461	3.52606E-13	22.19816053	28.88391946	22.1981605	28.88391946
X Variable 2	1.523786025	1.122558514	1.357422357	0.189057075	-0.810702195	3.858274244	0.81070219	3.858274244
X Variable 3	0.13644342	0.094784106	1.439517937	0.164744775	0.060670917	0.333557758	-0.06067091	0.333557758

FINANCIAL & INVESTMENT

SUMMARY OUTPUT

Regression Statistics

Multiple R	0.780548694
R Square	0.609256164
Adjusted R Square	0.564170418
Standard Error	52.17985167
Observations	30

ANOVA

	df	SS	MS	F	Significance F
Regression	3	116379.1655	36793.05516	13.51325808	1.65302E-05
Residual	26	70791.1762	2722.737546		
Total	29	187170.3417			

	Coefficients	Standard Error	t Stat	P-value	Lower 95%	Upper 95%	Lower 95.0%	Upper 95.0%
Intercept	25.51345381	22.13771054	1.152488364	0.259607078	-19.99126146	71.01816907	-19.9912615	71.01816907
X Variable 1	16.89228789	2.72253179	6.204624664	1.45544E-06	11.29604371	22.48853208	11.2960437	22.48853208
X Variable 2	4.393298176	2.051155237	2.141865275	0.041743183	0.177088245	8.609508106	0.17708824	8.609508106
X Variable 3	0.119203413	0.565702211	0.210717601	0.834750406	-1.043614124	1.282020949	-1.04361412	1.282020949

INDUSTRIAL & ALLIED

SUMMARY OUTPUT

Regression Statistics

Multiple R	0.790323704
R Square	0.624611557
Adjusted R Square	0.600129702
Standard Error	42.31461312
Observations	50

ANOVA

	df	SS	MS	F	Significance F
Regression	3	137046.4212	45682.1404	25.51324474	7.18631E-10
Residual	46	82364.21825	1790.526484		
Total	49	219410.6395			

	Coefficients	Standard Error	t Stat	P-value	Lower 95%	Upper 95%	Lower 95.0%	Upper 95.0%
Intercept	12.97025771	20.35235546	0.637285331	0.527088311	-27.99690837	53.93742379	-27.9969084	53.93742379
X Variable 1	18.4555305	1.362702067	7.672645953	9.02122E-10	7.71255355	13.19850745	7.71255355	13.19850745
X Variable 2	4.718140887	0.99459217	4.743794521	2.06561E-05	2.716130716	6.720151057	2.71613072	6.720151057
X Variable 3	1.644989202	1.017839902	1.616157118	0.112898971	-0.403816224	3.693794629	-0.40381622	3.693794629

ALTERNATIVE INVESTMENT

SUMMARY OUTPUT

Regression Statistics	
Multiple R	0.75146853
R Square	0.564704952
Adjusted R Square	0.44598812
Standard Error	90.65702578
Observations	15

ANOVA

	df	SS	MS	F	Significance F
Regression	3	117781.5738	39094.19126	4.756738748	0.023104575
Residual	11	90405.65956	8218.696324		
Total	14	207688.2333			

	Coefficients	Standard Error	t Stat	P-value	Lower 95%	Upper 95%	Lower 95.0%	Upper 95.0%
Intercept	33.07357885	50.88388593	0.649982411	0.52904401	-78.92092282	145.0680805	-78.9209228	145.0680805
X Variable 1	30.94509378	9.288175917	3.331665341	0.006691473	10.50195644	51.38823113	10.5019564	51.38823113
X Variable 2	-6.88989347	3.281840742	-2.09939909	0.059662356	-14.11317624	0.333389198	-14.1131762	0.333389198
X Variable 3	0.38735056	0.21568843	1.795880107	0.180000785	-0.087376473	0.862077593	-0.08737647	0.862077593