THE EFFECT OF DIVIDEND PAYMENT METHOD ON SHARE PRICE VOLATILITY IN THE NAIROBI SECURITIES EXCHANGE

By

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DECLARATION

The research dissertation is my original work and has not been presented for a degree in any other university.

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ABSTRACT

The study sought to evaluate how dividend payment methodscan cause share price volatility of firms listed in NSE. Many people have conducted research in this field but none has been able to connect dividend payment methods and share price volatility. In our study we sought we have been able to close this gap. This was with a bias on finding out how cash dividend, stock dividend, stock repurchase, scrip dividends and property dividends can cause share price volatility. The study established relationship between dividend policy and share price volatilityand to assess how dividend policy affectsshare price of the firms listed in the Nairobi stocks exchange. The study covered the period ranging from 2013 to 2019. It focused on share prices within the stated period. Between 2013 and 2019, listed firms share prices fluctuated greatly to the point of making investors not to make proper decisions. We have investigated whether this decline on share prices has anything to do with the choice of dividend payment method adopted by the company. Data consisted of share price volatility as the dependent variable and cash dividends per share, Share Dividends per share, repurchase price per share, scrip dividends per share and property dividends per shareas independent variables for the 50 listed companies sampled for the study. The study employed a descriptive research design entailing secondary data evaluation. The researcher equally employed secondary data interrogation sheet trained on the share prices, the cash dividend payouts, stock dividend declaration and related parameters of the years in focus. Data was analyzed by use of descriptive and inferential statistics with the help of STATA. This enabled the researcher to reach on the recommended conclusion.

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DEDICATION

This research project is dedicated to my family for encouraging me in the entire period of my studies which inspired me greatly. Special dedication goes to my lovely wife, Margaret Wanjiku for great encouragement and advice

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ACRONYMS AND ABBREVIATIONS

AIMS	-	Alternative Investment Market Segment
CBK	-	Central Bank of Kenya
CFPS	-	Cash Flow Per Share
CMA	-	Capital Markets Authority
GEMS	-	Growth Enterprise Market Segment
GoK	-	Government of Kenya
IFC	-	International Finance Corporation
IFMIS	-	Integrated Financial Management Information System
IMF	-	International Monetary Fund
IPOs	-	Initial Public Offers
KRA	-	Kenya Revenue Authority
MIMS	-	Main Investment Market Segment
DPS	-	Dividend per share
EPS	-	Earnings per share
GLS	-	General Least Square
DPR	-	Dividend payment ratio
DY	-	Dividend Yield
CSPS	-	Cash dividend per share
SDPS	-	Share dividend per share
RPPS	-	Repurchase price per share
FISMS	-	Fixed Income Securities Market Segment

OPERATIONAL DEFINITION OF TERMS

Share price - Also known as stock price. It is the price of a single share of a number of saleable stocks of a company *(*A. C. MacKinlay,1988)

Cash dividends - The proportions of the net incomes the entities listed on a stock exchange issued out to their shareholders. (McCallion, Robert. and Warner, Alan, 2010)

Property dividend - This form of dividends takes place only when a firm has assets that are no longer necessary in the operation of business and shareholders are ready to accept dividend in the form of assets *(*A. C. MacKinlay,1988)

Stock dividend - dividend paid out to shareholders in form of stocks instead of cash. (Cornell, Bradford, 1999)

Stock repurchase - A *share repurchase*, or buyback, is a decision by a company to buy back its own *shares* from the marketplace (Cornell, Bradford, 1999)

CHAPTER ONE

INTRODUCTION

1.1 Background to the Study

In a global perspective, investors have great emphasis on how corporations pay dividends. In England, by the beginning of 17th century corporations had long emphasis on payment of dividends from profits. From the word go, the investors were keen and placed attention of dividends. Nevertheless, as the century came to an end, many people stopped considering the issue of dividend. What followed was that share prices became very volatile in 1720. This prompt a passage of Bubble Act that incorporated the Royal exchange and London assurance corporation and forbade formation of any other joint stock company unless approved by Royal Chatter. The situation reversed in 1824 and people started emphasizing on dividends again. As industries increased in 20thC, the issue of dividend payment and stock price volatility attracted focus.

Many researchers have been concerned with this study.Share price volatility is perceived as the risk associated with stock price. The focus of this study was to examine the impact of dividend policy on stock price volatility in Kenya. The existing empirical evidence so far is observed to be vacillating and largely polarized. The arguments have been between theories that suggest that divided policy has no effect on stock prices (Irrelevance theory) and those who think otherwise.(Kinder, 2002).

Share price volatility and dividend policy have been a topic handled by many researchers. It indicates the changing pace in the stock's price over a determined period; the more considerable volatility implies that the possibility of gain or loss is higher in short-term. So the price of volatile stock would differ considerably over time and it is very difficult to predict the

future price of this stock. Investors usually choose less risky investment and less risky investments are better than those with higher risk (Kinder, 2002).

Since share prices convey information to the outside world about the current and future performance of firms, it is imperative for the managers of the firms to pay due attention to the factors that contribute to share price volatility as this could help them mitigate market risks (Adjasi&Biekpe, 2015).Such factors include dividend payment methods or rather dividend policy that is the subject of our study. Volatility of the stock price depicts the stability of the market performance for the particular stock.

Different researchers have investigated the association between dividend policy and volatility of share price at different times (Allen &Rachim, 1996; Baskin, 1989; Hussainey, Mgbame, &Chijoke-Mgbame, 2011; Kinder, 2002; Nazir, Nawaz, Anwar, & Ahmed, 2010; Nishat& Irfan, 2004; Suleman, Asghar, Ali Shah, & Hamid, 2011). But their findings are not consistent.

In Kenya, the Nairobi Securities Exchange (NSE) is the only body that performs the functions of a stock market as enumerated by Gitau&Gathigia, (2017).The stability, rise and fall of share prices at the stockexchange is mostly dependent on the market forces of demand and supply and has a direct impact on the market capitalization of the individual companies and the market in general. What many researchers have not been able to connect is the effect of dividend payment methods on share price volatility due to lack of consensus.

The study sought to find out the relationship between dividend payment methods and share price volatility in the NSE.

1.1.1 Dividend Payment methods

Dividends, which are distributed based on how many shares each person owns, can be paid using cash, stock, or other company property.Cash dividendsrepresents the dividends paid in liquid cash. They are paid from income derived from investmentactivities of the organization and many are times that cash dividends are taxed. Cash dividend payment is very common and it represents the major way of sharing profits with the shareholders. For each share owned, a declared amount of money is distributed. Cash dividends are paid in a ratio, for example if cash dividend per share is 10, then a shareholder with 100 shares will receive 1000 shillings. One a company pay dividends, it does not record and expense but rather a reduction of retained earnings (Murekefu andOuma, 2012).

For scrip dividends, a company issues additional shares to the shareholders. This is the method used by board of management to distribute wealth to the shareholders without cash in hand. The board of directors decides on when to declare a (stock) dividend and in what form the dividend will be paid. Just like cash dividends, stock dividend does not mean an increment in wealth in the organization.Consequently, it increases the shareholding and the price per share is adjusted in the same ratio. It is worth to understand that the market capitalization does not change and this gives us the reason why the share price change with change in shareholding.

Property dividends are type of dividends that are distributed to the shareholders not in for of cash but in form of shares of owning a certain property. Although this is not the most common method of paying dividends, sometimes corporation use it especially when the company does not have enough cash to pay cash dividends. Shares of physical assets, shares of another corporate and shares of a physical property are examples of property dividend.Once property dividend is

issued, it is recorded at fair value.Although corporations still practice this method, it is not common than cash or stock dividendMany corporates practice this method when they do not wish to dilute the cash and cash equivalents. Although property dividends are non-monetary, they still have monetary value because they are recorded at fair value. Property dividend have an advantage over cash dividends when it comes to the issues of taxation. This is because, once a shareholder receives a property, it is bound to appreciation in value and comparing this to receiving cash dividend, tax burden is reduced.Many companies prefer issuing property dividend over cash dividends especially when the fair value and the book value of the target asset differs. This is because the property dividend is based on the fair value and the management can ride on this variance as it results to high payout ratio

Share prices can be volatile because the dividend payment methods convey different information to the investor who are rational. To be precise, share price volatility as result of changes in price whether up or down. The degree of rise or fall determines whether the share price is highly volatile or not. Those prices that changes wildly are considered to have high volatility and the vice versa is also true. High volatile share prices are considered to have more risk than less volatile ones. For risk takers, investing on a high volatile shares places the investor in chance to gain more or lose more. This is why many investors who have invested in a riskier shares look at several ways of measuring volatility so that they get the way of mitigating the risk.Many investors use standard deviation as the main measure of share price volatility. The standard deviation is the amount that have differed from the mean price over a period of time. The standard deviation is determined when the mean price for the established period is subtracted from the share price of each period. The differences are then squared, summed, and averaged to produce the variance.

Because the variance is the product of squares, it is no longer in the original unit of measure. Since price is measured in dollars, a metric that uses dollars squared is not very easy to interpret. Therefore, the standard deviation is calculated by taking the square root of the variance.

Many investors consider those companies that pay cash dividends to be less risky and healthy and therefore the method chosen to pay dividends can cause the investors either to have a bull run to some counters or retreat from some due to the information being conveyed by the dividend payment method chosen. The method chosen in payment of dividends will usually have diverse effects on share price volatility.

This study sought to find out the relationship between dividend payment method and share price volatility in the NSE.

1.1.2 Stock Repurchase

A stock repurchaseoccurs when a certain company acquires its own shares from the open market using its own cash. Whenever a company repurchases its own shares, its capital structure is affected and thus the management can use this mechanism to align its capital structure to the company policy. Stock buyback can also enhance shareholders value. Sometimes a company can be raided by hostile takeovers and the management can use stock buyback to avoid such and this is why we say that stock repurchase is a management tool (Murekefu&Ouma, 2012).

The market value of the company is the dollar amount each share of that company's stock is worth multiplied by the total number of shares of stock owned, by either the company or its stakeholders. Sometimes, the company has extra cash it generates through operations, and management might feel like their shares are undervalued and it can end up repurchasing them.

Once a company repurchases its shares, its shareholding is reduced. This brings out several issues and different phenomenon is created. First the Earning per share (EPS) and the Cash flow per share (CFPS) will change due to the change in shareholding. The EPS and the CFPS will definitely increase. This should be a consideration by the investors because as EPS and CFPS values will higher than normal and this increase cannot be associated with the company performance(Yegon, Cheruiyot, and Sang, 2014). Thus, investors can be easily misled

Secondly due to supply and demand phenomenon, the share price can rise. Once a company repossess its shares from the open market it means that lesser shares are available in the open market and supply and demand curve will rise.The price of the stock will definitely rise. This increment in stock price is not as a result of good performance from the company and the investors should wary and be very cautious because this can also mislead them (Kinder, 2002).

Nevertheless, when a company practice share buyback, it may be anindication that the management is expecting good performance and that they are repossessing the shares so that the share price can appreciate. The management may be expecting to acquire another company, release a new product and diversify its products or release a new product line. Moreover, through research and design, the management enhance its product quality to attract more customers.

The major aim of the management whether institutional or personal is to see the shares invested in appreciate. This is because of the agency theory that places the management with the fiduciary duty of making sure that the stock prices appreciate to create and multiply wealth of the shareholders and that many are times management is rewarded with the same shares. This means that the capital gain benefits them personally.

Once a company practices a share buyback, it acts as a signal to the market that the company is expecting the share price to rise soon. With supply and demand phenomenon, it is an obvious assumption by the management that the share price will go up.

Due to this information being signaled to the investors, share repurchase can cause investors to buy shares from such companies that are practicing share buyback having in mind that these shares might appreciate in the near future because many investors believe that any company repurchasing its shares will do so because the management believes that the shares are undervalued. However, investors are very keen because the management can use share repurchase with the intention of attracting investors but not necessarily that the shares are undervalued(Yegon, Cheruiyot, & Sang, 2014). In such scenario, investors are very cautious and may not end up running for the shares. Any action taken by the investors from information conveyed by share repurchase many affect share price and in our study will be investigating whether share repurchase has a significant effect on share price volatility.

1.1.3 Share Price volatility

A share price is the price of a unit share of a number of outstandingstocks of a company.The price of a stock will appreciate or depreciatedepending on a number of happenings, including changes within the economy environment, government policies, management intervention, changes within operating industry, political environment, war, pandemics and environmental changes.Share price volatility is the degree in which the share varies. The volatility becomes the risk taken by the investors.

Whenever share price volatility occurs, many investors get spooked and begin to question their investment strategies. This is especially true for novice investors, who can often be tempted

to pull out of the market altogether and wait on the sidelines until it seems safe to dive back in. The thing to realize is that market volatility is inevitable. Markets will always move up and down in short term and in long term and that's its nature. Timing the market becomes very difficult because of the unforeseen phenomenon. One solution is to maintain a long-term horizon and ignore the short-term fluctuations. Many investors use this strategy of maintaining the long-term horizon but nevertheless the investors should know about volatile markets and the steps that can help them counter the volatility.

When investors troop to the market the prices goes up while when they run from the market, the prices go down. In the context of the study, declaration of dividends as premised on the listed firms' dividend policies may attract or repel shareholders from the market (Yegon, Cheruiyot, & Sang, 2014). This attraction and repulsion of investors affect share price behavior hence share price volatility. The current study seeks to relate the dividend payment methods of the listed firms to share price volatility.

1.1.4History of the Nairobi Securities Exchange

Stocks' trading in Kenya premiered in 1920'sbased on informal gentleman's agreements in the markets. The trade then was conducted by professionals in the realms of accountancy, law and finance. Francis Drummond put up the first stock broking firm in 1951 which was the precursor to NSE which came by in 1954 to now the Nairobi Securities Exchange and was formed as an association of stockbrokers registered under the Societies Act (NSE 2019).The Securities exchange was formed with four main investment market segments namely; Alternative Investment Market Segment (AIMS), Fixed Income Securities Market Segment (FISMS)Main Investment Market Segment (MIMS), and Growth Enterprise Market Segment (GEMS) each with its own eligibility criteria.

Nairobi Securities Exchangehas been noted as one of the most vibrant securities market in sub Saharan Africawith a huge portfolio of foreign investors. In 1994 the NSE 20-share index recorded 5,030 points earning a rating of the International Finance Corporation (IFC) of the best emerging African based market with a return of 180%. In 2007 there was a record of six Initial Public Offers (IPOs) in the very bourse thus a vindication of the confidence varied players had in the market (NSE 2019). The core motivation of the many institutional players, individuals and foreign investors buying into the shares of the listed firms is to get returns in the name of dividends and growth of the values of their investments. It is against this background that the current study seeks to find out whether there is a significant relationship between dividend payment methods and market share price volatility in NSE.

NSE has a role to play in the growth of Kenya's economy. It encourages savings and investment, and also helps local and international companies to invest in the Kenyan economy and have access to capital with ease. NSE is managed by Capital Markets Authority of Kenya. It is also a full member of the World Federation of Exchange, a founder member of the African Securities Exchanges Association (ASEA) and the East African Securities Exchanges Association (EASEA). The Nairobi stocks Exchange is a member of the Association of Futures Market and is a partner exchange in the United Nations-led SSE initiative.

1.2 Statement of the problem

Once a company pay dividends to her shareholders, the impact of the paid dividends can cause share price volatility. This have a meaning that the share price may rise or fall depending on the payment method adopted because different methods used to pay dividends convey different information to the investors. The corporate managers are faced with a challenge of adopting the dividend payment method that will add value to the company through rise in share price. It is this

dilemma of not knowing the dividend payment method to adopt that has caused the management to make wrong decisions whenever it comes to dividend payment.

We can have a scenario whereby two listed companies want to distribute equal amount of dividends to the shareholders but use two different methods of declaring the dividends. The resultant effect on the share prices will be different. The choice of the payment method can cause share price rise or fall.

Studies carried out by Gitau&Gathiaga, (2017) showed that the dividend payment method adopted by the listed firms in the NSE heavily influenced their performance. (Gitau&Gathiaga, 2017). Many investors prefer cash dividends and they believe that company paying cash dividend is sound and strong unlike companies issuing other types of dividends like stock dividends, script dividends, liquidating dividends and property dividends.

Few years ago, Nairobi securities exchange experienced a fall in market price of shares which has significantly affected values of many listed firms. The share price dip is evidenced by the drop in NSE 20 share indexto 1,891.3 in March 2020 from 2,958.36 in January 2019. Further the index dropped significantly to 1,794.85 in August 2020 (NSE Monthly Market Statistical bulletin, 2020). Shares prices of listed firms is a matter of concern to the investors and also the management, employees, suppliers and other stakeholders. A fall in share price subsequently decreases the firm value and the demand for the equity of the firm in the market fall and as a result further fall in share price. This affects the operations of the company and the management may be forced to take drastic steps for the survival of the company because it becomes very challenging to raise capital and maintain confidence from the stakeholders. This fluctuation of market price of shares wascaused by many factors and among them the dividend policy adopted by the management especially in choice of method of dividend payment.

Despite dividend payment methods being one of the most researched topics in accounting and finance, the question of whether dividend payment method make share price to be volatile still remains unresolved (Ouma&Murekefu, 2012). Only a few of the studies undertaken on dividend payment methods and share prices volatility that has concentrated in developing countries (Arnott &Asness 2013), thus the issue of relevance of dividend payment method on shares prices volatility in NSE still remain valid.In this background the current study sought to fill the gap in literature by investigating the effect of dividend policy on share price volatility of firms listed at the Nairobi Securities Exchange for seven-year panel (2013 -2019).This prompted the current study which also incorporated share repurchase to expand the research base.

1.3 Research Objectives

a) To determine the effect ofcash dividend on shareprice volatility in Nairobi Securities Exchange.
b) To determine the effect of share dividend on share price volatility in Nairobi Securities Exchange.
c) To determine the effect of stock buybackon share price volatility in Nairobi Securities Exchange.
d) To determine the effect ofscrip dividend on share price volatility in Nairobi Securities Exchange.
e) To determine the effect of property dividend on share price volatility in Nairobi Securities Exchange.

1.4Hypothesis of the study

To investigate the effect of dividend payment methods on the share price volatility for companies listed in Nairobi securities exchange, the study has proposed the following hypotheses

HO_1: There is no statistically significant relationship between cash dividend and the share price volatility of the firms listed at the Nairobi Securities Exchange.

$H0_2$: There is no statistically significant relationship between share dividend and the share price volatility of firms listed at the Nairobi Securities Exchange.

HO_3: There is no statistically significant relationship between stock buyback and the share price volatility of firms listed at the Nairobi Securities Exchange.

$H0_4$: There is no statistically significant relationship between scrip dividend and the share price volatility of firms listed at the Nairobi Securities Exchange.

$H0_5$: There is no statistically significant relationship between property dividend and the share price volatility of firms listed at the Nairobi Securities Exchange.

1.5Justification of the Study

1.5.1 Choice of dividend payment method

The stock market is a critical tool in financial markets. It heavily impacts on a country's economic performance and its overall national outlooks by influencing returns accrued to investors in financial markets. Many investors in the stock exchange and securities market are influenced by different listed firm's dividend payment methods in the determination of the securities that they pick on to invest in. The choice of dividend payment method can attract investors or repel them. Many investors value returns from their investments. Dividend payment that can increase cash flow is valued by many investors.

1.5.2 Share price volatility

The companies listed in the NSE have strived to satisfy the capital markets authority regulatory demands as regards information sharing and related corporate governance requirements. This thus makes it an imperative for them to publicize their dividend policies. Despite the situation of the listed companies conforming to the rules as regards dividend policy dissemination for investor awareness, at times it does not translate into real gains for the shareholders.

This is evidenced by the rallies for specific counters for limited periods especially towards the onset of dividends declaration but diminished activities afterwards.This necessitates the need to carry out the study and determine the relationship between the dissemination of the dividend policy information andshare price volatility.

The study is equallyjustified as a premise of generation of insights to the players in the capital markets industry. This is occasioned by the fact that the need to find out the extent to which the dissemination of individual listed firm dividend policies affectsshare price volatility is of great importance. The players in the bourse may thus gain insights and exposure on how to carry out their trade efficiently as a measure of assured market standing for posterity.

1.6Scope of the Study

The study sought to evaluate the effect of dividend payment methods onshare price volatility inNSE. It has an aim of covering the period ranging from 2013 to 2019. It focused on listed firms which have been in operation within the stated period.

CHAPTER TWO

LITERATURE REVIEW

2.1 Introduction

The following section carried a review of works carried out by other authors in the field of study. It entailed the theoretical review, empirical review, the conceptual framework and the summary and gaps to be filled by the study.

2.2 Theoretical Review

Four theories have anchoredthe current study. They are dividend mm relevance theory, MM dividend irrelevance theory, signaling theory and clientele effect theory.

2.2.1MM Dividend Relevance Theory

The dividend relevance theory as postulated by Miller and Modigliani (1961) is premised on the ideals of dividend policies relevance to the shareholders in the event of optimal investment environments and the potential for fair and well-priced stock sales. The theory is premised on the assumption that management undertakes a 100% payout in every financial year and no transactional costs accrue to the shareholders as further accentuated by Abdella, Manual & Kannan (2016). The assumption that all the shareholders have free access to information and none of them abuses the access to confer themselves undue benefits equally underpins the theoryAbdella, et al, (2016).

The theoryis further anchored on the premise that the future prospects in terms of the envisaged share values determine listed firms dividends and the underpinning policies around them as posited by Biza-Khupe, andThemba, (2016).The dividend relevance theory thus premises that the shareholders can switch allegiance from one firm to another based on the prevailing

dividend policiesBiza-Khupe, andThemba, (2016); Abdullah, Parvez andTooheen, (2017).The theory thus gives the position that the dividend policies may attract new investors to a firm whilst at the same time occasion a run from them. This is premised on the fact that the core influence of the shareholders in terms of preference is the relevance of the dividends accrued from their investments Abdullah, et al, (2017).

The dividend relevance theorythus underpins the essence of the present share value being determined by the dividends issued out and the prospects for future dividendsas idealized by SijolNur and Abdul (2016). The same was buttressed by Adesina, Uwuigbe, Uwuigbe, Asiriuwa andOriabe, (2017) who idealized the situation of the share prospects coupled with the current earnings being the driving factor behind the relevance of the dividend policies to the shareholders. This thus brings to the fore the essence of the dividend policy in determining the firm's value and the attendant capacity to attract shareholders to buy the firms shares (Uwuigbe, et al, 2017).

In an ideal situation, a firms share price will increasein the event of high dividends paid out whilst decline in instances of low dividends as posited by Emeni&Ogbulu, (2015).Optimal dividend policies maximizing firm share values can thus be good premises on which firms can leverage on as conceptualized by Yegon, Cheruiyot, & Sang, (2014). The theory of dividend relevance captures the ideals of the current studyowing to the fact that shareholders are retained in listed firms presumed to perform well on the strength of their dividend policies. In the same vein, in the event of shareholders bemoaning poor dividends in the wake of low payouts or non-declaration of dividends, upheavals in the firms will be evidenced. The study sought to find out the extent to which the dividend relevance theory identifies with the phenomena being looked into which in this case is the dividend payment methods to the share price volatility.

2.2.2 MM Dividend irrelevance theory

Irrelevance theory as proposed by Miller & Modigliani (1961) proposed that suggested that dividend policy is not affected by the wealth of the shareholders. They also argued that the value of the firmis subjected to the firm's earning, which is determined by the investment activities of the company. The theorysuggested that dividend does not affect the shareholders' value having that taxes and market imperfections are held constant. They argued that dividend and capital gain is two main ways that can contribute profits of firm to shareholders. When the management of the firm wishes to issue dividends to its shareholders, then the share price will be automatically brought down by the amount of a dividend per share or by the same ratio of dividends having that the management can choose to issue other forms of dividends on the ex-dividend date. Therefore, the dividends policy does not affect the value of the firm thus the irrelevance of the dividends.

Conceptually, dividends are irrelevant to the value of a company because paying dividends does not increase a company's ability to create profit. When a company creates profit, it obtains more money to reinvest in itself. It can signal to investors that the company now possesses more capital/capability to create more profit and lead to an increase in the company stock price. However, if the company issues dividends, the company gives money to shareholders that could have been reinvested into itself and thereby loses some potential in its profitability. Implicitly, the company incurs a "cost" by issuing dividends.

Logically, the loss of potential profitability by issuing dividends is equal to the total amount of dividends paid out. Then, the share price of the company will decrease by the amount of the dividend issued. From the perspective of an investor, issuing dividends doesn't affect

personal wealth. If the company in which we hold stock issues dividends, an investor's on-hand cash increases by the amount of the dividend, but the stocks the investor holds are now valued less by the amount of the dividends issued, effectively giving a net gain of $0.

Considering the above assumptions, we can conclude that the firm's value is determined by its earning power and the risk involved. This is its power and ability to produce cash flows that are risk adjusted and the future earnings. They concluded that the value of the firm is dependent on the productivity of its investing activities and assets outlay but not on how the cash flow from investing activitiesis divided between cash distributed to shareholders and retained earnings. What has been concluded is that the dividend policy is irrelevant in finding the firms value. That is their point of argument. There must be something that must be considered here. Miller and Modiglianiargument that the firm's dividend policy decision is basically a mixer of financing and investment activities. An example is when a firm wish to adjust its dividend policy to the lower side simply because management is expecting that the future earnings will appreciate and it wishes to getfunds for new investing activities. Consequently, considering the above the management's dividend policy becomes a merger of the capital budgeting decision of the particular firm. Therefore, if the share price depreciates because dividends are reduced to undertake new and proper investment activities, can we say that this drop in price is due to the (new) investment activity or to the management decision regarding dividends? Considering another situation, a firm can fund capital expenditures through borrowing mainly. This makes sure the cash is available for dividends and as a result the firm's share price goes up. considering this case, the firm's dividend policy (and stock price increase) are as a result of the financing decisions made by the management.It is this phenomenon of dividend irrelevancy theory that this study looked at the relationship between dividend payment methods and share price volatility.

2.2.3 Signaling Theory

The signaling theory as premised by Poterba (1983) portends that share prices rise in the event of assured prospects in organizations. In essence the prospects are a harbinger for a rally on listed firm's shares or in the converse a run away from them as alluded to by Deeptee&Roshan, (2009). In the event of the dividend prospects projecting some good news, the share prices were bound to rise and in the same vein fall at the advent of prospects for bad newsDeeptee&Roshan, (2009); Luvembe ,Njangiru&Mungami, (2014).

The position was buttressed by Hussein (2016) who deemed situations of firm managements not being in positions to offer better dividends to shareholders not unless there was certainty about firm prospects and the situation of the general industry outlook. On the converse in the event of bad news about the general industry outlook with a potential to induce a reduction of the dividends paid out, the investors were similarly sent a signal that there was potential for reduced earnings naturally depressing activities on the counter as further buttressed by Luvembe, Njangiru and Mungami, (2014); Hussein (2016).

The signaling theory thus brought forth a situation of managersin the listed firms having insider information deemed classified and not for public consumption thus not able to be passed on to the shareholders as posited by Murekefu and Ouma, (2013); Odesa andEkezie, (2015). In this case, the regulators of the capital markets inhibit passing information and any forms of insider trading thus limiting conveyance of classified information. Choi &Doowon (2014) deemed the provisions for classifying information as an affront to shareholder decision making. They were of the view that the situation enhanced uncertainty of firm prospects more so as regards payment of corporate dividends (Choi, et al,2014).

Brian (2016)suggested that investors who were not versed with the on goings in the listed firms did not have informationon their profitability thus negating their individual capacities to project expected cash flows and performance. Brian (2016) further argued that the shareholders thus solely relied on the expected dividends as the projections of the general firm's outlooks. The situation thus reinforced the position of dividends acting as a strong signal for the projection of a firm's future outlook as was the position taken by Okibo andChateya, (2013).

In the context of the current study, signaling rightfully related with firm's dividend payment and the share price volatility. The declaration of dividends to shareholders brings forth the situation of the manager's confidence with the firms' outlooks in terms of industry prospects. The situation identifies with the position taken by Brian (2016)who argued that signalingas implied by higher dividend payouts increases the prospects for information asymmetry within the organizations. He went further to indicate that the information asymmetry positively correlated the share market indexes as evidenced in the activities in the bourse as evaluated from counter specific gains affected by the dividend policies. The current study sought to relate the signaling theory in the context of dividend payment methods to the share pricevolatility.

2.2.4 The clientele effect theory

This theory called dividend clientele was given this name because it belongs to a group of a company's shareholders who have the similar outlookconcerning the company's dividend policy. Stockholders in this group (dividend clientele) have their preferences generally based in a certaindividend payout ratio on income level that is comparable, tax advice, or demography. On a matter of fact, retired people (investors) or those who need income from current investment might buy the shares of the firms that offer higher dividend-payout ratios. Considering the other side, younger shareholders, or the ones that are in their early age that is considered prime in their

earnings and savings time, may want an organization to utilize the availablefree cash flow (FCF) to finance its growth strategies rather than use the cash to pay dividends. The clientele effect has an indication that investors want to hold shares whose dividend policy goes well with their needs and wants. This means that, investors prefer more certain and definite dividends over uncertain and riskier future earnings, or those prefer current income over capital gains, will definitely want tokeep shares with relatively high dividend payout, and the opposite is also true (that is, a share will have a group of investors attracted to it by its dividend policy). Under these circumstances, it is not only the policy that is relevant alone, but also the dividend policy stability. The theory was developed by Richard Petit in 1977.

The theory therefore is in conclusion that a group of stockholders with higher income prefers reduction of tax burden better they get low or no dividends. Consequently, they will prefer future capital gain that is associated with higher returns. The theory also brings out that low income stockholders have preference on high dividends so that to enhance their low earnings. This will cause them to shift from the company that offer low dividend payout to the one with high dividend payment. On the same note, as investors move from one company to another as they search the company with dividend policies that fit their preference, the value of shares will depreciate or appreciate in response to supply and demand in the market. But on reaching the equilibrium, the dividend policy will lose its relevancy since it will match with the requirement of the shareholders.

A dividend policy clientele's stockholders might have same preference regarding the amount paid by the company as dividends. Generally, members of a certain dividend clientele willundertake investment decisions considering the companies' dividend-payment policies that would benefit them mostly, and are well aligned with their investment and earning objectives.

Many are times dividend clientele will go further and pressure an organization to adopt a certain dividend policy. For example, stockholders that depend on a dividend yield that is generous for income, will end up pressurizing the company to have continuity, or issue more dividend or basically increase dividend payout.In the recent past researchers has concluded that the demands from a company's dividend clientele can be of great significance and of concern by the management.

On a matter of fact, whenever a change in policy is initiated that is not in the alignment with the views of a company's dividend clientele can reduce to what is referred to as the clientele effect. Thus this theory concludes that investors can generate a direct impact on the price of a share when a change in dividend policy, tax policy, or any other policy that affects their investment objectives. In other words, investors may sell or buy the share security if and only if a policy change will either align or no longer align with the individual's investor objectives. There is a good deal of controversy about the veracity of the clientele effect. Some people believe that more factors are in consideration than just the wishes of a company's clientele to move a stock's price greatly. The current study sought to link clientele effect theory with the relationship between dividend payment methods and share price volatility.

2.3 Empirical Literature Review

2.3.1 Cashdividends and share Price volatility

Chen, Huang and Cheng (2009) did research on the effect of Cash Dividend on Share Price for the period 2000-2004 in China. They concluded that Cash Dividend has significantly positive effect on the Stock Prices. When Cash Dividend increases, stock Prices also increase and when the Cash Dividend decreases, Share Prices decrease. Ali and Chowdhury (2010) analyzed

the price movement of private commercial banks listed at Dhaka Stock Exchange towards the dividend announcement. They took a sample of 25 banks and their results showed that stock prices of 11 banks decreased, 6 banks' stock prices increased, while 8 banks' stock prices remained unchanged when dividends were announced. Overall results of their study showed that there is insignificant relation between stock prices and dividends.

Akbar and Baig (2010) took the sample of 79 companies listed at Karachi Stock Exchange for the period of 2004 to2007 to study the effect of dividend announcement on stock prices. Results of their study show that announcement of cash dividends have a positive effect on Stock Prices.

Nazir, Nawaz, Anwar and Ahmed (2010) also studied the effect of dividend policy on stock prices. Results of their study show that dividend payout and dividend yield have significant effect on stock prices while size and leverage have negative insignificant affect and earning and growth have positive significant effect on stock prices.

Khan, Aamir, Qayyum, Nasir, and Khan (2011) studied the effect of cash dividend payment on stock prices by taking the sample of fifty-five companies listed at Karachi Stock Exchange. Results of their study show that dividend yield, earnings per share, return on equity and profit after tax are positively related to stock prices while retention ratio has negative relation with stock prices.

Hussainey, Mgbame and Chijoke (2011) studied the impact of dividend policy on stock prices. Results of their study show the positive relation between dividend yield and stock price changes and negative relation between dividend payout ratio and stock price changes. Their

results further indicate that the firms' earnings, growth rate, level of debt and size also cause the change in Stock Price in United Kingdom.

Khan (2012) attempted to explain the effects of dividend announcements on stock prices of chemical and pharmaceutical industry in Pakistan. The study applied Panel data to explain the relationship between dividends and stock prices after controlling the variables like Earnings Per Share, Retention Ratio and Return on Equity. The study indicates that Cash Dividend, Retention Ratio and Return on Equity have significant positive relation with stock market prices and significantly explains the variations in the stock prices of chemical and pharmaceutical sector in Pakistan while Earnings Per Share and Stock Dividends have negative insignificant relation with stock prices.

Baker and Powell (2012) has used survey technique to take the opinion of Indonesian managers about the factors influencing dividend policy, dividend issues, and explanations for paying dividends. Results of their survey show that Indonesian managers consider stability of earnings and level of current and expected future earnings are the most important determinants of dividend policy. Their results further indicated that dividend payment method affects firm value.

2.3.2Stock Dividend and Share price volatility

Study of stock dividend issuance has not been examined in the past in the NSE which displays efficiency in the weak form as evidenced by Olweny (2012) who studied the effect of cash dividend announcement on value of the firm using event study methodology involving t-test of significance to establish whether dividend announcements had information content. He used NSE data of 4 firms for the period between years 1999 to 2003. The results indicated that dividend announcements significantly affects the firm value, that such announcements do indeed

convey useful information about the future value of a firm and that the NSE is not efficient hence can allow abnormal returns to be made during dividend announcement.

Share prices will always adjust to new information. Whenever the market is efficient, this adjustment is instantaneous and accurate. Research on the market efficiency, therefore, test the speed of adjustment of stock prices to the release of new, relevant information to investors. One such event is the announcement of bonus issues by companies. While accountants view bonus issues as pure book-keeping entries which leave total equities and total assets unchanged and hence have no real economic significance, for investors, however, bonus issues lead to an upward revision in their expectations regarding future earnings and dividends. Generally, therefore, an upward drift in stock prices is associated with such announcements. If markets are efficient, and no learning lags exist, the adjustment in stock prices would be prompt (M Obaidullar, 1992). He tested a sample of 75 bonus issues in India for a period between 1987 and 1990. He concluded that the share prices have an upward adjustment that actually occur after the announcement.

Considering the study performed by Ramesh, S and NimalathasanB (2011) concerning stock dividend issue announcement and its impact on share price of Colombo stock exchange in Sri Lanka covering the period between January 2003 and April 2007 show that the bonus issue has no significant impact on share price. He examined a sample of 67 events from 32 companies in which 34 events are from financial sector while 33 events are from non-financial sector. 29 events (43%) shown a positive effect while 38 events (57%) shown a negative effect on share price. Nevertheless, the study done by Denis OliechAyoma(2013) on the impact of bonus issue on share prices of companies quoted in Nairobi Securities Exchange for the period between 2009 and 2012 showed that average abnormal return is different from zero implying that there is an anomaly in the semi strong form efficiency of the NSE with regards to bonus issue

announcements as it is possible to profit from such announcements which is regarded as news by NSE investors. His population of interest was 62 listed companies in which he found that there was a total number of 21 bonus issues.

In addition,study by Suresha and Naidu(2012) on effect of bonus announcement on share price volatility and liquidity and its impact on market wealth creation of informed investors in Bangalore with special reference to Cnx Nifty stocks of NSE for a period between 1995 and 2011. The results shown that whenever the companies declare bonus issue in Bangalore, India the share price is affected negatively.

Finally, study carried by Subhendu Kumar Pradhan and KasilingamR (2012) on impact of bonus announcement on share price: evidence from Bombay stock exchange for the period between January 2005 to December 2012 concluded that six companies have positive effect on share price while four companies have negative effect.

2.3.3 Stock repurchase and share price volatility

Empirical evidence from the prior studies report that negative long run abnormal returns following the buyback announcement in U S, U K and Canada. Market reaction in the UK differs from that in the US for short term market. In Canada Ikenberry et.al (2000) found that the Canadian experience is similar to the earlier evidence obtained for US buyback and the initial market reaction to repurchase programs is small; the abnormal return is less than 1 % in the announcement month. They also found that the market on average seems to under estimate the information contained in repurchase announcements. Further using a three-factor model, abnormal performance over a three year holding period is about seven percent per year. Their finding is consistent with well documented findings in the United States, that long run abnormal

stock returns for these cases are negative. Ikenberry and Vermaelen (1996) found that announcement returns are directly related to the volatility of the stock price and the fraction of shares to be purchased. They also found that the market reaction is negatively related with the correlation co-efficient between stock returns and market returns.

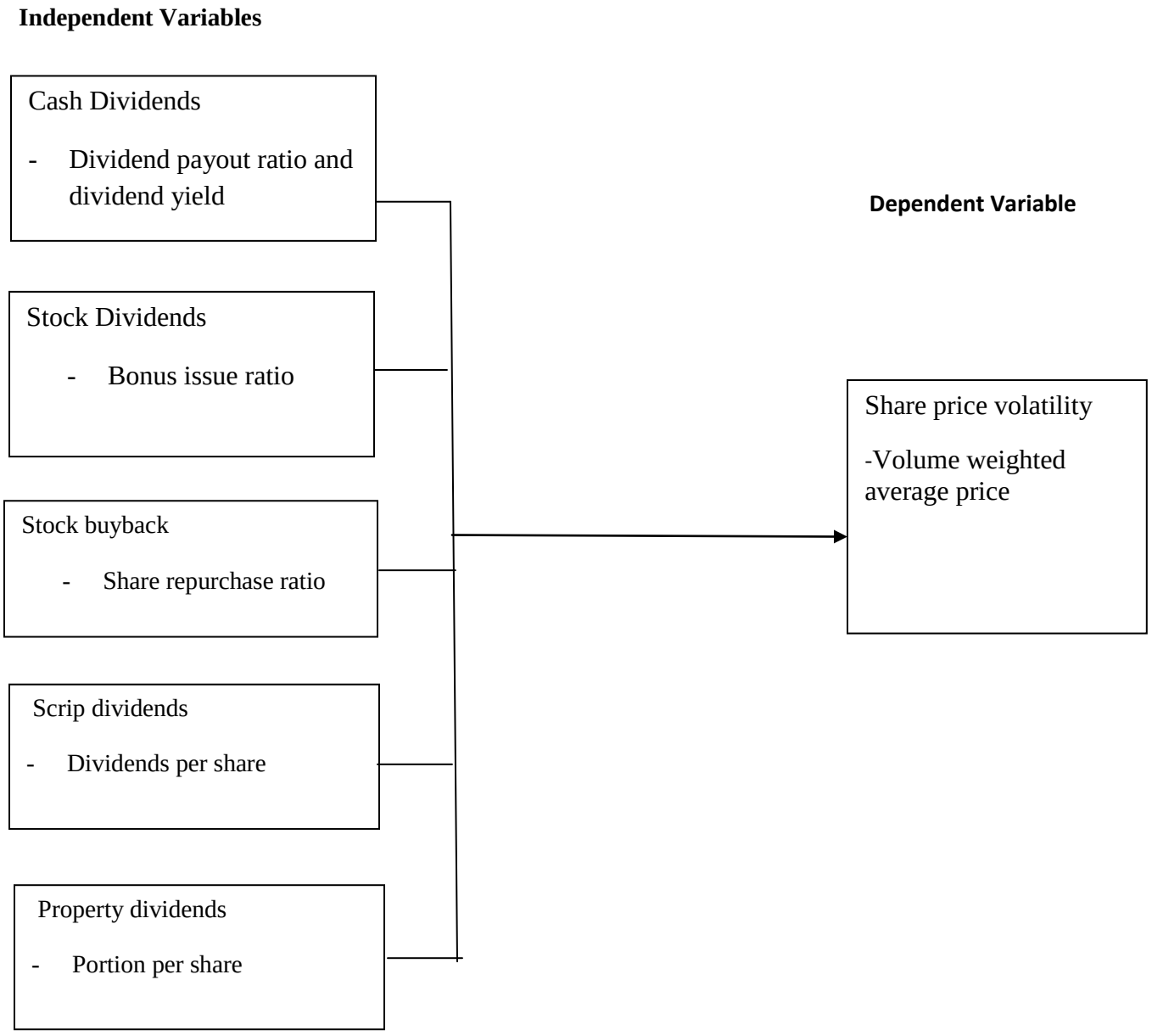
Bartov, Eli (1998) analysis of 150 firms announcing share repurchase during the period 1986 to 1992vis-à-vis other firms in the same industries that preferred to increase dividends finds that stock buyback firms had higher book to market ratio and higher proportion of institutional investors. This highlights 'undervaluation' and 'tax advantage' as the two major motivations of the share repurchase programme.

Vermaelen (1981) and Ikenberry, Lakonishok and Vermaelen (1995) find abnormal returns of approximately 3% over a two-day announcement period. In addition, Ikenberry, Lakonishok and Vermaelen (1995) hypothesized that stock repurchases primarily serve as a signaling mechanism and thereby provides new information. The signaling hypothesis led to an investigation of the long-run performance of companies announcing stock repurchases. Using a sample of 1,239 open market repurchases announced between 1980 and1990, they show that investing in companies that announce stock repurchases results in 12.4%abnormalreturnsover 4 years. However, their examination was done without regard to whether the programs were actually completed. Firms seem to decide to repurchase when they are undervalued and the market discounts only part of this information at the announcement. If we assume that stock price is for some reason undervalued before a repurchase announcement and remains so afterwards then repurchasing can create positive value to shareholders analogous to that of Porter, Roenfeldt, and Sicherman (1999). They show that undervalued closed end funds gain in value after repurchasing their shares. It is even if the discount factor stays at the same level after repurchases.

In signaling models of Bhattacharya (1979) and Miller and Rock (1985) cash distributions to shareholders convey positive information about firm' s future earnings. However, in these settings dividends and stock repurchases are perfect substitutes. There is mixed empirical evidence of cash disbursements information signaling. Bartov (1991) find (weak) increase of earnings after open market stock repurchases announcements, but a more recent study of Grullon and Michaely (2003) does not confirm this result. The evidence for dividends announcements varies in similar manner. This study is one of the work examined the impact of stock repurchase program and dividend announcements on share price behavior and their relative signaling power with reference to firms listed in NSE.

2.4Conceptual Framework

Figure 1: A conceptual framework showing effect of dividend payment methodson share price volatility in NSE



Cash dividend per share are the proportions of the net incomes the entities listed on a public bourse issue out to their shareholders. The earnings are part of the profits from the firm's activities transferred to the investors as benefits from their individual shares. The indicators of this variables are dividend payout ratio calculated from DPS and EPS and dividend yield

The issued property dividend would be recorded against the current market price of the asset distributed. As the market price of the asset is expected to be either above or below the book value therefore it would either incur profit or loss and accordingly would be entered in the books.

Share dividend is paid out to shareholders in form of stocks instead of cash. The stock dividend has the advantage of rewarding shareholders without reducing the company's cash balance, although it can dilute earnings per share

Stock repurchase price per share is the stock buyback price by the company. Once a stock repurchase is done the outstanding shares are reduced thus the percentage change in shareholding is calculated.

2.5 Operationalization of the Variables

The table below shows how each variable will be operationalized

Table 1: Operationalizational Framework

Variable	**Indicator**	**Measure**		**Data to be used**
Dependent variable				
Share pricevolatility	- Variation of share prices on counters on declaration of dividends	Observation Yearly change in shareprice		Secondary data
Independent variables				
Cash Dividends	Proportion of net incomes paid out	-Cash dividend payoutratio and dividend yield		Secondary data
Stock dividend	Proportion of bonus shares issued	Increase in shareholding		Secondary data
Share repurchase	Reduction of outstanding shares	Decrease in shareholding		Secondary data
Scrip dividends	Value of shares issued	- portion allocated to each share		Secondary data
Property dividends	Value of the property acquired	- portion allocated to each share		Secondary data

CHAPTER THREE

RESEARCH DESIGN AND METHODOLOGY

3.1 Introduction

This chapter describes the research design, target population, sampling and sampling procedures, research instrument and data collection procedures. It further delves into data processing and analysis procedures.

3.2 Research Design

The study employed descriptive research design to evaluate effect of dividend payment methods onshare price volatility of the firms listed in Nairobi Securities Exchange.This is because descriptive research is unique in the number of variables employed. Like other types of research, descriptive research can include multiple variables for analysis, yet unlike other methods, it requires only one variable (Borg & Gall, 1989). For example, a descriptive study might employ methods of analyzing correlations between multiple variables by using tests such as Pearson's Product Moment correlation, regression, or multiple regression analysis. Good examples of this are the Knupfer and Hayes (1994) study about the effects of the Channel One broadcast on knowledge of current events, Manaev's (1991) study about mass media effectiveness, McKenna's (1993) study of the relationship between attributes of a radio program and its appeal to listeners, Orey and Nelson's (1994) examination of learner interactions with hypermedia environments, and Shapiro's (1991) study of memory and decision processes. It was deemed appropriate for this study since the research intended to investigate in-depth information on the relationship between dividend policy variables and volatility of share market prices of firms listed at NSE for the period between 2013 and 2019. A sample of 50 listed firms was selected from a population of 67 firms. This is after eliminating those firms that have ceased trading and also those have

unavailable data. The study investigated the effects of dividend policy on the share price through panel data estimation. Panel data consist of observations on the same cross-sectional, or individual, units over several time periods (Gujarati, 2003). It is employed to collect information in instances whereby secondary data is adequate to gather all the requisite information. The study hassettled on the method owing to the need to collect data whilst relying on documented information in the area of study.

3.3Target Population

Our study is targeting dividend payment behavior of 67 listed firms in Nairobi Securities exchange for the period between 2013 and 2019. This is the total numbers of firms that are listed

3.4 Sampling and sampling procedure

For the basis of our study we employednonprobability sampling procedure where by a sample of 50 firms will be selected using judgmental sampling technique. This enabled the researcher to choose those companies that are trading and have their data available. The sample that consisted of 75% of the population is believed to a good representative of the population. The population of this study generally consisted of the companies listed in NSE during the period of study. The sample was limited to those companies that pay dividends. More precisely, it included those companies that have a dividend payment for at least 5 years of distribution during the period 2013 to 2019. Hence, it excluded the companies with zero dividend payments or less than five years' dividend payments during the study period. Also, the study excluded all companies with missing data during this period.

3.5 Research instrument

The instruments are used to measure or collect data on a variety of variables ranging from physical functioning to psychosocial wellbeing. Types of measurement tools include scales, indexes, surveys, interviews, and informal observations

The study employed a secondary data interrogation guide whereby non-participant observation method was used to observe and record data of share prices as provided in the NSE publications. The guide will be premised on the need to relate listed organizations dividend payment methods with trends as regards share pricevolatility. The interrogation strove to link the study objectives to the phenomena under study.

3.6 Data collection procedure

Data collection was done using quantitative data collection method. As quantitative data collection methods are often based on mathematical calculations, the data obtained that way was usually seen as more objective and reliable than qualitative. The data was collected covering eleven sectors, agriculture, automobile and accessories, banking, commercial and service, construction and allied, energy and petroleum, insurance, investment, manufacturing and allied, telecommunication and real estate investment trust sector. It noticed that most firms listed in NSE do not practice stock repurchase and this was the most important challenge faced the study. Also property and scrip dividends are very rare. The data employed in this study is derived from the annual publications of the NSE. Based on a 7-year period (2013-2019) and 50 companies distributed cash dividend and stocks dividend listed on the NSE. In order to gain the maximum possible observations, pooled cross-section and time-series data is used. Also, another source of data is based on the annual report publications of public shareholding firms held by NSE. This

data consists of balance sheet, cash flow statement, financial ratio and other relevant information related to firm's value. Another secondary data is collected from books, websites and articles.

3.7 Data processing and analysis

The quantitative data analysis entailed both descriptive and inferential statistics.The process involved taking a potentially large number of data points in the sample and reducing them down to a few meaningful summary values and graphs. This procedure allowed us to gain more insights and visualize the data than simply pouring through row upon row of raw numbers.Inferential statistics entailed regressionfor causal relationship establishment between variablesbeing interrogated by the study. To address the specific research objectives of evaluating dividend payout ratios, dividend yield,bonus dividend ratio, share buyback ratio and property dividend per shareas determinants of share price volatility of firms listed in NSE, the study adopted regression analysis. Payout ratio, dividend yield, bonus shares per share and share buyback ratio were the independent variables while share price volatilitywas the dependent variable.

The hypothesized model will take the form of equation one below.

$$P.Vol = \alpha_0 + \beta_i X_1 + \beta_{ii} X_2 + \beta_{iii} X_3 + \beta_{iv} X_4 + \beta_v X_5 + \beta_{vi} X_6 + \varepsilon_0 \quad \text{equation (1)}$$

From the equation (1),

P. Vol =Price volatility

α_0 = constant showing share pricevolatilityin the absence of the independent variables,

β_i = Coefficient of the independent variables

X_1 = Payout ratio

X_2=Dividend yield

X_3 =bonus issue ratio

X_4= share buyback ratio

X_5= Scrip dividend ratio

X_6= property dividend ratio

ε_0 = error term associated with the regression model.

3.8 Diagnostic tests

Diagnostic tests carried out in the study include normality test, collinearity test, Heteroskedasticity test, and regression analysis. normality tests are carried out to determine whether a data set is well-modeled by a normal distribution and to calculate how likely it is for a random variable underlying the data set to be normally distributed. A normality test is used to determine whether sample data has been drawn from a normally distributed population. Multicollinearity (also collinearity) is a phenomenon in which one predictor variable in a multiple regression model can be linearly predicted from the others with a substantial degree of accuracy. In this situation, the coefficient estimates of the multiple regression may change erratically in response to small changes in the model or the data.Heteroskedasticity (or heteroscedasticity) happens when the standard deviations of a predicted variable, monitored over different values of an independent variable or as related to prior time periods, are non-constant.

CHAPTER FOUR

DATA ANALYSIS, FINDINGS AND DISCUSSION

4.1 Introduction

This chapter dealt with the findings from the tests explained in chapter three. The test statistics are then explained and discussion of its implications is also dealt with in this chapter.

4.2 Descriptive statistics

The mean, median and standard deviation are the descriptive statistics that was used as measures to test the influence of the independent variables over the dependent. The F Test will also be used to check for instances of variations in the differences of the means in the study variables. Table 2 shows the descriptive statistics including mean, standard deviations, minimum and maximum value of all variables and variance

Variable	Obs	Mean	Std. Dev.	Min	Max
companyname	0				
pvol	50	23.4852	31.9177	1	137.17
x1	50	.2812	.3016393	-.43	.93
x2	50	3.5778	2.94901	0	13.33
x3	50	.0526	.1914372	0	1.34
x4	50	.0022	.0113011	0	.07
x5	50	.055	.3237803	0	2.27
x6	50	.0114	.0806102	0	.57

The mean value of price volatility (P. Vol) was the highest at 23.4852. The lowest mean value is 0.0022 representing stock buyback ratio(X4). This was expected since very few companies practice stock buyback. Also we can recall that the practice has been suspended for long. Standard Deviation shows the variation in the data with share buyback ratio(X4) with the least value of Standard Deviation at 0.0113011 impliedthat stock repurchase is rarely practiced by the firms listed at the NSE. Share price volatility has the highest standard deviation meaning that the data has a high dispersion.

4.3 Study variables

4.3.1 Independent variables

The study consisted five independent variables namely cash dividends ratio, bonus issue, stock buyback and property dividend ratio. The cash dividends variable will be measured by average dividend payout ratio (X1) and average dividend yield(X2). The bonus issue will be measured by average bonus issue(X3) and the stock repurchase variable will be measured by stock buyback ratio(X4). Scrip dividends and property dividends will be measured by scrip dividend per share (X5) and property fair value per share (X6) respectively.

4.3.2 Dependent variable

The research consisted one dependent variable, share price volatility,that is being affected by the independent variables. Share price volatility is the unavoidable market phenomenon that reflected

on fundamentals of finance, information in the market and investor expectations. Share price volatility disturbs the proper operations of the financial system and negatively affects stock market performance. High volatility above a particular mark raises the investment's risk profile hence possibility of losses is paramount. This phenomenon raised concerns over market confidence and the general condition of the economy. This research paper sought to examine the effect of share price volatility on stock market performance at the Nairobi Securities Exchange.For calculating share price volatility, the average share price is computed for the 7-year period and the square root transformation is used to achieve a variable comparable to standard deviation. This calculation method for share price volatility is consistent with (Baskin, 1989). The formula for computing the share price volatility is as follows.

$$\text{P. Vol} = \sqrt{\frac{\sum(P-\tilde{Y})(P-\tilde{Y})}{n}}$$

Where P. Vol = Share price volatility

P = Yearly average share Price, calculated from daily prices

$\tilde{Y}$ = Average share price for the period between 2013 and 2019

n = 7-year period between 2013 and 2019

The researcher is investigating the relationship between the independent variables and the dependent variable.

4.4 Diagnostic tests

Common measures of the accuracy of diagnostic tests were reviewed. It is shown that the actual performance (share price volatility) of these tests depends not only on their sensitivity and specificity, but also on the prevalence of the disease in the population tested (Bayes' theorem). The effect of an inaccurate "gold standard" on the calibration of a new diagnostic test is discussed. Receiver operating characteristic (ROC) curves were introduced as a tool for selecting an optimal cut point for a test, and for comparing different tests. Schemes were given for combining tests to improve their accuracy. When multiple continuous measurements are available, methods of discriminant analysis (and logistic regression) are shown to provide measurement combinations with improved accuracy. There are three critical assumptions for regression models: multicollinearity, normality and homoscedasticity (Gujarati, 2003, Berenson, Levine & Krehbiel, 2009).

4.4.1 Normality Tests

Normality tests was conducted to bring out the distribution of the study variables. This was the measure of determination of their independence from the study variables. This played a role in determination of the models goodness of fit. Table 3 shows the results of Shapiro-Wilk w test for normal data.

```
. swilk pvol x1 x2 x3 x4 x5 x6

                    Shapiro-Wilk W test for normal data
```

Variable	Obs	W	V	z	Prob>z
pvol	50	0.68581	14.776	5.743	0.00000
x1	50	0.97463	1.193	0.377	0.35316
x2	50	0.92988	3.298	2.545	0.00547
x3	50	0.29909	32.963	7.454	0.00000
x4	50	0.52978	22.114	6.603	0.00000
x5	50	0.36605	29.814	7.240	0.00000
x6	50	0.52072	22.540	6.644	0.00000

On the basis of the results above, W ranges from 0.29909 and 0.97311. This showed an indication of normality, though the distribution may not have been perfectly normal.

4.4.2Collinearity test

Collinearity test for predictor variables such as dividend payout ratio, dividend yield, share dividend ratio, stock buyback ratio, scrip dividend ratio and property dividend ratio was conducted to examine the presence of multicollinearity between independent variables with a significant effect on the relationship between the predictor variables and the predicted variable. STATA programme was used to compute VIF coefficients for independent variables and table 4 has the results as per table 4 below

Variable	VIF	1/VIF
x2	1.15	0.868901
x1	1.15	0.871633
x6	1.08	0.927685
x4	1.02	0.979670
x5	1.01	0.992239
x3	1.01	0.992729
Mean VIF	1.07	

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

4.4.3 Heteroscedasticity Test

The homoscedasticity assumption means that variance of the error terms is constant for each observation (Berenson, Levine & Krehbiel, (2009). The Breusch-Pagan/Cook-Wesberg was used to test for presence of heteroscedasticity in the study and the results are as per below table 5

```
Breusch-Pagan / Cook-Weisberg test for heteroskedasticity
         Ho: Constant variance
         Variables: x1 x2 x3 x4 x5 x6

         chi2(6)      =     9.73
         Prob > chi2  =   0.1367
```

The results from the above table showed prob>chi2 = 0.1367> 0.05. Hence the null hypothesis was not rejected.This meant that the variables had constant variance.

4.4.4 Regression analysis

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

Table 6

```
. regress pvol x1 x2 x3 x4 x5 x6
```

Source	SS	df	MS		
Model	5499.93326	6	916.655544	Number of obs	= 50
Residual	44418.2912	43	1032.98352	F(6, 43)	= 0.89
				Prob > F	= 0.5125
Total	49918.2245	49	1018.73927	R-squared	= 0.1102
				Adj R-squared	= -0.0140
				Root MSE	= 32.14

pvol	Coef.	Std. Err.	t	P>|t|	[95% Conf.	Interval]
x1	16.66628	16.30399	1.02	0.312	-16.21385	49.54641
x2	2.396011	1.670272	1.43	0.159	-.9724136	5.764436
x3	-12.61583	24.07171	-0.52	0.603	-61.16106	35.9294
x4	-311.4743	410.4771	-0.76	0.452	-1139.28	516.3316
x5	-3.635485	14.23607	-0.26	0.800	-32.34525	25.07428
x6	-70.12322	59.1369	-1.19	0.242	-189.3841	49.13772
_cons	12.57439	7.908221	1.59	0.119	-3.37406	28.52283

t and **P>|t|** – These columns provided the t-value and 2-tailed p-value used in testing the null hypothesis that the coefficient (parameter) is 0. If 2-tailed test was used, then we would compare each p-value to the pre-selected value of alpha. Coefficients having p-values less than alpha were statistically significant. For example, if we chose alpha to be 0.05, coefficients having a p-value of 0.05 or less would be statistically significant (that is we can reject the null hypothesis and say that the coefficient were significantly different from 0). If we used to a1-tail test (that is we hypothesized that the parameter will go in a particular direction), then we could have divided the p-value by 2 before comparing it to your pre-selected alpha level.

From the regression table the r-squared is 0.1102. This meant that the model was not highly predictive. The F-value = 0.89 is less than F statistic = 2.32 (from F distribution table) thus confirming the above statement that the model was not highly predictive and that movement in dependent variable was not highly controlled by the independent variables. This informed us that

there are other variables that affect the dependent variable that have not been considered by the study.

The p values in the table helped us to test our hypotheses and determine whether to reject the null hypothesis or not. If the p-value is greater than 0.05, we reject the null hypothesis.

4.5 Hypotheses testing

4.5.1 HO_1: There is no statistically significant relationship between cash dividend and the share price volatility of the firms listed at the Nairobi Securities Exchange

The first hypothesis, HO_1: There is no statistically significant relationship between cash dividend and the share price volatility of the firms listed at the Nairobi Securities Exchange, was to investigate the relationship between share price volatility and cash dividends. The cash dividends variables had two indicators; payout ratio and dividend yield. From above table, for payout ratio, p value = 0.312>0.05, thus we accept the null hypothesis, that the payout ratio is not statistically significant. For dividend yield, p-value 0.159is greater than 0.05 a confirmation of acceptance that in deed there is a no statistical significant relationship between cash dividend and share price volatility. The results are in agreement with Ali and Chowdhury (2010) in which after carrying the same study in Dhaka stocks exchange found that share price and cash dividends have insignificant relationship.

Our findings have supported the dividend irrelevance theoryin whichthe dividend policy does not affect the stock price.Our findings would enhance current understandings of the dividend policy impact on the stock price and that allows financial managers to be able to determine an optimal dividend policy which improve the performance of the firms.

Nevertheless, our study is contrary to Chen, Huang and Cheng (2009), Akbar and Baig (2010), Nazir, Nawaz, Anwar and Ahmed (2010), Hussainey, Mgbame and Chijoke (2011), Khan

(2012) and Baker and Powell (2012) who carried out the same research and concluded that cash dividends and share price volatility has a significant relationship.

4.5.2 $H0_2$: There is no statistically significant relationship between share dividend and the share price volatility of firms listed at the Nairobi Securities Exchange

The second hypothesis of the study, **$H0_2$:** There is no statistically significant relationship between share dividend and the share price volatility of firms listed at the Nairobi Securities Exchange, was to establish the relationship between share dividend (X3), and share price volatility for firms listed at the NSE. From the table above, p-value = 0.605 is greater than 0.05 thus we accept the null hypothesis. This leads to the conclusion that there is no statistically significant relationship between bonus issue and share price volatility. This is in conformity with study done by Ramesh, S and Nimalathasan B (2011) concerning bonus issue announcement and its impact on share price of Colombo stock exchange in Sri Lanka covering the period between January 2003 and April 2007. M Obaidullar (1992) and Suresha and Naidu (2012) found contrary results with the former concluding that the share dividends have a positive relationship with share price volatility and the latter concluded that the share dividends and share price volatility have a negative relationship.

4.5.3HO_3: There is no statistically significant relationship between stock buyback and the share price volatility of firms listed at the Nairobi Securities Exchange

Our third hypothesis **HO_3:**There is no statistically significant relationship between stock buyback and the share price volatility of firms listed at the Nairobi Securities Exchange, is being accepted. This is because the p-value =0.452> 0.05 meaning that share repurchase has a nosignificant relationship with share price volatility. This is in conformity with the results found by Ikenberry

and Vermaelen (1996), Bartov, Eli (1998), Vermaelen (1981) and Ikenberry, Lakonishok and Vermaelen (1995) after carrying out same study.

4.5.4 HO_4: There is no statistically significant relationship between scrip dividends and the share price volatility of firms listed at the Nairobi Securities Exchange,

Our fourth hypothesis**HO_4:**There is no statistically significant relationship between scrip dividends and the share price volatility of firms listed at the Nairobi Securities Exchange, is being accepted because p value =0.8>0.05. This means that there is no statistical significant relationship between scrip dividends and share price volatility. Very few companies issue scrip dividends and therefore these findings cannot be attributed to the whole population due to lack of proper representation.

Nevertheless, according to the regression model, the scrip dividends have minimal negative relationship to share price volatility.

4.5.5 HO_5: There is no statistically significant relationship between property dividends and the share price volatility of firms listed at the Nairobi Securities Exchange

Our fifth hypothesis **HO_5:**There is no statistically significant relationship between property dividends and the share price volatility of firms listed at the Nairobi Securities Exchange, is being accepted because p value =0.242 is greater than 0.05. This means that there is no statistical significant relationship between property dividends and share price volatility. Just like scrip issue, property dividends are rarely issued by the listed companies.

4.5 Model fitting

Table 7

```
. regress pvol x1 x2 x3 x4 x5 x6
```

Source	SS	df	MS		
Model	5499.93326	6	916.655544	Number of obs	= 50
Residual	44418.2912	43	1032.98352	F(6, 43)	= 0.89
				Prob > F	= 0.5125
Total	49918.2245	49	1018.73927	R-squared	= 0.1102
				Adj R-squared	= -0.0140
				Root MSE	= 32.14

pvol	Coef.	Std. Err.	t	P>|t|	[95% Conf.	Interval]
x1	16.66628	16.30399	1.02	0.312	-16.21385	49.54641
x2	2.396011	1.670272	1.43	0.159	-.9724136	5.764436
x3	-12.61583	24.07171	-0.52	0.603	-61.16106	35.9294
x4	-311.4743	410.4771	-0.76	0.452	-1139.28	516.3316
x5	-3.635485	14.23607	-0.26	0.800	-32.34525	25.07428
x6	-70.12322	59.1369	-1.19	0.242	-189.3841	49.13772
_cons	12.57439	7.908221	1.59	0.119	-3.37406	28.52283

Fitting the model, we have the following equation

P. vol= 12.57 + 16.67 X_1+2.40 X_2 – 12.62 X_3 -311.47X_4-3.64X_5-70.12X_6

Where

P. Vol= price volatility

X_1 = payout ratio

X_2=dividend yield

X_3 =bonus issue ratio

X_4 = share repurchase ratio

X_5 = scrip dividend ratio

X_6 = property dividend ratio

After carrying the model fitting in the table 7, the payout ratio, dividend yield hasa positive coefficient of 16.67 and 2.40 respectively implying that cash dividends and share price volatility has a significant positive relationship. Share repurchase have a strong negative relationship according to our model. Bonus issue also has a substantial negative relationship with the share price volatility as well as scrip issue and property dividends.

CHAPTER 5

SUMMARY CONCLUSIONS AND RECOMMENDATIONS

5.1 Introduction

This chapter will deal with the summary of the findings, conclusions and recommendations that can be derived from the study. The summary of the findings will include the summary of the tests carried.

5.2 Summary

The data collected was subjected to tests to test the suitability of the model. A random effect GLS regression analysis was run for 50 companies represented in the sample in order to establish the relationship between dividend policy and share prices volatility for listed firms in the NSE. The relationship between dividend policies and stock price movements constitutes a central issue in finance research since such insights can prove useful to managers and stock market traders in their decision making.

5.2.1 Relationship between Cash dividends and share price volatility

Despite the payout ratio having a positive coefficient because once a listed company declare high cash dividends, investors translate that as the best company to invest in and they rush for such shares, according to our findings, the cash dividends variable is not significant. The same case applies to dividend payout ratio. Therefore, the rise or fall in share price will not be related with the declaration of dividends. Other factors could be involved and that forms part of the future research.

It is expected that share price volatility is being affected negatively by dividend yield. (Baskin, 1989) explained negative impact of dividend yield on share price volatility based on the

duration effect, the rate of return effect, the arbitrage effect and the information effect. The share price model by Gordon (1962) demonstrated that firms with high dividend yield are less sensitive to fluctuation of discount rate thus lower price volatility holding other variables constant. Higher dividend yield will lead to higher arbitrage profit because the excess return is subordinate of dividend yield and price discount rate.

Signal theory has its origins in (Lintner, 1956) studies who revealed that the price of a company's stocks usually changes when the dividend payments changes. Even though Modigliani & Miller (1961) argued in favor of the dividend irrelevance, they also stated that in the real world disregarding the perfect capital markets, dividend provides an "information content" which may affect the market price of the stock.

5.2.2 Relationship between share dividends and share price volatility

Although the bonus issue has a negative relationship with the share price volatility, the model is not significant at all. These results were consistent with the argument that share dividend policy is the transfer of funds between equity accounts (Levy &Sarnat, 1994) and that it does not include any outside cash flows; therefore, the shareholders do not receive anything (Broyles, 2003). It is not expected that the share dividend policy would have any impact on the company's value as long as the investors understand that the replacement of cash dividends by shares is for the sake of reinvesting this money and not because of financial difficulties or to meet outstanding payments (Ross, Westerfield, & Jaffe, 1999)

5.2.3 Relationship betweenstock repurchase and share price volatility

According to the research findings, share repurchase ratios has a strong negative significant relationship with the share price volatility, but according to our model share repurchase had no significant relationship with share price volatility. Once a company buy back its shares, its either the management is expecting good performance or have a notion that its shares are undervalued. The effect from this buyback will mainly depend on the perception of the investors. It is also worth to note that management can misuse stock buyback and use it as a tool of passing the wrong information to investors and this is the reason why government has suspended stock buyback up to when clear guidelines were issued. Because a share repurchase reduces a company's outstanding shares, we may see its biggest impact in per-share measures of profitability and cash flow such as earnings per share (EPS) and cash flow per share (CFPS). Assuming that the price-earnings (P/E) multiple at which the stock trades is unchanged, the buyback should eventually result in a higher share price. This is in line with our findings.

5.2.4 Relationship between scrip issue and share price volatility

Scrip issue has no statistical relationship with share price volatility. This means that scrip issue does not cause rise or fall of share price. Many investors do not consider scrip issue as an achievement because it is not associated with any kind of financial performance. As a matter of fact, scrip issue does not improve earnings per share because the EPS is reduced with the same proportion of the scrip issue.

5.2.5 Relationship between property dividends and share price volatility

Property dividends has a negative relationship with share price volatility which is not significant. Our model led us to conclude that property dividends has no significant relationship

with the share price volatility. Although our model may not be perfect due to unavailability of data, these findings lead us to conclude that depending on the rationality of the single investor and the information asymmetry, property dividends can make an investor to think that the company is performing well or otherwise.

5.3 Conclusion

The objective of this study was to investigate the relationship between dividend payment methods and share price volatility of companies listed in NSE. This was carried by collecting and testing data of a sample of 50 listed companies that was selected randomly from a population of 67 listed companies in NSE. The data collected was for the period between 2013 and 2019. Diagnostic tests were carried to determine the effectiveness of the model and it was determined that the model did not suffer from multicollinearity, non-normality and Heteroskedasticity. A regression analysis was carried to determine where the model was statistically significant and it pointed out that there is no statistically significant relationship between the share price volatility and the variables. This is also confirmed by the individual dependent variables in the whole model that there is no statistical relationship between share price volatility and independent variables

Estimations on the whole sample suggested that no independent variable is significant. The observation that DY and DPR were not consistent throughout our estimations (in terms of the coefficient direction and significance) adds further evidence that the direction of these relationships can change over time and also suggests that there may be sensitivity to the treatment of outlier observations and sampling procedures. In this way one should avoid relying exclusively on statistical significance when assessing such relationships. In addition, these factors can

potentially aid in reconciling the mixed evidence in the context of this area. We also expect these results to be useful from the point of view of corporate financial managers in order to better understand the effects of their dividend policy decisions on share price volatility.

5.4 Recommendations

Based on results of this study, it can be concluded that managers of companies may be able to change their volatility of their share prices by not relying only on their dividend policy. Nevertheless, it may be possible for them to use dividend policy as a device for controlling their share price volatility if at all the management can be able to blend the dividend policy with other factors that affect share price. They may be able to reduce their share price volatility by increasing their dividend payout. Also listed firms can use this model to ascertain information asymmetry among the investors.

Consequently, whereas we have that the impact of cash dividend policy on the current prices of company shares is considered to be very important, not only for policy makers, but also for investors, portfolio managers, and researchers interested in the performance of capital markets. Though other findings show mixed results in the effects of dividend yield and dividend payout ratio, the study recommends that whatever ideology that a firm chooses to adopt between the two extreme theories; (that dividend does not affect the value of the company as the company‘s value will not be affected by how earned profits are divided but rather affected by the ability to achieve profits on one hand and the opinion that dividends affect the company‘s value through an increase or decrease in the demand for the company on the other), companies should be consciously meticulous in their thoughts on efficient approach to maximizing the wealth of shareholders and simultaneously meeting the company’s needs to finance its investments.

5.5 Recommendations for future research

The research has studied the effects of dividend payment methods on the share price volatility in the Nairobi Securities Exchange (NSE) – Kenya, which is an example of an emerging market in Africa. The analysis has produced some interesting results and one avenue for future research is to extend the study to other emerging markets, especially those in the East and Central Africa region. Since dividend policy only explains less than 50% of the variability of the share prices, it means that other factors explain more of the variability in the share prices. Study, therefore needs to be done testing other factors likely to cause the variability in the share prices. Some of the factors that can be examined include; agency costs, ownership structure, signaling, growth and investment opportunities, profitability of the firm and dividend taxes.

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APPENDIX 1: SECONDARY DATA INTERROGATION GUIDE

The average share prices for the periods of the years 2013 to 2019

Dividend payouts for the period of the year 2013 – 2019 by the firms listed in NSE

Individual firm's dividend policies. Table 8 below shows the summary of the data collected

Source: Nairobi securities exchange Handbook

	Company name	YEAR	Average share price	average cash dividend per share	average EPS	Average Payout ratio = DPS/EPS	Average Dividends yield	Average bonus dividend ratio	Average share buyback ratio	Scrip dividends	property dividends
1	Absa Bank	2013	17.26	**0.70**	**1.40**	0.50	4.06	0.10	0.00	0.00	0.00
		2014	16.93	**1.00**	**1.54**	0.65	5.91	0.00	0.00	0.00	0.00
		2015	14.80	**1.00**	**1.55**	0.65	6.76	0.00	0.00	0.00	0.00
		2016	10.15	**1.00**	**1.36**	0.74	9.85	0.00	0.00	0.00	4.00
		2017	9.24	**1.00**	**1.28**	0.78	10.82	0.00	0.00	0.00	0.00
		2018	11.29	**1.10**	**1.37**	0.80	9.74	0.00	0.00	0.00	0.00
		2019	11.33	**1.10**	**1.37**	0.80	9.71	0.00	0.00	0.00	0.00
				0.99	**1.41**	0.70	8.12	0.01	0.00	0.00	0.57
2	B.O.C Kenya Ltd	2013	112.32	**5.20**	**10.38**	0.50	4.63	0.50	0.00	0.00	0.00
		2014	146.04	**5.20**	**16.71**	0.31	3.56	0.00	0.00	0.00	0.00
		2015	128.81	**5.20**	**15.10**	0.34	4.04	0.00	0.00	0.00	0.00
		2016	90.60	**5.20**	**13.06**	0.40	5.74	0.00	0.00	0.00	0.00
		2017	95.33	**5.20**	**6.55**	0.79	5.45	0.00	0.00	0.00	0.00
		2018	89.37	**5.20**	**5.21**	1.00	5.82	0.00	0.00	0.00	0.00
		2019	68.23	**2.35**	**3.87**	0.61	3.44	0.00	0.00	0.00	0.00
						0.56	4.67	0.07	0.00	0.00	0.00
3	Bamburi Cement Ltd.	2013	209.47	**2.00**	**10.12**	0.20	0.95	0.00	0.00	0.00	0.00
		2014	175.30	**6.00**	**10.75**	0.56	3.42	0.00	0.00	0.00	0.00
		2015	158.00	**13.00**	**16.18**	0.80	8.23	0.00	0.00	0.00	0.00
		2016	172.40	**12.00**	**16.23**	0.74	6.96	0.00	0.00	0.00	0.00
		2017	170.39	**4.00**	**5.44**	0.74	2.35	0.00	0.00	0.00	0.00
		2018	167.80	**5.10**	**2.37**	2.15	3.04	0.00	0.00	0.00	0.00

		2019	110.84	**0.00**	**1.74**	0.00	0.00	0.00	0.00	0.00	0.00
						0.74	3.56	0.00	0.00	0.00	0.00
4	Britam Holdings Ltd.	2013	8.87	**0.25**	**12.24**	0.02	2.82	9.25	0.00	0.00	0.00
		2014	22.25	**0.30**	**1.31**	0.23	1.35	0.00	0.00	0.00	0.00
		2015	20.83	**0.30**	**(0.50)**	(0.60)	1.44	0.00	0.00	0.00	0.00
		2016	12.02	**0.30**	**1.26**	0.24	2.50	0.00	0.00	0.00	0.00
		2017	12.54	**0.35**	**0.26**	1.35	2.79	0.11	0.00	0.00	0.00
		2018	12.57	**0.00**	**(0.92)**	0.00	0.00	0.00	0.00	0.00	0.00
		2019	8.29	**0.25**	**1.41**	0.18	3.02	0.00	0.00	0.00	0.00
						0.20	1.99	1.34	0.00	0.00	0.00
5	British American Tobacco kenya Ltd.	2013	554.96	**37.00**	**37.24**	0.99	6.67	0.00	0.00	0.00	0.00
		2014	722.38	**42.50**	**42.25**	1.01	5.88	0.00	0.00	0.00	0.00
		2015	788.02	**49.50**	**49.76**	0.99	6.28	0.00	0.00	0.00	0.00
		2016	828.32	**43.00**	**42.34**	1.02	5.19	0.00	0.00	0.00	0.00
		2017	821.79	**26.00**	**33.36**	0.78	3.16	0.00	0.00	0.00	0.00
		2018	645.82	**35.00**	**40.85**	0.86	5.42	0.00	0.00	0.00	0.00
		2019	525.14	**33.50**	**38.85**	0.86	6.38	0.00	0.00	0.00	0.00
						0.93	5.57	0.00	0.00	0.00	0.00
6	Car & General (K) Ltd.	2013	20.66	**0.80**	**9.45**	0.08	3.87	0.17	0.00	0.00	0.00
		2014	1.03	**0.80**	**6.94**	0.12	78.00	0.00	0.00	0.00	0.00
		2015	45.96	**0.60**	**3.17**	0.19	1.31	0.00	0.00	0.00	0.00
		2016	34.22	**0.00**	**2.22**	0.00	0.00	0.00	0.00	0.00	0.00
		2017	21.08	**0.60**	**1.99**	0.30	2.85	0.00	0.00	0.00	0.00
		2018	20.85	**0.80**	**5.35**	0.15	3.84	0.00	0.00	0.00	0.00
		2019	23.35	**0.80**	**4.27**	0.19	3.43	0.00	0.00	0.00	0.00
						0.15	13.33	0.02	0.00	0.00	0.00
7	Carbacid Investments Ltd	2013	24.64	**6.00**	**13.99**	0.43	24.35	0.33	0.00	0.00	0.00
		2014	30.74	**0.70**	**14.44**	0.05	2.28	0.00	0.00	0.00	0.00
		2015	18.67	**0.00**	**11.59**	0.00	0.00	0.80	0.00	0.00	0.00
		2016	14.62	**0.70**	**1.47**	0.48	4.79	0.00	0.00	0.00	0.00
		2017	13.06	**0.70**	**1.38**	0.51	5.36	0.00	0.00	0.00	0.00
		2018	11.42	**0.70**	**1.17**	0.60	6.13	0.00	0.00	0.00	0.00
		2018	8.81	**0.70**	**1.04**	0.67	7.95	0.00	0.00	0.00	0.00

						0.39	7.26	0.16	0.00	0.00	0.00
8	Centum Investment Co. Ltd.	2013	22.62	**0.00**	**1.55**	0.00	0.00	0.00	0.00	0.00	7.00
		2014	46.84	**0.00**	**4.59**	0.00	0.00	0.00	0.00	0.00	0.00
		2015	55.94	**0.00**	**11.94**	0.00	0.00	0.00	0.00	0.00	0.00
		2016	42.87	**0.00**	**2.81**	0.00	0.00	0.00	0.00	0.00	0.00
		2017	39.15	**1.20**	**2.36**	0.51	3.07	0.00	0.00	0.00	0.00
		2018	36.41	**1.20**	**3.96**	0.30	3.30	0.00	0.00	0.00	0.00
		2019	31.35	**1.20**	**6.68**	0.18	3.83	0.00	0.00	0.00	0.00
						0.14	1.46	0.00	0.00	0.00	0.00
9	CFC Stanbic Holdings Ltd.	2013	65.08	**2.15**	**12.97**	0.17	3.30	0.00	0.00	0.00	0.00
		2014	119.49	**5.20**	**14.38**	0.36	4.35	0.00	0.00	0.00	0.00
		2015	106.92	**5.40**	**12.41**	0.44	5.05	0.00	0.00	0.00	0.00
		2016	80.48	**5.25**	**11.18**	0.47	6.52	0.00	0.00	0.00	0.00
		2017	72.71	**5.25**	**10.90**	0.48	7.22	0.00	0.00	0.00	0.00
		2018	90.09	**6.00**	**15.88**	0.38	6.66	0.00	0.00	0.00	0.00
		2019	98.39	**7.00**	**16.14**	0.43	7.11	0.00	0.00	0.00	0.00
						0.39	5.75	0.00	0.00	0.00	0.00
10	CIC Insurance Group Ltd.	2013	5.95	**0.10**	**1.15**	0.09	1.68	0.17	0.00	0.00	0.00
		2014	10.01	**0.10**	**0.42**	0.24	1.00	0.00	0.00	0.00	0.00
		2015	8.15	**0.11**	**0.43**	0.26	1.35	0.00	0.00	0.00	0.00
		2016	4.82	**0.11**	**0.07**	1.57	2.28	0.00	0.00	0.00	0.00
		2017	4.50	**0.12**	**0.18**	0.67	2.67	0.00	0.00	0.00	0.00
		2018	4.68	**0.12**	**0.18**	0.67	2.56	0.00	0.00	0.00	0.00
		2019	3.50	**0.13**	**0.12**	1.08	3.71	0.00	0.00	0.00	0.00
						0.65	2.18	0.02	0.00	0.00	0.00
11	Eaagads	2013	24.98	**0.00**	**(1.84)**	0.00	0.00	0.00	0.00	0.00	0.00
		2014	34.19	**0.00**	**(1.30)**	0.00	0.00	0.00	0.00	0.00	0.00
		2015	33.04	**0.00**	**0.66**	0.00	0.00	0.00	0.00	0.00	0.00
		2016	22.08	**0.00**	**0.01**	0.00	0.00	0.50	0.00	0.00	0.00
		2017	24.34	**0.00**	**0.56**	0.00	0.00	0.00	0.00	0.00	0.00
		2018	20.12	**0.00**	**(1.94)**	0.00	0.00	0.00	0.00	0.00	0.00
		2019	13.20	**0.00**	**0.08**	0.00	0.00	0.00	0.00	0.00	0.00
						0.00	0.00	0.07	0.00	0.00	0.00

12	Diamond Trust Bank Kenya Ltd	2013	157.46	**2.10**	**23.77**	0.09	1.33	0.09	0.00	0.00	0.00
		2014	235.89	**2.40**	**23.58**	0.10	1.02	0.00	0.00	0.00	0.00
		2015	218.90	**2.50**	**27.26**	0.09	1.14	0.00	0.00	0.00	0.00
		2016	170.33	**2.50**	**53.56**	0.05	1.47	0.09	0.00	0.00	0.00
		2017	152.16	**2.60**	**47.47**	0.05	1.71	0.00	0.00	0.00	0.00
		2018	189.68	**2.70**	**23.91**	0.11	1.42	0.00	0.00	0.00	0.00
		2019	124.66	**2.70**	**24.27**	0.11	2.17	0.00	0.00	0.00	0.00
						0.09	1.47	0.03	0.00	0.00	0.00
13	E.A Cables Ltd.	2013	15.51	**1.00**	**1.57**	0.64	6.45	0.00	0.00	0.00	0.00
		2014	15.58	**0.50**	**1.35**	0.37	3.21	0.00	0.00	0.00	0.00
		2015	13.90	**0.00**	**(2.93)**	0.00	0.00	0.00	0.00	0.00	0.00
		2016	7.38	**0.00**	**2.30**	0.00	0.00	0.00	0.00	0.00	0.00
		2017	5.84	**0.00**	**(2.62)**	0.00	0.00	0.00	0.00	0.00	0.00
		2018	4.02	**0.00**	**(1.92)**	0.00	0.00	0.00	0.00	0.00	0.00
		2019	2.79	**0.00**	**2.68**	0.00	0.00	0.00	0.00	0.00	0.00
						0.14	1.38	0.00	0.00	0.00	0.00
14	E.A Portland Cement Ltd	2013	58.60	**0.75**	**23.68**	0.03	1.28	0.00	0.00	0.00	0.00
		2014	76.53	**0.00**	**(4.44)**	0.00	0.00	0.00	0.00	0.00	0.00
		2015	55.18	**0.00**	**77.47**	0.00	0.00	0.00	0.00	0.00	0.00
		2016	35.14	**0.00**	**50.63**	0.00	0.00	0.00	0.00	0.00	0.00
		2017	27.33	**0.23**	**49.75**	0.00	0.84	0.00	0.00	0.00	0.00
		2018	21.22	**0.23**	**83.03**	0.00	1.08	0.00	0.00	0.00	0.00
		2019	16.08	**0.00**	**(37.35)**	0.00	0.00	0.00	0.00	0.00	0.00
						0.01	0.46	0.00	0.00	0.00	0.00
15	East African Breweries Ltd.	2013	318.38	**5.50**	**8.25**	0.67	1.73	0.00	0.00	0.00	0.00
		2014	283.54	**5.50**	**8.67**	0.63	1.94	0.00	0.00	0.00	0.00
		2015	297.56	**7.50**	**12.06**	0.62	2.52	0.00	0.00	0.00	0.00
		2016	273.28	**7.50**	**10.14**	0.74	2.74	0.00	0.00	0.00	0.00
		2017	240.26	**7.50**	**10.77**	0.70	3.12	0.00	0.00	0.00	0.00
		2018	217.81	**7.50**	**7.19**	1.04	3.44	0.00	0.00	0.00	0.00
		2019	199.75	**8.50**	**11.23**	0.76	4.26	0.00	0.00	0.00	0.00
						0.74	2.82	0.00	0.00	0.00	0.00
16	Equity Group Holdings	2013	30.75	**1.50**	**3.59**	0.42	4.88	0.00	0.00	0.00	0.00

		2014	49.35	**1.80**	**4.63**	0.39	3.65	0.00	0.00	0.00	0.00
		2015	46.08	**2.00**	**4.52**	0.44	4.34	0.02	0.00	0.00	0.00
		2016	35.98	**2.00**	**4.40**	0.45	5.56	0.00	0.00	0.00	0.00
		2017	35.58	**2.00**	**5.01**	0.40	5.62	0.00	0.00	0.00	0.00
		2018	45.30	**2.00**	**5.22**	0.38	4.42	0.00	0.00	0.00	0.00
		2019	41.50	**2.50**	**5.93**	0.42	6.02	0.00	0.00	0.00	0.00
						0.42	4.93	0.00	0.00	0.00	0.00
17	Eveready East Africa Ltd.	2013	2.58	**0.00**	**0.21**	0.00	0.00	0.00	0.00	0.00	0.00
		2014	3.41	**0.00**	**(0.85)**	0.00	0.00	0.00	0.00	0.00	0.00
		2015	3.65	**0.00**	**(0.87)**	0.00	0.00	0.00	0.00	0.00	0.00
		2016	2.40	**0.00**	**(0.82)**	0.00	0.00	0.00	0.00	0.00	0.00
		2017	2.49	**0.00**	**1.27**	0.00	0.00	0.00	0.00	0.00	0.00
		2018	1.62	**0.00**	**(1.45)**	0.00	0.00	0.00	0.00	0.00	0.00
		2019	1.04	**0.00**	**(0.55)**	0.00	0.00	0.00	0.00	0.00	0.00
						0.00	0.00	0.00	0.00	0.00	0.00
18	Flame Tree Group Holdings Ltd.	2013	8.20	**0.00**	**0.92**	0.00	0.00	0.00	0.00	0.00	0.00
		2014	8.50	**0.00**	**0.95**	0.00	0.00	0.00	0.00	0.00	0.00
		2015	7.90	**0.00**	**1.10**	0.00	0.00	0.00	0.00	0.00	0.00
		2016	6.08	**0.00**	**0.90**	0.00	0.00	0.00	0.00	0.00	0.00
		2017	4.95	**0.00**	**0.25**	0.00	0.00	0.09	0.00	0.00	0.00
		2018	3.81	**0.00**	**0.19**	0.00	0.00	0.00	0.00	0.00	0.00
		2019	2.51	**0.00**	**0.25**	0.00	0.00	0.00	0.00	0.00	0.00
						0.00	0.00	0.01	0.00	0.00	0.00
19	HF Group Ltd.	2013	24.61	**1.75**	**4.30**	0.41	7.11	0.00	0.00	0.00	0.00
		2014	40.39	**1.50**	**4.21**	0.36	3.71	0.00	0.00	0.00	0.00
		2015	29.02	**1.30**	**3.43**	0.38	4.48	0.09	0.00	0.00	0.00
		2016	17.01	**1.30**	**3.43**	0.38	7.64	0.00	0.00	0.00	0.00
		2017	9.96	**0.35**	**3.43**	0.10	3.51	0.00	0.00	0.00	0.00
		2018	8.03	**0.00**	**(1.56)**	0.00	0.00	0.10	0.00	0.00	0.00
		2019	5.29	**0.00**	**(0.29)**	0.00	0.00	0.00	0.00	0.00	0.00
						0.23	3.78	0.03	0.00	0.00	0.00
20	Home Africa Ltd	2013	5.90	**0.00**	**0.20**	0.00	0.00	0.00	0.00	0.00	0.00
		2014	4.90	**0.00**	**0.02**	0.00	0.00	0.00	0.00	0.00	0.00

		2015	1.95	**0.00**	**(0.96)**	0.00	0.00	0.00	0.00	0.00	0.00
		2016	0.95	**0.00**	**(0.42)**	0.00	0.00	0.00	0.00	0.00	0.00
		2017	1.00	**0.00**	**(0.45)**	0.00	0.00	0.00	0.00	0.00	0.00
		2018	1.00	**0.00**	**(0.68)**	0.00	0.00	0.00	0.00	0.00	0.00
		2019	1.00	**0.00**	**(1.54)**	0.00	0.00	0.00	0.00	0.00	0.00
						0.00	0.00	0.00	0.00	0.00	0.00
21	I & M Holdings Ltd.	2013	120.00	**3.50**	**11.75**	0.30	2.92	0.00	0.00	0.00	0.00
		2014	126.21	**2.90**	**13.56**	0.21	2.30	0.00	0.00	0.00	0.00
		2015	114.19	**3.50**	**17.12**	0.20	3.07	0.00	0.00	0.00	0.00
		2016	99.14	**3.50**	**17.73**	0.20	3.53	0.00	0.00	0.00	0.00
		2017	103.57	**3.50**	**16.47**	0.21	3.38	0.00	0.00	0.00	0.00
		2018	108.60	**1.95**	**9.62**	0.20	1.80	0.00	0.00	0.00	0.00
		2019	63.58	**2.55**	**12.47**	0.20	4.01	0.50	0.00	0.00	0.00
						0.22	3.00	0.07	0.00	0.00	0.00
22	Jubilee Holdings Ltd	2013	246.43	**7.00**	**41.79**	0.17	2.84	0.00	0.00	0.00	0.00
		2014	337.75	**7.00**	**80.06**	0.09	2.07	0.00	0.00	0.00	0.00
		2015	464.08	**7.50**	**86.30**	0.09	1.62	0.09	0.00	0.00	0.00
		2016	428.17	**8.50**	**82.71**	0.10	1.99	0.10	0.00	0.00	0.00
		2017	450.07	**9.00**	**84.05**	0.11	2.00	0.00	0.00	0.00	0.00
		2018	484.99	**9.00**	**51.83**	0.17	1.86	0.00	0.00	0.00	0.00
		2019	386.70	**9.00**	**49.07**	0.18	2.33	0.00	0.00	0.00	0.00
						0.13	2.10	0.03	0.00	0.00	0.00
23	Kakuzi	2013	84.24	**3.75**	**8.42**	0.45	4.45	0.00	0.00	0.00	0.00
		2014	156.44	**3.75**	**8.17**	0.46	2.40	0.00	0.00	0.00	0.00
		2015	298.61	**5.00**	**23.45**	0.21	1.67	0.00	0.00	0.00	0.00
		2016	295.44	**5.00**	**28.70**	0.17	1.69	0.00	0.00	0.00	0.00
		2017	310.86	**7.00**	**30.19**	0.23	2.25	0.00	0.00	0.00	0.00
		2018	339.62	**9.00**	**24.57**	0.37	2.65	0.00	0.00	0.00	0.00
		2019	343.43	**14.00**	**36.40**	0.38	4.08	0.00	0.00	0.00	0.00
						0.32	2.74	0.00	0.00	0.00	0.00
24	Kapchorua tea	2013	126.17	**7.50**	**32.21**	0.23	5.94	0.00	0.00	0.00	0.00
		2014	146.79	**7.00**	**(5.82)**	(1.20)	4.77	0.00	0.00	0.00	0.00
		2015	176.41	**5.00**	**(3.60)**	(1.39)	2.83	0.50	0.00	0.00	0.00

		2016	94.84	**6.00**	**16.78**	0.36	6.33	0.00	0.00	0.00	0.00
		2017	78.90	**3.00**	**(6.62)**	(0.45)	3.80	0.00	0.00	0.00	0.00
		2018	77.79	**10.00**	**21.27**	0.47	12.86	0.00	0.00	0.00	0.00
		2019	75.29	**10.00**	**(16.06)**	(0.62)	13.28	0.00	0.00	0.00	0.00
						(0.37)	7.12	0.07	0.00	0.00	0.00
25	KCB Group Ltd.	2013	61.22	**2.00**	**1.78**	1.12	3.27	0.00	0.00	0.00	0.00
		2014	51.58	**2.00**	**2.14**	0.93	3.88	0.02	0.00	0.00	0.00
		2015	52.18	**2.00**	**6.49**	0.31	3.83	0.00	0.00	0.00	0.00
		2016	34.57	**1.00**	**6.52**	0.15	2.89	0.00	0.00	1.00	0.00
		2017	36.26	**2.00**	**6.43**	0.31	5.52	0.00	0.00	0.00	0.00
		2018	45.08	**3.50**	**7.83**	0.45	7.76	0.00	0.00	0.00	0.00
		2019	42.65	**3.45**	**7.83**	0.44	8.09	0.00	0.00	0.00	0.00
						0.53	5.03	0.00	0.00	0.14	0.00
26	KenGen Ltd.	2013	14.99	**0.60**	**2.39**	0.25	4.00	0.00	0.00	0.00	0.00
		2014	10.97	**0.40**	**1.29**	0.31	3.65	0.00	0.00	0.00	0.00
		2015	9.10	**0.65**	**5.24**	0.12	7.14	0.00	0.00	0.00	0.00
		2016	6.67	**0.00**	**3.07**	0.00	0.00	0.00	0.00	0.00	0.00
		2017	7.67	**1.32**	**4.12**	0.32	17.21	0.00	0.00	0.00	0.00
		2018	7.51	**0.40**	**1.20**	0.33	5.33	0.00	0.00	0.00	0.00
		2019	6.04	**0.25**	**1.20**	0.21	4.14	0.00	0.00	0.00	0.00
						0.22	5.92	0.00	0.00	0.00	0.00
27	Kenya Airways Ltd.	2013	12.50	**0.00**	**(5.25)**	0.00	0.00	0.00	0.00	0.00	0.00
		2014	10.71	**0.00**	**(2.26)**	0.00	0.00	0.00	0.00	0.00	0.00
		2015	6.97	**0.00**	**(17.20)**	0.00	0.00	0.00	0.00	0.00	0.00
		2016	4.62	**0.00**	**(17.52)**	0.00	0.00	0.00	0.00	0.00	0.00
		2017	6.31	**0.00**	**6.73**	0.00	0.00	0.00	0.00	0.00	0.00
		2018	11.59	**0.00**	**(1.06)**	0.00	0.00	0.00	0.00	0.00	0.00
		2019	4.34	**0.00**	**(1.54)**	0.00	0.00	0.00	0.00	0.00	0.00
						0.00	0.00	0.00	0.00	0.00	0.00
28	NIC Bank Ltd	2013	47.76	**0.75**	**6.12**	0.12	1.57	0.18	0.00	0.00	0.00
		2014	60.50	**1.00**	**6.43**	0.16	1.65	0.00	0.48	0.00	0.00
		2015	51.72	**1.00**	**7.00**	0.14	1.93	0.00	0.00	0.00	0.00
		2016	31.92	**2.50**	**6.12**	0.41	7.83	0.00	0.00	0.00	0.00

		2017	28.72	**1.00**	**5.93**	0.17	3.48	0.00	0.00	0.00	0.00
		2018	31.65	**1.25**	**7.11**	0.18	3.95	0.09	0.00	0.00	0.00
		2019	32.43	**1.75**	**8.69**	0.20	5.40	0.00	0.00	0.00	0.00
						0.20	3.69	0.04	0.07	0.00	0.00
29	Kenya Orchards Ltd.	2013	60.80	**0.00**	**0.99**	0.00	0.00	0.00	0.00	0.00	0.00
		2014	74.69	**0.00**	**1.99**	0.00	0.00	0.00	0.00	0.00	0.00
		2015	107.32	**0.00**	**2.24**	0.00	0.00	0.00	0.00	0.00	0.00
		2016	96.50	**0.00**	**0.29**	0.00	0.00	0.00	0.00	0.00	0.00
		2017	95.25	**0.00**	**0.29**	0.00	0.00	0.00	0.00	0.00	0.00
		2018	67.55	**0.00**	**0.59**	0.00	0.00	0.00	0.00	0.00	0.00
		2019	13.23	**0.00**	**0.66**	0.00	0.00	0.00	0.00	0.00	0.00
						0.00	0.00	0.00	0.00	0.00	0.00
30	Kenya Power & Lighting Co. Ltd.	2013	16.07	**0.00**	**2.23**	0.00	0.00	0.00	0.00	0.00	0.00
		2014	14.63	**0.00**	**3.31**	0.00	0.00	0.00	0.00	0.00	0.00
		2015	15.92	**0.00**	**3.92**	0.00	0.00	0.00	0.00	0.00	0.00
		2016	9.98	**0.00**	**3.87**	0.00	0.00	0.00	0.00	0.00	0.00
		2017	8.41	**0.00**	**2.93**	0.00	0.00	0.00	0.00	0.00	0.00
		2018	6.28	**0.00**	**1.15**	0.00	0.00	0.00	0.00	0.00	0.00
		2019	3.78	**0.00**	**1.22**	0.00	0.00	0.00	0.00	0.00	0.00
						0.00	0.00	0.00	0.00	0.00	0.00
31	Kenya Re- Insurance Corporation Ltd.	2013	15.26	**0.60**	**3.99**	0.15	3.93	0.00	0.00	0.00	0.00
		2014	18.35	**0.70**	**4.48**	0.16	3.81	0.00	0.00	0.00	0.00
		2015	18.44	**0.75**	**5.08**	0.15	4.07	0.00	0.00	0.00	0.00
		2016	20.42	**0.80**	**4.70**	0.17	3.92	0.00	0.00	0.00	0.00
		2017	11.05	**0.85**	**5.11**	0.17	7.69	0.00	0.00	0.00	0.00
		2018	4.27	**0.45**	**1.42**	0.32	10.54	0.00	0.00	0.00	0.00
		2019	3.27	**0.10**	**2.48**	0.04	3.06	0.75	0.00	0.00	0.00
						0.16	5.29	0.11	0.00	0.00	0.00
32	Liberty Kenya Holdings	2013	15.05	**1.00**	**2.15**	0.47	6.64	0.00	0.00	15.90	0.00
		2014	23.25	**0.40**	**2.14**	0.19	1.72	0.01	0.00	0.00	0.00
		2015	22.34	**0.00**	**1.37**	0.00	0.00	0.00	0.00	0.00	0.00
		2016	15.25	**0.00**	**1.17**	0.00	0.00	0.00	0.00	0.00	0.00
		2017	12.12	**0.50**	**1.58**	0.32	4.13	0.00	0.00	0.00	0.00

		2018	13.17	**0.50**	**0.92**	0.54	3.80	0.00	0.00	0.00	0.00
		2019	10.43	**0.00**	**1.31**	0.00	0.00	0.00	0.00	0.00	0.00
						0.22	2.33	0.00	0.00	2.27	0.00
33	Longhorn Publishers Ltd.	2013	17.66	**1.61**	**0.93**	1.73	9.12	0.00	0.00	0.00	0.00
		2014	17.15	**1.20**	**0.93**	1.29	7.00	0.60	0.00	0.00	0.00
		2015	6.38	**0.15**	**0.70**	0.21	2.35	0.60	0.00	0.00	0.00
		2016	5.12	**0.35**	**0.66**	0.53	6.84	0.50	0.00	0.00	0.00
		2017	4.92	**0.30**	**0.49**	0.61	6.10	0.00	0.25	0.00	0.00
		2018	4.80	**0.42**	**0.67**	0.63	8.75	0.00	0.00	0.00	0.00
		2019	6.62	**0.52**	**0.68**	0.76	7.85	0.00	0.00	0.00	0.00
						0.82	6.86	0.24	0.04	0.00	0.00
34	Standard Group	2013	26.00	**0.50**	**2.32**	0.22	1.92	0.00	0.00	0.00	0.00
		2014	34.75	**0.50**	**2.70**	0.19	1.44	0.00	0.00	0.00	0.00
		2015	28.00	**0.00**	**(3.54)**	0.00	0.00	0.00	0.00	0.00	0.00
		2016	16.50	**0.00**	**2.43**	0.00	0.00	0.00	0.00	0.00	0.00
		2017	37.00	**0.00**	**(2.58)**	0.00	0.00	0.00	0.00	0.00	0.00
		2018	30.00	**0.60**	**2.40**	0.25	2.00	0.00	0.00	0.00	0.00
		2019	27.55	**0.00**	**5.25**	0.00	0.00	0.00	0.00	0.00	0.00
						0.09	0.77	0.00	0.00	0.00	0.00
35	Nairobi Securities Exchange Ltd.	2013	15.00	**0.30**	**2.15**	0.14	2.00	0.00	0.00	0.00	0.00
		2014	16.09	**0.38**	**2.30**	0.17	2.36	0.00	0.00	0.00	0.00
		2015	15.79	**0.49**	**1.18**	0.42	3.10	0.00	0.00	0.00	0.00
		2016	17.79	**0.27**	**0.71**	0.38	1.52	0.25	0.00	0.00	0.00
		2017	16.52	**0.30**	**0.83**	0.36	1.82	0.00	0.00	0.00	0.00
		2018	17.43	**0.49**	**0.30**	1.63	2.81	0.00	0.00	0.00	0.00
		2019	12.45	**0.08**	**0.73**	0.11	0.64	0.00	0.00	0.00	0.00
						0.46	2.04	0.04	0.00	0.00	0.00
36	Nation Media Group	2013	288.45	**10.00**	**16.12**	0.62	3.47	0.17	0.00	0.00	0.00
		2014	306.27	**2.50**	**13.05**	0.19	0.82	0.00	0.00	0.00	0.00
		2015	199.85	**10.00**	**11.79**	0.85	5.00	0.00	0.00	0.00	0.00
		2016	141.84	**10.00**	**11.94**	0.84	7.05	0.00	0.00	0.00	0.00
		2017	102.74	**10.00**	**6.95**	1.44	9.73	0.00	0.00	0.00	0.00
		2018	90.98	**5.00**	**5.90**	0.85	5.50	0.00	0.00	0.00	0.00

		2019	50.45	**1.50**	**4.50**	0.33	2.97	0.00	0.00	0.00	0.00
						0.73	4.93	0.02	0.00	0.00	0.00
37	safaricom	2013	7.49	**0.31**	**0.44**	0.70	4.14	0.00	0.00	0.00	0.00
		2014	12.63	**0.47**	**0.80**	0.59	3.72	0.00	0.00	0.00	0.00
		2015	15.51	**0.64**	**1.51**	0.42	4.13	0.00	0.00	0.00	0.00
		2016	18.13	**0.76**	**0.95**	0.80	4.19	0.00	0.00	0.00	0.00
		2017	22.21	**0.97**	**1.21**	0.80	4.37	0.00	0.00	0.00	0.00
		2018	27.49	**1.10**	**1.34**	0.82	4.00	0.00	0.00	0.00	0.00
		2019	27.52	**1.25**	**1.55**	0.81	4.54	0.00	0.00	0.00	0.00
						0.71	4.16	0.00	0.00	0.00	0.00
38	Sameer Africa Ltd.	2013	5.07	**0.25**	**1.44**	0.17	4.93	0.00	0.00	0.00	0.00
		2014	6.88	**0.30**	**(0.32)**	(0.94)	4.36	0.00	0.00	0.00	0.00
		2015	4.97	**0.00**	**(0.06)**	0.00	0.00	0.00	0.00	0.00	0.00
		2016	3.15	**0.00**	**(2.34)**	0.00	0.00	0.00	0.00	0.00	0.00
		2017	2.73	**0.00**	**0.05**	0.00	0.00	0.00	0.00	0.00	0.00
		2018	2.45	**0.00**	**(1.90)**	0.00	0.00	0.00	0.00	0.00	0.00
		2019	2.88	**0.00**	**(3.82)**	0.00	0.00	0.00	0.00	0.00	0.00
						(0.11)	1.33	0.00	0.00	0.00	0.00
39	Sanlam kenya	2013	59.99	**4.50**	**13.03**	0.35	7.50	0.00	0.00	0.00	0.00
		2014	120.58	**4.50**	**9.07**	0.50	3.73	0.00	0.00	0.00	0.00
		2015	87.43	**0.00**	**0.19**	0.00	0.00	0.60	0.00	0.00	0.00
		2016	40.97	**0.00**	**0.49**	0.00	0.00	0.00	0.00	0.00	0.00
		2017	26.80	**0.00**	**0.37**	0.00	0.00	0.00	0.00	0.00	0.00
		2018	24.69	**4.65**	**8.42**	0.55	18.83	0.00	0.00	0.00	0.00
		2019	19.51	**4.98**	**5.15**	0.97	25.53	0.00	0.00	0.00	0.00
						0.34	7.94	0.09	0.00	0.00	0.00
40	Sasini Ltd.	2013	13.32	**0.25**	**0.40**	0.63	1.88	0.00	0.00	0.00	0.00
		2014	15.57	**0.25**	**0.20**	1.25	1.61	0.00	0.00	0.00	0.00
		2015	15.99	**1.25**	**4.83**	0.26	7.82	0.00	0.00	0.00	0.00
		2016	19.24	**1.50**	**2.53**	0.59	7.80	0.00	0.00	0.00	0.00
		2017	24.57	**0.75**	**1.49**	0.50	3.05	0.00	0.00	0.00	0.00
		2018	22.75	**1.00**	**1.13**	0.88	4.40	0.00	0.00	0.00	0.00
		2019	17.31	**0.50**	**(1.38)**	(0.36)	2.89	0.00	0.00	0.00	0.00

						0.54	4.20	0.00	0.00	0.00	0.00
41	Express Kenya	2013	3.83	**0.00**	**0.01**	0.00	0.00	0.00	0.00	0.00	0.00
		2014	5.94	**0.00**	**(2.32)**	0.00	0.00	0.00	0.00	0.00	0.00
		2015	5.30	**0.00**	**(1.70)**	0.00	0.00	0.00	0.00	0.00	0.00
		2016	3.69	**0.00**	**(2.74)**	0.00	0.00	0.00	0.00	0.00	0.00
		2017	3.38	**0.00**	**(2.55)**	0.00	0.00	0.00	0.00	0.00	0.00
		2018	5.02	**0.00**	**(2.04)**	0.00	0.00	0.00	0.00	0.00	0.00
		2019	6.54	**0.00**	**(0.46)**	0.00	0.00	0.00	0.00	0.00	0.00
						0.00	0.00	0.00	0.00	0.00	0.00
42	Standard Chartered Bank Ltd.	2013	291.83	**14.50**	**29.42**	0.49	4.97	0.00	0.00	0.00	0.00
		2014	316.75	**17.00**	**33.21**	0.51	5.37	0.00	0.00	0.00	0.00
		2015	284.63	**17.00**	**19.97**	0.85	5.97	0.00	0.00	0.00	0.00
		2016	200.79	**20.00**	**25.85**	0.77	9.96	0.00	0.00	0.00	0.00
		2017	209.69	**17.00**	**19.64**	0.87	8.11	0.11	0.00	0.00	0.00
		2018	203.85	**21.00**	**18.70**	1.12	10.30	0.00	0.00	0.00	0.00
		2019	197.94	**27.00**	**57.00**	0.47	13.64	0.00	0.00	0.00	0.00
						0.73	8.33	0.02	0.00	0.00	0.00
43	Umeme ltd	2013	13.00	**0.72**	**1.49**	0.48	5.54	0.00	0.00	0.00	0.00
		2014	13.00	**0.45**	**1.82**	0.25	3.46	0.00	0.00	0.00	0.00
		2015	18.41	**1.45**	**1.89**	0.77	7.88	0.00	0.00	0.00	0.00
		2016	17.14	**1.45**	**2.48**	0.58	8.46	0.00	0.00	0.00	0.00
		2017	13.95	**0.00**	**0.63**	0.00	0.00	0.00	0.00	0.00	0.00
		2018	10.22	**0.73**	**2.38**	0.31	7.14	0.00	0.00	0.00	0.00
		2019	7.41	**1.18**	**2.40**	0.49	15.92	0.00	0.00	0.00	0.00
						0.41	6.91	0.00	0.00	0.00	0.00
44	The Co-operative Bank Ltd	2013	13.72	**0.50**	**2.20**	0.23	3.64	0.00	0.00	0.00	0.00
		2014	18.43	**0.50**	**1.69**	0.30	2.71	0.00	0.00	0.00	0.00
		2015	17.88	**0.80**	**2.31**	0.35	4.47	0.00	0.00	0.00	0.00
		2016	13.14	**0.80**	**2.31**	0.35	6.09	0.00	0.00	0.00	0.00
		2017	13.91	**0.80**	**1.94**	0.41	5.75	0.17	0.00	0.00	0.00
		2018	16.70	**1.00**	**2.11**	0.47	5.99	0.00	0.00	0.00	0.00
		2019	13.48	**1.00**	**2.43**	0.41	7.42	0.00	0.00	0.00	0.00
						0.36	5.15	0.02	0.00	0.00	0.00

45	Total Kenya Ltd.	2013	17.99	**0.60**	**7.50**	0.08	3.34	0.00	0.00	0.00	0.00
		2014	24.89	**0.70**	**8.13**	0.09	2.81	0.00	0.00	0.00	0.00
		2015	22.59	**0.77**	**9.23**	0.08	3.41	0.00	0.00	0.00	0.00
		2016	17.43	**1.06**	**12.76**	0.08	6.08	0.00	0.00	0.00	0.00
		2017	21.13	**1.30**	**15.64**	0.08	6.15	0.00	0.00	0.00	0.00
		2018	29.60	**1.30**	**3.67**	0.35	4.39	0.00	0.00	0.00	0.00
		2019	28.70	**1.30**	**4.03**	0.32	4.53	0.00	0.00	0.00	0.00
						0.16	4.39	0.00	0.00	0.00	0.00
46	TPS Eastern Africa (Serena) Ltd.	2013	47.81	**1.35**	**2.48**	0.54	2.82	0.00	0.00	0.00	0.00
		2014	24.89	**1.35**	**0.91**	1.48	5.42	0.00	0.00	0.00	0.00
		2015	22.59	**0.25**	**(1.54)**	(0.16)	1.11	0.00	0.00	0.00	0.00
		2016	17.43	**0.35**	**0.65**	0.54	2.01	0.00	0.00	0.00	0.00
		2017	21.13	**0.35**	**0.66**	0.53	1.66	0.00	0.00	0.00	0.00
		2018	29.60	**0.35**	**0.69**	0.51	1.18	0.00	0.00	0.00	0.00
		2019	28.70	**0.00**	**0.81**	0.00	0.00	0.00	0.00	0.00	0.00
						0.49	2.03	0.00	0.00	0.00	0.00
47	Trans- Century ltd.	2013	28.75	**0.40**	**2.29**	0.17	1.39	0.00	0.00	0.00	0.00
		2014	18.94	**0.00**	**(8.13)**	0.00	0.00	0.01	0.00	0.00	0.00
		2015	14.82	**0.00**	**(8.64)**	0.00	0.00	0.00	0.00	0.00	0.00
		2016	6.38	**0.00**	**(3.15)**	0.00	0.00	0.00	0.01	0.00	0.00
		2017	6.80	**0.00**	**(11.54)**	0.00	0.00	0.37	0.00	0.00	0.00
		2018	4.30	**0.00**	**(7.95)**	0.00	0.00	0.00	0.00	0.00	0.00
		2019	3.36	**0.00**	**0.32**	0.00	0.00	0.00	0.00	0.00	0.00
						0.02	0.20	0.05	0.00	0.00	0.00
48	Unga Group Ltd.	2013	16.00	**0.75**	**3.50**	0.21	4.69	0.00	0.00	0.00	0.00
		2014	31.40	**1.00**	**5.06**	0.20	3.18	0.00	0.00	0.00	0.00
		2015	42.18	**0.75**	**5.68**	0.13	1.78	0.00	0.00	0.00	0.00
		2016	34.60	**1.00**	**6.76**	0.15	2.89	0.00	0.00	0.00	0.00
		2017	30.66	**1.00**	**1.14**	0.88	3.26	0.00	0.00	0.00	0.00
		2018	38.40	**1.00**	**6.72**	0.15	2.60	0.00	0.00	0.00	0.00
		2019	34.62	**0.50**	**4.52**	0.11	1.44	0.00	0.00	0.00	0.00
						0.26	2.84	0.00	0.00	0.00	0.00
49	Williamson Tea Kenya Ltd.	2013	229.80	**7.50**	**94.36**	0.08	3.26	0.00	0.00	0.00	0.00

		2014	282.87	**7.00**	**81.36**	0.09	2.47	0.00	0.00	2.36	0.00
		2015	353.50	**40.00**	**(26.00)**	(1.54)	11.32	0.50	0.00	0.00	0.00
		2016	192.61	**20.00**	**42.15**	0.47	10.38	0.00	0.00	0.00	0.00
		2017	171.96	**10.00**	**(13.73)**	(0.73)	5.82	0.00	0.00	0.00	0.00
		2018	152.39	**20.00**	**27.86**	0.72	13.12	0.00	0.00	0.00	0.00
		2019	141.86	**20.00**	**(9.39)**	(2.13)	14.10	0.00	0.00	0.00	0.00
						(0.43)	8.64	0.07	0.00	0.34	0.00
50	WPP Scan group	2013	64.09	**0.40**	**2.19**	0.18	0.62	0.00	0.00	0.00	0.00
		2014	46.88	**0.50**	**1.65**	0.30	1.07	0.00	0.00	0.00	0.00
		2015	37.92	**0.50**	**1.26**	0.40	1.32	0.00	0.00	0.00	0.00
		2016	21.62	**0.50**	**1.22**	0.41	2.31	0.00	0.00	0.00	0.00
		2017	18.93	**0.75**	**1.26**	0.60	3.96	0.00	0.00	0.00	0.00
		2018	15.97	**1.00**	**1.37**	0.73	6.26	0.00	0.00	0.00	0.00
		2019	13.58	**0.00**	**1.00**	0.00	0.00	0.00	0.00	0.00	0.00
						0.37	2.22	0.00	0.00	0.00	0.00

APPENDIX 2: DATA SUMMARY

	Company name	Pvol	X1	X2	X3	X4	X5	X6
1	Absa Bank	3.60	0.70	8.12	0.01	0.00	0.00	0.57
2	B.O.C Kenya Ltd	29.29	0.56	4.67	0.07	0.00	0.00	0.00
3	Bamburi Cement Ltd.	32.09	0.74	3.56	0.00	0.00	0.00	0.00
4	Britam Holdings Ltd.	6.03	0.20	1.99	1.34	0.00	0.00	0.00
5	British American Tobacco kenya Ltd.	137.17	0.93	5.57	0.00	0.00	0.00	0.00
6	Car & General (K) Ltd.	17.39	0.15	13.33	0.02	0.00	0.00	0.00
7	Carbacid Investments Ltd	8.58	0.39	7.26	0.16	0.00	0.00	0.00
8	Centum Investment Co. Ltd.	11.82	0.14	1.46	0.00	0.00	0.00	0.00
9	CFC Stanbic Holdings Ltd.	21.15	0.39	5.75	0.00	0.00	0.00	0.00
10	CIC Insurance Group Ltd.	2.63	0.65	2.18	0.02	0.00	0.00	0.00
11	Eaagads	6.89	0.00	0.00	0.07	0.00	0.00	0.00
12	Diamond Trust Bank Kenya Ltd	42.79	0.09	1.47	0.03	0.00	0.00	0.00
13	E.A Cables Ltd.	6.08	0.14	1.38	0.00	0.00	0.00	0.00
14	E.A Portland Cement Ltd	25.17	0.01	0.46	0.00	0.00	0.00	0.00
15	East African Breweries Ltd.	47.61	0.74	2.82	0.00	0.00	0.00	0.00
16	Equity Group Holdings	7.45	0.42	4.93	0.00	0.00	0.00	0.00
17	Eveready East Africa Ltd.	1.00	0.00	0.00	0.00	0.00	0.00	0.00
18	Flame Tree Group Holdings Ltd.	1.78	0.00	0.00	0.01	0.00	0.00	0.00
19	HF Group Ltd.	14.02	0.23	3.78	0.03	0.00	0.00	0.00
20	Home Africa Ltd	2.06	0.00	0.00	0.00	0.00	0.00	0.00
21	I & M Holdings Ltd.	24.24	0.22	3.00	0.07	0.00	0.00	0.00
22	Jubilee Holdings Ltd	92.18	0.13	2.10	0.03	0.00	0.00	0.00
23	Kakuzi	113.34	0.32	2.74	0.00	0.00	0.00	0.00

24	Kapchorua tea	43.88	-0.37	7.12	0.07	0.00	0.00	0.00
25	KCB Group Ltd.	10.66	0.53	5.03	0.00	0.00	0.14	0.00
26	KenGen Ltd.	3.40	0.22	5.92	0.00	0.00	0.00	0.00
27	Kenya Airways Ltd.	3.82	0.00	0.00	0.00	0.00	0.00	0.00
28	NIC Bank Ltd	13.67	0.20	3.69	0.04	0.07	0.00	0.00
29	Kenya Orchards Ltd.	34.63	0.00	0.00	0.00	0.00	0.00	0.00
30	Kenya Power & Lighting Co. Ltd.	5.38	0.00	0.00	0.00	0.00	0.00	0.00
31	Kenya Re- Insurance Corporation Ltd.	7.66	0.16	5.29	0.11	0.00	0.00	0.00
32	Liberty Kenya Holdings	5.70	0.22	2.33	0.00	0.00	2.27	0.00
33	Longhorn Publishers Ltd.	7.54	0.82	6.86	0.24	0.04	0.00	0.00
34	Standard Group	7.59	0.09	0.77	0.00	0.00	0.00	0.00
35	Nairobi Securities Exchange Ltd.	1.96	0.46	2.04	0.04	0.00	0.00	0.00
36	Nation Media Group	108.93	0.73	4.93	0.02	0.00	0.00	0.00
37	safaricom	8.25	0.71	4.16	0.00	0.00	0.00	0.00
38	Sameer Africa Ltd.	1.81	-0.11	1.33	0.00	0.00	0.00	0.00
39	Sanlam kenya	41.53	0.34	7.94	0.09	0.00	0.00	0.00
40	Sasini Ltd.	4.44	0.54	4.20	0.00	0.00	0.00	0.00
41	Express Kenya	1.33	0.00	0.00	0.00	0.00	0.00	0.00
42	Standard Chartered Bank Ltd.	56.58	0.73	8.33	0.02	0.00	0.00	0.00
43	Umeme ltd	4.19	0.41	6.91	0.00	0.00	0.00	0.00
44	The Co-operative Bank Ltd	2.48	0.36	5.15	0.02	0.00	0.00	0.00
45	Total Kenya Ltd.	5.28	0.16	4.39	0.00	0.00	0.00	0.00
46	TPS Eastern Africa (Serena) Ltd.	11.96	0.49	2.03	0.00	0.00	0.00	0.00
47	Trans- Century ltd.	11.63	0.02	0.20	0.05	0.00	0.00	0.00
48	Unga Group Ltd.	9.11	0.26	2.84	0.00	0.00	0.00	0.00
49	Williamson Tea Kenya Ltd.	85.72	-0.43	8.64	0.07	0.00	0.34	0.00
50	WPP Scan group	20.77	0.37	2.22	0.00	0.00	0.00	0.00

APPENDIX 3: TIME FRAME

	Period	**Activity**
1	March – June	Writing proposal
2	July	Proposal defense
3	July	Data collection
4	August	Data analysis
5	September	Writing and presentation of first draft
6	October	Thesis defense

APPENDIX 4: RESEARCH EXPENDITURE BUDGET

	Budget	**Items**	**Quantity**	**Cost**
1.	Stationery	Writing materials and printing paper	4	6,000.00
4.	Travel	Journeys for data collection purposes		10,000.00
5.	Piloting	Piloting expenses		5,000.00
6.	Data collection	Enumerators costs		15,000.00
7.	Data analysis			25,000.00
8.	Typing ,printing and binding	Draft and final bound copies		5,000.00
	TOTAL			**66,000**

APPENDIX 5: F DISTRIBUTION TABLE

ν_2 \ ν_1	1	2	3	4	5	6	7	8	9	10	12	15	20	24	30	40	60	120	∞
1	4052	5000	5403	5625	5764	5859	5928	5981	6023	6056	6106	6157	6209	6235	6261	6287	6313	6339	6366
2	98.5	99.0	99.2	99.2	99.3	99.3	99.4	99.4	99.4	99.4	99.4	99.4	99.4	99.5	99.5	99.5	99.5	99.5	99.5
3	34.1	30.8	29.5	28.7	28.2	27.9	27.7	27.5	27.3	27.2	27.1	26.9	26.7	26.6	26.5	26.4	26.3	26.2	26.1
4	21.2	18.0	16.7	16.0	15.5	15.2	15.0	14.8	14.7	14.5	14.4	14.2	14.0	13.9	13.8	13.7	13.7	13.6	13.5
5	16.3	13.3	12.1	11.4	11.0	10.7	10.5	10.3	10.2	10.1	9.89	9.72	9.55	9.47	9.38	9.29	9.20	9.11	9.02
6	13.7	10.9	9.78	9.15	8.75	8.47	8.26	8.10	7.98	7.87	7.72	7.56	7.40	7.31	7.23	7.14	7.06	6.97	6.88
7	12.2	9.55	8.45	7.85	7.46	7.19	6.99	6.84	6.72	6.62	6.47	6.31	6.16	6.07	5.99	5.91	5.82	5.74	5.65
8	11.3	8.65	7.59	7.01	6.63	6.37	6.18	6.03	5.91	5.81	5.67	5.52	5.36	5.28	5.20	5.12	5.03	4.95	4.86
9	10.6	8.02	6.99	6.42	6.06	5.80	5.61	5.47	5.35	5.26	5.11	4.96	4.81	4.73	4.65	4.57	4.48	4.40	4.31
10	10.0	7.56	6.55	5.99	5.64	5.39	5.20	5.06	4.94	4.85	4.71	4.56	4.41	4.33	4.25	4.17	4.08	4.00	3.91
11	9.65	7.21	6.22	5.67	5.32	5.07	4.89	4.74	4.63	4.54	4.40	4.25	4.10	4.02	3.94	3.86	3.78	3.69	3.60
12	9.33	6.93	5.95	5.41	5.06	4.82	4.64	4.50	4.39	4.30	4.16	4.01	3.86	3.78	3.70	3.62	3.54	3.45	3.36
13	9.07	6.70	5.74	5.21	4.86	4.62	4.44	4.30	4.19	4.10	3.96	3.82	3.66	3.59	3.51	3.43	3.34	3.25	3.17
14	8.86	6.51	5.56	5.04	4.70	4.46	4.28	4.14	4.03	3.94	3.80	3.66	3.51	3.43	3.35	3.27	3.18	3.09	3.00
15	8.68	6.36	5.42	4.89	4.56	4.32	4.14	4.00	3.89	3.80	3.67	3.52	3.37	3.29	3.21	3.13	3.05	2.96	2.87
16	8.53	6.23	5.29	4.77	4.44	4.20	4.03	3.89	3.78	3.69	3.55	3.41	3.26	3.18	3.10	3.02	2.93	2.84	2.75
17	8.40	6.11	5.19	4.67	4.34	4.10	3.93	3.79	3.68	3.59	3.46	3.31	3.16	3.08	3.00	2.92	2.83	2.75	2.65
18	8.29	6.01	5.09	4.58	4.25	4.01	3.84	3.71	3.60	3.51	3.37	3.23	3.08	3.00	2.92	2.84	2.75	2.66	2.57
19	8.18	5.93	5.01	4.50	4.17	3.94	3.77	3.63	3.52	3.43	3.30	3.15	3.00	2.92	2.84	2.76	2.67	2.58	2.49
20	8.10	5.85	4.94	4.43	4.10	3.87	3.70	3.56	3.46	3.37	3.23	3.09	2.94	2.86	2.78	2.69	2.61	2.52	2.42
21	8.02	5.78	4.87	4.37	4.04	3.81	3.64	3.51	3.40	3.31	3.17	3.03	2.88	2.80	2.72	2.64	2.55	2.46	2.36
22	7.95	5.72	4.82	4.31	3.99	3.76	3.59	3.45	3.35	3.26	3.12	2.98	2.83	2.75	2.67	2.58	2.50	2.40	2.31
23	7.88	5.66	4.76	4.26	3.94	3.71	3.54	3.41	3.30	3.21	3.07	2.93	2.78	2.70	2.62	2.54	2.45	2.35	2.26
24	7.82	5.61	4.72	4.22	3.90	3.67	3.50	3.36	3.26	3.17	3.03	2.89	2.74	2.66	2.58	2.49	2.40	2.31	2.21
25	7.77	5.57	4.68	4.18	3.86	3.63	3.46	3.32	3.22	3.13	2.99	2.85	2.70	2.62	2.54	2.45	2.36	2.27	2.17
26	7.72	5.53	4.64	4.14	3.82	3.59	3.42	3.29	3.18	3.09	2.96	2.82	2.66	2.58	2.50	2.42	2.33	2.23	2.13
27	7.68	5.49	4.60	4.11	3.78	3.56	3.39	3.26	3.15	3.06	2.93	2.78	2.63	2.55	2.47	2.38	2.29	2.20	2.10
28	7.64	5.45	4.57	4.07	3.75	3.53	3.36	3.23	3.12	3.03	2.90	2.75	2.60	2.52	2.44	2.35	2.26	2.17	2.06
29	7.60	5.42	4.54	4.04	3.73	3.50	3.33	3.20	3.09	3.00	2.87	2.73	2.57	2.49	2.41	2.33	2.23	2.14	2.03
30	7.56	5.39	4.51	4.02	3.70	3.47	3.30	3.17	3.07	2.98	2.84	2.70	2.55	2.47	2.39	2.30	2.21	2.11	2.01
40	7.31	5.18	4.31	3.83	3.51	3.29	3.12	2.99	2.89	2.80	2.66	2.52	2.37	2.29	2.20	2.11	2.02	1.92	1.80
60	7.08	4.98	4.13	3.65	3.34	3.12	2.95	2.82	2.72	2.63	2.50	2.35	2.20	2.12	2.03	1.94	1.84	1.73	1.60
120	6.85	4.79	3.95	3.48	3.17	2.96	2.79	2.66	2.56	2.47	2.34	2.19	2.03	1.95	1.86	1.76	1.66	1.53	1.38
∞	6.63	4.61	3.78	3.32	3.02	2.80	2.64	2.51	2.41	2.32	2.18	2.04	1.88	1.79	1.70	1.59	1.47	1.32	1.00

Source: E. S. Pearson and H. O. Hartley, *Biometrika Tables for Statisticians*, Vol. 2 (1972), Table 5, page 180, by permission.