

**INFLUENCE OF FINANCIAL DETERMINANTS
ON CORPORATE HEDGING OF FIRMS IN
NAIROBI SECURITIES EXCHANGE**

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DECLARATION

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

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DEDICATION

To Almighty God for all His mercies, my family and late parents

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LIST OF ACRONYMS AND ABBREVIATIONS

AI	Asymmetric Information
BAT	British American Tobacco
BIST	Borsa Instabul
CAPM	Capital Asset Pricing Model
CBK	Central Bank of Kenya
CFOs	Chief Finance Officers
CDSC	Central Depository System Corporations
FCD	Foreign Currency Derivatives
FDD	Foreign Currency Denominated Debts
FX	Foreign Exchange
GEMS	Growth Enterprise Market Segment
GO	Growth Opportunities
IAS	International Accounting Standards
ISDA	International Swaps and Derivatives Associations
K-S	Kolmogorov Smirnov Test
KQ	Kenya Airways
LIQ	Liquidity
MANR	Managerial Risk Aversion

MLR	Multiple Linear Regression
NSE	Nairobi Securities Exchange
SMEs	Small and Medium Enterprises
U.S.A	United States of America
USD	United States of America Dollars
U.K	United Kingdom
OLS	Ordinary Least Square

DEFINITIONS OF TERMS

Agency theory	Principal and agent relationship (Namusonge, 2011).
Corporate hedging	Strategy used to offset investment risk in firms (Fitch, 2011).
Corporate Risk	
Management	Usage of foreign debt, foreign exchange derivatives and derivatives in general (Aabo, 2015).
Derivatives	Financial instruments (contracts) whose values are derived from some underlying asset or rate/price (Malleswari, 2013).
Discrete measure	Dummy variable indicating derivatives usage (Triki, 2005).
Forward contract	Non-standardized contract between two parties to buy or sell an asset at a specified future time (Downes & Elliot, 2010).
Futures contract	Standardized contract between two parties to exchange a specified asset of standardized quantity and quality for a price agreed today with delivery occurring at a specified future date (Fitch, 2011).
Foreign Exchange	Economic exposure of a firm towards the fluctuation of foreign exposure exchange rate (Gachui, 2011).
Financial Currency	
Derivatives	Hedge instruments of FX exposure in order to minimize cash flow volatility which eventually maximizes firm value (Afza and Alam, 2015).
Financial distress	Cash flow volatility increases a firm's risk of bankruptcy (Aabo, 2015).
Financial risks	Is the umbrella term for all risks regarding the financial aspect of an organization (Bubere <i>et al.</i> , 2013).

Option	Financial instrument that specifies a contract between two parties for a future transaction on an asset at a reference price (Downes & Eliot, 2010).
Perfect hedge	Is the hedge that is able to eliminate all market risks that can affect the value of the asset, such as price risk, exchange rate risk or interest rate risk (Hull, 2009).
Risk	Inability to predict the outcome of a future event with complete certainty (Speric, 2007).
Spot price	Current market price that an asset is sold at (Bubere <i>et al.</i> , 2013).
Spot market	Is a market where commodities or securities are traded for cash and deliveries immediately at their spot price (Bubere <i>et al.</i> , 2013).
Swap	Derivative in which counterparties exchange cash flows of one party's financial instrument for those of the other party's financial instrument (Fitch, 2011).
Stakeholders	Financial and non-financial organizations and business partners that managerial decision makers interact and do business with (Smith,2014).
Managerial risk	
Aversion	Managers personal perception of risk (Smith and Stulz, 1985).

ABSTRACT

The purpose of this study was to assess the influence of financial determinants on corporate hedging for sixty four firms in the Nairobi Securities Exchange (NSE). The financial determinants on corporate hedging in this study were firm liquidity, firm leverage, firm managerial risk aversion, firm size and firm foreign exchange exposure. Data was gathered from company annual reports of firms and questionnaires which were mailed to the selected investors. The research design used was cross sectional research design. This study used both quantitative and qualitative data in developing a strong evidence base to supporting determinants on corporate hedging of firms in NSE. The study determined sample size through an approach based on precision rate, the calculated sample size constituted one hundred and ninety six people out of target population of 836,250 investors in firms operating in NSE and Chief Officers, Risk Managers and Chief Finance Officers of all sixty four firms in NSE. Simple random sampling was then used to obtain sample size from each category of investors operating in NSE. In data collection, study utilized disclosures in annual reports of firms and questionnaires comprising of structured questions which were administered to investors in each firm that participated in the study. In analyzing responses the Statistical Package for Social Sciences (SPSS) version 22 was used to present descriptive statistics, such as percentages, frequency distributions, measures of central tendencies, measures of variations and graphical expressions. To achieve above objectives, the study used both descriptive and inferential statistics so that to provide an insight into corporate characteristics of firms in the sample between hedgers and non- hedgers using both parametric and non-parametric test (Pearson correlation coefficient). In multivariate analysis, multi linear regression model was used in explaining decision to hedge corporate risk by testing of variables based on influence of financial determinants on corporate hedging presented in literature review. The results indicated that four of the variables, firm leverage, firm size, managerial risk aversion and foreign exchange have a positive and significant effect on corporate hedging. Firm liquidity had a weak positive correlation with corporate hedging of listed companies on the NSE. The study results support the view that financial determinants of listed firms in NSE have a significant influence on corporate hedging. The findings of this study need to be further developed in future research. On the one hand, research could focus on identifying other practical financial determinants on corporate hedging such as substitute for hedging. The study recommended that the policy makers should develop a well-organized exchange traded derivative market in Kenya for the benefit of financially constrained firms with highly variable cash flows and foreign sales. The study also highlighted effective usage of derivative instruments will enable corporations to define their hedging policies that are compatible with firm's internal investment and financing policies. Therefore, properly planned and implemented investment, financing and hedging policies, will not only facilitate firms in achieving their primary goal of shareholders' wealth maximization, but may also enhance economic stability.

CHAPTER ONE

INTRODUCTION

1.1 Background

In an uncertain financial world, corporate risk management has become an important element of a firm's overall business strategy. The ability to manage risk will help companies act more confidently on future business decisions. One of the most popular risk management programs that firm adopts is corporate hedging (Nguyen, 2015). Finance theory premise is that the goal of management should be to maximize the market value of the company's shareholder equity through investments in an environment where outcomes are uncertain (Flesch, 2008). Hence, need of corporate hedging management in reducing the effect of risk exposures (uncertainties) by formulating risk management strategies consistent with the overall corporate objective of shareholder value maximization. Hence, corporate hedging involve the use of off-balance-sheet instruments such futures contract, forward contract, option contract, commodity derivatives, and swaps to reduce the volatility of firm value (Rao, 2012).

1.1.1 Global Perspective of Corporate Hedging

In the last few years, use of derivative instruments has increased as a result of globalization. Derivative instruments thereafter, are widely used by both domestic and multinational firms to hedge their cash flow variability arises (Afza & Alam, 2016). Risk management is not about the elimination of risk; it is about the management of risk; selectively choosing that risk that organization is comfortable with and minimizing those that it does not want (Rao, 2012). Financial derivatives serves useful purpose in fulfilling risk management objectives by cutting away unwanted portions of risk exposures. When the firm reduces its risk exposure with the use of derivatives, it is said to be hedging. Hedging offsets the firm risk, such as the risk in a project, by one or more transactions in the financial markets (Ross, Westerfield, Jordan & Jeffrey, 2012).

Mittal ,Khakhar and Mittal (2015) describe hedging as means a risk management strategy used in limiting or offsetting probability of loss from fluctuations in the prices of commodities, currencies or securities. In effect, hedging is a transfer of risk without buying insurance policies. Hedging involves reducing or eliminating financial risk by passing that risk on to someone else. It can provide certainty of cash flows, which helps with budgeting, encourages management to undertake investment, reduces the possibility of financial collapse. Derivatives, financial instruments whose returns are derived from those of other financial instruments, act as a mean to transfer any undesired risk to other parties who, for a price, are willing to assume that risk. Some risk management products developed are futures, forward, options and swap (Haron, 2014).

Corporate hedging can either be financial, commodity or operational hedging (Hankins, 2009). Hedging theorist has identified liquidity, leverage, firm size, managerial risk aversion and foreign exchange exposure as main determinants of hedging (Afza & Alam, 2011; Aretz & Bartram, 2010). Hedging can be powerfully achieved with the help of financial derivatives, but in practice, corporations have alternative means of effecting risk management strategies such as commodity and operational techniques such as choice of locations, mergers and acquisitions, or choosing appropriate capital structure (Afza & Alam, 2011; Ameer, 2010).

Derivatives are the major icon among risk management practices (Chaudhry, Mehmood & Mehmood ,2014).According to the theory of corporate finance, a corporate decision to hedge can be value-enhancing for a risk-neutral firm, as long as market imperfections make the firm's payoff a concave function of determinants of corporate hedging (Spano, 2009). The reasons for concavity of determinants of corporate hedging function can be related to liquidity and leverage (Gamba & Triantis, 2013), firm size (Mizerka & Stróżyńska, 2013), firm managerial risk aversion (Deshmukh, Anand & Keith , 2015), firm foreign exchange exposure (Uhuru, 2014) or a combination of a number of these determinants (Chaudhry *et al.*, 2014). Researchers have explored the above determinants of corporate hedging via Logit model and Tobin Q model for example using the Logit model (Afza & Alam, 2011; Mseddi & Abid, 2010) have used it. Tobin Q model has

been used by Choi *et al.* (2013) and Dam (2012) in analyzing of corporate hedging. Monda, Giorgino and Modolin (2013) argued that modern financial theory, which has been developed since the late 1950s, implied that financial decisions, such as hedging, do not affect firm's market value in perfect market. According to the CAPM (Sharpe, 1964; Lintner, 1965; Mossin, 1966) and Modigliani and Miller's Propositions (1958), a firm is not able to enhance firm value by reducing its exposure to risks because investors can easily diversify away these risks through their own personal accounts and can costless replicate any hedging decision made by the firm. However, in the presence of market imperfections, risk management, stabilizing firm's earnings, can benefit companies in the following manners: reducing transaction costs especially the expected costs of bankruptcy and reducing foreign exchange exposure.

Klimczak (2008) argued that theory of hedging was originally limited to techniques of derivative contracts use but since 1950s risk became incorporated into the theory of finance at first only as a factor in stock market risk-return calculations. Currently, financial economics and agency theory are foundation for corporate hedging theory. More recent theories such stakeholders theory which is concerned with relationship between stakeholders relaxed classical assumptions even further.

Financial economics theory offers reasons why corporate hedging can be rational or value enhancing, each of which relies on some form of market imperfections (Klimczak, 2008). For example, Chaudhry *et al.* (2014) findings suggest that derivative users have competitive edge over the non user, as they get economies of scale and proper risk management through using these kinds of derivative instruments. Also, hedging can increase a firm's value by simultaneously reducing external claims such as bankruptcy costs and to align managerial interests with the interests of capital suppliers (Wang & Fang, 2011).

Agency theory has been applied in corporate hedging as a strategy to reduce agency problems between shareholders, management and claimholders hence improving corporate governance within a firm .For instance, Allayannis, Lel and Miller (2012)

concentrated on monitoring pressure on managers from shareholders and its impact on value implication of derivatives. They find that the use of derivatives increases firm value in well-governed firms, where managers have limited power to exert financial instruments for speculation or self-interests.

Firms hedge to reduce their financial distress and to increase their manager's utility (Dionne & Triki, 2013). This can be supported by stakeholder theory which has been applied in corporate hedging, originally it was developed by Freeman (1984) as a managerial instrument, and it has evolved into a theory of firm with high explanatory potential. Stakeholder theory focuses explicitly on equilibrium of stakeholder interests as the main determinant of corporate policy. The value of implicit claims is highly sensitive to expected costs of financial distress and bankruptcy. Since corporate risk management practices lead to a decrease in these expected costs, company value rises (Klimczak, 2008).

Monda *et al.*(2013) argued that if a bad turn of events creates uncertainty about firm's continuing ability to compete and operate, customers, suppliers, employees and debt holders may become reluctant to keep dealing with the company as they cannot be ensured that their unsettled claims will be honored, worsening the impact of the initial negative shock. Hence the more sensitive a company's value is to financial distress, the higher the motivation for hedging.

Bartram,Brown and Hund (2007) argued that in the presence of capital market imperfections, which consist of determinants on hedging such as bankruptcy and financial distress costs, managerial risk aversion, foreign exchange exposure constitutes a means to enhance shareholder value. In particular, hedging at the firm level may reduce agency conflicts between shareholders and bondholders, such as the incentive to invest below optimal levels or the incentive to increase the riskiness of the assets. Also, moreover, corporate hedging may increase firm value by reducing various transaction costs. By reducing cash flow volatility, firms face a lower probability of default and thus have to bear lower expected costs of bankruptcy and financial distress.

Firm size is a clear determinant for derivative usage (Kuhn, 2007). For example, Monda *et al.* (2013) argued that willingness to hedge is positively related to firm size as well as the general ability to hedge. There are also several studies that show empirically a positive correlation between risk management and the size of a firm measured by market value of equity or total assets. For example using natural logarithm of total assets Panaretou (2013) found positive relationship between firm size and hedging. Further, Mizerka and Stróżyńska (2013) verified their hypothesis that the larger the company listed on stock exchange, the more likely the use of derivatives using logit model.

Rationales for corporate risk management in general and hedging in particular are numerous. For instance, Adigamova and Galimardanov (2015) shows that derivatives market takes a major lead in the global financial system. For example, futures contracts determine the prices for primary commodities and derivatives have a significant effect on the share indexes, which, in turn, allow for investment in the portfolio of more liquid shares of a particular country using the only asset.

Panaretou (2013) segmented their sample into currency, interest rate, and commodity hedgers. Their regression results indicated hedging premium is statistically and economically significant for currency hedgers. The study provides evidence that the extent of hedging and the hedging horizon have an impact on the hedging premium, whereas, other risk management activities do not significantly influence the value of the firm.

1.1.2 Kenyan Perspective of Corporate Hedging

With the liberalization of trade and free movement of financial assets, risk management through the use of derivatives has become a necessity and despite enormous benefits that can be derived from using derivatives to manage financial risks, Kenyan firms have not embraced their use to full potential and there is lack of a thriving derivative market locally due to limited number of derivative instrument and lack of knowledge of existence of the instruments (Enock, Otieno & Nasimiyu, 2013). For instance, Waweru

(2012) reported that Kenya Airways signed forward hedge in 2009/10 in order to reduce risk associated with the increasing oil prices in the international markets which would otherwise inflate its expense bill. The forward hedge reduced exposure to rising prices, leaving it better-off as it is cushioned.

Financial markets are, by nature, are extremely volatile and hence the risk factor is an important concern for financial agents. To reduce this risk, the concepts of derivatives are products whose values are derived from one basic variable called base. The derivatives market performs a number of economic functions; they help in transferring risks from risk averse investors to risk oriented investors, help in the discovery of future as well as current prices, catalyze entrepreneurial activity, increase the volume traded in markets (Nyagilo, 2015).

Namusonge (2011) posit that agency theory focuses on the structure of managerial compensation contracts that mitigate agency problems. It also analyses impact of conflict between managers and firms, conflict between claimholders on issues relating to optimum levels of investments (reducing financial distress). In supporting compensation contracts, Sang, Karama and Osman (2013) argued that share options are one of the components of agents' remuneration package which is designed to encourage agents to take more risks. Share options awarded to agents are in fact call options on firm shares. These options give agents the right to buy firm shares at predetermined prices and at predetermined future dates. Options are exercised only if they provide positive returns to owners. Since the value of call options are positively correlated to volatility, assuming more risks would mean agents have more opportunity to exercise their share options.

Ochieng and Ntoiti (2016) analyzed effect of foreign hedging practices on financial performance of non-financial firms listed at the Nairobi Securities Exchange. The study findings indicated that employees were concerned about the financial performance so as to enhance the whole organizations performance. This was demonstrated by the extent of agreement with the statements in the questionnaire in support of the financial

performance. Results indicated that swaps, currency futures, options and forward contracts influenced financial performance of non- financial firms positively.

Kintu and Ngugi (2013) found that hedging can reduce the probability of financial distress by shielding future stream of cash flows from the changes in the exchange rates. They examined how long term debt ratio, growth option, liquidity ratio and cash flow volatility influence hedging practices used by companies listed in NSE on a population of 300 management employees working at Uchumi Supermarket. They concluded that the Uchumi Supermarket had experienced liquidity problems in the last five years and that the organization used current ratio in liquidity management to a great extent. The study also concluded that growth option, cash volatility and long term debt affected hedging practices of companies listed in NSE to a very great extent. Finally shortage of long-term finance had a cost in terms of productivity growth and capital accumulation.

Kimeu (2011) found that there is a direct relationship between hedging fuel prices and corporate profitability and most of the time the relationship is positive. The research findings recommended that all large fuel consuming companies should contemplate hedging fuel prices especially in a difficult economy like today, they should however be highly skilled in the risk management strategy because it involves a lot of statistical work to arrive at a congruent decision. The study recommended hedging fuel prices for the Matatu industry in Kenya, and even the common man. This is practiced and working very well in the United States. There is however need to stiffen the regulation in regard to hedging in the country since they leave out important and serious legal aspects. Hedging is the way to go for large fuel consuming companies in Kenya.

Aloo (2011) reported that growth of options and derivatives in general seems to have been ignored and therefore omitted in Kenya statutes. The Banking Act Cap 488 of the Laws of Kenya does not mention derivatives, their applications, or to the extent to which an organization can trade the same. The Banking Act Cap 488 section 33(4), which empowers the CBK to issue guidelines to commercial banks to ensure stable monetary system, fails to mention options as part of the basket of foreign exchange products in

the market. The document mentions treatment of spot transactions, forward contracts, and swaps extensively. It however, does not clearly define the treatment of the off balance sheet options by the regulator.

The guidelines for filling in commercial bank statistics for submission to the CBK, mention derivatives under the heading “Statistical treatment of financial derivatives”. The documents states: “The treatment of financial derivatives is still being developed internationally”. Consequently the CBK will revert to all reporting institutions when a common treatment of the same is available (CBK, 2009). In Kenya, Capital Market Authority is trying to establish market for derivative.

Matolo (2014) study found out that there were factors influencing the firm value of commercial state corporations in Kenya, which are foreign exchange risk, firm size, leverage, growth options and financial constraints. They influenced firm value of commercial state corporations in Kenya positively or negatively. The study found out that the intercept was 0.645 for all years. The five independent variables that were studied (Foreign Exchange risk, Firm size, Leverage, Growth Options and Financial constraints) explain a substantial 65.4% of firm value of commercial state corporations in Kenya as represented by adjusted R^2 (0.654). The study therefore concludes that foreign exchange risk positively and significantly influences the firm value for commercial state corporations in Kenya.

Oduor (2014) findings show a significant relationship between earnings after tax, a determinant of financial performance and use of strategies such as forward contracts, money market hedge and currency options in hedging against foreign exchange risk exposure. From the findings of research, the study recommended management should opt for cost effective and innovative strategies such as futures contracts and derivatives which are increasingly becoming popular in global market and can be used for hedging.

Siddiqui (2012) found out that Kenya economy has been growing at a positive 4-5% during the last decade. With international trade increasing, Bank of Africa’s Kenya head

urged small and medium enterprises to explore foreign exchange hedging strategies to mitigate currency risk. The recommendation comes after the Kenyan shilling had a topsy-turvy ride in 2011 and importers of oil, fertilizer and chemicals were forced to dig deeper to purchase raw products. Corporate can engage in numerous derivatives products to manage their risk. Options and forwards are widely used to book or determine rates for future pricing. Options are useful as they give corporate up and down side pricing and risk management.

Irungu (2012) found out that several companies began to portray different pictures due to foreign exchange exposure. For example Kenolkobil made losses of ksh. 1.55 billion in 2011 and Uchumi ksh. 17 million due to foreign exchange exposures. Firms such as BAT Kenya and Bamburi Cement benefited from foreign exchange exposures as reported by that year 2011 Bamburi Cement was characterized by stable domestic prices and better export prices due to appreciation of dollar. Also importers in Kenya have historically shown higher demand to hedge products than exporters. For example, despite hedging it yen-denominated loan, East African Portland had other currency related cost as it imported some of its raw materials. Its cost margins were depressed due to unfavorable movement in foreign exchange rates.

Ndung'u and Gekara (2016) study examined effect of fuel hedging on the profitability of the airline industry in Kenya. The study concludes that fixed forward, forward contracts, non-deliverable forwards and outright forwards affects profitability of airline companies to a great extent and that use of forwards by airline companies in Kenya has a positive effect on the levels of profitability. Futures can be used by the airlines as tools that mitigate the risk exposure of jet fuel price changes and even when they anticipate that the price of a contract will decrease and guarantees performance of the contract since buyers and sellers are not exposed to default risks.

Njagi (2016) evaluated effect of the risk management practices on the performance of hotels in Mombasa. The study found that majority of respondents indicated that their hotels did not have a risk management policy. The study concludes that risk management

practices have a relationship with performance of hotels. Specifically, proper risk management practices enhance performance of hotels. The study recommends that all hotels should have a risk management policy and employees should be involved from the start in the planning and implementation.

1.2 Statement of the Problem

The wave of international financial liberalization has witnessed financial markets introducing various innovative financial instruments such as financial derivatives to help investors limit investment risk (Cheng, 2015). The Kenyan economy is becoming more and more open with international trading constantly increasing and as a result Kenyan firms become more exposed to risks. The relative price changes affect the firms' competitive market position, leading to changes in cash flows and ultimately profitability. Hence there is need of building upon existing financial derivatives instruments so as to enhance efficiency and effectiveness in their use in Kenya as modern tools for financial risk management (Njoroge, Matumo & Maina, 2013). Hedging theorists have identified liquidity, leverage, firm size, managerial risk aversion and foreign exchange exposure as main determinants of firms hedging (Chaudhry *et al.*, (2014). Researchers have tried to empirically examine these determinants on firms hedging mostly in developed countries for example Dionne and Triki (2013), Sang, Karama and Osman (2013) and Sprcic (2013) whereas, limited studies have focused on developing and emerging economies such as Kenya.

Namusonge, Lyani and Sakwa (2016) examines the role of innovation on performance of firms on the Nigerian Stock Exchange. The central objective of the study was to look at the relationship between innovativeness and firm performance in Nigeria. Muchina, Namusonge and Sakwa (2015) study sought to assess the determinants of share price volatility in corporate Kenya while anchoring its discourse and enquiry to two theories: dividend theory and efficiency market theory/hypothesis. Thus major motivation of this study was to fill this gap by identifying influence of financial determinants on corporate hedging of sixty four firms listed in NSE.

Both primary and secondary data collection have been used to investigate effects of determinants on corporate hedging of firms mainly on developed countries as they are noted for having a well-developed derivative markets. For example Sprcic (2013) examined how risk management can enhance company's value by decreasing costs related to financial distress for Croatian firms, Sang *et al.* (2013) suggest that firms that face higher probability of financial distress are using derivatives as risk management tool to stabilize firms' cash flows for non-financial firms in UK. Dionne and Triki (2013) investigated financial distress and managerial risk aversion as important determinants of corporate hedging in UK. Mizerka and Stróżyńska (2013) found positive effect of firm size and usage of derivatives.

Pätäri and Karell (2016) investigated what kind of hedging strategies can be used in companies using bitumen as raw material in their production. Studies on risk management practices in developing countries are still relatively few. This phenomenon warrants the need to discover whether those effects of determinants on corporate hedging and theoretical rationale are similar in the developing countries. Hence this study assessed influence of financial determinants on corporate hedging of listed firms in NSE.

Dam (2012) using logit regression results strongly supported the theories of financial distress and foreign exchange exposure in explaining why some firms are more likely to undertake hedging policies than the others. Also, Nance, Smith and Smithson (1993) argued that off-balance-sheet hedging can increase the value of the firm by reducing the costs associated with financial distress. However, this issue is not well explored yet in developing and third world countries, especially, in Kenya. Therefore, this study assessed influence of financial determinants on corporate hedging of firms operating in NSE.

Murungi, Murage and Wanjau (2014) show that innovation has led to innovative ways of hedging against financial risks through derivatives. However, financial risk hedging and derivative use in Kenya has remained low in Kenya coupled with lack of studies and

shortage of knowledge on the possible reasons for limited use of derivatives. Their findings concluded that nonfinancial firms do not use derivatives owing to managerial skepticism, limited derivative market microstructure, and knowledge on derivative use and accounting. This study examined influence financial determinants on corporate hedging facing firms in NSE.

Matolo (2014) investigated effects of foreign exchange risk on firm value of commercial state corporations in Kenya. Kintu and Ngugi (2013) examined effects of hedging on probability of financial distress by shielding future stream of cash flows from the changes in the exchange rates. Kimeu (2011) concentrated with hedging fuel prices on corporate profitability and found out that hedging fuel prices is directly proportional to corporate profitability.

Aloo (2011) showed that currency options market has not developed in Kenya. The study found that currency of market did exist in Kenya but only to a limited extent as only 4.1 percent of the respondent reported that the commercial banks offered only currency options as one of their treasury products. Oduor and Khainga (2010) investigated exchange rate misalignments effects on allocation of resources in the economy, as it distorts export and import prices, among other adverse effects. Ndung'u and Ngugi (2000) study focused on interest spread. Thus major motivation of this study was to fill this gap by examining influence of financial determinants on corporate hedging of sixty four firms listed in NSE.

Despite volatile political and economic situations in Kenya, limited studies have explored the effects of determinants on firm's hedging of listed firms in Kenya. Recent studies have been done in developed countries by Pätäri and Karell (2016), Vural-Yavas (2016) study examined the determinants of corporate hedging in emerging markets. The analysis was conducted using data from non-financial companies listed in Borsa Istanbul (BIST) between 2010 and 2014. Babajide and Ozkan (2014); Sang *et al.* (2013); Dionne and Triki (2013) and Panaretou (2013) on influence of financial determinants on corporate hedging in developed countries. Despite the studies that have been done in

developed countries, the influence of financial determinants on corporate hedging in Kenya listed companies have not been documented satisfactorily. To fill this gap and add to the body of knowledge, this study sought to assess influence of financial determinants on corporate hedging of firms in NSE.

1.3. Research Objectives

The study was guided by the following general and specific objectives.

1.3.1 General Objective

The general objective of the study was to assess the influence of financial determinants on corporate hedging in firms operating in NSE.

1.3.2 Specific Objectives

The specific objectives which guided the study were:

1. To establish the influence of firm liquidity on corporate hedging in firms operating in NSE.
2. To determine the influence of firm leverage on corporate hedging in firms operating in NSE.
3. To establish influence of firm size on corporate hedging in firms operating in NSE.
4. To examine the influence of firm managerial risk aversion on corporate hedging in firms operating in NSE.
5. To identify the influence of firm foreign exchange exposure on corporate hedging in firms operating in NSE.

1.4 Research Questions

The following research questions were introduced;

1. What is the influence of firm liquidity on corporate hedging in firms operating in NSE ?
2. What is the influence of firm leverage on corporate hedging in firms operating in NSE ?
3. What is the influence of firm size have effect on corporate hedging in firms operating in NSE ?
4. What is the influence of firm managerial risk aversion on corporate hedging in firms operating in NSE ?

What is the influence of firm foreign exchange exposure on corporate hedging in firms operating in NSE ?

1.5 Research Hypotheses

This study was guided by the following null hypotheses;

1. H_{01} : Firm liquidity has no significant effect on corporate hedging among NSE firms.
- 2 H_{01} : Firm leverage has no significant effect on corporate hedging among NSE firms.
3. H_{01} : Firm size has no significant effect on corporate hedging among NSE firms.
4. H_{01} : Firm managerial risk aversion has no significant effect on corporate hedging among NSE firms.
5. H_{01} : Firm foreign exchange exposure has no significant effect on corporate hedging among NSE firms.

1.6 Significance of the Study

This study will make contribution to the existing body of knowledge by broadening the level of understanding relating to influence of financial determinants on corporate hedging in NSE.

(a) Managers of Firms

Financial derivatives serve a useful purpose in fulfilling risk managerial objectives. Through derivatives, risks from traditional instruments can be efficiently unbundled and managed independently. Used correctly, derivatives can save costs and increase returns. Financial derivatives can be used in two ways; to hedge against unwanted risk or to speculate by taking a position in anticipation of a market movement. Firms today can use financial derivatives to actively seek out specific risks and speculate on the direction of interest-rate or exchange-range movements, or they can use derivatives to hedge against unwanted risk (Rao, 2012).

(b) Academicians and Researchers

The study formed a basis for academicians and researchers for further research and knowledge on the subject of corporate hedge risk management in Kenya. Since this study assessed the existing influence of financial determinants of firms in corporate hedging management then its findings generated more knowledge in this area.

(c) Policy Makers

The study served as a source of information to the public who would like to know more about the effects corporate hedge risk management determinants. Also the study provided information that will enable the government to come up with policy measures that will facilitate smooth development, implementation and corporate hedging risk management practices of firms.

(d) Financial Analysts

Financial analysts will be able to incorporate the information of firm's hedging policy (the use of derivatives) and reflect it in their forecasts. Derivative usage reduce firm risk exposure by providing empirical evidence on the measurement of risk exposure and the role of hedging on firm value. Chung (2003) argued that intensive usage of hedging

activities have both statistically and economically significant risk reductions on future cash-flows as well as equity returns of firms.

(e)Shareholders

Investors use derivatives to hedge their positions i.e., to reduce or eliminate the risk inherent in commodities, foreign currencies and financial assets. For instance exporters, exposed to foreign exchange risk, can reduce their risk using derivatives (forward, futures, and options). Pension funds who invest in securities can avoid disastrous consequences by buying insurance in the form of put options. The risk management benefits of derivatives are not limited to hedging one's exposure to risk but to a whole spectrum of risk-return combinations which can be achieved using options. For example, these features allow one to protect themselves in extremely volatile times (Malleswari, 2013).

1.7 Scope of the Study

The study targeted firms operating in NSE being representatives of all firms in Kenya. The unit of analysis was restricted to Chief Executive Officers, Risk Managers, Chief Finance Officers of all sixty four NSE firms and retail investors holding accounts with the Central Depository Systems Corporation (CDSC) in firms operating in Nairobi Securities Exchange which was obtained from twenty one investment banks and stock brokers (NSE, 2015). NSE firms were used since listed firms are required to disclose all information in financial statements with NSE, for a period 2012-2016. The influence of financial determinants of corporate hedging focused was firm liquidity, firm leverage, firm size, managerial risk aversion and foreign exchange exposure. The study was limited to firms operating in NSE due to the fact that corporate hedging risk management practices are issues that cut across all companies in Kenya and it was not possible to obtain financial statements of non-listed companies. NSE has companies drawn from all categories thus providing a diversified population relevant for comparative analysis.

The position adopted for the purpose of this study was that verifying effects of determinants of corporate hedging on risk management on a sample from a country which is still developing like Kenya can yield results as reliable as studies based on data from developed countries. At the same time, the results add to understanding of corporate hedging. Sufficient financial market infrastructure exists in Kenya, companies can engage in hedging. Consequently, Kenyan companies can implement financial risk management processes, provided that they find them useful. Finally, Kenyan Company Law and Banking Act (2008) require companies to follow a regulation based on IAS 39 and IAS 32 in their financial reporting. Under these regulations, the disclosure of derivative instruments is mandatory which will allow reliable data collection.

1.8 Limitations of the Study

The researcher encountered a number of challenges in carrying out the research; however the limitations did not have a significant interference with the outcome of the study. Use of self-administered questionnaires was a limiting factor in terms of understanding of the questions for which answers were being sought. However to some extent the risks involved were reduced by use of multiple informants from each respondent. The questionnaire is a self-reporting instrument, and some respondents had difficulties in understanding the questionnaire's format. In the current study, several questionnaires were filled in incorrectly. This was despite the instructions which appeared at the top of the questionnaire. Having observed this problem, the researcher gave more detailed instructions to the respondents and no respondent henceforth filled the questionnaire incorrectly.

One of the major limitations of this study was cross-sectional research design. Therefore, firm conclusions about the directions of causality implied in the model cannot be drawn. Thus, relationships among variables must be interpreted with caution. Interpretations of models using structural equation modelling are also not proof of causality. True causal inferences can only be drawn testing models using longitudinal data. This is especially important for a subject like influence of financial determinant on corporate hedging.

that is not static but is a developmental process that changes over time. Although cross-sectional survey of NSE in Kenyan companies has been carried out with statistically significant response rate but it is not enough to generalize the results in a vast country like Kenya. These declines are easiest to see in cross-sectional surveys that have been repeated over a long period. Surveys has changed from being an obligation to being a matter of respondent choice and convenience.

The other limitation of this study is, since present study involved the sample of listed companies in NSE population due to several constraints of geographic proximities and time; the comparative study for a larger sample will provide more microscopic examination of determinants of corporate hedging in Kenya. The study used the NSE firms which might not be a true representative of all other firms in Kenya. Other firms could have different determinants of corporate hedging.

Some of the respondents found it difficult to fill the questionnaire because they felt giving the information required might jeopardize their jobs; however this was overcome by assurance that the information will not be divulged and is for academic purpose. The study did not obtain 100% response rate due to unwillingness and unavailability of some targeted respondents given the nature of information to be collected. The study also experienced several obstacles since management of some firms and retail investors were reluctant to divulge some information they considered sensitive.

The present study has relied largely on quantitative methodology of data collection (though qualitative methodology was used to a limited extent) and is therefore restrictive. Therefore, more of qualitative methodology of data collection should be undertaken in future to provide wider perspective to the present study. For instance, the research design can employ case study methodology or content analysis to provide a holistic picture to the given subject.

CHAPTER TWO

LITERATURE REVIEW

2.1 Introduction

This chapter reviews the literature on the influence of financial determinants on corporate hedging of listed firms in NSE. The principal themes of the chapter are: theoretical framework, conceptual framework, review of influence of financial determinants on corporate hedging, research gaps, research critique and finally chapter summary.

2.2 Theoretical Framework

Hedging can be a value-enhancing strategy for a firm under imperfect markets (Choi *et al.*, 2013). The theoretical literature argues that corporate hedging is a rational, value-enhancing decision due to different sources of market imperfection.

2.2.1 Financial Economics Theory

Basic economic theory suggests that corporate hedging cannot contribute to the creation of shareholder value (Modigliani & Miller, 1958) but in presence of capital market imperfections such as financial distress cost and agency cost corporate hedging can result shareholder value. Merton (1974) described financial economics as the branch of economics concerned with allocation and deployment of economic resources, both spatially and across time, in an uncertain environment. Sharpe (2009) argued that questions within financial economics are typically framed in terms of time, uncertainty, options, and information. In corporate hedging, financial economics approach is built on Capital Asset Pricing Model (CAPM) theory (Sharpe, 1964; Lintner, 1965; Mossin, 1966) and the classic Modigliani-Miller paradigm (Miller & Modigliani, 1958).

(a)Capital Asset Pricing Model (CAPM)

Capital Asset Pricing Model (CAPM) theory proponents were (Sharpe, 1964; Lintner, 1965; Mossin, 1966). Capital Asset Pricing Model (CAPM) shows that total risk associated with an asset can be split up in two components: systematic (non-diversifiable) and unsystematic (diversifiable) risk. If the number of assets included in the portfolio is high and these assets are not perfectly correlated, the unsystematic component of the portfolio risk diminishes. The CAPM shows that investors only get compensated for holding systematic risk, since the firm-specific component of risk can be eliminated through diversification (Monda *et al.*, 2013). Thus, agency problems between shareholders and managers arise just because managers face total risk (systematic risk as well as unsystematic risk), whereas shareholders face only the systematic component of total risk, since they can diversify away the firm-specific risk of their positions. Hence, the risk associated with managers' income is closely related to the firm's risk.

Actually, a firm's failure to achieve predetermined performance targets, or in the extreme case the occurrence of bankruptcy, will result in managers' losing their current employment and seriously hurting their future employment and earnings potential. Such employment risk cannot be effectively diversified by managers in their personal portfolios, since unlike many other sources of income such as stocks, human capital cannot be traded in competitive markets. Thus, managers must be considered undiversified investors given that a considerable portion of their wealth consists of human capital (Monda *et al.*, 2013).

Sprcic (2007) argued that important implications of CAPM are that diversified shareholders should care only about the systematic component of total risk. On the surface it would appear that this implies that managers of firms who are acting in the best interests of shareholders should be indifferent about hedging of risks that are unsystematic. Cupic (2015) argued that corporations needed to make decisions by taking into account only systematic (market) risk which determined a risk premium for

investments in corporation. Miller and Modigliani's proposition supports CAPM findings. The conditions underlying MM propositions also imply that decisions to hedge corporate exposures to interest rates, exchange rates and commodity prices are completely irrelevant because stockholders already protect themselves against such risks by holding well-diversified portfolios.

(b) Modigliani-Miller Theory

Modigliani-Miller paradigm proponents were Miller and Modigliani (1958). Klimszask (2005) argued that hedging can only be of value to the firm if at least one of Modigliani and Miller conditions is relaxed in the real world. But in real world transaction costs of bankruptcy do exist, as well as direct and indirect costs of other types of financial distress. Since hedging can lower the possibility of financial distress, it also diminishes its' expected costs.

The basic idea of the Modigliani and Miller (M&M) theorem is that under certain assumptions such as if the CAPM holds, then it does not matter how the firm chooses to finance its investment: either by issuing shares, borrowing debts or spending its cash. The financing method will not affect the value of a firm since firm value is determined by its earning power and by the risk of its underlying assets. For the theorem to hold, there are some criteria must be satisfied such as there are no taxes, no transaction costs and no bankruptcy cost (Nguyen, 2015).

In a perfect market, the irrelevance propositions of Modigliani and Miller imply that hedging does not increase firm value. Thus, risk management is irrelevant. There is no information asymmetry, transaction costs or taxes in perfect capital markets. Investors can use the information and financial investment tools to diversify their portfolio risk with the same cost as firms do, for the reduction of risk. In other words, shareholders can reduce their risk by holding well-diversified portfolios with the same cost as firms can. On the other hand, when the market is not perfect, it will be more costly for individual

investors to diversify their risk. So, shareholders prefer their firm to diversify risk on behalf of them (Vural-Yavas, 2016) .

Smith and Stulz (1985) found that managers are likely to be more risk averse than shareholders since they have to face total risk rather than only systematic risk like the owners of the firm. Secondly, shareholders are exposed to moral hazard risk since managers have the possibility and the incentive to use their control over the firm's investment, operating and financing policies to manage their personal income risk. Managers consider their personal attitudes towards risk when choosing the company's level of risk, which may not perfectly match shareholders' preferences.

The ultimate result of hedging, if it indeed is beneficial is firm value to increase i.e. hedging premium. Evidence in support of the predictions of financial economics theory for corporate hedging is mixed for instance Tufano (1996) finds no evidence to support financial hypotheses, and concentrates on the influence of managerial preferences instead. Judge (2006) found evidence in support of the financial distress hypothesis. Ramlall (2009) provided evidence of the lack of value relevance of hedging through managerial incentive to hedge on Mauritius firms.

2.2.2 Agency Theory

Agency theory relates to conflict between the principal (shareholders) and the agent (management). The pure finance view of the firm is that managers must maximize the shareholders' wealth. According to this theory, reducing risk through hedging or other strategies can signal to bond holders, potential creditors and future investors that the firm will not take excessive risk with their money (Messo, 2016).

Agency theory is the study of the agency relationship and the associated problems, particularly the dilemma that the principal and agent, while nominally working toward the same goal, may not always share the same interests (Monda *et al.*, 2013). Jensen and Meckling (1976) define agency relationship as a contract under which one party (the

principal) engages another party (the agent) to perform some service on their behalf. As part of this, the principal will delegate some decision-making authority to the agent. McColgan (2001) argued that the seminal work of Jensen and Meckling (1976) found out that theory of the firm is based on conflicts of interest between various contracting parties, namely shareholders, corporate managers and debt holders.

Jing (2015) argued that typical feature of modern corporate governance is the separation of company ownership and management, in order to the better development of enterprises, business owners take the company's operating rights to professional managers to manage, retain only the power of the residual value of the company obtain rights. The disagreements between operators and owners will lead to deviate from the interests of both, leading to a short-term profit behavior, harming the interests of owners and shareholders, destroying the contractual relationship. In addition to incentive pay, the shareholdings of managers are also a good incentive mechanism, it can help operators and owners become united, promote the interests of both, so that operators will pay more attention to the development of long-term interests of the company besides considering themselves, thus contributing to achieve the contract objectives. Therefore, the shareholdings of managers will make them pay more emphasis on social responsibility information disclosure.

Hill and McDonnell (2015) asserts that managerialist world that preceded our present world the shareholder value world some corporate managers could, and did, help themselves when they should have been doing their jobs. They were bad agents, using their positions to get unwarranted leisure and unwarranted perquisites at the expense of their principals, whether the principals were seen as the corporation, its shareholders, or both. The modern agency cost paradigm has focused the attention of courts, directors, and scholars on this problem, in part by conceptualizing the duty of corporate managers as maximizing shareholder value. This paradigm has had a variety of effects: some good, some bad, and some ugly. As for the good, the agency cost paradigm focused on this problem of managerial enrichment, for bad, short-term shareholder value which can results in include takeovers and other transactions in which the principal motivations

include reductions in research and development costs and tax savings through relocation to other jurisdiction. The ugly is how at least some managers have used short-term gimmicks to get short-term stock price gains that will increase their own compensation, while making the corporation and its shareholders no better off.

Kiama (2014) argued that agency theory extends the analysis of the firm to include separation of ownership and control, and managerial motivation. The emergence of the large corporation has occasioned separation of ownership and control of capital in publicly held companies. The overriding objective of the owners of capital (referred to as principals) is to maximize their wealth. On the other hand, those to whom they entrust their capital (known as agents), more often than not, have divergent interests which may include enhancement of personal wealth and prestige (Ongore *et al.*, 2011).

Klimscszk (2008) argued that in the field of corporate risk management, agency issues have been shown to influence managerial attitudes toward risk taking and hedging. Agency theory explains a possible mismatch of goals between shareholders, management and debt-holders caused by asymmetries in earnings distribution, which can result in the firm taking too much risk or not engaging in positive net value projects (Mayers & Smith, 1987). For instance in corporate hedging, Ahmad and Harris (2012) argued that agency cost arises when managers tend to put their own interests before the shareholders' interests. A manager who owns a substantial amount of company shares will be motivated to use derivative to mitigate firm risk since their wealth is linked to the company's market value.

Hedging is said to reduce agency costs which allows firms to have higher debt to equity ratio. Agency conflicts between shareholders and bondholders arise from the different nature of their claims: bondholders receive a fixed amount or, if the company is bankrupt, the whole value of the company. However, the higher the probability of financial distress, the more interests of shareholders and bondholders may diverge (Monda *et al.*, 2013).

Cupic (2015) shows that conflict between managers and shareholders may occur if managers, in order to maximize their own welfare, undertake such activities that may not be in accordance with shareholders' interests, or with the aim of corporate value maximization. Such a conflict is pronounced when managers with high risk aversion have a high ownership stake, so that the occurrence of financial distress can cause them to lose everything - current and future benefits (salary, dividends and a capital gain), reputation and promotions.

2.2.3 Stakeholders Theory

The stakeholder theory was originally detailed by Edward Freeman (1984). Stakeholder theory focuses explicitly on equilibrium of stakeholder interests as the main determinant of corporate policy. The most promising contribution to risk management is the extension of implicit contracts theory (a part of stakeholder theory) from employment to other contracts, including sales and financing (Cornell & Shapiro, 1987).

Cassano *et al.* (2015) argued that to improve relations with stakeholders there is need to have voluntary formal publication of documents and communication of company's strategy about risk management so that have a mature corporate culture where transparency in the communication reflects fair and respectful to all stakeholders' expectations behaviors.

Stakeholders theory clearly bridges the gap between academia and practitioner research; an integrated and strategic accounting function is essential for the development of a stakeholder model. In order to effectively address the needs and requirements, accounting professionals must adopt and evolve to meet marketplace changes. Stakeholder theory not only represents a shift in the business and accounting profession, but a paradigm shift in how business is conducted at large (Smith, 2014). Klimszk (2008) argued that in certain industries, particularly high-tech and services, consumers' trust in a company can substantially contribute to the company's value also the value of implicit claims is highly sensitive to expected costs of financial distress and bankruptcy.

Since corporate risk management practices lead to a decrease in these expected costs, company value rises (Klimczak, 2005). The more sensitive a company's value is to financial distress, the higher the motivation for hedging.

Stakeholders represent both financial and non-financial organizations and business partners that managerial decision makers must interact and do business with. Engaging with these different stakeholders as part of the strategic planning process is imperative to successful long-term planning and initiatives. It can be difficult, however, to effectively quantify and translate relationships with stakeholders into actionable business information. Weighing the costs and benefits of enhanced stakeholder reporting and engagement, as well as creating and monitoring specific methodologies with which to engage these stakeholders are both clear areas in which accountants are faced and posed to lead (Smith, 2014).

Bankruptcy can either be direct or indirect cost. Monda *et al.* (2013) argued that indirect costs are all those costs not directly related to the bankruptcy procedure but that arise as soon as stakeholders perceive that there is a realistic chance of bankruptcy in the future. They include lawyers' charges, legal expenses, administrative and accounting fees, expenses for expert witnesses, management's labour spent on the bankruptcy procedure and so on. While indirect costs are a continuum of costs that increases at an accelerating rate as exposure to financial distress increases such as consist of lost sales, lost profits, costs associated with restrictions on the firm's borrowing and higher compensation that manager's demand because of higher probability of unemployment.

If a bad turn of events creates uncertainty about firm's continuing ability to compete and operate, customers, suppliers, employees and debt holders may become reluctant to keep dealing with the company as they cannot be ensured that their unsettled claims will be honored, worsening the impact of the initial negative shock (Monda *et al.*, 2013). Management will need to find means of assuring potential claimholders that their claims will be respected. One way to achieve this is by lowering the risk of financial distress by implementing a hedging strategy and communicating it to stakeholders (Klimczak, 2005).

Klimszk (2005) found managers are significant stakeholders, who can affect firm's performance to a great extent, and who actually decide upon the use of hedging instruments. In general however, hedging may be desirable for all stakeholders who hold illiquid assets, the value of which is dependent upon the firm's financial condition. Managers' wealth is obviously a function of corporation's risk, and they may require additional compensation for taking that risk if the risk is decreased through hedging, the compensation may be lower. Moreover, hedging may all.

2.3 Conceptual Framework

Conceptual framework of this study was based on influence of financial determinants on corporate hedging. The dependent variable of this study was corporate hedging and is related to independent variables which include firm liquidity, firm leverage, firm size, firm managerial risk aversion and firm foreign exchange exposure. These variables have been derived from irrelevance theories of Modigliani and Miller (1958), Capital Asset Pricing Model theory (Sharpe, 1964; Lintner, 1965; Mossin, 1966), Stakeholders theory (1984) and agency theory (Jensen & Meckling, 1976).

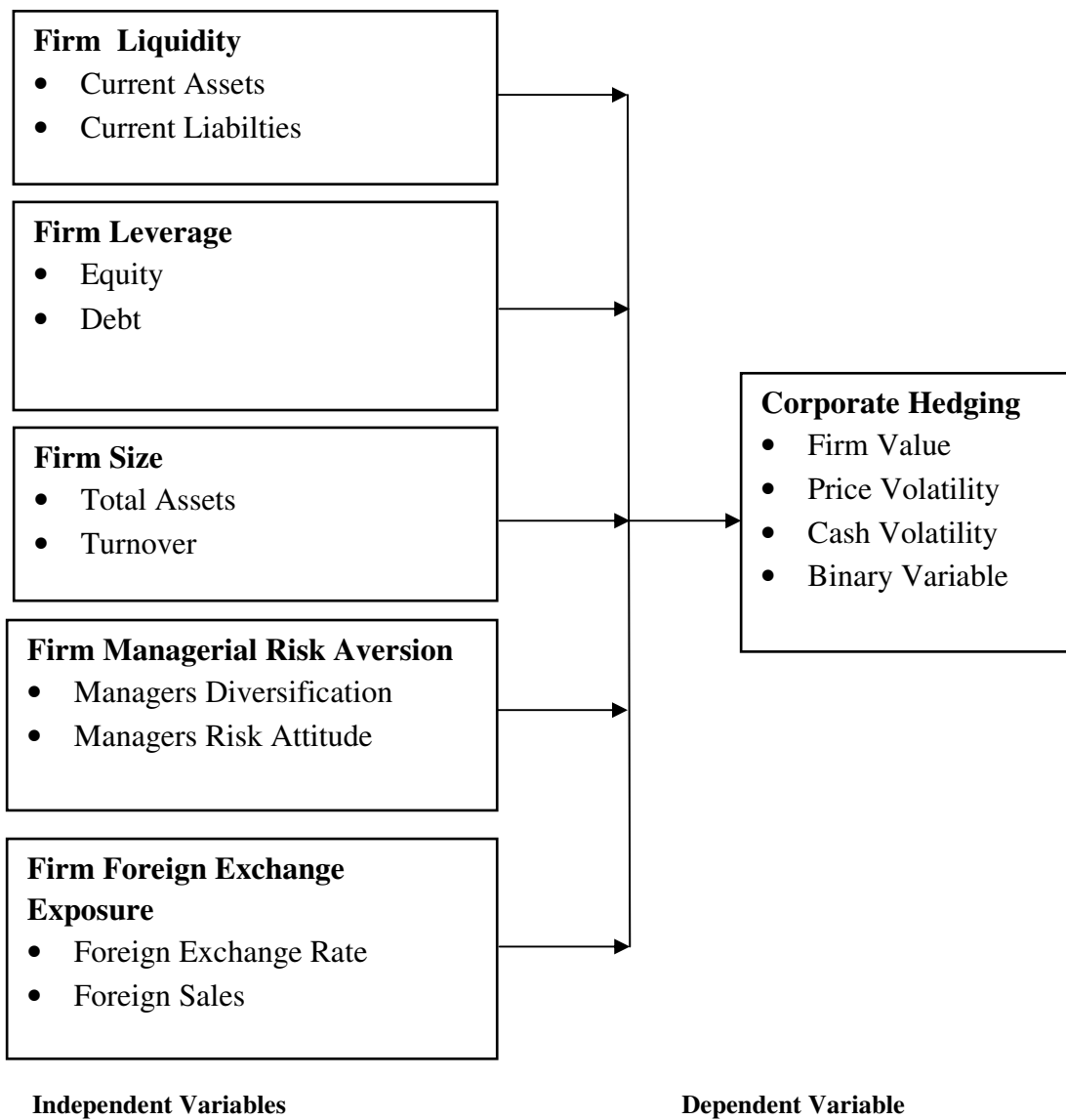


Figure 2.1: Conceptual Framework

2.4 Review of Literature of Variables

Review of the influence of financial determinants on corporate hedging will show rationale that hedging result in increase in firm value. In the real world, however, it is impossible to get access to this perfect market, the demand for corporate hedging may be derived by relaxing one or more of the MM perfect market assumptions. The following

is review of influence of financial determinants on corporate hedging obtained after relaxing MM hypothesis in imperfect markets.

2.4.1 Firm Liquidity

Firm liquidity management is a crucial managerial area of corporate finance. There is a common knowledge that even the most profitable company may go bankrupt if it does not manage its liquidity in a proper way. The importance of liquidity maintenance arises in times of crisis characterized by the high volatility of financial markets and clear symptoms of economic downturn (Blatch *et al.*, 2015).

Wanjiku (2012) showed that corporate hedging can enhance shareholder value through its impact on agency costs, costly external financing, direct and indirect costs of bankruptcy. If payment obligations such as interest on debt and wages cannot or are expected not to be met fully and timely due to a lack of liquidity, the company may experience financial distress and ultimately is forced into bankruptcy (Mondo *et al.*, 2013).

Costs of financial distress can be life threatening for firms, and associated direct and indirect costs should never be underestimated (Kuhn, 2007). Hedging financial risks reduces the cash flow volatility of the firm and allows a company to maintain enough funds to be able to pay off its debt holders and serve its other obligations on time. The avoidance of cash shortfalls adds value to the firm and consequently benefits its shareholders. Clarke *et al.* (2006) using data obtained from annual reports of 227 Hong Kong and Chinese firms listed in Hong Kong stock exchange found evidence linking the decision to hedge the expected costs of financial distress for the overall sample was strong.

Kariuki *et al.* (2015) study sought the respondents' view on the likelihood of financial distress and corporate cash holdings using likert scale for data collection. From their results, 44.4% of the respondents agreed and 7.7% strongly agreed that managers prefer

holding larger cash balances to avoid the risk of costly financial distress or bankruptcy with a mean of 3.41. The study also established that CFOs agreed that financially constrained firms are more likely to save cash from internally generated cash flows to fund future investment opportunities than firms that are not constrained (mean of 3.838), financially constrained firms are more likely to seek optimal levels of cash holdings that balance the profitability of current and future investments (mean of 4.026), firms that have substantial assets in non-core business segments that cannot be easily sold will carry relatively higher levels of cash balances (mean of 3.735), firms with higher cash balances will generally invest more in R&D (mean of 3.47), firms with difficulties in meeting their payment commitments cannot accumulate cash (mean of 3.923), and firms that are aware of increase in the probability of the default tend to shield themselves by holding more cash (mean of 3.521).

Babajide and Ozkan (2014) tested hypothesis that there is a positive relation between the probability of financial distress and the probability of hedging. The results find supports for the financial distress hypotheses in that the results show that significantly higher leverage, fewer liquid assets (quick ratio) and large size create incentives to hedge during the 2005-2011 sample periods. Typically, we find positive and significant relation between hedging and leverage. We therefore argue that the probability of encountering financial distress creates incentive for firms to hedge even during financial crisis. Also the sign of the coefficient of size appears to be positive and significant at 1% in all specified models.

The chance of financial distress increases when a firm has high fixed costs, illiquid assets, or revenues that are sensitive to economic downturns and the expected costs of financial distress stem mostly from low levels of firm value. However, corporate risk management reduces the volatility of company value, thus it can add value to firm by decreasing the expected costs of financial distress. High leveraged firms with less sufficient free cashflow might have higher possibility of failing to pay off all payments obligations prior to maturity, thus they are more likely to engage in corporate hedging (Liu & Rodriguez, 2014).

Gamba and Triantis (2013) demonstrate why liquidity is an important, and in many circumstances the most effective, risk management mechanism, particularly when the ability of hedging tools to mitigate risk exposure is limited. Their findings suggest that specific firm characteristics that may lead to higher cash balances. Bolton *et al.*, (2011) focused on liquidity and variables used were moderated by cash holdings, financial derivatives, or lines of credit. They find out positive relationship between hedging, liquidity and operating flexibility.

Spano (2009) argued that empirical research on the determinants of hedging has always explored alternative ways to reduce risk exposure, such as holding liquid assets, raising shorter term debt and retaining profits at the corporate level. Holding cash or other liquid assets allows firms promptly to cover temporary shortfalls in revenues and fulfill short term liabilities. Low dividend payouts (undistributed profits) provide more liquidity and higher assurance to bondholders that the firm is able to repay fixed claims.

Monda *et al.* (2013) argued that firms can hedge against financial distress costs by holding many tangible assets. Since tangible assets can be easily sold in case of bankruptcy, firms with a high proportion of tangible assets should have a lower level of financial distress costs than firms with significant intangible assets. Similarly, firms with large advertising and selling, general, and administrative (SG&A) expenses often have more unique products that are harder to liquidate quickly.

Liquidity typically include some characteristics of a firm's assets, such as tangibility, which may be related to flexibility, the interaction of operating flexibility with a firm's cash management policy (Gamba & Triantis, 2013).The interaction between hedging and liquidity has been addressed by including liquidity as a regression variable in empirical studies on hedging. For instance, Allayannis and Schill (2010) examine the relationship between liquidity and hedging, as well as payout and leverage policies, and find a positive association between conservative policies and firm value.

2.4.2 Firm Leverage

Muchina *et al.* (2015) leverage represents the extents to which firm's assets are financed by debt. The higher the leverage the lower the control by ordinary shareholders and vice versa. Park and Kim (2015) empirical results support that derivative usage variable is positively correlated with corporate debt. Firms with derivatives tend to have more debt after controlling the possible endogeneity problem. This result can suggest that financial derivatives usage of the individual firm plays an important role of reducing financial costs and increasing debt capability.

Sang *et al.* (2013) study provided two significant results based on the derivative theory. First, high-levered firms are found to use more derivatives. Due to their large debt repayment, these firms face higher expected costs of financial distress. To reduce the distress, they choose to hedge because hedging reduces the variability of cash flows and earnings and therefore, reduces the likelihood of incurring bankruptcy costs. Another significant result shows that larger firms prefer to hedge more. Compared to their smaller counterparts, large firms have more resources in setting up hedging unit and have the tendency to trade in higher volumes, therefore driving down transaction costs. In other words, larger firms hedge more because they enjoy cost advantage.

Babajide and Ozkan (2014) hypothesised that marginal increase in probability that firm would encounter financial distress (change in leverage level) results in marginal increase in probability hedge. We find that the probability of hedging with derivative is greater when the probability of encountering financial distress is lower. Specifically, firms' show increase in their probability to hedge by about 19.3 percent when leverage increase from 0% to 20% mean. Typically the probability to hedge with derivative instruments increase from 5.7% to about 6.8%. In addition, we find that firm incentive to hedge with derivative instruments is extremely minimal when the financial distress is higher. When firm changes its leverage level to about 60% mean, we observe that likelihood that firm would hedge start to diminish. The results tend to suggest that when firm takes up more leverage to the extent of increasing its probability of facing financial distress or probably

to the extent that the costs of financial distress could be seemingly higher, firms wither down their aspirations to engage in risk management.

Kariuki *et al.* (2015) study sought the respondents' view on the leverage and debt structure and corporate cash holdings. They found out CFOs were neutral to the statement that firms with high level of debt are less able to hoard cash due to the higher monitoring role of financial institutions (mean of 3.308), and firms can hold cash as a substitute for borrowing (mean of 3.393). Moreover, the CFOs disagreed with the statement that firms hold excess cash balances to avoid the disciplining effects from the financial markets that may accompany raising funds externally (mean of 2.547 and STDEV of 0.978). This implies that management is indifferent to the assertion that high gearing leads to monitoring of the financial activities of the firms by lenders. As a result the monitoring and disciplining effects by financial institutions are not significant factors in explaining cash hoarding behavior among private firms. The study further established that the CFOs agreed with the statements that firms with short debt maturity hold more cash as an important part in evading the financial distress (mean of 3.547) and there is a positive relationship between leverage and cash holdings at higher levels of debt where financial distress is possible (mean of 3.590). This point to the fact that firms with short debt maturity hold more cash as a precautionary measure to guard against the difficulty of obtaining other external financing as the debt maturity approaches. This indicates that private manufacturing firms in Kenya employ trade off theory which envisages a negative relationship between debt maturity and cash holding.

Ali (2014) revealed that there is a significant negative relationship between leverage and return on assets. The result is also buttressing that profitable firms uses pecking order theory in its financing, the more profitable a firm is, the more likely they are going to reduce its debts hence internal financing is preferred. Findings from the Tobin's Q model indicated that large firms have a positive insignificant relationship between financial leverage and firm performance while the older firms showed an increase in its market value; this is an indication of investors' confidence on the older firms who have built their reputation over a long period.

Park and Kim (2015) study empirically investigates the impacts of the financial derivative usage on corporate debt capability and stock return using Korean non-financial firms' data from 2002 to 2012. Empirical results support the conjecture that financial derivatives tend to increase debt capability by transferring risks and reducing financial cost. Derivative user firms turn out to have better stock market performance especially during period with the tight credit market. Unexpected contractionary monetary policy is negatively correlated with corporate stock return and the negative relationship becomes more significant in case of the derivative non-user firms. Financial derivatives usage of the individual firm plays an important role in increasing debt capability and achieving better stock performances.

Okelo *et al.* (2014) found that most of the respondents agree that the constructs of cost of capital are debt; equity and preferred stock significantly affect the financial risk of their firms. The factor which is considered to have most effect is debt as it is compulsory to pay back the principal and interest and, the rates of interest fluctuate depending on the existing macroeconomic conditions. Furthermore, collateral is required to access debt.

Kintu and Ngugi (2013) examined determinants of corporate hedging of firms operating in NSE on population of 300 management employee of Uchumi Supermarket. They found that hedging can reduce the probability of financial distress by shielding future stream of cash flows from the changes in the exchange rates. They concluded that the Uchumi Supermarket had experienced liquidity problems in the last five years and that the organization used current ratio in liquidity management to a great extent. The study also concluded that growth option, cash volatility and long term debt affected hedging practices of companies listed in NSE to a very great extent. Finally shortage of long-term finance had a cost in terms of productivity growth and capital accumulation.

Salama and Zoubi (2015) purpose of their study was to identify firm attributes that influence the relationship between global diversification and the degree of financial leverage. It is argued that that managers prefer to utilize less debt because debt is risky and this would increase the probability of bankruptcy and loss of employment and debt

creates additional monitoring of managers' decisions with related possible actions by bondholders. However, as mentioned above, efficient monitoring by the BOD, audit committee, and/or shareholders would discourage self-serving managers from lowering financial leverage below its optimal level. Accordingly, they suggested that a strong corporate governance system increases the degree of financial leverage among globally diversified firms.

Magee (2012) used leverage as a proxy for the probability of financial distress and find that hedging is positively related to leverage. Corporate risk management increases firm value by enabling firms to carry more debt hence increasing the optimal debt-to-equity ratio which allows firms to enjoy greater tax shields (Graham & Rogers, 2002). A firm with high leverage has higher payment obligations and should therefore be more likely to experience difficulties in honoring these commitments.

Okelo *et al.* (2015) results indicated that level of leverage positively influences the financial risk of companies listed on the NSE more than financial information, cost of capital, capital structure and prudential regulation and supervision as shown by the unstandardized beta coefficients. Their findings of regression analysis shows that the level of leverage has a positive and significant influence on financial risk. The individual constructs of level of leverage were also tested and it was evident that there is increased possibility of the use of debt as initial source of additional funding and this implies an increase in financial risk.

Wang and Fang (2011) argued that positive correlation between leverage and hedging intensity is significant in both the pooled and annual regressions, and this correlation is relatively easy to understand. Hedge could be beneficial for highly levered firms to stabilize their internally generated cash flow and reduce various costs associated with the variability of cash flows. Magee (2012) argued that if financial distress is costly, the probability of financial distress should be a determinant of a firm's hedging policy. With fixed leverage, hedging should reduce the probability of financial distress and results in greater debt capacity. Okello *et al.* (2015) results show that equity has the least effect on

financial risk of the firm since it is not compulsory to pay dividends. Flotation costs however make equity unfavorable for most firms. In addition to this, the model was proved to be valid hence suitable for the study. The study indicated that the cost of capital affects the financial risk of companies listed on the NSE. They recommend that companies should put in place proper financial risk management tools and regularly upgrade them to be in line with emerging financial risks.

2.4.3 Firm Size

Differences in firm size are correlated with firm hedging. Large firms are, for example, not only preferred hedging, they also tend to hedge more. Other than reasons linked to cost advantages, large firms prefer hedging because they usually have higher exposure to risks. They would seek for more sophisticated risk management tools such as derivatives. As hedging is dynamic and complicated in nature, large firms can afford to spend more resources to set up a proper hedging unit (Sang *et al.*, 2013). Although smaller firms tend to face more risk than larger firms, it is expected that smaller firms do hedge lesser than larger firms due to less access to the financial markets (Dionne & Triki, 2013). Sharifi (2014) reveals that small firms face higher costs of hedging than larger corporations. This fact is reducing the benefits from hedging and therefore he advises to evaluate the usage of hedging for each firm individually.

Babajide and Ozkan (2014) found that size of a firm appears to be an important factor in firm's decision to hedge with derivative. Firm size variable tend to be positive and significant at 1% level throughout the eight models estimated. The result implies that big firms have the incentive to hedge during financial crisis, therefore interpret the result to be an indication that smaller firms decide against hedging probably because they find it too difficult or costly to access financial derivative markets during the crisis period. Liu and Rodriguez (2014) argued that small firms do not have significant economies of scale and face higher financing transaction costs and more expensive external finance and thus are more likely to engage in corporate hedging. In contrast, large firms are more inclined to hedge than small firms, and thus seems to suggest that corporate hedging exhibits

significant economies of scale. The general proxy for firm size is the natural log of total assets. Wang and Fang (2011) found that large firms tend to hedge more than small firms because large firms enjoy greater economies of scale.

Gitogo *et al.* (2013) found that larger banks tend to use derivatives to a greater extent than smaller banks and those banks with a greater proportion of credit risk are more likely to use derivatives. It was also found that banks that utilize derivatives typically have a higher capital to asset ratio. This result might indicate that banks with relatively more credit risk are more likely to use derivatives. This study found no relationship between bank profitability and derivative use.

Mseddi and Abid (2010) argued that the large companies are likely to use derivatives to hedge risk exposure rather than small companies because they have the necessary resources and knowledge to do so. However there has been conflicting results on the relationship between size and the use of derivatives. For instance, Dionne and Triki (2013) found that hedging is positively related to the firm's size, confirming the argument of scale economies. Findings from Ang *et al.* (1982) disclosed that small companies are more likely to be in financial distress and therefore will opt to hedge to protect them from going bankrupt. Contrary to the predicted positive relation between the size and decision to hedge, a few scholars have predicted the degree of hedging to be negatively related to the size of a company (Froot *et al.*, 1993).

Cheng (2015) demonstrated that firms with higher growth opportunity are more likely to employ derivative hedging. When price earnings ratio is used as a proxy for business growth an anticipated proposition of; that is, firms with higher growth opportunities are more likely to employ derivatives for hedging, and are more likely to have high earnings volatility. Moreover, when total assets serve as a proxy for firm size, only the sample electronics firms show characteristics consistent with demonstrating that operating derivatives and earnings volatility increase with firm size.

Kariuki *et al.*(2015) study established that CFOs agreed that firms with high investment opportunities are more profitable and therefore hold more cash, firms with abundant investment opportunities hold higher levels of cash to insulate future capital expenditures from the variability of internally generated cash flows, firms with better investment opportunities keep higher levels of cash to avoid financial distress and bankruptcy, firms in growth industries hold higher levels of cash due to uncertainty in timing of investment decisions and cash reserves play a major role in shaping firms' investment flexibility.

Kariuki *et al.* (2015) study adopted a likert approach to find out the respondents' view on firm size and corporate cash holdings using a 5-point likert scale. According to the results of this study, 35% of the respondents agreed that larger firms with stronger credit ratings and greater access to the financial institutions hold less cash, 31.6% were neutral, 25.6% disagreed, 6.8% strongly agreed, and 0.9% strongly disagreed with a mean of 3.214 and STADEV of 0.936. The respondents were therefore indifferent to the statement. On whether firms with multiple product lines will tend to hold relatively lower cash balances, 51.3% of the respondents agreed and 1.7% strongly agreed with a mean of 3.35. Thus the evidence indicates that firms with multiple product lines hold lower levels of cash.

Monda *et al.* (2013) argued that the owners of closely held firms tend to hold non-diversified portfolios with most of their wealth tied up in the fortunes of the one firm. The owners of this type of firm therefore have an incentive to hedge to protect their non-diversified personal wealth. Given that concentrated ownership is more likely to occur in smaller firms this suggests a negative relationship between firm size and hedging. Thus there are competing arguments for either a positive or negative relation between firm sizes and hedging activity. For example, Mizerka and Stróżyńska (2013) using logit models indicated that there is a positive effect of firm size on usage of derivatives. The impact of this factor is significant if the size of the company is described by total assets as well as by sales revenues.

Financial derivative usage requires some transaction costs and larger firms can benefit from the economies of scale. Also, hiring a management team that can adopt and follow a hedging program may be costly for small firms. Therefore, size (of a firm) is expected to have a positive effect on the possibility of hedging. On the other hand, the cost of financial distress is higher for small firms when compared to large firms. Thus, the effect of firm size on the likelihood of hedging depends on the dominant effect of scale economies, or financial distress costs (Vural-Yavas, 2016).

2.4.4 Firm Managerial Risk Aversion

Managerial risk aversion is common in corporate hedging, for instance managers with large option (shares) holdings should seek more risk (hedging) than those with small or non-existent option (shares) holdings (Dionne & Triki, 2013). To reduce their risk exposure and increase their well-being, managers can undertake activities with a negative net present value (for example, a conglomerate diversification and selection of a suboptimal capital structure), which cause a decrease in the welfare of shareholders. In order to align managers' interests with their own, shareholders will have to intensify monitoring over managers' activities and increase their salaries and bonuses, which causes the growth of agency costs and further reduce corporate value. Risk management can reduce agency costs and increase corporate value if it reduces the riskiness of profitable investments (Cupic, 2015).

Sprcic (2007) argued that managers with greater stock ownership would prefer more risk management. Additionally, firms with younger managers and those whose managers have shorter tenures on the job would be more inclined to manage risk, because it is possible that short-tenure financial managers would have less developed reputations than longer-tenure managers. Therefore, they would have an incentive to signal their quality through hedging.

Wanjiku (2012) argued that corporate hedging can alleviate asset substitution problems by reducing the volatility of cash flows, and can accommodate the risk aversion of

undiversified managers and increase the effectiveness of managerial incentive structures through eliminating unsystematic risk. While there is empirical support for these rationales of hedging at the firm level, the evidence is only modestly supportive, suggesting alternative explanations. Wang and Fang (2011) results from tobit regression indicate that the level of hedging is positively correlated with managerial equity ownership and negatively correlated with the share holdings of outside block holders. If managers own greater equity ownership in their companies, adverse consequence of the firms' operation will translate into greater loss of the managers' wealth, therefore managers would have stronger incentive to manage risk extensively. Compared with managers, outside block holders are considered to be better diversified.

Yu and Liang (2011) argued that as ownership stake of directors and supervisors is concentrating, and ownership stake of executive officers entrenchment incentive is stronger. Increase outsiders ownership stake of institutions, and establishing independent directors and supervisors, can strengthen inside monitoring power, lower the likelihood of financial distress. The study used logit regression model has significant predictive power and is thus useful and effective in predicting distress. With an ownership stake of < 5% in the hands of directors and supervisors, predictive accuracy for distressed enterprises is 94.74% at one year prior to the occurrence of distress, 94.74% at two years prior, and 100% at three years prior. With an ownership stake of 5 -5% in the hands of directors and supervisors, predictive accuracy is 90.91% at one year prior to distress, 90.32% at two years prior, and 90% at three years prior. With an ownership stake of > 25% in the hands of directors and supervisors, predictive accuracy is 93.55% at one year prior to distress, 100% at two years prior, and 94.44% at three years prior. This shows that Logit regression can be an effective means of predicting financial distress.

Ongore (2011) study findings is that in Kenya, managers work better in an environment where they are afforded an opportunity to own shares of the firm, then allowed freehand to exercise their professional judgment without undue influence from shareholders. Wang and Fan (2011) argued that firms with managers possessing greater equity ownership and less option holdings in their compensation plan to hedge more

extensively. The significant negative relationship between managers' stock options and corporate hedging activities implies that some of the reasons managers might hedge (or not) have more to do with their own compensation than with increasing stockholder wealth. Their findings imply that managers may divert corporate resources to lower down the risk exposure of their own personal wealth without maximizing firm value for shareholders.

Managers and shareholders might also have conflicting interests because managers like to spend cash on perquisites when the proportion of managerial ownership in a company is low. In addition, managers likely consider their personal attitudes toward risk when choosing the company's level of risk, which may not perfectly match shareholders' preferences (Aretz & Bartram, 2010). Although active monitoring can prevent managers from behaving in non maximizing ways, no single shareholder has strong incentives to engage in monitoring, as the gains accrue to all other investors in case ownership is widely dispersed and monitoring is costly (free-rider problem). Large shareholders, however, such as institutional investors, have higher incentives to exercise careful vigilance because they not only bear the costs but also enjoy a significant part of the benefits.

Still, there are disadvantages to holding large blocks of shares in one company, such as foregone diversification benefits (Markowitz, 1952). Afza and Alam (2011) in their study confirmed the existence of agency cost of debt and equity in non-financial firms of Pakistan, their findings describe those corporations having higher growth opportunities and managerial ownership can enhance firm's value by optimally employing hedging instruments.

Triki (2005) argue that managers are usually less diversified than regular shareholders because they have their human capital, present and future compensations tied to the firm's value. Consequently, they will require additional compensation if they feel exposed to a high level of risk through the firm. Hence, managerial risk aversion

provides an incentive for corporate hedging because risk management could lower equilibrium managerial compensation.

Deshmukh *et al.* (2015) examine the effect of CEO optimism on corporate cash holdings by developing an expanded trade-off model of cash holdings that incorporates CEO beliefs. The optimistic CEO views external financing as excessively costly but expects this cost to decline over time, thus delaying external financing and maintaining a lower cash balance than rational CEOs. Results indicate that CEO optimism, on average, is associated with a 24 percent decline in the firm cash balance. They also document that relative to rational CEOs, optimistic CEOs exhibit a lower change in the cash balance over time, save less cash out of their current cash flow, hold lower cash to fund the firm's growth opportunities, and rely more on cash to finance acquisitions.

Cupic (2015) argued that reduced risk of investing in a corporation will also encourage shareholders to increase their ownership stakes, which will increase the effectiveness of their monitoring over the activities carried out by managers. Shareholders will also require lower rates of return, which will directly reflect in an increased corporate value. Shareholders can adjust the degree of managers' aversion towards risk by using different managerial compensation schemes.

Aroni *et al.* (2014) argued that investors in the NSE, as per the study shows a significant influence by financial information while making decisions to invest in shares. Notably, individual investors dealing in the stock market place high premium on financial information. Despite the experience of low financial literacy levels in the Kenyan capital market, nevertheless investors still appreciate the significance of the financial reports. The Managers of listed companies should deliberately endeavor to avail financial information to the public in a timely manner, preferably by posting the annual reports on the website as announcement updates. This will avoid information asymmetry and ensure the market operates in near perfect competition which will enhance confidence, and make market participants to fully appreciate the role of financial information in investment decision making.

Uncertainty in the valuation of the firm's assets due to information asymmetry may cause under-investment assuming that external financing is costlier than internal financing. Choi *et al.* (2014) argue theoretically that hedging improves the information content of corporate earnings as a signal for managerial ability. Risk management can thus free management to pursue optimal corporate investment and growth leading to value enhancement, and information asymmetry is an important issue in this.

Choi *et al.* (2014) found that firms with severe information asymmetry and high growth prospects are more likely to use financial derivatives. They estimated a hedging premium of about 13.8%. In addition, we find that the combined use of financial and operational hedging enhances firm performance. More importantly, we find that firms with more severe under-investment problems those with greater information asymmetry, larger growth opportunities or financing constraints generally experience greater value enhancement through financial hedging.

2.4.5 Foreign Exchange Exposure

“Exchange rate exposure” can be defined as an economic exposure of a firm towards the fluctuation of foreign exchange rate, which is a key determinant of firms' cash flow, profitability, and market value of the firm. Therefore, changes in exchange rate should have significant effect on firms' performance that has international activities. However local firms that are involved with exporting or importing are also exposed to exchange rate exposure. Even local firms that do not have any international transaction are affected by exchange rate movement, as these firms are competing with internationally diversified or multinational firms (Bhuiya & Ahmed, 2015).

Foreign exchange exposure refers to the sensitivity of a firms cash flows, real domestic currency value of assets, liabilities or operating incomes to unanticipated changes in exchange rates (Gachua, 2011). Feng (2007) stated that hedging of currency exchange risk protects unfavorable exchange rate losses in an international firm, and reduces favorable exchange rate gains. Therefore, hedging currency exchange risk can be

regarded as an instrument of eliminating risks, or as an instrument of speculations. Firms are faced with three different types of exchange rate exposures which are translation, transaction and economic exposures.

Afza and Alam (2015) reported that Asian financial crises, at one end, if increase the usage of Foreign Currency Derivative (FCD) instruments to hedge exchange rate (ER) exposure, then on the other end, extensive usage of derivative instruments exposes firms to more financial risk, due to speculation. This highlights the academicians concern regarding the relationship between FCD usage and firm's risk in both developed and developing countries. Empirical findings report that Malaysian firms are using FCD instruments for hedging purposes as its usage minimizes variability in the firm's operating cash flows. While, detailed analysis illustrates that firm's having no Foreign exchange (FX) exposure are using financial hedging instruments along with operational hedging in order to reduce firm's risk in contrast to firms having FX exposure. The findings are robust to alternative specifications like endogeneity and self-selection problem.

Mittal *et al.* (2015) found reasons company prefers forward contract can be "Stability" in the amount of loss that company need to incur in the worst change in currency exchange rate, companies relying on one or few hedging instrument, but to hedge risk effectively it is advisable to use combination of different derivative contract and unhedged foreign currency risk can have worst impact on company's future cash flow hence it is also advisable to hedge such risk rather than keep it unhedged. Mwanza (2014) empirical analysis results show that foreign exchange rates have a positive effect on stock prices. This therefore means that foreign exchange rates have a positive effect on performance of Nairobi Securities Exchange.

Uhuru (2014) show that foreign exchange rate fluctuation negatively affects the firm financial performance, thus his study concludes that foreign exchange rate fluctuation negatively affect financial performance of motor vehicle firms in Kenya. From the findings and conclusion of his study he recommended that companies in motor vehicle

industry should apply various hedging techniques which are most effective in order to reduce the risk by foreign exchange rate fluctuation.

Liu and Rodriguez (2014) stated that firms with greater fluctuation in cash flows or accounting earnings due to exposure to financial price risks have stronger incentives to hedge. Furthermore, the costs of hedging are likely to be lower for firms with greater financial price exposure due to economies of scale. Thus, the exposure to financial price risks is positively related to corporate risk management.

Aloo (2011) in his study noted that with clients becoming more and more knowledgeable about opportunities for hedging their currency exposures, increased demand by clients would see a push towards a more active currency options market. The research showed that the currency options market would be useful to business people in Kenya and growth would be a welcome development in financial market. The study found that currency of market did exist in Kenya but only to a limited extent as only 4.1 percent of the respondent reported that the commercial banks offered only currency options as one of their treasury products.

Chiang and Lin (2007) argued that to mitigate the impact of foreign exchange rate fluctuations, it has been claimed that firms can employ financial hedge strategies through foreign currency derivatives (FCD) and foreign currency-denominated debts (FDD). Smith and Stulz (1985) argued that firms with greater variation in cash flows or accounting earnings due to exposure to financial price risks have greater potential benefits from hedging. Furthermore, due to scale economies, the costs of hedging are likely to be lower for firms with greater financial price exposure. Thus, *ceteris paribus*, firms with higher levels of financial price exposure are more likely to hedge a greater proportion of their exposure.

Aduda *et al.* (2012) found that risk management strategies adopted by the Central Bank of Kenya in managing these risks included but were not limited to; internal control procedures, portfolio construction, tranching of reserves and strategic asset allocation.

The study recommends establishment of a framework that identifies and assesses the risks of reserves management operations that allows the management of risks within acceptable parameters and levels. The framework should seek to identify the possible risks that may impact on portfolio values and to manage these risks through the measurement of exposures, and where necessary, supporting internal control procedures to mitigate effects of these risks. The study also recommends the determination of risk parameters that include the minimum acceptable credit ratings for the counterparties to deal with. The study further recommends the continuous monitoring of risk exposures to determine whether exposures have been extended beyond acceptable limits.

Oduor and Khainga (2010) found that exchange rate misalignments may have adverse effects on allocation of resources in the economy, as it distorts export and import prices, among other adverse effects. Over-depreciations, for instance, are likely to create domestic inflationary pressures and increase debt payment obligations of indebted countries, while over appreciation is likely to reduce export demand and restrict domestic production. To avoid the adverse effects brought about by exchange rate misalignments, monetary authorities in most developing countries usually intervene in the exchange rates market when they feel that the exchange rate movements are erratic.

Kuhn (2007) stated that in addition to explaining corporate risk management practices in general, foreign exchange exposure can be measured by different kinds of proxy variables to explain the extent of corporate risk management a company decides to undertake. According to Allayannis and Ofek (2001) corporate hedging can be determined by various exposure factors such as foreign sales and foreign trade. Therefore, the larger the (economic) exposure a company is facing, the more likely the company will commit itself to corporate risk management activities.

2.4.6 Measurement of Corporate Hedging

Providing an adequate measure for corporate hedging is an essential ingredient in a successful test of risk management theories. Theories of corporate risk management are

typically tested empirically using binary variables that indicate whether a firm uses derivatives and the usage of derivatives is interpreted as an indication of corporate hedging in general (Dionne & Triki, 2013). Corporate hedging can be measured by either discrete or continuous measures as identified by Triki (2005).

This study will use discrete measure of corporate hedging which is a dummy variable coded one for those firms that indicate they engage in corporate hedging activities and zero for those firms that disclose they do not hedge (Aretz & Batram, 2010; Ameer, 2010; Triki, 2005; Mseddi & Abid, 2010) . Rationale of using discrete measure is that dummy variable is appealing measure of corporate risk management since is simple to construct, allows investigation of magnitude of hedging and does not discriminate between large and small users of derivatives (Angelis & Garcia, 2008; Triki, 2005).

Liu and Rodriguez (2014) employed the multivariate logistic analysis where firms have qualitative and quantitative disclosures on hedging activity contained in annual reports. Hedging firms are assigned a value of one for the binary variable, and non-hedging firms are assigned a value of zero. Panaretou (2013) measured corporate hedge as a dummy variable that equals 1 if the firm uses derivatives for hedging and 0 otherwise. Also, Babajide and Ozkan (2014) used logistic regression models in measuring corporate hedging because dependent variable (that is hedging) is a qualitative response that is transformed to take the value of one when firm reports derivative usage in its annual report and zero if no derivative usage was used in the year.

Sprcic (2013), Sang *et al.* (2013), Aretz and Bartram (2010) and Abid and Mseddi (2010) studies defined measures corporate hedging by use of a discrete dummy variable. Risk management is the most traditional theory justifying the merit of hedging. Basically hedging provides insurance against risks arising out of price fluctuations. Ameer (2010) defined and discussed hedging as a risk mitigation tool. The price risk mitigation argument remained central to the existence of hedging. The portfolio theory states that hedging is primarily used for insuring against risks, but it integrates risk avoidance with

expected profit maximization. The theoretical framework has been used by Wanjiru (2012) to explain hedging to mitigate risk and earn returns.

As increasing price volatility affects inventory management solutions, firms are increasingly seeking recourse to inventory managers and logistics with firms looking for procurement managers and logistics companies who have better knowledge of hedging. Goel & Gutierrez (2011) investigate inventory risk caused by fluctuating procurement price, and suggest that it is possible to reduce inventory-related costs by trading appropriate numbers of futures/forward commodity contracts for effective hedging.

Price volatility has an adverse effect on the revenue streams and can disrupt cash flows. Hedging insulates the firms from such volatile price movements, and ensures uninterrupted and stable revenue streams. Companies, by choosing to hedge, can bring about certainty in their production process, and ensure continuity of cash flows. This is especially true for small firms, characterized by high costs, which are probably unwilling to accept the reduced risk for additional, risk-mitigated profits. Cash volatility can be used as measure of hedging. In the overall strategy of management, reducing corporate risk is an essential feature. These market imperfections contribute in reducing the value of firms by making volatility an expensive proposition. The imperfections, in turn, contribute to other market deficiencies such as expensive external financing (Chaudhry *et al.*, 2014); financial distress costs (Kintu & Ngugi, 2013); agency costs; and costs pertaining to managerial risk aversion. These imperfections have an adverse impact on a firm's value. By helping reduce costs stemming from such imperfections, hedging enhances a firm's value.

2.5 Empirical Review of Financial Determinants on Corporate Hedging

Derivative financial instruments are an important tool for the development of capital markets and broader economy. Financial and non-financial firms utilize derivatives as a key tool to protect against risks that are inherent to their Businesses (Civic, 2014). Over the past three decades many different studies on financial determinants of corporate

hedging by firms were published, covering different aspects and types of derivative use in hedging a wide spectrum of risk types, which firms face while conducting their day to day business. Some most influential studies such as the financial determinants of corporate hedging of European firms (Liu & Rodriguez, 2014).

Liu and Rodriguez (2014) considered leverage ratio, interest cover ratio, natural log of firm size, tax loss carry forward, and foreign sales, foreign operation and foreign currency debt are important determinants for corporate hedging of European firms. The empirical results show that there are strong evidences in support for the relationship between costs of bankruptcy / financial distress and corporate hedging. They also find that firm size has significantly positive relation with corporate hedging. This indicates that transaction costs and economies of scale are essential determinants of corporate hedging.

Kariuki *et al.* (2015) investigated the managerial perspectives on the firm characteristics and corporate cash holdings among in private manufacturing firms in Kenya. Several international studies show that companies retain important cash holdings. A sample of 156 firms was selected for the survey using stratified random sampling technique from which 117 questionnaires were returned. The primary data was sourced through personally administered survey questionnaires to the chief finance officers. The study concludes that CFOs of private manufacturing firms in Kenya are of the view that growth opportunities, leverage and debt structure, firm size, likelihood of financial distress and cash flow variability are all important drivers of corporate cash holding policy.

Chaudhry *et al.* (2014) main findings of the study suggest that there is a strong relationship between the derivatives usage and firm's foreign purchase, growth options, liquidity and size in Pakistan. The study fiber gates the data into two groups as users of the derivative and the non users. However the Mann-Whitney U test was used to determine the difference prevailing in two groups. The empirical results of Mann-

Whitney U test characterize users as large size, higher growth opportunities, cash flow volatility, foreign exchange and interest rate exposure.

Huang (2003) examines corporate use of derivative instruments and multi-period hedging methods on the use of linear (e.g. futures) and nonlinear (e.g. options) derivatives in a sample of 382 U.S. non-financial firms (920 firm-year observations) between 1992 and 1996. They found that both value maximization and managerial incentives explain the use of linear and nonlinear derivatives by corporations. In particular, the use of nonlinear instruments is positively related to the firm's investment opportunities, size, free cash flow, prospect of financial distress, and managerial option grants. Firms are more likely to use derivative contracts with linear payoffs when their CEOs receive more compensation from bonus compensation or have been in their positions for longer periods of time.

Wanjiku (2012) research findings showed that hedging with derivatives was the most preferred method of risk management. It further showed that the main determinants of corporate hedging are; to protect against fluctuation in earnings, profit, to reduce the probability of bankruptcy and financial distress, uncertainty in the business environment, existence of the unpredictable business cycle, to maintain high dividend payout ratio, cover high interest payment and to manage financial risk.

Kariuki *et al.*(2015) study concludes that CFOs of private manufacturing firms in Kenya are of the view that growth opportunities, leverage and debt structure, firm size, likelihood of financial distress and cash flow variability are all important drivers of corporate cash holding policy. The CFOs perceptions present supportive evidence for the use of trade off theory, financial hierarchy theory and free cash flow theory in evolving corporate cash holding policy among private manufacturing firms in Kenya.

Derivatives are the major icon among risk management practices. Chaudhry *et al.* (2014) examined the determinants' of corporate hedging policies and derivative usage in risk management particularly with respect to Pakistan. Secondary data of 75 non financial

firms listed in Karachi Stock Exchange was collected over the period 2007-2011 – to regress empirically – for achieving the aim of this study. Findings of this test characterize users as large size, higher growth opportunities, cash flow volatility, foreign exchange and interest rate exposure. Moreover this study finds that there is a significant relationship between the use of derivatives and foreign purchase, liquidity, firm growth and size. Their findings suggest that derivative users have competitive edge over the non user, as they get economies of scale and proper risk management through using these kinds of derivative instruments.

Babajide and Ozkan (2014) carried study on determinants of corporate hedging in UK firms. In a multivariate setting, carried out several pooled logistic regression models to tests the factors that made firms to hedge in 2005-2011. Logistic regression models were conducted because dependent variable (that is hedging) is a qualitative response that is transformed to take the value of one when firm reports derivative usage in its annual report and zero if no derivative usage was used in the year. In overall, the results show that leverage, cash-flow volatility, size as well as exposure to foreign currency risk were important factors that influence firms' decisions to hedge with financial derivative instrument during the sample periods.

Study conducted by Kintu and Ngugi (2013) on determinants of corporate hedging in Kenya listed firms focused on the following determinants, long term debt ratio, growth option, liquidity ratio and cash flow volatility. Their findings indicated that long term debt ratio, growth option, liquidity ratio and cash flow volatility influenced hedging practices used by companies listed in Nairobi Securities Exchange.

2.6 Critique of Existing Literature

By using different sample data of both developed and Asian countries, existing empirical studies identify that the corporate use of derivative instruments facilitates firms in reducing operating cash flow variability by hedging financial distress cost, agency cost, FX exposure and managerial opportunistic behavior (Afza & Alam,2015).Hedging

theorists argued that usage of derivatives reduces variability in operating cash flow, the current study therefore aids in financial literature empirically examine financial determinants of corporate hedging in Kenya listed firms. Additionally, existing literature has mostly measured firm's risk by using market measures, current study here gives new evidence by using questionnaires, interview guide and secondary data. The outcome of the study is expected to facilitate policy makers and decision makers in identifying determinants of corporate hedging for listed firms in Kenya.

Most corporate hedging studies have been done in developed countries, which imply need for undertaking corporate hedging studies in developing countries (Afza & Alam, 2011). The studies have shown empirical evidence on determinants on corporate hedging. The study gaps have been identified and hypothesis to be tested have been spelt out. Existing literature, concentrated mostly in developed countries, provides mixed evidence regarding the relationship between derivative usage and firm's risk. Few researchers have tested the determinants of hedging policies of Kenya (Kintu & Ngugi, 2013; Wanjiku, 2012). Hence, the primary objective of the current study is to identify the determinants of corporate hedging in listed companies in Kenya.

Aretz and Bartram (2010) argued that there are several challenges with capturing financial risk management at the firm level. Although financial theory provides rationales for corporate hedging in general and although firms use a combination of different hedging channels in corporate practice (including derivatives, foreign currency debt, operational hedging, and pass-through), empirical tests frequently focus only on derivatives use at the firm level. Moreover, it is difficult to assess the extent of hedging accurately because of the complex combination of various hedging tools with different time horizons, payoff profiles, notional amounts, exercise prices, and so on, and also because of limited accounting disclosure and time-varying exposures. The major motivation of this study will be to assess determinants of corporate hedging of firms operating in NSE.

2.7 Research Gaps

Namusonge *et al.* (2016) examined accounts receivable risk management practices and growth of SMEs in Kakamega County in Kenya. The study main objective was to examine the influence of credit risk assessment practices on growth of SMEs in Kenya. The findings revealed that good credit risk assessment practices when adopted by SMEs lead to growth. Despite an increasing interest in developing theoretical studies about the reasons why firms involved in risk management, however, only a handful of studies that address influence of financial determinants on corporate hedging. The purpose of this study is to fill this gap and it investigated the influence of financial determinants of corporate hedging in Kenya listed companies.

Muchina *et al.* (2015) study sought to assess the determinants of share price volatility in corporate Kenya while anchoring its discourse and enquiry to two theories: dividend theory and efficiency market theory/hypothesis. The study was centered among companies listed in the Nairobi Securities Exchange (NSE). It sought to explore the association between dividend, leverage, asset growth, earnings variability and size of the firm on share price volatility. Despite an increasing interest in developing theoretical studies about the reasons why firms involved in risk management, however, only a handful of studies that address influence of financial determinants on corporate hedging. The purpose of this study was to fill this gap and investigated the influence of financial determinants of corporate hedging in Kenya listed companies.

Kamau *et al.* (2016) study was to determine the management practices influencing creative accounting among listed on the Nairobi Securities Exchange (NSE) in Kenya. The study analyzed the effect of managers' compensation, contractual obligations, tax management, Share price performance management and insider dealings on creative accounting. The results indicated that managers' compensation, contractual obligations, tax management and insider dealings have significant effect on creative accounting. This increase in usage of derivative instruments motivated this study to explore influence of financial determinants on corporate hedging and reason behind firm decision to use

derivative techniques for hedging risk exposure mainly in developing economies such as Kenya.

Namusonge *et al.* (2016) examined the role of innovation on performance of firms on the Nigerian Stock Exchange. The central objective of the study was to look at the relationship between innovativeness and firm performance in Nigeria. The study took critical interest in the contents of a number of studies which concluded that among Nigerian managers, lack of innovation, pro-activeness, aggressiveness, and aversion to risk-taking, which are critical factors for growth of SMEs, were found to be high in a study in 2007. This study examined influence of financial determinants on corporate hedging. In doing so, the study build an empirical model in assessing influence of financial determinants on corporate hedging. Despite the fast growth of markets for derivatives, little is known about the motivations for corporations to use them and whether their use is beneficial or increases their risk exposure (Ameer, 2010). This is the main reason that has motivated this study. Recently, there has been support for the use of derivatives. In this study influence of financial determinants on corporate hedging was assessed. In doing so, the study build an empirical model in assessing influence of financial determinants on corporate hedging.

Kariuki *et al.* (2015) investigated the managerial perspectives on the firm characteristics and corporate cash holdings among in private manufacturing firms in Kenya. Liu and Rodriguez (2014) considered leverage ratio, interest cover ratio, natural log of firm size, tax loss carry forward, and foreign sales, foreign operation and foreign currency debt are important determinants for corporate hedging of European firms. Chaudhry *et al.* (2014) examined the determinants' of corporate hedging policies and derivative usage in risk management particularly with respect to Pakistan. Secondary data of 75 non financial firms listed in Karachi Stock Exchange was collected over the period 2007-2011 –to regress empirically – for achieving the aim of this study.

Babajide and Ozkan (2014) carried study on determinants of corporate hedging in UK firms. In a multivariate setting, carried out several pooled logistic regression models to

tests the factors that made firms to hedge in 2005-2011. Logistic regression models were conducted because dependent variable (that is hedging) is a qualitative response that is transformed to take the value of one when firm reports derivative usage in its annual report and zero if no derivative usage was used in the year. In overall, the results show that leverage, cash-flow volatility, size as well as exposure to foreign currency risk were important factors that influence firms' decisions to hedge with financial derivative instrument during the sample periods. Limited studies in Kenya have focused on hedging, for instance (Kintu & Ngugi, 2013) focused on how hedging can reduce the probability of financial distress by shielding future stream of cash flows from the changes in the exchange rates. Kimeu (2011) concentrated with hedging fuel prices on corporate profitability and found out that hedging fuel prices is directly proportional to corporate profitability. Aloo (2011) focused on currency options market in Kenya. The study found that currency of market did exist in Kenya but only to a limited extent as only 4.1 percent of the respondent reported that the commercial banks offered only currency options as one of their treasury products. Oduor and Khainga (2010) dealt with exchange rate misalignments and showed that it have adverse effects on allocation of resources in the economy, as it distorts export and import prices, among other adverse effects. Ndung'u and Ngugi (2000) study focused on interest spread. Thus major motivation of this study attempted to fill this gap by assessing the influence of financial determinants on corporate hedging of sixty four firms listed in NSE.

Study conducted by Kintu and Ngugi (2013) on determinants of corporate hedging in Kenya listed firms focused on the following determinants, long term debt ratio, growth option, liquidity ratio and cash flow volatility. Wanjiku (2012) research findings showed that hedging with derivatives was the most preferred method of risk management. It further showed that the main determinants of corporate hedging are; to protect against fluctuation in earnings, profit, to reduce the probability of bankruptcy and financial distress, uncertainty in the business environment, existence of the unpredictable business cycle, to maintain high dividend payout ratio, cover high interest payment and to manage financial risk.

Pätäri and Karell (2016) investigated what kind of hedging strategies can be used in companies using bitumen as raw material in their production. Five different alternative swap hedging strategies in bitumen markets were empirically tested. Strategies tested are full hedge strategy, simple, conservative, and aggressive term structure strategies, and implied volatility strategy. They found that no hedging strategy was superior to each other. Thus major motivation of this study attempts to fill this gap by assessing the influence of financial determinants on corporate hedging of sixty four firms listed in NSE. This study however fills this gap by examining the influence of financial determinants on corporate hedging by using the data of Kenyan firms listed in Nairobi Securities Exchange. Moreover, this study will help the decision makers in identifying hedging policies along with the risk management practices. Hence, this study highlights the influence of financial determinants on corporate hedging in risk management practices specifically firm liquidity, firm leverage, firm managerial risk aversion, firm size and firm foreign exchange exposure of firms operating in NSE.

2.8 Summary

Although corporate risk management cannot increase shareholder value in a Modigliani and Miller world, hedging at the firm level can create value to the benefit of shareholders in the presence of real-world capital market imperfections. This study have carefully compiled, classify, and analyze evidence empirical studies on effects of determinants on corporate hedging. The theoretical framework, conceptual framework and proxy variable measurements have been also been explained. It is important that all users of derivatives, regardless of size, first of all understand how their contracts are structured, the risk characteristics of those instruments are also very important. A perfect risk management strategy is that conforms to the goals of business, without a clearly defined risk management strategy, use of financial derivatives can be dangerous. Overall, the literature has shown support for the value generation impact of hedging.

CHAPTER THREE

RESEARCH METHODOLOGY

3.1 Introduction

This chapter illustrates the relevant data and outlines research methodologies in the study it also explains the overall design used for testing corporate hedging through its determinants. The principal themes that are documented are: research design, target population, data instruments, and data processing methods, sampling frame, sampling techniques and sample size, pilot tests, data processing and analysis methods and finally variables definition and measurements.

3.2 Research Design

This study is a cross-sectional survey design. Namusonge (2010) argued that cross sectional studies data are usually collected at once perhaps over a period of days, weeks or months in order to answer research questions. This research design was preferred due to its ability to combine quantitative and qualitative methods (Weeks & Namusonge, 2016). It was also intended to provide answers to the research question. The design was chosen since it was deemed to be the most effective to significantly contribute of to the depth and specificity of the study (Mbuvi, Namusonge & Arani, 2016).

Mixed-methods research design was used in the study since one dataset may be inadequate in answering the research questions, an explanation of initial results will be required, generalizability of qualitative findings will be desired or broader and deeper understanding of a research problems will be necessary (Hadi ,David,Closs and Briggs, 2013). This study used both quantitative and qualitative methods in developing a strong evidence base to support determinants of corporate hedging for firms in NSE.

A survey is usually conducted with an aim of obtaining information that is more detailed. Typically surveys gather data at a particular point in time with intention of

describing the nature of existing conditions or identifying standards against which existing conditions can be compared or determining the relationship that exist between specific events (Cohen,Manion & Morrison, 2011). It does not require that there be a visual or other objectives perception of the information sought by the researcher (Punch, 2003). Information about past events is often available only through a survey. The most appropriate applications for surveying are those where participants are uniquely qualified to provide the desired information.

3.3 Target Population

The target population for this study was made up of Chief Executive Officers, Risk Managers, and Chief Finance Officers of each of sixty four NSE firms who totaled to one hundred and eighty two executives and retail investors holding accounts with the Central Depository Systems Corporation (CDSC), the total number of investors were 836,250 as at 30th October, 2013 (CDSC, 2013). The system has created databank that will be ideal framework for establishing whether managers and retail investors assess determinants of corporate hedging. Saunders,Philip and Thornhill (2009) argued that researchers can limit their population to specific areas in order to come up with sample size. The population of this study will be restricted to top executives of NSE firms and retail investors in firms operating in NSE.

3.4 Sampling Frame

The study was restricted to Chief Executive Officers, Risk Managers, Chief Finance Officers of all sixty four NSE firms and retail investors holding accounts with the Central Depository Systems Corporation (CDSC) in firms operating in Nairobi Securities Exchange which was obtained from twenty one investment banks and stock brokers (NSE, 2015). NSE firms were used since listed firms are required to disclose all information in financial statements with NSE. The list of firms was obtained from NSE (Nairobi Securities Exchange, 2013); the list sufficiently represents target population.

The sampling frame was firms operating in NSE and retail investors (CDSC, 2013) from investment banks and stock brokers.

3.5 Sampling Technique and Sample Size

In determination of sample size the study used the approach based on precision rate and confidence level of five percent adapted from Bartlet *et al.*, (2001) since the population is finite. The sample size obtained was adequate and it yield desired precision. The sample size is determined using the normal approximation to the binomial distribution.

$$n = \frac{z^2 pq}{e^2}$$
$$n = \frac{1.96^2 \times 0.5 \times 0.5}{0.07^2}$$
$$= 196$$

Where:

n= is the required sample size

p and q= are the population proportions at 0.5.

z =is the value that specifies the level of confidence at 95%, in which case z is set to 1.96.

e= accuracy of sample proportions with an accuracy of plus or minus 7%.

Based on above formula, estimated sample size was one hundred and ninety six individuals. The random sample of one hundred and ninety six individuals was selected from top executives of sixty four firms in NSE and retail investors whose information

was obtained from investment banks and stock brokers. Top executives will include Chief Executive Officers, Risk Managers, Chief Finance Officers of all sixty four NSE firms and retail investors holding accounts with the Central Depository Systems Corporation (CDSC) in firms operating in Nairobi Securities Exchange. A simple random sample was drawn from all the account holders in each firm from investment banks and stock brokers and top executives of firms operating in NSE.

3.6 Data Collection Methods

Research methodological triangulation was applied because the study used both primary and secondary data methods of data collection so that to improve validity and reliability of the study. Yeasmin and Rahman (2012) argued that by applying combination of several research methodologies in the study of same phenomenon, it increases credibility of knowledge by improving both internal consistency and generalizability.

3.6.1 Primary Data

Primary data was collected from Chief Executive Officers, Risk Managers, Chief Finance Officers of all sixty four NSE firms because of their role in making strategic choice and mobilization of organization resources that affect performance and retail investors holding accounts with the Central Depository Systems Corporation (CDSC) in firms operating in Nairobi Securities Exchange.

Digitized questionnaires, as well as manual and in Permanent Document Format (PDF) with open and structured questions were administered to respondents with the help of research assistants. The questionnaire was divided into three parts. Part I- Questions on respondent, Part II- General information about the company, Part III-Determinants of corporate hedging which were liquidity, leverage, firm size, managerial risk aversion and foreign exchange exposure. The questionnaire was structured to cover all the parameters for the independent and dependent variables.

3.6.2 Secondary Data

Secondary data was obtained from various financial journals; internet published financial statements and documents. Secondary data was used to complement information from primary data.

3.7 Data Collection Procedures

Data collection procedures specify most appropriate procedure to be used for data collection and to carry out the practical, careful design and use of such instruments (Cohen *et al.*, 2011). Data collection procedures in this study were primary and secondary data.

3.7.1 Primary Data

The researcher administered questionnaires and interviews to Chief Executive Officers, Risk Managers, Chief Finance Officers of all sixty four NSE firms and retail investors holding accounts with the Central Depository Systems Corporation (CDSC) in firms operating in Nairobi Securities Exchange. In order to ensure consistency in the interpretation of questions leading to answers those are consistent to real situation in the firm. This solved problem of misinterpretation of questions that will cause irrelevant and inconsistent answers. The introductory letter of authority to carry out research and questionnaires were dropped in companies. Follow up was done through telephone and personal visits to secure appointments with the companies executives.

3.7.2 Secondary Data

From financial statements more information was gathered by manual searching of all observations about words related to corporate hedging. Unfortunately, few firms disclose this information. Thus, a hedging dummy was used and indicated one when the company has the derivatives instrument and to zero when the company was not

active in hedging position in that fiscal year as used by Zhang (2012) ; Afza and Alam (2011) and Bartram *et al.*,(2007).

3.8 Pilot Study

The questionnaires and interview guide were pre-tested to selected companies and retail investors and adjustment made before the study commence. To increase reliability of the questionnaire, its length was limited to increase the response rate. It was essential to pre-pilot questionnaire so that to increase its validity by identifying any ambiguities in questions and to establish the range of possible responses for each question. The pre-pilot is not a formal procedure, more an information gathering exercise (William, 2003).

3.8.1 Validity Test of Research Instruments

Validity refers to ability of research instrument to measure what it purports to measure or that an account accurately representing features that it is intended to describe, explain or theorize (Cohen *et al.*, 2011). There are several types of validity which were applied in this study. For example internal validity, which seeks to demonstrate that the explanation of a particular event, issue or set of data which a piece of research provides can actually be sustained by data. This was addressed by using multiple researchers, peer examination of data and use of mechanical means to record, store and retrieve data.

Content validity was tested by ensuring questionnaire covered fairly and comprehensively the domain or items that it purport to covers. Content validity was tested by ensuring questionnaire covered fairly and comprehensively the domain or items that it purport to covers. This was achieved by subjecting the instrument to an evaluation by a group of five experts on corporate hedging who provided their comments on the relevance of each item in the instruments. This study used the expert rating method to analyze the content validity of the instrument. Yaghmale (2009) expert raters for content domains of a scale should be between five and ten and this rule was followed in the current study. This study adopted a criterion of 0.80 as the lower limit

for acceptability of an item in an instrument. The following formula used to calculate the content validity index (CVI) in this study.

$$C = \frac{K}{N}$$

N

Where,

K is the total number of items in the questionnaire declared valid by both raters

N represents the total number of items in the questionnaire.

From this formula, the validity of the items in the instrument was calculated as per the results of the expert raters.

Table 3.1: Content Validity Results

Experts	Total Items	Valid Items	Fractions
1 st Rater	54	49	0.907
2 nd Rater	54	50	0.925
3 rd Rater	54	48	0.888
4 th Rater	54	47	0.870
5 th Rater	54	49	0.907
Average Total			0.899

The computed content validity indexes were compared with the standard content validity index of 0.80 for validity. All expert raters had ratings above 0.80 and therefore these ratings show the instrument to be valid. These ratings enabled the researcher in collecting the valid information for the study.

Construct validity was achieved by ensuring that there are correlation between a theory what that construct is and its constituent elements. Factorial validity which is a form of construct validity that is established through factor analysis was used in establishing factorial construct validity of the study. Factor analysis was used to check the validity of the constructs. Prior to the extraction of the factors, several tests were used to assess the validity of the respondent data for factor analysis. These tests include Kaiser-Meyer-Olkin (KMO) Measure of Sampling Adequacy and Bartlett's Test of Sphericity. The KMO index, in particular, is recommended when the cases to variable ratio are less than 1:5. The KMO index ranges from 0 to 1, with 0.50 considered suitable for factor analysis. The Bartlett's Test of Sphericity should be significant ($p < .05$) for factor analysis to be suitable (Costello & Osborne, 2015).

3.8.2 Reliability Test of Research Instrument

The reliability of the scales used within the questionnaire was evaluated using Cronbach's alpha. Cronbach's alpha is one of the most widely used measures of reliability in the social and organizational sciences (Bonnet and Wright, 2015). Cronbach's α is a function of the number of items in a test, the average covariance between item-pairs, and the variance of the total score. Suppose that we measure a quantity which is a sum of K components (K -items or testlets): $X = Y_1 + Y_2 + \dots + Y_K$. Cronbach's α is defined as

$$\alpha = \frac{K}{K - 1} \left(1 - \frac{\sum_{i=1}^K \sigma_{Y_i}^2}{\sigma_X^2} \right)$$

where $\sigma_{X_i}^2$ is the variance of the observed total test scores, and $\sigma_{Y_i}^2$ the variance of component i for the current sample of persons (Cronbach's, 1951).

3.9 Diagnostic Tests

In preliminary, collected data was screened and cleaned to find out whether there were errors that could be corrected. Before statically procedures, such as multiple regressions were done, researcher checked the assumption that independent variables are normally distributed. This was done by undertaking the following tests. Assumptions and technicality for the application of statistical tools and suitability of the tests are important in research work and normality is one of the most important aspects for statistical analysis. Verified data inspire stakeholder confidence, and give reliable inferences and trustworthy interpretations for policy-making (Ali & Akayuure, 2016). To check for normality, the study adopted the Kolmogorov-Smirnov Test, auto correlation test and skewness and kurtosis statistic.

a) Outliers

Outliers are typical, infrequent observations. In a distribution of values within a variable an outlier is often a score or value that is either really high or low relative to all the other scores/values. The removal of outliers often changes the non-normal variable distribution into a distribution that better approximates a normal curve (Bonn, 2012). The study defined outliers as values outside -3 and +3 standard deviations which is common because in a normal distribution 99.7% of values will be between -3 and +3 standard deviations of the mean value .At times, a researcher may use an interval of -2 to +2 or -4 to +4 standard deviations depending on the distribution of scores (Banon, 2012). Thus, outlier was defined as a case outside this interval. Table 3.3 which presents the distribution for the variables of the study, indicated values were within the range.

Table 3.2: Outliers

		Firm Liquidity	Firm Leverage	Firm Size	Firm Managerial Risk	Foreign Exchange Exposure	Corporate Hedging
N	Valid	149	149	149	149	149	149
	Missing	0	0	0	0	0	0
Mean		3.6971	3.7419	3.7542	3.7983	3.9144	3.8826
Std. Deviation		.50788	.53063	.50464	.55882	.54662	.56619

b) Skewness and Kurtosis Test

Skewness measures the degree of asymmetry of a distribution around its mean. Positive skewness indicates a distribution with an asymmetric tail extending toward more positive values. Negative skewness indicates a distribution with an asymmetric tail extending toward more negative values. Kurtosis measures the degree to which a distribution is more or less peaked than a normal distribution. Positive kurtosis indicates a relatively peaked distribution. Negative kurtosis indicates a relatively flat distribution. Skewness and Kurtosis were used to measure symmetric distribution and peakness of a distribution respectively (Mbui ,Namusonge & Mugambi, 2016).

The values of asymmetry and kurtosis between -2 and +2 are considered acceptable in order to prove normal univariate distribution (George & Mallery, 2010). The skewness and kurtosis are within the expected ranges of chance fluctuations in that statistic (i.e. \pm SES and \pm SEK) this implies that the distribution has no significant skewness and kurtosis problem.

c) The Kolmogorov-Smirnov and Shapiro-Wilk Tests

These tests were used to compare the scores in the sample to a normally distributed set of score; with the same mean and standard deviation. If the test is non-significant ($p >$

.05) it tells us that the distribution of the sample is not significantly different from a normal distribution (i.e. it is probably normal). If, however, the test is significant ($p < .05$) then the distribution in question is significantly different from a normal distribution (Kilungu *et al.*, 2015). Baghban, Younespour, Jambarsang, Yousefi, Zayeri and Jalilian (2013) argued that (K-S test) is used to decide if a sample comes from a population with a completely specified continuous distribution. The null hypothesis of this test is that the data follow a specified distribution and an alternative hypothesis tells that the data do not follow it.

d) Auto Correlation Test Results

The correlation means the existence of some definite relationship between two or more variables. Durbin - Watson statistics it is a test for autocorrelation which is based on the assumption of time series. It should be close to two or more to show lack of autocorrelation (Ithai, 2013). The size of Durbin Watson statistic which depends on the number of predictors and number of observation, as conservative rule of thumb, values less than one or greater than three are definitely cause for concern (Karihe *et al.*, 2016).

3.10 Data Analysis and Presentation

Data analysis and presentation assisted researcher on how to report results and findings. The study used qualitative and quantitative methods in analyzing data.

3.10.1 Qualitative Analysis

Qualitative data analysis involved organizing, accounting for and explaining data; in short, making sense of data in terms of the participants definitions of the situation, noting patterns, themes, categories and regularities. There no one single or correct way to analyze and present qualitative data; how one does should abide by the issue of fitness of purpose (Cohen *et al.*, 2011). Qualitative data for this study was derived from questionnaires, face-to-face interviews. Fitness of purpose was to describe, explain and

seek causality between corporate hedging and it's affected by its determinants for firms operating in NSE.

3.10.2 Quantitative Analysis

Quantitative data analysis (numerical analysis) was applied in the study. Data collected was statistically analyzed and coded using Statistical Package for Social Science (SPSS) computer software version 22. The study used both descriptive and inferential statistic but in preliminaries, univariate tests was used so that to provide an insight into corporate risk management characteristics of firms by using non-parametric test (Pearson correlation coefficient) tests. Pearson's correlation coefficient was used as a measure of linear correlation since variables in the model are of interval/ratio nature (Milos, 2007; Bryman & Cramer, 1990). This measure, usually symbolized by letter (r) varies between -1 and +1, with 0 indicating no linear relationship and square of correlation coefficient i.e. coefficient of determination (R^2) measures amount of variation in the dependent variable explained by independents variables. Sekaran (2000) show that the closer R^2 is to 1, the better the fit of the regression line to the actual data.

Null hypotheses (H_0) 1-5 were tested using chi-square statistics at 0.05 level of significance for 2-tailed test. This is because it is the most suitable inferential statistical tool which can determine whether significant relationship exists or not (Cohen *et al.*, 2011). Decision rule was that the null hypothesis (H_0) was to be rejected if the calculated value in each research hypothesis is greater than the corresponding table value (Critical Value) which implies there exists a significance relationship (positive). While the null hypothesis (H_0) was retained if the calculated value is less than critical value, it implies that there exists non significant relationship (negative). H_0 , otherwise fail to reject H_0 . The statistical test on hypotheses was examined against a threshold alpha equal to 0.05 on all five hypotheses.

Factor analysis was used to group together variables which have something in common. It enable researcher to take a set of variables and reduce them to smaller number of

underlying factors which account for as many variables as possible (Cohen *et al.*,2011). Two specific statistics which were computed test for the sustainability of the data factorization were Bartlett Test of Sphericity, which investigates correlations between variables and which should show statistical significance ($p < 0.05$). Also, Kaiser – Meyer – Olkin Test which measured sampling adequacy, which correlated pairs of variables and the magnitude of partial correlations amongst variables and which required many pairs of variables to be statistically significant, and which should yield an overall measure of 0.6 or higher (Cohen *et al.*,2011).

3.10.3 Multi Linear Regression Model

In multivariate analysis, multi linear regression model was used in explaining decision to hedge corporate risk by testing variables based on influence of financial determinants on corporate hedging presented in literature review (Angelis & Garcia, 2008) . Regression model was used to assess variables that are considered in determining financial determinants on corporate hedging of firms listed at Nairobi Securities Exchange (NSE).

Regression Analysis is a statistical modeling technique used to identify meaningful, stable relationships among sets of data. The application of analytical procedures is based on the premise that, in the absence of known conditions to the contrary, relationships among information may reasonably be expected to exist. Regression measures the causal relationship between one dependant and one independent variable. Multiple regression analysis measures the effects of multiple independent variables on one dependent variable (Okello *et al.*, 2015).The multi linear regression was derived and formulated in the following format:

$$Y = \beta_0 + \beta_1 X_1 + \beta_2 X_2 + \beta_3 X_3 + \beta_4 X_4 + \beta_5 X_5 + \varepsilon$$

Where:

Y = Corporate Hedging

β_0	=	Coefficient of the constant variable
$\beta_1- \beta_5$	=	Regression coefficients of independent variables
X_1	=	Firm Liquidity
X_2	=	Firm Leverage
X_3	=	Firm Size
X_4	=	Firm Managerial risk aversion
X_5	=	Foreign exchange exposure
ϵ	=	Error term

3.10.4 Variables Definition and Measurement

The study applied structured questionnaires which contained closed and open ended questions and using disclosures from financial statements. The questionnaire consisted of three parts. Part one and two which established general information about the respondent and company hedging activities while part three dealt with determinants of corporate hedging. Most questions in questionnaire were on likert scale. In likert scale, the subjects were asked to which extent they agree or disagree about an issue. The responses were given in the form of a (usually 5-point) scale (Bowling, 1997). The following table 3.3 provides an overview of proxy variables which were used in the study testing determinants of corporate hedging by use of questionnaire and interview guide.

Table 3.3: Variable Definition and Measurements

Variable	Indicators	Measurement Scale
Firm Liquidity	<ul style="list-style-type: none"> • Current Assets • Current Liabilities 	5-point Likert Scale
Firm Leverage	<ul style="list-style-type: none"> • Equity • Debt 	5-point Likert Scale
Firm Size	<ul style="list-style-type: none"> • Total Assets • Turnover 	5-point Likert Scale
Managerial Risk Aversion	<ul style="list-style-type: none"> • Managers Diversification • Managers Risk Attitude 	5-point Likert Scale
Firm Foreign Exchange Exposure	<ul style="list-style-type: none"> • Foreign Exchange Rate • Foreign Sales 	5-point Likert Scale
Corporate hedging	<ul style="list-style-type: none"> • Firm Value • Price Volatility • Cash Volatility • Binary Variable 	<ul style="list-style-type: none"> • 5-point Likert Scale

Table 3.4: Summary of Statistical Test and Hypotheses

Hypotheses	Hypotheses Test	Decision Rule and Anticipated Model
There is no statistically significant influence of firm liquidity on corporate hedging in listed companies in Kenya	Karl-Pearson's coefficient of correlation -F-test (ANOVA)	Reject H_{01} if p-values ≤ 0.05 otherwise fail to reject if $p > 0.05$ Analytical Model $Y = a + \beta_1 x_1 + \beta_2 x_2 + e$ Where, $a =$ constant, $\beta_1, \beta_2 =$ correlation coefficient, $x_1 =$ Tangible Assets, $x_2 =$ Research and development cost, $e =$ error term
There is no statistically significant influence of firm leverage on corporate hedging	Karl-Pearson's coefficient of correlation -F-test (ANOVA)	Reject H_{02} if p-values ≤ 0.05 otherwise fail to reject if $p > 0.05$ Analytical Model $Y = a + \beta_1 x_1 + \beta_2 x_2 + e$ Where, $a =$ constant, $\beta_1, \beta_2 =$ Regression coefficients, $x_1 =$ Equity, $x_2 =$ Debt
There is no statistically significant influence of firm size on corporate hedging in listed companies in Kenya	Karl-Pearson's coefficient of correlation -F-test (ANOVA)	Reject H_{02} if p-values ≤ 0.05 otherwise fail to reject if $p > 0.05$. Analytical Model $Y = a + \beta_1 x_1 + \beta_2 x_2 + e$ Where: $a =$ constant, $x_1 =$ Hedging cost, $x_2 =$ Growth opportunities, $\beta_1, \beta_2 =$ Regression Coefficients
There is no statistically significant influence of firm management risk aversion on corporate hedging in Kenya listed Companies	Karl-Pearson's coefficient of correlation -F-test (ANOVA)	Reject H_{02} if p-values ≤ 0.05 otherwise fail to reject if $p > 0.05$ Linear relationship where Analytical model will be $Y = a + \beta_1 x_1 + \beta_2 x_2 + e$ Where; $a =$ constant term, $x_1 =$ Managerial ownership, $x_2 =$ Asymmetric information, $\beta_1, \beta_2 =$ correlation coefficient = Error term
There is no statistically significant influence of firm foreign exchange exposure on corporate hedging in Kenya listed companies	Karl-Pearson's coefficient of correlation -F-test (ANOVA)	Reject H_{02} if p-values ≤ 0.05 otherwise fail to reject if $p > 0.05$, Linear relationship whose analytical model is $Y = a + \beta_1 x_1 + \beta_2 x_2 + e$ Where, $a =$ constant term, $x_1 =$ Fixed Currency Derivatives, $x_2 =$ Fixed Currency Denominated Debt, $\beta_1, \beta_2 =$ Regression coefficients, $e =$ Error term

CHAPTER FOUR

RESEARCH FINDINGS AND DISCUSSIONS

4.1 Introduction

This chapter deals with analysis and presentation of data collected from a sample using questionnaires which were designed to measure the hypothesis of the study. It gives the empirical findings and results following the application of the variables using the techniques indicated in the third chapter. It contains the research response rate, demographic characteristics of study variables, data normality analysis, factor analysis, descriptive statistics of independent variables, correlation of variables, regression analysis, hypothesis testing and a summary of the chapter.

4.2 Response Rate

Response rates both the initial response rate and attrition rates in longitudinal studies have historically been an important rough-and-ready yardstick to judge data quality. Data above 50% can provide quality data for analysis (Rindfuss, 2015). The target sample size was 196 respondents but a response rate of 76.02% was achieved as 149 respondents completed and returned the questionnaires that were administered.

4.3 Reliability Results

The reliability of questionnaire was tested by computing the Cronbach alpha which is an established method to work out the internal consistency. The Cronbach' Alpha provides a coefficient of inter-item correlations, that is the correlation of each item with the sum of all the other items. The higher the coefficients, the better the measuring instruments. The closer the Cronbach' Alpha is to 1, higher the internal consistency. A reliability value of at least 0.7 is acceptable (Nunnally and Bernstein, 1994). It allows measuring internal consistency amongst items and is used for multi items scales.

Reliability is a measure of internal consistent of a questionnaire by establishing if certain item measures the same construct. Cronbach’s Alpha was established for the objectives in order to determine if each scale (objective) would produce consistent results should the research be done later on (Kinyua &Ali, 2016). Cronbach Alpha was used to test the reliability of the proposed constructs. Cronbach’s alpha reliability coefficient that ranges between zero and one implies that there is no internal reliability while one indicated perfect internal reliability. Cronbach’s alpha reliability coefficient value of 0.7 or higher is considered sufficient (Karihe *et al.*, 2016).

The study consists of five independent variables and one dependent variable. The independent variables consist of firm liquidity, firm leverage, firm size, firm managerial risk aversion and firm foreign exchange exposure. SPSS version 22 was used to find the reliability of the variables and the results are in Table 4.1. The reliability tests for the questionnaire in this study gave an overall cronbach coefficient alpha of 0.82. The results of the other reliability tests are shown in Table 4.1 below.

Table 4.1: Summary of Cronbach Alpha

Variable	N of items	Cronbach’s Alpha	Accept/Reject
Firm Liquidity	6	0.879	Accept
Firm Leverage	6	0.889	Accept
Firm Size	8	0.785	Accept
Firm Managerial Risk Aversion	7	0.777	Accept
Firm Foreign Exchange Exposure	4	0.784	Accept

The recommended value of 0.7 was therefore used as a cut-off of reliability (Sekaran, 2009). Reliability results for all the set of variables in the questionnaires gave a cronbach alpha statistics of more than 0.7, thus the threshold value of 0.7 were met. The findings indicated that firm liquidity had a coefficient of 0.879, firm leverage had coefficient of 0.889, firm size had 0.785, and firm managerial risk aversion had coefficient of 0.777

and firm foreign exposure of 0.784. All constructs depicted that the value of cronbach's Alpha are above the suggested value of 0.7 thus the study was reliable.

The overall cronbach's alpha (for the five aspects of financial determinants of corporate hedging was 0.8). It means that there is an acceptable degree of consistency among the responses against each item. A high cronbachs alpha coefficient indicated that internal consistency is high for a given scale. The most common rule of thumb is that reliability level is acceptable at 0.80 though others suggest that is acceptable if it is 0.67 or above (Bryman & Cramer, 1990).

4.4 Background Information Results

The descriptive information of the respondent was gathered based on the demographic factors, age, formal education, risk management training, use of hedgers, forms of hedging, industry structure, currency instruments and foreign exchange risk. The study targeted 200 respondents companies in regard to the influence of financial determinants on corporate hedging of companies listed on NSE out of which 149 questionnaires were generated.

(a) Risk Management Training

The study sought to find attendance of risk management trainings by respondents the following was reported. The results shows that 41.6% have attended risk management training while 58.4 % have not attended risk management trainings. A goodness of fit test with regard to attendance to educational risk management programmes yielded a chi value ($\chi^2=23.362$, $df=1$, $p<0.000$) which was significant.

Table 4.2: Risk Management Training

Risk Management Training	Frequency	Percent	Cumulative Percent
Yes	62	41.6	41.6
No	87	58.4	100.0
Total	149	100.0	

This implies that the educational programmes regarding risk management proportions in the sample as drawn differed significantly from the population proportions.

(b) Hedgers

The study sought to find the use of hedgers by companies. The following results were reported. It can be seen that 149 (55.7 per cent of respondents that declare themselves as hedgers) manage corporate risks, but do not use derivatives as a risk management instrument. In other words, 55.7 per cent of the responding Kenyan companies use derivative instruments for managing corporate risks. This result is similar to the findings of Bodnar, Hayt and Marston (1998) who have revealed that 50 per cent of US non-financial companies are using some form of financial engineering to manage interest rate, foreign exchange, or commodity price risk. However, it should be noted that the time difference needs to be taken into account.

Table 4.3: Hedgers

Hedgers	Frequency	Percent	Cumulative Percent
Yes	83	55.7	55.7
No	66	44.3	100.0
Total	149	100.0	

(c) Forms of Hedging

The study sought to find importance of different forms of hedging. The following results were reported. Using a five-point Likert scale (1 = Not Important, 2 = Important 3 =Somewhat Important, 4 = Important 5 = Very Important), the study sought to determine the importance of different forms hedging among respondents. The means and standard deviations generated from the responses are provided in table 4.6 above. Overall, respondents registered high agreement levels on the questions posed. High score from the findings were recorded to statement that the firm's management uses financial derivatives with mean of 4.76 and standard deviation of 0.430 followed by operational hedging with means of 4.11 and standard deviation of 0.708. Finally commodity means with a mean of 3.69 and standard deviation of 0.944. This concurred with the study of Nguyen (2015) which identified financial derivative as most important risk management programs.

Table 4.4: Forms of Hedging

Forms of Hedging	N	Minimum	Maximum	Mean	Std. Deviation
Financial instruments	149	4	5	4.76	.430
Commodity means	149	1	5	3.69	.944
Operational means	149	2	5	4.11	.708
Valid N (listwise)	149				

(d) Industry Structure

The study sought to establish industry structure of companies Listed in NSE.

Table 4.5: Industry Structure

Industry Structure	Frequency	Percent	Cumulative Percent
Commercial and Services	9	6.0	6.0
Telecommunication and Technology	12	8.1	14.1
Automobile and Accessories	3	2.0	16.1
Investment	24	16.1	32.2
Growth Enterprise Market Segment	3	2.0	34.2
Manufacturing and Allied	27	18.1	52.3
Construction and Allied	3	2.0	54.4
Energy and Petroleum	21	14.1	68.5
Banking	47	31.5	100.0
Total	149	100.0	

The random sample of 196 individuals was selected from top executives of sixty four firms in NSE and retail investors whose information was obtained from investment banks and stock brokers. Top executives included Chief Executive Officers, Risk Managers, Chief Finance Officers of all sixty four NSE firms and retail investors holding accounts with the Central Depository Systems Corporation (CDSC) in firms operating in Nairobi Securities Exchange. Regarding the industry structure of respondents, it can be seen from table 4.7 that the majority of analyzed companies are banks 31.5%, (18.1 per cent) are manufacturers, followed by the investment companies, which hold a share of 16.1 per cent. 14.1% per cent of companies are from the energy and petroleum, while the rest of them belong to other industry sectors.

(e) Currency Instruments

The study sought to determine the importance of the following currency instruments in your company as risk management tool.

Table 4.6: Currency Instruments

Currency Instruments	N	Minimum	Maximum	Mean	Std. Deviation
Currency forward	149	1	5	4.04	1.019
Currency futures	149	1	4	3.77	.682
Currency swaps	149	1	5	3.49	.970
OTC	149	1	5	2.74	1.457

Using a five-point likert scale (1 = Not Important, 2 = Important 3 =Somewhat Important, 4 = Important 5 = Very Important), the study sought to determine the importance of different forms of currency instruments among respondents. The means and standard deviations generated from the responses are provided in table 4.6.Overall, respondents registered high agreement levels on the questions posed. High score from the findings were recorded to statement that the firm’s management use of currency forward financial derivatives with mean of 4.04 and standard deviation of 1.019. This concurred with Ndung’u and Muoni (2016) results of both correlation and regression analysis which indicated that the usage of futures by the Kenyan Airways has a positive effect on the levels of profitability. Precisely, the results established that futures usage was associated with a positive correlation coefficient of 0.418 and a regression beta of 0.029 which were both established to be significant at 5% significance. The results also found from correlation and regression analysis that the use of forwards has a positive effect on the levels of profitability.

This also concurred with Abhyankar and Dharmadhikari (2012) who found that forwards are really meant to safeguard corporate in the situation of unprecedented fall in the value of money witnessed today and at the same time supports forward contract tool in its function of hedging and thus enhances efficacy of forward contract. This was also in line

with Mugi (2015) study who found that unit increase in forward contracts while holding other factors constant will lead to an increase in ROA.

(f) Foreign Exchange Rate Risk

The study sought to establish how companies manage different types of foreign exchange rate risks

Table 4.7: Foreign Exchange Rate Risk

FX Risk	N	Minimum	Maximum	Mean	Std. Deviation
Transaction cost	149	1	15	4.89	4.009
Translation exposure	149	1	15	5.46	3.948
Economic exposure	149	1	15	6.60	3.605

The means and standard deviations generated from the responses are provided in table 4.7 above .Overall, respondents registered high agreement levels on the questions posed. High score from the findings were recorded to statement that the firm’s management uses derivatives in economic exposure with mean of 6.60 and standard deviation of 3.605 followed by translation exposure with means of 5.46 and standard deviation of 3.948.Finally, transaction cost means with a mean of 4.89 and standard deviation of 4.009.

4.5 Corporate Hedging Results

The study sought to investigate corporate hedging (independent variable) of firms listed on the NSE. Firm corporate hedging was assessed by four measures namely shareholders value, risk management, cost advantages and reduction in cash volatility to maintain cash stability.

4.5.1 Sample Adequacy Results on Corporate Hedging

Prior to the extraction of the factors, several tests were used to assess the suitability of the respondent data for factor analysis. These tests include Kaiser-Meyer-Olkin (KMO) Measure of Sampling Adequacy and Bartlett's Test of Sphericity. The KMO index, in particular, is recommended when the cases to variable ratio are less than 1:5. The KMO index ranges from 0 to 1, with 0.50 considered suitable for factor analysis. The Bartlett's Test of Sphericity should be significant ($p < .05$) for factor analysis to be suitable (Costello & Osborne, 2015).

Table 4.8: Corporate Hedging KMO and Bartlett's Test

Kaiser-Meyer-Olkin Measure of Sampling Adequacy.			0.512
Bartlett's	Test	of Approx. Chi-Square	195.157
Sphericity		Df	6
		Sig.	.000

The KMO test of 0.512 showed that factor analysis could be carried out because KMO lied between 0 and 1. Bartlett's test of sphericity was (Chi-square 195.157, $p < 0.0001$) which was within the acceptable level to test for significance and validity of the data collected to the research problem.

4.5.2 Factor Analysis Results of Corporate Hedging

Factor analysis was done on corporate hedging measures. Factor analysis is a branch of multivariate analysis procedure that attempts to identify any underlying 'factors' that are responsible for co variation among group independent variables. The goals of a factor analysis are typically to reduce the number of variables used to explain a relationship or to determine which variables show a relationship (Ahmed, 2016).

The constructs were subjected to a variance tests through the principal component analysis test. This test was meant to identify a group of components or factors which were able to explain most of the information carried by other variables. The aim is to make it easy to interpret the results or to come up with generalizations which could be applied to the general constructs. The four measures of corporate hedging were subjected to factor analysis and the results showed that there were two critical factors driving the use of derivatives in listed companies which accumulated to 83.828% of the total variance in this construct. Factor one had the highest variance of 43.933% while factor two had 39.895%. These two factors had the greatest influence on corporate hedging. This is because they all had eigen values of more than 1.0.

Table 4.9: Corporate Hedging Total Variance Explained

Component	Initial Eigenvalues			Extraction Sums of Squared Loadings			Rotation Sums of Squared Loadings		
	Total	Variance % of	Cumulative %	Total	Variance % of	Cumulative %	Total	Variance % of	Cumulative %
1	1.85	46.342	46.342	1.854	46.342	46.342	1.757	43.933	43.933
2	1.49	37.486	83.828	1.499	37.486	83.828	1.596	39.895	83.828
3	.425	10.616	94.444						
4	.222	5.556	100.000						

Extraction Method: Principal Component Analysis.

4.5.3 Corporate Hedging Rotation Component Matrix Results

Table 4.10 depicts the rotated component factor loadings for determinants of corporate hedging measures. Component one was called risk which had the first two constructs i.e. shareholder value and risk management, component two was cost with two constructs i.e. cost advantages and cash volatility whose means have been identified in Table 4.10. From the rotation matrix in Table 4.10 all the firm corporate hedging measures were grouped in to two factors namely risk and cost.

Table 4.10: Corporate Hedging Rotated Component Matrix

Variables	Components	
	1	2
Risk management	.939	
Shareholders value	.913	
Cash volatility		.892
Cost advantages		.862

Extraction Method: Principal component analysis

Rotation method: Varimax with Kaiser Normalization

Risk had risk management and shareholders' value .Cost had reduction in cash volatility to maintain stability and cost advantages. The explanation is that most of on corporate hedging measures was explained by these two factors.Using the two factors, a scale was created using the average means of each construct. A scale of 1-5 was created and all the means of all the items in each component were analyzed (Table 4.13). Factor one which was named risk had an average mean of 4.08 while factor two was named cost had a mean of 3.755.

4.5.4 Descriptive Results of Corporate Hedging

Firm corporate hedging was assessed by four measures namely shareholders value, risk management, cost advantages and reduction in cash volatility to maintain cash stability. Risk factor had shareholders value and risk management factors while cost had cost advantages and cash volatility. Table 4.11 presents the relevant results which show that on a scale of 1 to 5 (where 5 = strongly agree; 1= strongly disagree, most respondents agree company hedging was to a great extent influenced by shareholders value (mean score = 4.577). Ayako and Wamalwa (2015) findings supported enhancement of firm value, implying that the listed commercial banks should also employ strategies that will

increase their market capitalization. Risk management (mean score =4.262), cost advantages (mean score = 3.463) and reduction in cash volatility to maintain stability (mean score =3.228).

Table 4.11: Descriptive Results of Corporate Hedging

Variables	Components		
	Risk	Cost	S.D
Risk management	4.262		0.720
Shareholders value	4.577		0.790
Cash volatility		3.228	0.938
Cost advantages		3.463	0.919

Average mean Risk = 4.419, Cost = 3.34 and overall mean score = 3.882, cronbach's alpha of Risk =0.712

Overall, the intensity of variables in corporate hedging by companies was considerably high (overall mean score = 3.8825). Cronbach's Alpha was used to test the reliability of the proposed constructs. The findings indicated that corporate hedging measures had a coefficient of 0.712.

Firm corporate hedging measures depicted the value of Cronbach's Alpha above the suggested value of 0.7 thus the study was reliable. The findings of the study shows that the variables were reliable as their reliability values exceed the prescribed threshold of 0.7 (Kinyua & Ali, 2016).

4.6 Firm Liquidity and Corporate Hedging Results

The study sought to investigate the influence of level of firm liquidity on corporate hedging of firms listed on the NSE. Firm liquidity was assessed by six measures namely, cash holdings, lines of credit, corporate profits, uniqueness of firm products, dividends payout and SGA.

4.6.1 Sample Adequacy Results on Firm Liquidity

Bartlett's Test of Sphericity was used at significant level of $p < .05$) to confirm that liquidity has patterned relationships.

Table 4.12: KMO and Bartlett's Test Table

Kaiser-Meyer-Olkin Measure of Sampling Adequacy.		.799
Bartlett's Test of Sphericity	Approx. Chi-Square	528.372
	Df	15
	Sig.	.000

Indeed, these tests show patterned relationships amongst the variables ($p < .001$). Firm liquidity was determined whether it was suitable for exploratory factor analysis by looking at the Kaiser-Meyer- Olkin Measure (KMO) of Sampling Adequacy (cut- off above. 50).

4.6.2 Factor Analysis Results on Firm Liquidity

The study sought to investigate the influence of level of firm liquidity on corporate hedging of firms listed on the NSE. Firm liquidity was assessed by six measures namely, cash holdings, lines of credit, corporate profits, uniqueness of firm products, dividends payout and SGA. The factors were identified after carrying out factor analysis, the two

factors which had the biggest influence on liquidity. Factor one was called cost of financial distress which had the first five constructs, factor two was asset tangibility with one construct whose means have been identified in table 4.13.

The broad purpose of factor analysis is to summarize data so that relationships and patterns can be easily interpreted and understood. It is normally used to regroup variables into a limited set of clusters based on shared variance. Hence, it helps to isolate constructs and concepts (Yong & Pearce, 2013). Bartholomew, Knott and Moustaki (2011) argued that factor analysis operates on the notion that measurable and observable variables can be reduced to fewer latent variables that share a common variance and are unobservable, which is known as reducing dimensionality.

Table 4.13: Firm Liquidity Total Variance Explained

Component	Initial Eigenvalues			Extraction Sums of Squared			Rotation Sums of Squared		
	Total	Loadings		Total	Loadings		Total	Loadings	
		% of Variance	Cumulative %		% of Variance	Cumulative %		% of Variance	Cumulative %
1	3.56	59.460	59.460	3.568	59.460	59.46	3.562	59.372	59.372
2	1.00	16.804	76.264	1.008	16.804	76.26	1.014	16.892	76.264
3	.761	12.689	88.953						
4	.306	5.107	94.060						
5	.200	3.328	97.388						
6	.157	2.612	100.00						

Extraction Method: Principal Component Analysis.

The above table shows that two factors (called ‘components’ in this analysis) have been entered into the rotated solution. These two factors account for about 76.264% of the total variance amongst the six items. This table shows actual factors extracted. In section labeled “Rotation Sums of Squared Loadings,” it shows only those factors that met cut-off criterion (extraction method). In this case, there were two factors with eigen values greater than one. The “% of variance” column shows how much of the total variability (in all of the variables together) can be accounted for by each of these summary scales or

factors. Factor one account for 59.37% of the variability in all six variables and factor two account for 16.892 %.

4.6.3 Firm Liquidity Rotation Component Matrix Results

Factors are rotated for better interpretation since unrotated factors are ambiguous. The goal of rotation is to attain an optimal simple structure which attempts to have each variable load on as few factors as possible, but maximizes the number of high loadings on each variable (Yong & Pearce, 2013). Ultimately, simple structure attempts to have each factor define a distinct cluster of interrelated variables so that interpretation is easier (Cohen *et al.*, 2011). One criterion that can be used to determine the number of factors to retain is Kaiser’s criterion which is a rule of thumb. This criterion suggests retaining all factors that are above the eigenvalue of 1 (Kaiser, 1960). Another criterion is based on Jolliffe’s criterion which recommends retaining factors above .70 (Jolliffe, 1986).

Table 4.14: Rotated Component Matrix

Variables	Components	
	1	2
Cash holdings	.902	
Lines of credit	.885	
Corporate profits	.877	
Uniqueness of firm product	.780	
Dividend payout	.766	
SGA		.987

It has been argued that both criteria may result in overestimation in the number of factors extracted (Field, 2009). This study adopted Kaiser Criterion. The above table shows that two 'components' in this analysis have been entered into the rotated solution. The first five subtests loaded strongly on factor one, which will be called financial distress cost and SGA loaded strongly on factor two, which was called asset tangibility. Factors are rotated for better interpretation since unrotated factors are ambiguous. The goal of rotation is to attain an optimal simple structure which attempts to have each variable load on as few factors as possible, but maximizes the number of high loadings on each variable (Cohen *et al.*, 2011).

4.6.4 Descriptive Results of Firm Liquidity

The study sought to investigate the influence of level of firm liquidity on corporate hedging of firms listed on the NSE. Firm liquidity was assessed by six measures namely, cash holdings, lines of credit, corporate profits, uniqueness of firm products, dividends payout and SGA. The factors were identified after carrying out factor analysis, the two factors which had the biggest influence on liquidity. Factor one was called cost of financial distress (CFD) which had the first five constructs, factor two was asset tangibility (AT) with one construct whose means have been identified in table 4.15.

Table 4.15: Firm Liquidity Descriptive Results

Variables	Components		
	CFD	AT	S.D
Cash holdings	3.81		0.617
Lines of credit	3.81		0.618
Corporate profits	3.62		0.769
Uniqueness of firm product	3.84		0.646
Dividend payout	3.64		0.833
SGA		3.47	1.037

Average mean component FCD = 3.744, component AS = 3.47 and overall mean score = 3.607, cronbach's alpha of 0.743.

Table 4.15 presents the relevant results which show that on a scale of 1 to 5 (where 5 = strongly agree; 1 =strongly disagree, most respondents agree company hedging was to a great extent influenced by equity offering (mean score = 3.841), market price of equity (mean score =3.820), availability and need of internal funds (mean score = 3.822), debt covenant (mean score = 3.810), debt capacity (mean score = 3.601). Overall, the intensity of leverage use in corporate hedging by companies was considerably moderate (overall mean score = 3.741).

Cronbach Alpha was used to test the reliability of the proposed constructs. The findings indicated that liquidity had a coefficient of 0.743. The reliability of the liquidity was evaluated through cronbach's Alpha which measures the internal consistency by establishing if certain item measures the same construct. The findings of the study shows

that the variables were reliable as their reliability values exceed the prescribed threshold of 0.7 (Kinyua & Ali, 2016).

4.6.5 Firm Liquidity Data Normality Tests Results

Assumptions and technicality for the application of statistical tools and suitability of the tests are important in research work and normality is one of the most important aspects for statistical analysis. Verified data inspire stakeholder confidence, and give reliable inferences and trustworthy interpretations for policy-making (Ali & Akayuure, 2016). To check for normality, the study adopted the Kolmogorov-Smirnov Test, auto correlation test and skewness and kurtosis statistic.

a) Kolmogorov-Smirnov Test Results

Baghban *et al.* (2013) argued that (K-S test) is used to decide if a sample comes from a population with a completely specified continuous distribution. The null hypothesis of this test is that the data follow a specified distribution and an alternative hypothesis tells that the data do not follow it.

Table 4.16: Firm Liquidity K-S Tests of Normality

Variable	Kolmogorov-Smirnov ^a			Shapiro-Wilk		
	Statistic	Df	Sig.	Statistic	df	Sig.
Liquidity	.084	149	.012	.973	149	.005

a. Lilliefors Significance Correction

From the above table, the data on determinants of corporate hedging did not deviate significantly from the normal distribution and for this reason it was safe to use statistical tests and procedures that assume normality of the variables. This was done by use of Kolmogorov-Smirnov test.

b) Firm Liquidity Skewness and Kurtosis Results

Skewness and Kurtosis were used to measure symmetric distribution and peakness of a distribution respectively (Mbui *et al.*, 2016). The results presented in Table 4.17 shows that firm liquidity had a skewness coefficient of -0.546 and its kurtosis coefficient being 0.358. The values of asymmetry and kurtosis between -2 and +2 are considered acceptable in order to prove normal univariate distribution (George & Mallery, 2010).

Table 4.17: Firm Liquidity Skewness and Kurtosis

Variable	N	Skewness		Kurtosis	
	Statistic	Statistic	Std. Error	Statistic	Std. Error
Liquidity	149	-.546	.199	.358	.395

The skewness and kurtosis are within the expected ranges of chance fluctuations in that statistic (i.e. \pm SES and \pm SEK) this implies that the distribution has no significant skewness and kurtosis problem.

c) Firm Liquidity Auto Correlation Test Results

The correlation means the existence of some definite relationship between two or more variables. Durbin - Watson statistics it is a test for autocorrelation which is based on the assumption of time series. It should be close to two or more to show lack of autocorrelation (Ithai, 2013). Durbin-Watson statistics is 2.182 this indicates that the disturbance generated by different cross-sectional observations is independent of each other. These imply that the data lack autocorrelation.

Table 4.18: Firm Liquidity Durbin -Watson Test

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Durbin-Watson
1	.358 ^a	.128	.122	.53043	2.182

a. Predictors: (Constant), Liquidity

b. Dependent Variable: Corporate Hedging

4.6.6 Firm Liquidity and Corporate Hedging Correlation Results

In order to establish the relationship between firm liquidity and corporate hedging in Kenya listed firms a correlation matrix was used. Table 4.21 shows the correlation matrix. Table 4.19 shows a varied degree of interrelationships between firm liquidity and corporate hedging of listed firms in Kenya. The Pearson correlation coefficient was generated at a significant level of five percent (2-tailed). The output indicates a moderate positive relationship between firm liquidity and corporate hedging of listed firms in NSE. Firm liquidity had positive coefficient which indicated that corporate hedging increases with increase in magnitude of firm liquidity and vice versa.

Firm liquidity and corporate hedging were found to have moderate correlation ($r=0.358$) in listed firms in NSE since they were statistically significant at 5% level. This results was similar to Afza & Alam (2015) who found that liquidity is positive and significant to hedging because it is used as a potential instrumental precautionary motive which serves as a substitute of derivative usage. Firm liquidity is positive and significant to corporate hedging because in the area of short-term liquidity, they find that the number of firms paying dividends and the dividend payouts are higher after the introduction of derivatives. Overall, these results can be interpreted as evidence that firms introduce hedging to lower expected costs of financial distress (Iqbal, 2015).

Table 4.19: Firm Liquidity Correlations Results

Variables	Corporate		
	hedging	Liquidity	
Corporate	Pearson Correlation	1	.358**
Hedging	Sig. (2-tailed)		.000
	N	149	149
Firm Liquidity	Pearson Correlation	.358**	1
	Sig. (2-tailed)	.000	
	N	149	149

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

4.6.7 Firm Liquidity ANOVA Results

Analysis of variance (ANOVA) was used to test whether the regression analysis model used is fit or the relationship of the variables just occurred by chance. Significance of F ratio is used to determine whether model used was fit or not. If the F ratio is statistically significant, the model used is considered fit and vice versa (Weeks & Namusonge, 2016). The F statistics tends to be greater when the null hypothesis of independence is not true. P values of less than 0.05 indicates that the F statistic is high and that the null hypothesis of independence needs to be rejected since it is not true. In this case the F ratio (F=21.628, p=0.000) was found to be statistically significant hence the model used for analysis was fit. These results are presented in Table 4.20.

Table 4.20: Firm Liquidity ANOVA

Model		Sum of Squares	Df	Mean Square	F	Sig.
1	Regression	6.085	1	6.085	21.628	.000 ^b
	Residual	41.359	147	.281		
	Total	47.445	148			

a. Dependent Variable: Corporate hedging

b. Predictors: (Constant), Liquidity

4.6.8 Firm Liquidity Goodness- of- fit Model Results

The results of liquidity indicated that the explanatory power of liquidity on corporate hedging was slightly low as it accounted for 12.8 percent of the variability of change in the corporate hedging (R square = 0.128).

Table 4.21: Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.358 ^a	.128	.122	.53043

a. Predictors: (Constant), Liquidity

Liu and Rodriguez (2014) studied relation between liquidity and corporate hedging concur with the findings of this study with the results provide weak evidence to support that liquidity reduce costs of bankruptcy and financial distress in corporate hedging.

4.6.9 Regression results of Firm Liquidity and Corporate Hedging

The aggregate mean scores of firm liquidity measures (independent variable) were regressed on the aggregate mean scores of corporate hedging measures (dependent variable) and the research findings were outlined in Table 4.22. To assess the influence of firm liquidity on corporate hedging of listed companies in Kenya, the study had set the following hypothesis;

1. Hypothesis One

H_{01} : There is no statistically significant influence of firm liquidity on corporate hedging in firms operating in NSE.

Table 4.22: Regression Coefficients of Firm Liquidity

Model		Unstandardized Coefficients		Standardized	T	Sig.
		B	Std. Error	Coefficients		
1	(Constant)	2.406	.320		7.512	.000
	Liquidity	.399	.086	.358	4.651	.000

The individual regression results in Table 4.22 reveal statistically significant positive linear relationship between firm liquidity and corporate hedging ($\beta = 0.399$, P-value = 0.000). The firm liquidity coefficients are presented in Table 4.22. The results show that firm liquidity contributes significantly to the model since the p-value for the constant and gradient is less than 0.05. The fitted equation is $Y = 2.406 + 0.339X_2$.

Hence, H_{0A} is accepted since $\beta \neq 0$ and P-value > 0.05. It can be concluded that there is statistically significant influence of firm liquidity on corporate hedging in Kenya listed companies. These findings collate with the study of Kintu and Ngugi (2013) who found

out that liquidity is positive and significant since majority of the respondents indicated that the organization had experienced liquidity problems in the last five years and that liquidity ratio affected the hedging practices of companies listed in NSE to a very great extent. The study also found out that the organization used current ratio in liquidity management to a very great extent.

4.7 Firm Leverage and Corporate Hedging Results

The study sought to investigate the influence of level of firm leverage on corporate hedging of firms listed on the NSE. Firm leverage was assessed by five measures namely equity offerings, market price of equity, debt capacity, debt covenant and availability and need for internal funds.

4.7.1 Sample Adequacy Results of Firm Leverage on Corporate Hedging

Two specific statics were used to test for the suitability of the data for factorization which are bartlet test of sphericity which investigated correlations between variables and show stastical significance ($p < 0.05$) and Kaiser –Mayer- Olkin measure of sampling adequacy, which correlates pairs of variables to be statically significant.

The outputs show that KMO and the Bartlett test. KMO measure is greater than 0.6 that is 0.870 and Bartlett test is statistically significant (0.000), so it is safe to continue with factor analysis. Factors are rotated for better interpretation since unrotated factors are ambiguous. The goal of rotation is to attain an optimal simple structure which attempts to have each variable load on as few factors as possible, but maximizes the number of high loadings on each variable (Cohen *et al.*, 2011).

Table 4.23: KMO and Bartlett's Test

Kaiser-Meyer-Olkin Measure of Sampling Adequacy.		.870
Bartlett's Test of Sphericity	Approx. Chi-Square	985.577
	Df	15
	Sig.	.000

4.7.2 Factor Analysis Results of Firm Leverage on Corporate Hedging

Ahmed (2016) argued that in factor analysis variables are grouped by their correlations, such that variables in a group (factor) have high correlations with each other. Thus, for the purposes of factor analysis, it is important to understand how much of a variables variance is shared with other variables in that factor versus what cannot be shared. The total variance of any variable can be partitioned in to three types of variance, common variance specific variance (also known as unique variance) and error variance.

Table 4.24: Firm Leverage Variance Explained

Component	Initial Eigenvalues			Extraction Sums of Squared Loadings			Rotation Sums of Squared Loadings		
	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %
1	4.13	68.990	68.990	4.139	68.990	68.990	4.139	68.985	68.985
2	1.00	16.739	85.729	1.004	16.739	85.729	1.005	16.744	85.729
3	.581	9.681	95.410						
4	.147	2.446	97.856						
5	.095	1.588	99.444						
6	.033	.556	100.000						

Extraction Method: Principal Component Analysis.

The table shows that two 'components' in this analysis have been entered into the rotated solution. These two factors account for about 85.729% of the total variance amongst the six items. This table shows actual factors that were extracted. The section labeled "Rotation Sums of Squared Loadings," it shows factors that met cut-off criterion (extraction method). In this case, there were two factors with eigen values greater than one. The "% of variance" column how much of the total variability (in all of the variables together) can be accounted for by each of these summary scales or factors. Factor one account for 68.985% of the variability in all six variables and factor two account for 16.892%.

4.7.3 Firm Leverage Rotation Component Matrix Results

The below rotated 'component matrix' shows the factor loadings for each item on the two factors after the factors have been rotated. This factor rotation gives the most interpretable pattern of factor loadings. Finally, the rotated component matrix shows the factor loadings for each variable. Based on these factor loadings, the first five subtests loaded strongly on factor one, which was called equity and non debt tax shield loaded strongly on factor two, which was called debt. Ultimately, simple structure attempts to have each factor define a distinct cluster of interrelated variables so that interpretation is easier (Cohen *et al.*, 2011). One criterion that can be used to determine the number of factors to retain is Kaiser's criterion which is a rule of thumb. This criterion suggests retaining all factors that are above the eigenvalue of 1 (Kaiser, 1960).

Table 4.25: Firm Leverage Rotation Matrix

Variables	Components	
	1	2
Market price of equity	.967	
Debts covenants	.958	
Availability and need for		
Internal funds	.953	
Equity offerings	.936	
Debt capacity	.967	
Non debt tax shield		.997

Extraction Method: Principal component analysis

Rotation method: Varimax with Kaiser Normalization

4.7.4 Descriptive Results of Firm Leverage on Corporate Hedging

The study sought to investigate the influence of level of firm leverage on corporate hedging of firms listed on the NSE. Firm leverage was assessed by five measures namely equity offerings, market price of equity, debt capacity, debt covenant and availability and need for internal funds.

The factors were identified after carrying out factor analysis, the two factors which had the biggest influence on leverage. The significant results showed that the means were statistically different. Factor one was called debt which had the first four constructs, factor two was equity with one construct whose means have been identified in Table 4.26.

Table 4.26: Firm Leverage Descriptive Results

Variables	Components		
	Equity	Debt	S.D
Market price of equity	3.84		0.608
Debts covenants	3.81		0.630
Availability and need for			
Internal funds	3.82		0.873
Equity offerings	3.84		0.657
Debt capacity	3.60		0.636
Non debt tax shield		3.56	0.940

Average mean Equity = 3.782, Debt = 3.56 and overall mean score = 3.671, cronbach's alpha of 0.815.

Table 4.26 presents the relevant results which show that on a scale of 1 to 5 (where 5 = strongly agree; 1 =strongly disagree, most respondents agree company hedging was to a great extent influenced by equity offering (mean score = 3.841), market price of equity (mean score =3.820), availability and need of internal funds (mean score = 3.822), debt covenant (mean score = 3.810),debt capacity (mean score = 3.601).Overall, the intensity of leverage use in corporate hedging by companies was considerably moderate (overall mean score = 3.741).

The reliability tests for the firm leverage study variables gave an overall cronbach coefficient alpha of 0.815. Cronbach Alpha was used to test the reliability of the

proposed constructs. Cronbach's alpha reliability coefficient that ranges between zero and one implies that there is no internal reliability while one indicated perfect internal reliability. Cronbach alpha reliability coefficient value of 0.7 or higher is considered sufficient (Karihe *et al.*,2016).

4.7.5 Firm Leverage Data Normality Tests Results

Normality was used to tests for significance and construction of confidence interval estimates of the parameters. To check for normality, the study adopted the Kolmogorov-Smirnov Test, auto correlation test and skewness and kurtosis statistic.

a) Kolmogorov-Smirnov Test

Baghban *et al.* (2013) argued that many commonly used statistical methods require that the population distribution be nearly normal. Unfortunately, in some studies the one-sample Kolmogorov-Smirnov test has been used for testing normality while the assumptions of applying this test are not satisfied. To conduct this test, it is assumed that the population distribution is fully specified.

Table 4.27: Firm Leverage K-S Tests of Normality

Variable	Kolmogorov-Smirnov ^a			Shapiro-Wilk		
	Statistic	df	Sig.	Statistic	df	Sig.
Firm leverage	.116	149	.000	.951	149	.000

a. Lilliefors Significance Correction

Decision making process in K-S test with test is if the value sig. < 0.05, then data is normal and if the value sig. >0.05, then data is not normal. Based on output coefficients the obtained value sig. of firm leverage is 0.00, meaning that the value of the variables sig < 0.05, it can be concluded that there is data is normal. From the above table, the data on firm leverage did not deviate significantly from the normal distribution and for

this reason it was safe to use statistical tests and procedures that assume normality of the variables.

b) Skewness and Kurtosis Test Results

Skewness measures the degree of asymmetry of a distribution around its mean. Positive skewness indicates a distribution with an asymmetric tail extending toward more positive values. Negative skewness indicates a distribution with an asymmetric tail extending toward more negative values. Kurtosis measures the degree to which a distribution is more or less peaked than a normal distribution. Positive kurtosis indicates a relatively peaked distribution. Negative kurtosis indicates a relatively flat distribution.

Table 4.28: Firm Leverage Skewness and Kurtosis Results

Variable	N	Skewness		Kurtosis	
	Statistic	Statistic	Std. Error	Statistic	Std. Error
Firm leverage	149	-.759	.199	.422	.395

The results presented in Table 4.30 shows that firm leverage had a skewness coefficient of -0.759 and its kurtosis coefficient being 0.422. Based on these it was concluded that data was normally distributed since they lie with the ± 1 range.

c) Auto Correlation Test

Table 4.29: Auto Correlation Model

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Durbin-Watson
1	.462 ^a	.214	.208	.50383	2.152

a. Predictors: (Constant), Firm leverage

b. Dependent Variable: Corporate hedging

The size of Durbin Watson statistic which depends on the number of predictors and number of observation, as conservative rule of thumb, values less than one or greater than three are definitely cause for concern (Karihe *et al.*, 2016). Durbin- Watson value of 2.152 indicates that the model did not suffer from autocorrelation.

4.7.6 Firm Leverage and Corporate Hedging Correlation Results

In order to establish the relationship between firm leverage and corporate hedging in Kenya listed firms a correlation matrix was used. Table 4.30 shows the correlation matrix. Table 4.30 shows a varied degree of interrelationships between firm leverage and corporate hedging of listed firms in Kenya. The Pearson correlation coefficient was generated at a significant level of 5 percent (2-tailed).

Table 4.30: Firm Leverage Correlations Results

Variables		Corporate Hedging	Firm Leverage
Corporate Hedging	Pearson Correlation	1	.462**
	Sig. (2-tailed)		.000
	N	149	149
Firm Leverage	Pearson Correlation	.462**	1
	Sig. (2-tailed)	.000	
	N	149	149

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

The output indicates a moderate positive relationship between firm leverage and corporate hedging of listed firms in NSE. Firm leverage had positive coefficient of 0.462 which indicated that corporate hedging increases with increase in magnitude of firm leverage and vice versa. Firm leverage had significant impact on corporate hedging ($r=0.462^*$). It had significant correlation. It was supported by Ali (2014) findings from the Tobin's Q model indicated that large firms have a positive significant relationship

between financial leverage and firm performance while the older firms showed an increase in its market value; this is an indication of investors' confidence on the older firms who have built their reputation over a long period.

The positive correlation between leverage and hedging intensity is significant, this correlation is relatively easy to understand. Hedge could be beneficial for highly levered firms to stabilize their internally generated cash flow and reduce various costs associated with the variability of cash flows (Wang and Fan, 2011). Therefore; firms who borrow more should be more likely to hedge.

4.7.7 Firm Leverage ANOVA Results

Analysis of variance (ANOVA) consisted of calculations that provided information about levels of firm leverage variability within a regression model and formed basis for test of significance. The F statistics tends to be greater when the null hypothesis of independence is not true. P values of less than 0.05 indicates that the F statistic is high and that the null hypothesis of independence needs to be rejected since it is not true. In this case the F ratio (F=39.904, p=0.000) was found to be statistically significant hence the model used for analysis was fit.

Table 4.31: Firm Leverage ANOVA Results

Model		Sum of Squares	Df	Mean Square	F	Sig.
1	Regression	10.129	1	10.129	39.904	.000 ^b
	Residual	37.315	147	.254		
	Total	47.445	148			

a. Dependent Variable: Corporate hedging

b. Predictors: (Constant), Firm leverage

4.7.8 Firm Leverage Goodness- of- fit Model Results

The study results showed that firm leverage had high explanatory power on corporate hedging as it accounted for 21.4 percent of its variability (R square = 0.214).

Table 4.32: Firm Leverage Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.462 ^a	.214	.208	.50383

a. Predictors: (Constant), Firm leverage

The positive correlation between leverage and hedging intensity is significant in both the pooled and annual regressions, and this correlation is relatively easy to understand. Hedge could be beneficial for highly levered firms to stabilize their internally generated cash flow and reduce various costs associated with the variability of cash flows (Wang & Fan, 2011.)Therefore, firms who borrow more should be more likely to hedge.

4.7.9 Regression results of Firm Leverage on Corporate Hedging

To determine the influence of firm leverage on corporate hedging in listed companies in Kenya hypotheses was formulated as follows:

2. Hypothesis Two

H₀₁: There is no statistically significant influence of firm leverage on corporate hedging in firms operating in NSE.

Table 4.33: Regression Coefficients of Firm Leverage

Model		Unstandardized Coefficients		Standardized	T	Sig.
		B	Std. Error	Beta		
1	(Constant)	2.038	.295		6.909	.000
	Leverage	.493	.078	.462	6.317	.000

a. Dependent Variable: Corporate hedging

The aggregate mean scores of firm leverage measures (independent variable) were regressed on the aggregate mean scores of corporate hedging of listed companies in NSE (dependent variable) and the research findings were outlined in Table 4.35. The results indicated that the explanatory power of firm leverage on corporate hedging of listed firms was slightly high as it accounted for 49.0 percent of the variability of change in the corporate hedging ($R^2 = 0.49$). The individual results showed in Table 4.34 revealed that the effect of firm leverage on corporate hedging was statistically significant ($\beta=0.462$, $p\text{-value}=0.000$). The results show that firm liquidity contributes significantly to the model since the p -value for the constant and gradient is less than 0.05. The fitted equation is $Y = 2.308 + 0.493 X_2$.

Hence, H_{01} is rejected since $\beta \neq 0$ and $P\text{-value} < 0.05$. Hence, there is statically significant influence of firm leverage on corporate hedging in Kenya listed companies.

This was supported by Park and Kim (2013) their study empirically investigated the impacts of the financial derivative usage on corporate debt capability and stock return using Korean non-financial firms' data from 2002 to 2012. Empirical results supported the conjecture that financial derivatives tend to increase debt capability by transferring risks and reducing financial cost. Derivative user firms turn out to have better stock market performance especially during period with the tight credit market. Financial

derivatives usage of the individual firm plays an important role in increasing debt capability and achieving better stock performances.

4.8 Firm Size and Corporate Hedging Results

The study sought to investigate the influence of level of firm size on corporate hedging of firms listed on the NSE. Firm size was assessed by five measures namely willingness to hedge, cost of setting hedging departments, firm investment opportunity, internal generated funds and dividends payments.

4.8.1 Sampling Adequacy Results on Firm Size on Corporate Hedging

KMO test measures sample adequacy and it ranges between 0 and 1. A value close to one indicates that patterns of correlations are compact and hence the factor analysis is reliable and appropriate for the study. Two specific statics were used to test for the suitability of the data for factorization which are bartlet test of sphericity which investigated correlations between variables and show stastical significance ($p < 0.05$) and Kaiser –Mayer- Olkin measure of sampling adequacy , which correlates pairs of variables to be statically significant. KMO measures on firm size had 0.745 which represented great acceptability of the use of factor analysis and sufficient intercorrelations.

Table 4.34: Firm Size KMO and Bartlett's Test

Kaiser-Meyer-Olkin Measure of Sampling Adequacy.		.745
Bartlett's Test of Sphericity	Approx. Chi-Square	670.236
	Df	28
	Sig.	.000

Bartlett’s test of sphericity is significant (chi-square=670.236, $p < 0.000$). Bartlett’s test checks if the observed correlation matrix diverges significantly from the identity matrix.

4.8.2 Factor Analysis Results on Firm Size on Corporate Hedging

A factor loading for a variable is a measure of how much the variable contributes to the factor; thus, high factor loading scores indicate that the dimensions of the factors are better accounted for by the variables

Table 4.35: Firm Size Total Variance Explained

Component	Initial Eigenvalues			Extraction Sums of Squared Loadings			Rotation Sums of Squared Loadings		
	Total	Variance	Cumulative %	Total	Variance	Cumulative %	Total	Variance	Cumulative %
1	3.46	57.823	57.823	3.469	57.823	57.823	3.395	56.579	56.579
2	1.26	21.020	78.843	1.261	21.020	78.843	1.336	22.264	78.843
3	.700	11.664	90.507						
4	.280	4.668	95.175						
5	.181	3.018	98.193						
6	.108	1.807	100.000						

Extraction Method: Principal Component Analysis.

Tabachnick and Fidell (2007) argued that according to a rule of thumb, using an alpha level of .01 (two-tailed), a rotated factor loading for a sample would need to be at least 0.32 to be considered statistically meaningful. A factor loading of 0.32 gives us approximately 10% of the overlapping variance. $\% \text{ overlapping variance} = (\text{Factor loading})^2$.

This study adopted a cut off of 0.32. Factor analysis was carried out in firm size variables in order to understand each variable contribution to corporate hedging in listed firms in NSE. The eigen values was used to determine how many factors to retain. The analysis of variance identified the eigen values which is the variance of each factor or component in comparison with the total variance of all the items in the construct.

Principal component analysis with a varimax rotation was used to factor analyze the eight items related to firm size. The correlation matrices among the items revealed a number of correlations in excess of 0.3 which meant that all responses were suitable for factorization. From the variance matrix, there were two variables that had eigen values of more than 1.0 which meant that these were the firm size variables that had the highest influence on corporate hedging. Component one had the highest variance of 3.469 which accounted for 56.579 % of the variance. Component two had the second highest variance of 1.261 contributing 22.264 % of the variance. The cumulative results showed that there were two critical factors of firm size accumulated to 78.843% of the total variance in this construct. The other seven factors also explained the variance at less than 21.154 % which meant that some variance had been explained by latent variables.

4.8.3 Firm Size Rotation Component Matrix Results

There were several repetitions of data running using various methodologies in SPSS to try and specify the number of factors that were influencing firm size. In evaluating what variables to retain the factor loadings were taken into account and the minimum factor loadings were 0.60 which were considered to be moderately high.

Table 4.36: Firm Size Rotation Components

Variables	Components	
	1	2
Bankruptcy cost	.928	
Willingness to hedge	.910	
Firm investment opportunity	.900	
Cost of setting hedging department	.890	
Firm size		
Internally generated funds		.775
Dividends payment		.725
Cash stock		

Extraction Method: Principal component analysis

Rotation method: Varimax with Kaiser Normalization

Rotation converged in 3 iterations

Factor rotation gives the most interpretable pattern of factor loadings. Finally, the rotated component matrix shows the factor loadings for each variable. Based on these factor loadings, the first four subtests loaded strongly on Factor one, which was called hedging cost and last subtests loaded strongly in factor two which was called growth opportunities.

4.8.4 Descriptive Results of Firm Size on Corporate Hedging

The study sought to investigate the influence of level of firm liquidity on corporate hedging of firms listed on the NSE. Firm size was assessed by five measures namely willingness to hedge, cost of setting hedging departments, firm investment opportunity, internal generated funds and dividends payments. The factors were identified after carrying out factor analysis, the two factors which had the biggest influence on firm size were cost of hedging (COH) and growth opportunities (GO).

Table 4.37: Firm Size Descriptive Results

Variables	Components		
	COH	GO	S.D
Bankruptcy cost	3.77		0.726
Willingness to hedge	3.797		0.693
Firm investment opportunity	3.768		0.695
Cost of setting hedging department	3.780		0.664
Internally generated funds		3.785	0.793
Dividends payment		3.597	0.725

Average mean COH = 3.822, GO = 3.691 and overall mean score = 3.7565, cronbach's alpha of 0.796.

Table 4.37 presents the relevant results which show that on a scale of 1 to 5 (where 5 = strongly agree; 1= strongly disagree, most respondents agree company hedging was to a great extent influenced by willingness to hedge (mean score = 3.797), internally generated funds (mean score =3.785), cost of setting hedging departments (mean score = 3.780), firm investment opportunity (mean score = 3.768) and dividend payments (mean score = 3.7565). Overall, the intensity of firm size in corporate hedging by companies was considerably moderate (overall mean score = 3.754).

The reliability tests for the firm size study variables gave an overall cronbach coefficient alpha of 0.796. Table 4.39 shows Cronbach alpha values for firm size. From these findings it can be concluded that the construct measured had adequate reliability for the subsequent stages of analysis since the Cronbach Alpha values was greater than 0.7 (Sekaran, 2003).

4.8.5 Firm Size Data Normality Results

Normality was used to tests for significance and construction of confidence interval estimates of the parameters.

a) Kolmogorov-Smirnov (K-S) Test

K-S test is used to decide if a sample comes from a population with a completely specified continuous distribution.

Table 4.38: Firm Size K-S Tests of Normality

Variable	Kolmogorov-Smirnov ^a			Shapiro-Wilk		
	Statistic	Df	Sig.	Statistic	df	Sig.
Firm size	.126	149	.000	.961	149	.000

a. Lilliefors Significance Correction

The null hypothesis of this test is that the data follow a specified distribution and an alternative hypothesis tells that the data do not follow it (Baghban *et al.*, 2013). From the above table, the data on firm leverage did not deviate significantly from the normal distribution and for this reason it was safe to use statistical tests and procedures that assume normality of the variables.

b) Skewness and Kurtosis Test Results

Skewness measures the degree of asymmetry of a distribution around its mean. Kurtosis measures the degree to which a distribution is more or less peaked than a normal distribution.

Table 4.39: Firm Size Skewness and Kurtosis

Variable	N	Skewness		Kurtosis	
	Statistic	Statistic	Std. Error	Statistic	Std. Error
Firm size	149	-.698	.199	.666	.395

The results presented in Table 4.39 shows that firm size had a skewness coefficient of -0.698 and its kurtosis coefficient being 0.666. Based on these it was concluded that data was normally distributed since they lie with the ± 1 range recommended by Mbui *et al.* (2016).

c) Auto Correlation Test

The size of Durbin Watson statistic which depends on the number of predictors and number of observation, as conservative rule of thumb, values less than 1 or greater than 3 are definitely cause for concern.

Table 4.40: Firm Size Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Durbin-Watson
1	.301 ^a	.090	.084	.54185	2.174

a. Predictors: (Constant), Firm Size

b. Dependent Variable: Corporate hedging

Durbin-Watson statistics is 2.174 this indicates that the disturbance generated by different cross-sectional observations is independent of each other. These imply that the data lack autocorrelation.

4.8.6 Firm Size and Corporate Hedging Correlation Results

In order to establish the influence of firm size on corporate hedging in Kenya listed firms a correlation matrix was used. Table 4.41 shows the correlation matrix. Table 4.43 shows a varied degree of interrelationships between firm size and corporate hedging of listed firms in Kenya. The Pearson correlation coefficient was generated at a significant level of five percent (2-tailed).

Table 4.41: Firm Size Correlations Results

Variables		Corporate Hedging	Firm Size
Corporate hedging	Pearson Correlation	1	.301 ^{**}
	Sig. (2-tailed)		.000
	N	149	149
Firm size	Pearson Correlation	.301 ^{**}	1
	Sig. (2-tailed)	.000	
	N	149	149

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

The output indicates a moderate positive relationship between firm size and corporate hedging of listed firms in NSE. Firm size had positive coefficient which indicated that corporate hedging increases with increase in magnitude of firm leverage and vice versa. The firm size of the firm, however, had logical and explainable significance it was statistically significant ($r = 0.301$). With significant coefficients at the 5%-level, the results in a positive correlation between the size variable and the decision to use derivatives in general. These results support the firm size theory by indicating that larger firms, compared to smaller, is more inclined to use derivatives. These findings are in line with the previous studies by Hagelin and Pramborg (2004).

4.8.7 Firm Size ANOVA Results

F-test was then carried out to test the null hypothesis that there was an influence of firm size on corporate hedging.

Table 4.42: Firm Size ANOVA^a

Model		Sum of Squares	Df	Mean Square	F	Sig.
1	Regression	4.285	1	4.285	14.596	.000 ^b
	Residual	43.159	147	.294		
	Total	47.445	148			

a. Dependent Variable: Corporate hedging

b. Predictors: (Constant), Firm size

The ANOVA test in Table 4.42 shows that the significance of the F-Statistic is less than 0.05 meaning that null hypothesis is rejected thus indicating an influence of firm size on corporate hedging.

4.8.8 Firm Size Goodness- of- fit Model Results

The study results showed that firm size had moderate explanatory power on corporate hedging as it accounted for 9 percent of its variability (R square = 0.090). These results concur with the findings that identified firm size as an important determinant of corporate hedging (Liu & Rodriguez , 2014).

Table 4.43: Firm Size Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.301 ^a	.090	.084	.54185

a. Predictors: (Constant), Firm size

Klimczak (2005) studied the use of hedging instruments in 161 Polish non-financial listed companies and proved that company size to be the only significant factor for a hedging decision.

4.8.9 Regression Results of Firm Size and Corporate Hedging

To assess the influence of firm size on corporate hedging in NSE, the following hypotheses were formulated as follows:-

3. Hypothesis Three

H₀₁: There is no statistically significant influence of firm size on corporate hedging in firms operating in NSE.

The aggregate mean scores of firm size were regressed against the aggregate mean score of corporate hedging and the regression results are presented in Table 4.44. From the results, the explanatory power of firm size on the variability of corporate hedging in listed firms was moderate at 30.1 percent (R square = 0.301). The individual results

showed in Table 4.45 revealed that the effect of firm size on corporate hedging was statistically significant ($\beta = -0.301$, P-value = 0.000). Hence, H_{0A} is accepted since $\beta \neq 0$ and P-value < 0.05. The fitted equation is $Y = 2.617 + 0.337 X_2$. Hence, it was concluded that there is statistically significant correlation between firm size and corporate hedging in Kenya listed companies. This was in same vein as Liu and Rodriguez (2014) study that found out that firm size was significantly positive relation with corporate hedging.

Table 4.44: Regression Coefficients of Firm Size

Model		Unstandardized Coefficients		Standardized	T	Sig.
		B	Std. Error	Beta		
1	(Constant)	2.617	.334		7.827	.000
	Size	.337	.088	.301	3.820	.000

a. Dependent Variable: Corporate hedging

4.9 Firm Managerial Risk Aversion and Corporate Hedging Results

The study sought to investigate the influence of firm managerial risk aversion on corporate hedging of firms listed on the NSE. Firm managerial risk aversion was assessed by five measures namely compensation plans of companies, executive stock options, managerial competence, CEO age and CEO years of working with company cash holdings.

4.9.1 Sampling Adequacy Results of Managerial Risk on Corporate Hedging

Prior to the extraction of the factors, several tests were used to assess the suitability of the respondent data for factor analysis. These tests include Kaiser-Meyer-Olkin (KMO) Measure of Sampling Adequacy and Bartlett's Test of Sphericity.

Table 4.45: Managerial Risk KMO and Bartlett's Testa

Kaiser-Meyer-Olkin Measure of Sampling Adequacy.		0.747
Bartlett's Test of Sphericity	Approx. Chi-Square	577.247
	Df	21
	Sig.	0.000

The KMO index, in particular, is recommended when the cases to variable ratio are less than 1:5. The KMO index ranges from zero to one, with 0.50 considered suitable for factor analysis. The Bartlett's Test of Sphericity should be significant ($p < .05$) for factor analysis to be suitable (Costello & Osborne, 2015).

The KMO measure of sample adequacy was 0.747 which indicated that the set of variables were suitable for factorization. Bartlett's test of sphericity was significant (Chi-square 577.247, $p < 0.000$).

4.9.2 Factor Analysis Results of Managerial Risk on Corporate Hedging

The analysis of variance identified the eigen values are the elements that describe the degree of change in each variable in relationship to the total overall variables. Other elements in the analysis of variance include the percentage of variance and also the cumulative percentages which were explained by the extracted factors before and after the rotation.

The seven measures of managerial risk aversions were subjected to factor analysis and the results show that there were two critical factors of managerial risk aversion affecting corporate hedging which accumulated to 82.160% of the total variance.

Table 4.46: Firm Managerial Risk Total Variance Explained

Component	Initial Eigenvalues			Extraction Sums of Squared			Rotation Sums of Squared		
	Total	Variance	Cumulative %	Total	Variance	Cumulative %	Total	Variance	Cumulative %
1	3.06	61.377	61.377	3.069	61.377	61.377	2.721	54.427	54.427
2	1.03	20.783	82.160	1.039	20.783	82.160	1.387	27.733	82.160
3	.660	13.200	95.360						
4	.139	2.786	98.146						
5	.093	1.854	100.000						

Extraction Method: Principal Component Analysis.

Factor one had the highest variance of 54.427% while factor two had 27.333%. These two factors had the greatest influence on firm managerial risk aversion and hence corporate hedging. This is because they all had eigen values of more than 1.0.

4.9.3 Firm Managerial Risk Rotation Matrix Results

Table 4.47 depicts the rotated component factor loadings for firm managerial risk aversion on corporate hedging of listed companies. From the rotation matrix in Table 4.47 all the firm managerial risk measures were grouped into two factors namely managerial ownership (MO) and asymmetric information (AI). Managerial ownership had managerial competence, compensation plans and executive stock options. Asymmetric information had CEO years and CEO age. The explanation is that most of the managerial risk aversion influence on corporate hedging was explained by these two factors. Using the two factors a scale was created using the average means of each construct. A scale of 1-5 was created and all the means of all the items in each component were analyzed (Table 4.47).

Factor one which was named managerial ownership and factor two, asymmetric information. Amount of shares and management tenure were henceforth excluded from

further analysis because they seemed to have low means and as such much of their influence could be explained by the other factors.

Table 4.47: Managerial Risk Rotation Matrix

Variables	Components	
	1	2
Managerial competence	.913	
Compensation plans	.883	
Executive stock compensation	.864	
Amount of shares owned by managers		
CEO years		.888
CEO age		.631
Management tenure		

Extraction Method: Principal component analysis

Rotation method: Varimax with Kaiser Normalization

4.9.4 Descriptive Results of Managerial Risk Aversion on Corporate Hedging

The study sought to investigate the influence of firm managerial risk aversion on corporate hedging of firms listed on the NSE. Firm managerial risk aversion was assessed by five measures namely compensation plans of companies, executive stock options, managerial competence, CEO age and CEO years of working with company cash holdings. The factors were identified after carrying out factor analysis, the two factors which had the biggest influence on managerial risk aversion. The significant results showed that the means were statistically different and the alternative hypothesis was accepted. Factor one was called managerial ownership which had the first four constructs, factor two asymmetrical information with two constructs.

Table 4.48 presents the relevant results which show that on a scale of 1 to 5 (where 5 = strongly agree; 1 =strongly disagree, most respondents agree company hedging was to a great extent influenced by executive stock options (mean score = 3.812), CEO years with the company (mean score = 3.812), compensation plans of the company (mean score =3.807), managerial competence (mean score = 3.807) and CEO age (mean score = 3.792).

Table 4.48: Managerial Risk Aversion Descriptive Results

Variables	Components		
	MO	AS	S.D
Managerial competence	3.680		0.717
Compensation plans	3.880		0.619
Executive stock compensation	3.812		0.629
CEO years		3.80	0.996
CEO age		3.792	0.808

Average mean MO = 3.791, AS= 3.796 and overall mean score = 3.7935, cronbach's alpha of 0.780.

Overall, the intensity of managerial risk averse in corporate hedging by companies was considerably moderate (overall mean score =3.7935). Cronbach Alpha was used to test the reliability of the proposed constructs. The findings indicated that firm managerial risk aversion had a coefficient of 0.780.Firm managerial risk aversion depicted value of Cronbach's Alpha above the suggested value of 0.7 thus the study was reliable.

4.9.5 Firm Managerial Risk Aversion Data Normality Results

To check for normality, the study adopted the K-S test, skewness and kurtosis statistic and auto correlation test. The null hypothesis of this test is that the data follow a

specified distribution and an alternative hypothesis tells that the data do not follow it (Baghban *et al.*, 2013).

a) Kolmogorov-Smirnov (K-S) Test

K-S test was used to decide if a sample comes from a population with a completely specified continuous distribution. Decision making process in K-S test with test is if the value Sig. < 0.05, then data is normal and if the value Sig. >0.05, then data is not normal. Based on output coefficients the obtained value sig. of firm managerial risk aversion leverage is 0.00, meaning that the value of the variables sig < 0.05, it can be concluded that there is data is normal.

Table 4.49: Managerial Risk K-S Tests of Normality

Variable	Kolmogorov-Smirnov ^a			Shapiro-Wilk		
	Statistic	df	Sig.	Statistic	df	Sig.
Managerial risk	.104	149	.000	.930	149	.000

a. Lilliefors Significance Correction

From the above table, the data on firm managerial risk aversion did not deviate significantly from the normal distribution and for this reason it was safe to use statistical tests and procedures that assume normality of the variables.

b) Skewness and Kurtosis

The skew value of a normal distribution is zero, usually implying symmetric distribution. On the other hand Kurtosis is a measure of the peakedness of a distribution (Mbui *et al.*, 2016).

Table 4.50: Managerial Risk Skewness and Kurtosis

Variable	N	Skewness		Kurtosis	
	Statistic	Statistic	Std. Error	Statistic	Std. Error
Managerial Risk	149	-1.000	.199	1.551	.395

The results presented in Table 4.50 shows that managerial risk aversion had a skewness coefficient of -1.00 and its kurtosis coefficient being 1.551. The values of asymmetry and kurtosis lies between -2 and +2 hence are considered acceptable in proving normal univariate distribution (George & Mallery, 2010).

c) Auto Correlation Test

The size of Durbin Watson statistic which depends on the number of predictors and number of observation, as conservative rule of thumb, values less than one or greater than three are definitely cause for concern (Karihe *et al.*, 2016).

Table 4.51: Managerial Risk Aversion Model Summary

Model	R	R Square	Adjusted R	Std. Error of the	Durbin-Watson
			Square	Estimate	
1	.523 ^a	.273	.268	.48437	2.249

a. Predictors: (Constant), Managerial Risk

b. Dependent Variable: Corporate Hedging

Durbin-Watson value of 2.249 indicates that the model did not suffer significantly from autocorrelation.

4.9.6 Managerial Risk Aversion and Corporate Hedging Correlation Results

In order to establish the relationship between firm managerial risk aversion and corporate hedging in Kenya listed firms a correlation matrix was used. Maina *et al.* (2016) argued Karl Pearson Correlation Coefficient is the most widely used method of measuring the degree of relationship between two variables.

Table 4.52: Firm Managerial Risk Aversion Correlations

Variables		Corporate hedging	Managerial risk aversion
Corporate hedging	Pearson Correlation	1	.523**
	Sig. (2-tailed)		.000
	N	149	149
Managerial risk	Pearson Correlation	.523**	1
	Sig. (2-tailed)	.000	
	N	149	149

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

This ranges from -1 to +1, where -1 indicates a perfect negative correlation, 0 no correlation and +1 a perfect positive correlation. This assists a researcher in determining the magnitude and direction of the relationship between two variables. Table 4.52 shows a varied degree of interrelationships between firm managerial risk aversion and corporate hedging of listed firms in Kenya. The Pearson correlation coefficient was generated at a significant level of 5 percent (2-tailed). The output indicates a moderate positive relationship between firm managerial risk aversion and corporate hedging of listed firms in NSE. Firm managerial risk aversion had positive coefficient which indicated that corporate hedging increases with increase in magnitude of firm managerial risk aversion and vice versa. This study ultimately finds a positive correlation between firm managerial risk aversion and corporate hedging of listed firms in NSE ($r = 0.523$).

This was in concurrent with Wang and Fang (2011) study on determinants of corporate hedging in USA which found that managerial incentive plays an important role in corporate hedging decisions. Firms whose managers possess greater equity ownership and fewer stock options in their compensation package tend to hedge more extensively. If managers own greater equity ownership in their companies, adverse consequence of the firms' operation will translate into greater loss of the managers' wealth, therefore managers would have stronger incentive to manage risk extensively.

4.9.7 Firm Managerial Risk Aversion on Corporate Hedging ANOVA Results

Analysis of variance (ANOVA) was used to test whether the regression analysis model used is fit or the relationship of the variables just occurred by chance. In this case the F ratio ($F=55.225$, $p=0.000$) was found to be statistically significant hence the model used for analysis was fit.

Table 4.53: Managerial Risk ANOVA^a

Model		Sum of Squares	Df	Mean Square	F	Sig.
1	Regression	12.957	1	12.957	55.225	.000 ^b
	Residual	34.488	147	.235		
	Total	47.445	148			

a. Dependent Variable: Corporate hedging

b. Predictors: (Constant), Managerial Risk

4.9.8 Firm Managerial Risk Aversion Goodness- of- fit Model Results

From the results, the explanatory power of managerial risk aversion on corporate hedging the variability was moderate at 27.3 percent (R square = 0.273). Bodnar, Harvey, Graham, and Giambona (2014) supported this study by establishing a positive relationship between firm managerial risk aversion and corporate hedging in a sample of

140 companies, presents a significant correlation between highly risk averse managers and the extent of derivatives usage at the 5% significance level. The positive coefficient indicates that highly risk averse managers are more inclined to work at companies which uses derivatives to a higher extent.

Table 4.54: Managerial Risk Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.523 ^a	.273	.268	.48437

a. Predictors: (Constant), Managerial Risk Aversion

4.9.9 Regression Results of Managerial Risk Aversion on Corporate Hedging

To establish the influence of firm managerial risk aversion on corporate hedging in listed firms hypotheses were stated as follows:-

4. Hypotheses Four

H₀₁: There is no statistically significant influence of managerial risk aversion on corporate hedging in firms operating in NSE.

The individual research findings in Table 4.55 indicated a statistically positive linear relationship between managerial risk aversion and corporate hedging ($\beta = 0.529$, P-value = 0.000). Hence, H_{0A} is accepted since $\beta \neq 0$ and P-value < 0.05. The fitted equation is $Y = 1.871 + 0.529 X_2$. Hence, there is statistically significant influence of firm managerial risk aversion on corporate hedging in Kenya listed companies.

Table 4.55: Regression Coefficients of Managerial Risk Aversion

Model	Unstandardized		Standardized		Sig.
	B	Std. Error	Beta	T	
1 (Constant)	1.871	.274		6.842	.000
Managerial Risk	.529	.071	.523	7.431	.000

a. Dependent Variable: Corporate Hedging

This was in line with Wang and Fan (2011) who found strong influence of firm managerial risk aversion on corporate hedging and that among the three proxies for managerial incentive: number of managerial stock options, managerial cash compensation, and equity ownership, managerial stock options appear to be the only variable which is consistently significant in the regression specifications with pooled data as well as annual data. This is strong evidence that option-based compensation plays an important role in corporate hedging decisions. More option awards to the management lead to less risk management activities.

4.10 Firm Foreign Exchange on Corporate Hedging Results

The study sought to investigate the influence of level of firm foreign exchange exposure on corporate hedging of firms listed on the NSE. Firm foreign exchange exposure was assessed by four measures namely foreign derivative, foreign denominated debts, combined use of foreign debts and foreign derivatives and documented policy on derivative.

4.10.1 Sampling Adequacy of Foreign Exchange Exposure on Corporate Hedging

Prior to the extraction of the factors, several tests were used to assess the suitability of the respondent data for factor analysis. These tests include Kaiser-Meyer-Olkin (KMO) Measure of Sampling Adequacy and Bartlett's Test of Sphericity. The KMO index, in

particular, is recommended when the cases to variable ratio are less than 1:5. The KMO index ranges from zero to one, with 0.50 considered suitable for factor analysis. The Bartlett's Test of Sphericity should be significant ($p < .05$) for factor analysis to be suitable (Costello & Osborne, 2015). The KMO measure of sample adequacy was 0.548 which indicated that the set of variables were suitable for factorization. Bartlett's test of sphericity was significant (Chi-square 203.435, $p < 0.000$).

Table 4.56: FX KMO and Bartlett's Test

Kaiser-Meyer-Olkin Measure of Sampling Adequacy.		.548
Bartlett's Test of Sphericity	Approx. Chi-Square	203.435
	Df	6
	Sig.	.000

4.10.2 Factor Analysis of Foreign Exchange Exposure on Corporate Hedging

The broad purpose of factor analysis is to summarize data so that relationships and patterns can be easily interpreted and understood. It is normally used to regroup variables into a limited set of clusters based on shared variance. Hence, it helps to isolate constructs and concepts (Cohen *et al.*, 2011).

The four measures of foreign exchange exposure were subjected to factor analysis and the results show that there were two critical factors of firm foreign exchange exposure affecting corporate hedging which accumulated to 83.151% of the total variance. Factor I had the highest variance of 56.440% while factor two had 26.712%. These two factors had the greatest influence on firm foreign exchange exposure and hence corporate hedging. This is because they all had eigen values of more than one.

Table 4.57: Firm Foreign Exchange Exposure Total Variance Explained

Component	Initial Eigenvalues			Extraction Sums of Squared			Rotation Sums of Squared		
	Total	Variance	Cumulative %	Total	Variance	Cumulative %	Total	Variance	Cumulative %
1	2.25	56.440	56.440	2.258	56.440	56.440	1.908	47.691	47.691
2	1.06	26.712	83.151	1.068	26.712	83.151	1.418	35.461	83.151
3	.441	11.023	94.174						
4	.233	5.826	100.000						

Extraction Method: Principal Component Analysis.

4.10.3 Firm Foreign Exchange Exposure Rotation Matrix Results

Table 4.60 depicts the rotated component factor loadings for firm foreign exchange exposure on corporate hedging of listed companies.

Table 4.58: Foreign Exchange Rotation Matrix

Variables	Components	
	1	2
Documented firm policy on derivatives use	.922	
Combined use of foreign debt and foreign derivatives	.841	
Foreign derivatives		.964
Foreign currency denominated debts		.679

Extraction Method: Principal component analysis

Rotation method: Varimax with Kaiser Normalization

From the rotation matrix in Table 4.60 all the firm foreign exposure measures were grouped in to two factors namely exchange and exposure. Exchange (EXC) had documentation policy on derivative use and combined use of foreign debt and foreign derivatives. Exposure (EXP) had foreign derivatives and foreign currency denominated debts .The explanation is that most of the foreign exchange exposure influence on corporate hedging was explained by these two factors. Using the two factors a scale was created using the average means of each construct. A scale of 1-5 was created and all the means of all the items in each component were analyzed.

4.10.4 Descriptive Results of Foreign Exchange Exposure

The study sought to investigate the influence of level of firm foreign exchange exposure on corporate hedging of firms listed on the NSE. Firm foreign exchange exposure was assessed by four measures namely foreign derivative, foreign denominated debts, combined use of foreign debts and foreign derivatives and documented policy on derivative. The significant results showed that the means were statistically different and the alternative hypothesis was accepted. Factor 1 was called foreign debt which had the first two constructs, factor two was foreign derivative with two constructs whose means have been identified in Table 4.59.

Table 4.59 presents the relevant results which show that on a scale of 1 to 5 (where 5 = strongly agree; 1 =strongly disagree, most respondents agree company hedging was to a great extent influenced by foreign derivative (mean score = 4.416), combined use of foreign debt and foreign derivatives (mean score =3.846),foreign denominated debts (mean score = 3.738) and documented policy on derivative use (mean score = 3.658).

Table 4.59: Descriptive Results of Foreign Exchange Exposure

Variables	Components		
	EXC	EXP	S.D
Documented firm policy on derivatives use	3.738		0.950
Combined use of foreign debt and foreign derivatives	3.846		0.760
Foreign derivatives		4.416	0.708
Foreign currency denominated debts		3.723	0.538
Average mean EXC =3.792, EXP =4.0695 and overall mean score = 3.930, cronbach's alpha of 0.710.			

Overall, the intensity of foreign exchange exposure use in corporate hedging by companies was considerably high (overall mean score = 3.9145). The reliability tests for the firm foreign exchange exposure study variables gave an overall cronbach's coefficient alpha of 0.710. Cronbach Alpha was used to test the reliability of the proposed constructs. Firm foreign exchange exposure constructs depicted that the value of cronbach's Alpha are above the suggested value of 0.7 thus the study was reliable.

4.10.5 Firm Foreign Exchange Data Normality Results

To check for normality, the study adopted the K-S test, skewness and kurtosis statistic and auto correlation test. The null hypothesis of this test is that the data follow a specified distribution and an alternative hypothesis tells that the data do not follow it (Baghban *et al.*, 2013).

a) Kolmogorov-Smirnov (K-S) Test

K-S test was used to decide if a sample comes from a population with a completely specified continuous distribution. Decision making process in K-S test with test is if the value Sig. < 0.05, then data is normal and if the value Sig. >0.05, then data is not

normal. Based on output coefficients the obtained value sig. of firm foreign exposure is 0.00, meaning that the value of the variables sig < 0.05, it can be concluded that there is data is normal .From the above table, the data on firm leverage did not deviate significantly from the normal distribution and for this reason it was safe to use statistical tests and procedures that assume normality of the variables.

Table 4.60: FX K-S Tests of Normality

Variable	Kolmogorov-Smirnov ^a			Shapiro-Wilk		
	Statistic	df	Sig.	Statistic	df	Sig.
FX Exposure	.187	149	.000	.878	149	.000

a. Lilliefors Significance Correction

b) Skewness and Kurtosis

The skew value of a normal distribution is zero, usually implying symmetric distribution. On the other hand Kurtosis is a measure of the peakedness of a distribution (Mbui *et al.*, 2016). The results presented in Table 4.61 shows that firm foreign exchange exposure managerial had a skewness coefficient of -1.303 and its kurtosis coefficient being 2.306. The values of asymmetry and kurtosis lies between -2 and +2 hence are considered acceptable in proving normal univariate distribution (George & Mallery, 2010).

Table 4.61: FX Skewness and Kurtosis

	N	Skewness		Kurtosis	
	Statistic	Statistic	Std. Error	Statistic	Std. Error
Foreign Exchange Exposure	149	-1.303	.199	2.306	.395

c) Auto Correlation Test

The size of Durbin Watson statistic which depends on the number of predictors and number of observation, as conservative rule of thumb, values less than 1 or greater than 3 are definitely cause for concern (Karihe *et al.*, 2016).

Table 4.62: FX Durbin –Watson Test

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Durbin-Watson
1	.647 ^a	.418	.414	.43327	2.634

a. Predictors: (Constant), Foreign Exchange Exposure

b. Dependent Variable: Corporate Hedging

Durbin-Watson value of 2.2634 indicates that the model did not suffer significantly from autocorrelation.

4.10.6 Firm Foreign Exchange Exposure Correlation Results

In order to establish the relationship between firm foreign exchange exposure and corporate hedging in Kenya listed firms a correlation matrix was used. Table 4.65 shows a varied degree of interrelationships between firm foreign exchange exposure and corporate hedging of listed firms in Kenya. The Pearson correlation coefficient was generated at a significant level of 5 percent (2-tailed). The output indicates a strong positive relationship between firm foreign exchange exposure and corporate hedging of listed firms in NSE. Firm foreign exchange exposure had positive coefficient which indicated that corporate hedging increases with increase in magnitude of firm foreign exchange exposure and vice versa.

Table 4.63: Firm Foreign Exchange Exposure Correlations

Variables		Corporate Hedging	Foreign Exchange Exposure
Corporate Hedging	Pearson Correlation	1	.647**
	Sig. (2-tailed)		.000
	N	149	149
Foreign Exchange Exposure	Pearson Correlation	.647**	1
	Sig. (2-tailed)	.000	
	N	149	149

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

The strongest relationship was observed between firm foreign exchange exposure and corporate hedging ($r = 0.647^*$). This is in line with Matolo (2014) study which concluded that foreign exchange risk positively and significantly influences the firm value for commercial state corporations in Kenya. The study therefore concludes that foreign exchange risk positively and significantly influences the firm value for commercial state corporations in Kenya.

4.10.7 Firm Foreign Exchange Exposure ANOVA Results

Analysis of variance (ANOVA) was used to test whether the regression analysis model used was fit or the relationship of the variables just occurred by chance. The F statistics tends to be greater when the null hypothesis of independence is not true. P values of less than 0.05 indicates that the F statistic is high and that the null hypothesis of independence needs to be rejected since it is not true.

Table 4.64: FX ANOVAa

Model		Sum of Squares	Df	Mean Square	F	Sig.
1	Regression	19.850	1	19.850	105.742	.000 ^b
	Residual	27.595	147	.188		
	Total	47.445	148			

a. Dependent Variable: Corporate Hedging

b. Predictors: (Constant), Foreign Exchange Exposure

In this case the F ratio (F=105.742, p=0.000) was found to be statistically significant hence the model used for analysis was fit. These results are presented in table above.

4.10.8 Firm Foreign Exchange Goodness- of- fit Model Results

The results below showed that firm foreign exposure had explanatory power on corporate hedging as it accounted for 41.8 % percent of its variability (R square = 0.418). These findings were supported by a study on the influence of foreign exchange exposure on corporate hedging which established a moderate positive relationship between foreign exchange exposure and corporate hedging (Wang *et. al.*, 2010).

Table 4.65: FX Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.647 ^a	.418	.414	.43327

a. Predictors: (Constant), Foreign exchange exposure

Afza and Alam (2011) study on determinants of corporate hedging policies in Pakistan of 105 non-financial firms listed on Karachi Stock Exchange for the period of 2004-2008. Though, consistent with the theory foreign exchange exposure demonstrated

positive effect on firms hedging policies. Corporations with higher foreign exchange exposure were found to be the significant user of foreign exchange derivative instruments.

4.10.9 Regression results of Foreign Exchange Exposure on Corporate Hedging

To establish the influence of foreign exchange exposure on corporate hedging on listed firms in NSE. The hypotheses were stated as follows:-

5. Hypothesis Five

H₀₁: There is no statistically significant influence of firm foreign exchange exposure on corporate hedging in firms operating in NSE.

Table 4.66: Regression Coefficients of Firm Foreign Exchange Exposure

Model	Unstandardized Coefficients		Standardized	T	Sig.
	B	Std. Error	Coefficients		
1 (Constant)	1.260	.257		4.893	.000
FX	.670	.065	.647	10.283	.000

a. Dependent Variable: Corporate Hedging

The aggregate mean scores of the foreign exchange exposure on corporate hedging were regressed against the aggregate mean scores of on corporate hedging and the research findings were outlined in Table 4.66. The study results showed that foreign exchange exposure had explanatory power on corporate hedging as it accounted for 41.8 percent of its variability (R square = 0.418). The individual study results in Table 4.66 showed that there was statistically significant positive linear relationship between foreign exchange exposure and corporate hedging ($\beta = 0.647$, P-value = 0.000).

The fitted equation is $Y = 1.260 + 0.670 X_2$. Hence, H_{0A} is accepted since $\beta \neq 0$ and $P\text{-value} < 0.05$. Hence, there is statistically significant influence of firm foreign exchange exposure on corporate hedging in Kenya listed companies.

This was supported by Wanja (2013) results of the study confirming that those companies that employ hedging methods perform better, sometimes from loss making situations to profitability. The study concludes that listed companies that have foreign currency transactions should employ hedging mechanisms to plan for forecasted future transactions that entail purchase of foreign currency to meet their foreign currency obligations. It was further supported by Luo (2016) who found that the use of foreign exchange derivatives brought positive but insignificant hedging premium to the corporate value on average.

4.11 Summary of Study Variables Results

Firm corporate hedging was assessed by five financial determinants measures, namely firm liquidity, firm leverage, firm size, firm managerial risk aversion and firm foreign exchange.

Table 4.67: Summary of Study Variables

Variable	Mean	Numerical Scale	Survey Label
Firm Liquidity	3.60	4	Agree
Firm Leverage	3.671	4	Agree
Firm Size	3.7565	4	Agree
Firm Managerial Risk	3.7935	4	Agree
Firm Foreign Exchange	3.90	4	Agree
Corporate Hedging	3.882	4	Agree

The significant results showed that the means were statistically different and the alternative hypotheses were accepted. Table 4.67 presents the relevant results which show that on a scale of 1 to 5 (where 5 = strongly agree; 1= strongly disagree, most respondents agree (4) that firm liquidity, firm leverage, firm size, firm managerial risk, and firm foreign exchange exposure have significant influence on corporate hedging. Overall, the intensity of financial determinants on corporate hedging by companies was considerably high since most respondents agreed with them.

4.12 Overall Goodness of Fit Results

The coefficient of multiple determinants denoted by R^2 , is a measure of proportion of the variations of the regress and explained by the corresponding explanatory variables. The values of R^2 lie between zero and unity, $0 \leq R^2 \leq 1$. A value of unity implies that 100 per cent of the variations of Y have been explained by the explanatory variables. On the other hand, a value of zero implies that no variations have been explained at all (Ithaka, 2013).The overall goodness of fit was obtained through regressing the goodness of fit for all the independent variables and the results were depicted in Table 4.68.

Table 4.68: Overall Model Summary

	R	Adjusted		
Model	R	Square	R Square	Std. Error of the Estimate
1	.712 ^a	.507	.490	.40444

a. Predictors: (Constant),FX,LIQ, SIZE, MANR,LEVERAGE

From the study, a value of 0.507 is attained for the coefficient. This means that 50.7 per cent of the variations of the dependent variable have been explained by the explanatory variations. Only 49.3 per cent of the variations are unexplained and are taken care of by the error term. The conclusion is that the regression model at issue has a good fit.

4.13 Overall Analysis of Variance (ANOVA) Results

Financial determinants influence on corporate hedging of listed firms ANOVA test was done to test the overall significance of the variables firm liquidity, firm leverage, firm size, firm managerial risk aversion and firm foreign exchange exposure influencing corporate hedging . Table 4.69 presents the results of analysis. The overall ANOVA highlighted in Table 4.69 showed that the F-value of the overall regression model was 29.10, $df = (5,143)$ at $p < 0.05$ and the significance value of the model was 0.000. The F statistics tends to be greater when the null hypothesis of independence is not true. P values of less than 0.05 indicates that the F statistic is high and that the null hypothesis of independence needs to be rejected since it is not true. The significance value of 0.000 implied that the study variables firm leverage, firm size, firm managerial risk aversion and firm foreign exchange exposure if regressed together had a positive influence on corporate hedging.

Table 4.69: Overall ANOVA

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	24.054	5	4.811	29.410	.000 ^b
	Residual	23.391	143	.164		
	Total	47.445	148			

a. Dependent Variable: Corporate Hedging

b. Predictors: (Constant), Foreign Exchange Exposure, Liquidity, Firm Size, Managerial Risk, Firm Leverage

4.14 Multiple Regression Results

To test the five hypotheses all at once, the multiple linear regression model was done in the SPSS version 22 which included independent variables; firm liquidity, firm leverage,

firm size, firm managerial risk aversion and firm foreign exchange exposure so as to determine the required coefficients and p-values for establishing significance. To form the basis of testing the hypothesis set, the test was done at significance level of $p < 0.05$ such that when p-value was more than the significance level, the model was considered insignificant. Table 4.70 presents the results of the analysis.

After the normality of the data in the regression model is met, the next step to determine whether there is similarity between the independent variables in a model, it is necessary to perform multicollinearity test. Similarities between the independent variables will result in a very strong correlation. In addition, multicollinearity test is done to avoid habits in the decision making process regarding the partial effect of independent variables on the dependent variable.

Multicollinearity occurs when two or more predictors in the model are correlated. This can bring a problem because it leads to increased standard error of estimates and it can give misleading and confusing results in a study. Moderate multicollinearity may not be a problem but a severe one can increase the variance of the coefficient of estimates and make them sensitive to minor changes. To test for multicollinearity the study adopted the variance inflation factors and the tolerance levels.

Table 4.70: Regression coefficients of financial determinants on corporate hedging

Model	Unstandardized Coefficients		Standardized Coefficients			Collinearity Statistics	
	B	Std. Error	Beta	T	Sig.	Tolerance	VIF
1 (Constant)	1.399	.287		4.874	.000		
LIQ	-.106	.103	-.095	-1.030	.305	.405	2.466
LEVE	.442	.128	.414	3.460	.001	.241	4.151
SIZE	-.546	.128	-.487	-4.270	.000	.265	3.774
MANR	.291	.109	.287	2.658	.009	.296	3.376
FX	.555	.083	.535	6.717	.000	.543	1.843

a. Dependent Variable: Corporate Hedging

Variance Inflation Factor (VIF) and Tolerance are indicators of multicollinearity. Computationally, it is defined as the reciprocal of tolerance: $1 / (1 - R^2)$. In most cases researchers desire low values of VIF since higher values of VIF are deemed to adversely affect the results from regression analysis. VIF indicates the magnitude of the inflation in the standard errors associated with a particular beta weight that is due to Multicollinearity (Ayako & Wamalwa, 2015).

Making process in multicollinearity test if the VIF value lies between 1-10, then there is no multicollinearity. If the $VIF < 1$ or > 10 , then there is multicollinearity. Based on the coefficients output - collinearity statistics firm liquidity obtained VIF value of 2.466, firm leverage 4.151, firm size 3.774, firm managerial risk aversion 3.376 and firm risk exposure 1.843 meaning that the VIF value obtained is between 1 to 10, it can be concluded that there is no multicollinearity symptoms.

The VIF values presented in the table indicates that the data does not suffer from multicollinearity since the values are less than 10 as it is recommended that the VIF values should not be in excess of 10 otherwise they will be considered to be multicollinear. Therefore, estimated variables in the model, firm liquidity, firm leverage, firm size, firm managerial risk aversion and firm foreign exposure can be measured in one equation.

In order to determine the influence of financial determinants on corporate hedging of listed firms in NSE, overall MLR analysis and individual determinants of corporate hedging were regressed against the aggregate mean score of corporate hedging. The MLR model highlighted in table 4.70 showed that firm leverage, firm size, managerial risk aversion and firm foreign exchange exposure had a significant effect with p-values of 0.001, 0.000, 0.009 and 0.00 respectively. The research therefore results in acceptance of the null hypothesis of these determinants of corporate hedging because ($p > 0.05$). Firm liquidity had p-value of 0.305 resulted in rejection of hypothesis that firm liquidity influence corporate hedging of listed firms of NSE when combined with other independent variables.

$$Y = 1.399 - 0.106 X_1 + 0.442 X_2 - 0.546 X_3 + 0.291 X_4 + 0.555 X_5$$

Where:

Y = Corporate Hedging

$\beta_1 - \beta_5$ = 1.399, -0.106, 0.442, 0.546, 0.299 and 0.555 are estimate of the expected increase or decrease in determinants of corporate hedging .

X_1 = Firm Liquidity

X_2 = Firm Leverage

X_3 = Firm Size

X_4 = Firm Managerial Risk Aversion

X_5 = Firm Foreign Exchange exposure

The regression results showed that a unit change in firm liquidity resulted in 10.6 percent ($\beta = -0.106$) change in corporate hedging while a unit change in firm leverage resulted in 44.2 percent ($\beta = 0.442$) change in corporate hedging. On the other hand, a unit change in firm size resulted in decrease in 54.6 percent ($\beta = -0.546$) change in corporate hedging, managerial risk aversion affected corporate hedging by 29.1 percent ($\beta = 0.291$). Firm foreign exchange exposure influenced corporate hedging by 55.5 percent ($\beta = 0.555$).

4.15 Summary of Hypotheses

The following Table 4.71 below gives a summary of hypotheses of the study as per objective.

Table 4.71: Summary of Hypotheses

Hypotheses	Accept/Reject
There is significant influence of firm liquidity on corporate hedging	Accepted
There is significant influence of leverage on corporate hedging	Accepted
There is significant influence of firm size on corporate hedging	Accepted
There is significant influence of managerial risk on corporate hedging	Accepted
There is significant influence of foreign exchange on corporate hedging	Accepted

CHAPTER FIVE

SUMMARY, CONCLUSIONS AND RECOMMENDATIONS

5.1 Introduction

The chapter presents a summary of the discussions of the study results and conclusions made from the findings of the study. The chapter also highlights the recommendations of the study and suggested areas for further research.

5.2 Summary Results

This section summarizes findings of the study in terms of study objectives i.e. influence of financial determinants on corporate hedging of Kenya listed firms.

5.2.1 The influence of Firm Liquidity on Corporate Hedging

Firm liquidity was assessed by six measures namely cash holdings, lines of credit, corporate profits, uniqueness of firm products, dividends payout and SGA. The study results agreed with this study that firm liquidity positively influences corporate hedging (Liu, 2014). Liquidity is positive and significant to corporate hedging because in the area of short-term liquidity, we find that the number of firms paying dividends and the dividend payouts are higher after the introduction of derivatives. Overall, these results can be interpreted as evidence that firms introduce hedging to lower expected costs of financial distress (Iqbal, 2015). This was also consistent with Afza and Alam (2015) study which found that firm liquidity is positive and significant on corporate hedging because it is used as a potential instrumental variable as hedging theorists argue that firms are holding large cash as a precautionary motive which serves as a substitute of derivative usage.

The study found that there is a significant relationship between corporate hedging and firm liquidity. This was supported by Malikanzia and Gekara (2013) whose study attempted to establish factors contributing to the use of letter of credit in international business among forty companies from the manufacturing sector in Kenya considering industries on areas of Plastics and Rubber, Chemicals and Allied, Building, Mining and Construction, Food and Beverages and Pharmaceuticals and Medical Equipment's considered to be using LC for its payments. From the study it was confirmed that Letter of Credit has been very much appreciated by most of the exporter /importer companies it was significant and positive to corporate hedging.

Hypothesis testing of firm liquidity influence on corporate hedging was done using regression analysis. Results were that firm liquidity has a significant influence on corporate hedging in listed companies in Kenya. The results of the regression analysis showed a significant contribution of firm liquidity on corporate hedging. This was in line with Liu and Rodriguez (2014) study which shows that there are strong evidences in support for relationship between firm liquidity and corporate hedging. The findings were consistent with a study of Chaudhry *et al.*, (2014) whose main findings suggest that there is a strong relationship between derivatives usage and firm liquidity in Pakistan listed firms.

5.2.2 The influence of Firm Leverage on Corporate Hedging

Firm leverage was assessed using the following variables, equity offerings, market price of equity, availability and need of internal funds, debt covenants and debt capacity. The study found out that firm leverage had a significant and positive influence on corporate hedging. Firm leverage was positive and significant to corporate hedging because results show that the hedge firms have higher debt than the non-hedge firms in the years prior to the introduction of derivatives and that the level of debt decreases in subsequent years (Iqbal, 2015).

This study provides empirical evidence of the relationship between firm leverage and corporate hedging of Kenya listed companies. Empirical results support that corporate hedging is positively correlated with firm leverage. This was supported by Daka and Basu (2016) who examined relation between hedging and leverage using Indian firm data in the period 2002-2013 as the growth of Indian derivative markets has been rapid during this period following the economic liberalization. The analysis was carried out using a two-stage instrumental variable regression framework. The results shows that firm leverage have positive influence on corporate hedging for Indian firms. The findings were also in same vein as study of Kintu and Ngugi (2013) who find leverage is positive and significant to corporate hedging because majority of the respondents indicated that long term debt affected the hedging practices of companies listed in NSE to a very great extent.

Study found that firm leverage was positive and significant to corporate hedging .This was supported by Park and Kim (2013) their study empirically investigated the impacts of the financial derivative usage on corporate debt capability and stock return using Korean non-financial firms' data from 2002 to 2012. Empirical results support the conjecture that financial derivatives tend to increase debt capability by transferring risks and reducing financial cost. Derivative user firms turn out to have better stock market performance especially during period with the tight credit market. Financial derivatives usage of the individual firm plays an important role in increasing debt capability and achieving better stock performances. Other studies also supported the findings of this study such as a study of Babajide and Ozkan (2014) which found positive and significant relation between hedging and leverage. The result was consistent with financial distress hypothesis, financially leveraged firms were assumed to be the derivative user in order to reduce variability in net income (Afza & Alam, 2011).

Regression analysis was used to test firm size hypotheses that there is a significant influence of firm leverage on corporate hedging of listed firms in NSE. The regression results showed a positive relationship between firm leverage and corporate hedging. To further validate the results the ANOVA test showed a statistically significant positive

relationship between firm leverage and corporate hedging. The findings were consistent with Kariuki *et al.* (2015) study which concluded that CFOs of private manufacturing firms in Kenya are of the view that firm leverage have significant influence on corporate hedging.

5.2.3 The influence of Firm Size on Corporate Hedging

Firm size was assessed by five measures namely willingness to hedge, cost of setting hedging departments, firm investment opportunity, internal generated funds and dividends payments. The study found out that firm size significantly and positively influence corporate hedging. This study highlighted the importance of firm size to corporate hedging in Kenya. Carter *et al.* (2006) identified that size of firm has a highly significant relationship with cash holdings and an increase in size of firms leads to higher cash balances therefore larger firms tend to have higher cash balances as against smaller firms. These results were in line with Wang and Fan (2011) who found that those large firms tend to hedge more than small firms because large firms enjoy greater economies of scale.

The Regression analysis was used to test firm size hypotheses that there is a significant influence of firm size on corporate hedging of listed firms in NSE. The regression results showed a positive relationship between firm size and corporate hedging. These results concur with the findings of Liu and Rodriguez (2014) who found that firm size had a significant positive relation with corporate hedging. This indicates that transaction costs and economies of scale are essential determinants of corporate. This was supported by Vural-Yavas (2016) study who examined the determinants of corporate hedging in emerging markets. The analysis was conducted using data from non-financial companies listed in Borsa Istanbul (BIST) between 2010 and 2014. The study found positive impact of firm size on the likelihood of hedging in Turkey; larger firms benefit from the economies of scale sufficiently and use financial derivatives more easily.

To further validate the results the ANOVA test showed a statistically significant positive relationship between firm size and corporate hedging .These results were consistent with study of Babajide and Ozkan (2014) in their study of determinants of corporate hedging,in which firm size of a firm appears to be an important factor in firm's decision to hedge with derivative. The result implies that big firms have the incentive to hedge during financial crisis. The study therefore interpret the result to be an indication that smaller firms decide against hedging probably because they find it too difficult or costly to access financial derivative markets during the crisis period.

5.2.4 The influence Firm Managerial Risk Aversion on Corporate Hedging

Firm managerial risk aversion was assessed by five measures namely compensation plans of companies, executive stock options, managerial competence, CEO age and CEO years of working with company cash holdings. The significant results showed that firms managerial risk aversion positively influence corporate hedging . This results is in line with Zhang *et al.* (2016) who used the managerial risk preferences of 308 state-owned enterprises (SOEs) management personnel in China . The results show that older management personnel are more risk averse. Management personnel who have higher positions are more risk averse. These results were consistent with another study on determinants of corporate hedging policies in Pakistan which found significant positive influence of firm managerial risk aversion on corporate hedging (Afza & Alam ,2011).

Many companies nowadays compensate their managers through stock options and hope to link pay with stock price performance, in this way, firms can align managers' incentives more closely with those of other shareholders. Findings of the study imply that managers may divert corporate resources to lower down the risk exposure of their own personal wealth without maximizing firm value for shareholders. Awarding more stock options may encourage managers to move away from an optimal level of risk management. This may lead to agency cost and managerial incentive need to be taken into consideration when designing risk management strategies.The study established that most company's managers appreciate the positive role played by derivatives in their

companies because it results in increase in shareholders' value. As a result most will have to embrace derivatives use in areas such as the reduction of costs and improvement of efficiency. The results identified with a study on determinants of corporate hedging in Malaysia established a positive and significant influence of firm managerial risk aversion on corporate hedging (Ameer, 2010).

To further validate the results the ANOVA test showed a statistically significant positive relationship between firm managerial risk aversion and corporate hedging. This was in same nerve as Abdioğlua (2016) study which examines the impact of managerial ownership on corporate hedging of the firms listed in Borsa Istanbul 100 index between 2005 and 2013. The findings indicate that managerial ownership aligns the interests of managers with those of shareholders. These firms with managerial ownership prefer to hold less cash. Managers practice their own interests at the expense of shareholders' and the firms with higher level of managerial ownership hold more cash.

5.2.5 The influence of Foreign Exchange Exposure on Corporate Hedging

Firm foreign exchange exposure was assessed by four measures namely foreign derivative, foreign denominated debts, combined use of foreign debts and foreign derivatives and documented policy on derivative. The significant results showed that the means were statistically different and the alternative hypothesis was accepted. This was supported by Afza and Alam (2011) study which found out positive relationship between firms' ability to pay its finance costs and usage of hedging instruments explained that in order to avoid any adverse circumstances firms that were still in a position to pay their finance costs were using interest rate and foreign currency derivate instruments. The study found out that foreign exchange exposure had a significant positive effect on corporate hedging because risk reduction benefits of FX usage and finds empirically prove that Kenyan firms are using FCD and FDD instruments for hedging purpose. Study helps corporations in identifying the risk reduction incentives of using FCDs and FDD for firms no FX exposure as they are unable to minimize their risk through operating and natural hedging techniques.

Considering the usage of FCD and FDD for both hedging and speculation, researchers have mostly examined the effect of FCD usage on firm's risk in countries having developed derivative market, though the results are not conclusive in nature. Extending the existing literature, the primary contribution of the current study is to empirically test the risk reduction effects of FCD usage by using Kenyan firm's as their derivative market is still an amateur. Empirical findings imply that despite of under-developed or growing derivative market; usage of FCD and FDD instruments decreases volatility in firm's operating cash flows. Study further supports complementary hypothesis, aligned with Kim *et al.* (2006), that operationally hedged firms are using financial hedging in parallel, to hedge firm's foreign exchange exposure.

The study found that firm foreign exchange exposure have statistically influence on corporate hedging .Findings were in line with Afza & Alam (2016) study which examined influence of firm foreign exposure using FCD instruments on corporate hedging by using the data of 181 Pakistani non- financial firms for the period 2004-2010. Their empirical findings support significant influence of firm foreign exposure on corporate hedging by using FCD instruments. The foreign exchange risk is important since Kenya is part of the Global Village and spills of international financial crises such as fluctuations in foreign exchange rates and inflation affect the listed companies drastically. The estimated results support the hedging theory by Smith and Stulz (1985) that FX derivatives are used to enhance shareholder's wealth by reducing firm's FX exposure.

Regression analysis was used to test firm size hypotheses that there is a significant influence of firm foreign exchange exposure size on corporate hedging of listed firms in NSE. The regression results showed a positive relationship between firm foreign exchange exposure and corporate hedging. The results identified with a study on firm foreign exchange exposure and corporate hedging in Kenya which also established a positive relationship (Mwanza, 2014). To further validate the results the ANOVA test showed a statistically significant positive relationship between firm size and corporate

hedging. These results were consistent with another study of Bhuiya and Ahmed (2015) that found out positive relationship between corporate hedging and foreign exchange.

5.3 Conclusions

The conclusions were based on the objectives of the study i.e. that is influence of financial determinants on corporate hedging on listed firms in Kenya.

5.3.1 Firm Liquidity and Corporate Hedging

The individual regression results reveal statistically significant positive linear relationship between firm liquidity and corporate hedging . It was concluded that there is statistically significant influence of firm liquidity on corporate hedging in Kenya listed companies. Firm liquidity and corporate hedging were found to have moderate correlation in listed firms in NSE . The study In this study concluded that there is a significant relationship between corporate hedging and firm liquidity.

5.3.2 Firm Leverage and Corporate Hedging

The results indicated that the explanatory power of firm leverage on corporate hedging of listed firms was slightly high as it accounted significant of the variability of change in the corporate hedging . The individual results revealed that the effect of firm leverage on corporate hedging was statistically significant. Hence, it was concluded that there is a significant influence of firm leverage on corporate hedging .

5.3.3 Firm Size and Corporate Hedging

The firm size of the firm, however, had logical and explainable sign it was statistically significant . With significant coefficients, the results had a positive correlation between the firm size and corporate hedging. These results support the firm size theory by indicating that larger firms, compared to smaller, is more inclined to use derivatives. The

study concluded that there is a statistically significant influence of firm size on corporate hedging.

5.3.4 Firm Managerial Aversion and Corporate Hedging

The study concluded that there is a significant influence of firm managerial risk aversion on corporate hedging . Regression analysis was used to test firm managerial risk aversion hypotheses that there is a significant influence of firm managerial risk aversion on corporate hedging of listed firms in NSE. The regression results showed a positive relationship between firm managerial risk aversion and corporate hedging. This study ultimately finds a positive correlation between firm managerial risk aversion and corporate hedging of listed firms in NSE . The study concluded that there is a statistically significant influence of firm managerial risk on corporate hedging .

5.3.5 Firm Foreign Exchange Exposure and Corporate Hedging

The study results show that there was statistically significant positive linear relationship between foreign exchange exposure and corporate hedging . Hence, it was concluded that there is statistically significant correlation between firm foreign exchange exposure and corporate hedging in Kenya listed companies. The significant results showed that firm foreign exchange exposure is statistically significant and the alternative hypothesis was accepted. It was concluded that there is a statistically significant influence of firm foreign exchange exposure on corporate hedging .

5.4 Recommendations

The recommendations were based on the objectives of the study i.e. that is influence of financial determinants on corporate hedging on listed firms in Kenya.

5.4.1 Firm Liquidity and Corporate Hedging

It is critical for firms that deal actively in financial instruments, including marketable securities and derivatives, to measure the amount of liquidity inherent in such contracts. Not surprisingly, these measures are of particular interest to banks, securities firms, funds, and insurers, because financial instruments comprise the bulk of their accounts, and create or absorb most of their cash.

A firm attempting to manage its financial asset liquidity risk needs to develop a strategy where it can sell or pledge a quantity of assets with particular liquidity characteristics while minimizing the value reduction in all remaining assets. It seeks to maximize the asset cash flows it receives, where each asset is governed by a specific price and liquidation horizon. To do this two factors must be considered: a forecast of changes impacting the market risk component of a portfolio's risk (that is, determining the change in asset value due to market-wide movements, with no influence by the firm's own actions), and a determination of possible price declines owing to the firm's own selling actions.

The findings of current empirical investigation also suggest that the policy makers should develop a well-organized exchange traded derivative market in Kenya for the benefit of financially constrained firms with highly variable cash flows and foreign sales. The study also highlights that effective usage of derivative instruments may enable corporations to define their hedging policies that are compatible with firm's internal investment and financing policies. Therefore, properly planned and implemented investment, financing and hedging policies, will not only facilitate firms in achieving their primary goal of shareholders' wealth maximization, but may also enhance economic stability.

5.4.2 Firm Leverage and Corporate Hedging

The study recommends the importance of financial leverage on the listed firms. The positive relationship shows that firms must be careful on how much debt they take as this may affect their return on assets. Management which is heedless on the costs and risks associated with financial leverage may lead to reduced profitability. The older large firms have a better market value this shows the importance of increased considerations to the new small and medium sized firms by the government of Kenya. It is encouraging to see that NSE has established Growth Enterprise Market Segment (GEMS) to facilitate in the growth of the small and medium firms as market is very competitive. More effort is needed to also facilitate the young companies in achieving their goals. A very important implication of this study is the behaviour of the investors at the NSE towards the established blue chip firms which reflects their high levels of confidence on these firms.

Even companies with conservative capital structures - no debt, lots of cash - can benefit from hedging. At first glance, it might appear that a company with a very conservative capital structure should be less interested in risk management. After all, such a company could adjust rather easily to large drop in cash flow by borrowing at relatively low cost. It wouldn't need to curtail investment, and corporate value would not suffer much. The basic objective of risk management - aligning the supply of internal funds with the demand for investment funding has less urgency in this type of situation because managers can easily adjust to a supply shortfall by borrowing.

5.4.3 Firm Size and Corporate Hedging

Pearson correlation was used to get empirical results related to model as it qualifies all the necessary conditions required for its implementation. Correlation coefficients of the firm size shows positive significant relationship with growth options, which means that more the finance opportunities the more will be the economies of scale as well as risk management. This study gave a bottom line regarding derivative usage that it helps in

mitigating the risk, as the size of the firm and growth options are the dominating factors in this regard.

5.4.4 Firm Managerial Aversion and Corporate Hedging

This study recommends studies how private information in hedging outcomes on the design of managerial compensation since hedging instruments serves as a double-edged sword in that they may be used for both corporate hedging and earnings management. On one hand, financial instruments can be used to offer customized contracts that are closely tailored to manage specific risk and improve hedging efficiency. The implications are that managers need to adopt the stated derivatives of corporate hedging and specifically select the ones that are suited to their individual circumstances. To develop a coherent risk-management strategy, companies must carefully articulate the nature of both their cash flows and their investment opportunities. Once they have done this, their efforts to align the supply of funds with the demand for funds will generate the right strategies for managing risk.

The study advocates for speedy establishment of derivative market in Kenya together with its ancillary regulatory framework that would protect market participants. Educational programs on derivatives should be developed and undertaken in Kenya to demystify derivative trading and its accounting and valuation procedure. This would mitigate against managers skepticism on such uses. The finance officers would also understand the disadvantages and advantages of each and every hedging practice. Most firms did not have a deliberate policy on hedging and management of financial risks is solely left on the devices and whims of managers which make investors incur agency costs. There is, thus, a need for organization wide policy on hedging and derivative use to act a operation manual for the managers and firms' agents. This study seeks to help the managers and professional to ascertain the risk of their organization before taking the position in the derivatives market and get economies of scale through its implementation.

5.4.5 Foreign Exchange Exposure and Corporate Hedging

The study sought to determine the influence of firm foreign exchange exposure on corporate hedging of listed firms in NSE in Kenya. The study recommends that; foreign exchange should always be taken in to account to improve the company's returns on assets and hence overall performance of the companies. Policy makers should undertake to understand risk affecting the foreign exchange markets among listed companies to improve capital investments to maximize returns of the company's hence overall performance. The listed companies' management should put structures in place so as to enhance returns on capital and assets and in turn maximize returns to the listed companies.

The study recommends that listed companies in Kenya and other organizations should start exploring avenues of enhancing capacities within their Kenyan subsidiaries for better and accurate management of foreign exchange risk exposure. This capacity enhancement would cover foreign exchange risk management practices and improved understanding of the relationship between corporate hedging practices and how they impact on financial performance of the firms. It is therefore recommended that listed companies use a wider variety of hedging techniques, recognizing that this has a significant impact on their risk management. The use of natural operational hedging is cheaper to implement. The availability of financial hedging such as derivatives that are available to manage foreign exchange risk is common in most developed countries, but these measures tend to be rather too sophisticated and difficult to implement in developing countries like Kenya with less developed financial systems. Listed companies should engage the government on the adoption of derivatives in Kenyan financial system this would enhance better hedging in the local arena.

5.5 Suggestions for Further Research

This study will assist intellectuals and be a reference for future studies on influence of financial determinants on corporate hedging in NSEs. The results obtained from this study are important in terms of reflecting the situation on the derivative usage in NSE Kenya. The findings of the study will add to the theoretical literature of financial determinants on corporate hedging by the testing the proposed model to find out its future influence on corporate hedging.

The findings of this study need to be further developed in future research. On the one hand, research could focus on identifying other practical financial determinants of corporate hedging such as substitute for hedging. On the other hand, new financial determinants may be identified by conceptual investigations. Contemporary models of risk management can be modified to fit empirical observations better. The results of this study indicate that agency theory and stakeholder theory, together with selected elements of financial economics, form a useful basis for new models. Furthermore, more companies both listed and non listed can be included in future studies to determine their financial determinants influence on corporate hedging. Thus, while this research has achieved its objectives, there are opportunities for further research.

REFERENCES

- Abhyankar, H.G. & Dharmadhikari, S.P.(2012). Managing Currency Risk through Derivatives with special reference to “Currency Forwards”, A Corporate Perspective. *International Journal of IT & Commerce* ,1(1), 43-55.
- Abdioğlua, N.(2016). Managerial Ownership and Corporate Cash Holdings: Insights from an Emerging Market. *Business and Economics Research Journal*,7(2), 29-41.
- Adigamova, F.F., & Galimardanova, Y. M.(2015). Development of Current Financial Derivative Markets. *Mediterranean Journal of Social Sciences*, 6(1),1 -3.
- Afza,T., & Alam, A. (2016) .Foreign Currency Derivatives and Firm Value . *Journal of Natural and Social Sciences*,5(1), 1-14.
- Afza,T., & Alam, A.(2015). Foreign Currency Derivatives:Hedging or Speculation. *Vidyabharati International Interdisciplinary Research Journal*, 3(2), 24-34.
- Afza, T., & Alam,A. (2011). Determinants of Corporate Hedging Policies. A case of Foreign Exchange and Interest Derivatives usage. *African Journal of Business Management* , 5(14),5792-5797.
- Ahmed, A.L. (2016).Using Factor Analysis to Study the Effecting Factor on Traffic Accidents. *Journal of Mathematical Theory and Modeling* , 6(2), 125-134.
- Ali, C. A. & Akayuure, P.(2016).Exploring Postgraduate Students’ Research Knowledge and Skills in Normality Tests and Verifications. *US-China Education Review*. 6(1),53-60.

- Ali, K. A. (2014). *The Impact of Financial Leverage on Firm Performance: The Case of Non Financial Firms in Kenya*. Unpublished Msc Project. Nairobi: University of Nairobi.
- Aloo, M. R. (2011). *An Explatory Study of Currency Options in Kenya Financial Market*. Unpublished Masters Thesis. Nairobi: UISU, Kenya.
- Allayannis, G., Lel, U., & Miller, D.P. (2012). The use of Foreign Currency Derivatives, Corporate Governance, and Firm Value around the World. *Journal of International Economics*, 87(1), 65-79.
- Allayannis, G., & Schill, M. (2010). *Financial Policies and Hedging*. Working paper, Darden School of Business.
- Allayannis, G., & Ofek, E. (2001). Exchange Rate Exposure, Hedging, and the use of Foreign Currency Derivatives. *Journal of International Money and Finance*, 20(2), 273–96.
- Ang, J.S., Chua, J.H., & McConnell, J.J. (1982). The Administrative Costs of Corporate Bankruptcy: a Note. *Journal of Finance*, 37(2), 219-226.
- Angelis, D., & Garcia, R. (2008). *A Multirisk Approach to Measuring Corporate Hedging and its Determinants*. Cornell University, Ithaca, NY.
- Ameer, R. (2010). Determinants of Corporate Hedging Practices in Malaysia. *International Business Research*, 3(2), 120-130.
- Aretz, K., & Bartram, S. (2010). Corporate Hedging and Shareholders Value. *Journal of Financial Research*, 33(4), 317 – 371.
- Aroni, J., Namusonge, G.S., & Sakwa, M. (2014). The Effect of Financial Information on Investment in Shares - A Survey Of Retail Investors In Kenya. *International Journal of Business and Commerce*, 3(8), 58-69.

- Ayako, A., & Wamalwa, F. (2015). Determinants of Firm Value in Kenya: Case of Commercial Banks Listed at the Nairobi Securities Exchange. *Journal of Applied Finance and Accounting*, 1(2), 129-142.
- Babajide, B.O., & Ozkan, A. (2014). *The Determinants of Corporate Hedging*. Unpublished PhD Theses, Hull, UK.: University of Hull.
- Baghban, A.A., Younespour, S., Jambarsang, S., Yousefi, M., Zayeri, F., & Jalilian, F.A. (2013). How to test normality distribution for a variable: a real example and a simulation study. *Journal of Paramedical Sciences (JPS)*, 4(1), 73-77.
- Banon, W. (2012). The Stat Whisperer. *Research Pathway Journal*, 2(2), 2-10.
- Bartholomew, D., Knotts, M., & Moustaki, I. (2011). *Latent variable models and factor analysis: A unified approach*. (3rd ed.). West Sussex, UK: John Wiley and Sons.
- Bartram, S. M., G. W. Brown, & Hund, J.E. (2007). Estimating Systemic Risk in the International Financial System. *Journal of Financial Economics*, 86(3), 835–869.
- Bhuiya, I.I., & Ahmed, E. (2015). Corporate International Diversification, Exchange Rate Exposure, and Firm Value” An Analysis on United Kingdom Multinationals. *International Journal of Economics, Commerce and Management*, 3(3), 1-22.
- Błach, J., K., Gorczyńska, M., & Anna Doś, A. (2014). Innovations In Liquidity Management – The Potential of Corporate Treasury. *Journal of Economics and Management*, 18(1), 209-224.

- Bartlett, J.E., Kotrlik, J.W., & Higgins, C.C. (2001). Organizational Research: Determining Appropriate sample Size in Survey Research". *Information Technology, Learning, and Performance Journal*, 19(1), 43-50 .
- Bodnar, G. M., Hayt, G. S., & Marston, R. C. (1998). 1998 Wharton survey of financial risk management by U.S. non-financial firms. *Financial Management*, 27(4), 70-91.
- Bolton, P., Chen, H., & Wang, N. (2011). A Unified Theory of Tobin's Q, Corporate Investment, Financing and Risk Management. *Journal of Finance*, 66, 1545-1578.
- Bonnet, D.G., & Wright, T.A. (2015). Cronbach's Alpha Reliability: Interval Estimation, Hypothesis Testing, and Sample Size Planning. *Journal of Organization Behaviour*, 36, 3-15.
- Bowling, A.(1997). Questionnaire Design. In: *Research Methods in Health*. Buckingham: Open University Press.
- Bryman, A., & Cramer, D.(1990). *Qualitative Data Analysis for Social Scientist*. London: Routledge.
- Bubere, F., Shihab, M., & Silver, L.(2013). *Hedging strategies of Swedish mining companies. a qualitative study*. Nakuru: Umeå School of Business and economics.
- Cassano, R., Gandini, G., & Gennari, F.(2015). *Global Responsibility and Strategic Risk Management*. Brescia, Italy: Department of Economics and Management, University of Brescia.

- Carter, D.A., Rogers, D., & Simkins, B.J. (2006). Does Hedging Affect Firm Value? Evidence from the US Airline Industry. *Financial Management*, 35(1),53-87.
- CDSC(2013). *CDS Accounts Registrations* . Nairobi: Capital Market Authority.
- Central Bank of Kenya, (2009). *Information on Banks and Financial Institutions in Kenya* .<http://www.centralbank.go.ke/bankinfo/banks.asp>.
- Chaudhry, N.I., Mehmood,M.S.,& Mehmood,A.(2014).Determinants of Corporate Hedging Policies and Derivatives Usage in Risk Management Practices of Non-Financial Firms . *Wulfenia Journal*, 21(7).
- Cheng, M.T. (2015). Implications of Accounting for Financial Instruments on Corporate Earnings Volatility in Taiwan. *International Research Journal of Applied Finance*,4(1),168-185.
- Child, D. (2006). *The essentials of factor analysis*. (3rd ed.). New York, NY: Continuum International Publishing Group.
- Choi, J.J., Mao, C.X., & Upadhyay, A.D. (2013). Corporate Risk Management under Information Asymmetry .*Journal of Business Finance and Accounting*, 40(1), 239–271.
- Chung, S. Y. (2003). *Do Financial Analysts Value Corporate Hedging Strategies? :A Case of Precious Metal Mining Firms*. Long Island University, Brooklyn, NY, 11201.
- Clark, E., Amrit J., & Wing, S. N. (2006). *The Determinants of Corporate Hedging: An Empirical Study of Hong Kong and Chinese Firms* Economics group.
- Cohen, L., Manion, L. & Morrison, K. (2011). *Research Methods in Education*, (7th ed.), New York, U.S.A.: Routledge , Taylor and Francis Group.

- Costello, A. B., & Osborne, J. W. (2015). Exploratory Factor Analysis: Four recommendations for getting the most from your analysis. *Practical Assessment, Research, and Evaluation, 10*(7), 1-9.
- Čivić, B., Kozarević, E., & Jukan, M. K., (2014). The Use of Financial Derivatives in Emerging Market Economies: Empirical Evidence from Bosnia and Herzegovina's Non-Financial Firms. *Research in World Economy, 5*(1), 38-49.
- Cornell, B., & Shapiro, A. C. (1987). Corporate Stakeholders and Corporate Finance". *Financial Management, 16*(2), 5-14.
- Cupic, M. (2015). Risk Management and Corporate Value. *Economic Horizons, 17*(3), 215 – 228.
- Daka, V. R., & Basu, S. (2016). Is Corporate Hedging Consistent with Value-Maximization in Emerging Markets? An Empirical Analysis of Indian Firms. *Journal of Accounting, Finance and Economics, 6*(1), 30 – 48.
- Dam, L. D. (2012). *The Usage of Foreign Currency Derivatives: Determinants and Impact on Firm Market. A Case Study on the Asian and Canadian Non-Financial Firms Listed on the U.S Stock Exchanges*. Unpublished MSc. Thesis. Tilburg: Tilburg School of Economics and Management.
- Deshmukh, S., Anand, M. G., & Keith, M. H. (2015). *Do CEO Beliefs affect Corporate Cash Holdings?* Department of Finance at DePaul University.
- Dionne, G., & Triki, T. (2013): On Risk Management Determinants: What Really Matters? *European Journal of Finance, 19*(2), 145-164.
- Downes, J., & Elliot, J. (2010). *Dictionary of Finance and Investments*. U.S.A: Barons Educational Series.

- Enock, G. G., Otieno, O. B., & Nasimiyu, W. J. (2013). Effects of Financial Risks on Profitability of Sugar Firms. *European Journal of Business and Management*, 5(3),152-160.
- Feng, X. (2007). *Corporate Hedging of Currency Exchange Risk*. Unpublished Masters Thesis. Twente: University of Twente.
- Fitch, T. (2011). *Dictionary of Banking Terms* .Barons Educational Series, Inc.
- Field, A. (2009). *Discovering Statistics Using SPSS: Introducing Statistical Method* (3rd ed.). Thousand Oaks, CA: Sage Publications.
- Flesch, A. (2008). *Review of Corporate Risk Management Tools and the way they create Shareholders Value*. Unpublished PhD dissertation. Budapest: Budapest University.
- Froot, K. A., Scharfstein, D. S. & Stein, J.C. (1993). Risk Management: Coordinating Corporate Investment and Financing Policies. *Journal of Finance*, 48(5), 1629–58.
- Freeman, R.E. (1984). *Strategic Management: A Stakeholder Approach*, Marshfield, MA: Pitman.
- Gachua, N. F.(2011). *The Effect of Foreign Exchange Exposure on Firm Performance's Case of Listed Companies in Kenya*. MBA Thesis. KCA University, Kenya.
- Gamba, A., & Triantis, A. (2013). *Corporate Risk Management: Integrating Liquidity, Hedging and Operating Policies*. Retrieved from: <http://ssrn.com/abstract=1475154>
- George, D., & Mallery, M. (2010). *Spss windows step by step: A Simple Guide and Reference 17.0 Update* (10ed). Boston: Pearson.

- Gitogo, J., Karanja, J., & Kasimolo, T. (2013). The relationship between derivatives and the financial performance of commercial banks in Kenya. *International Journal Social Sciences and Entrepreneurship* 1(2), 414-428.
- Goel, A., & Gutierrez, G. J. (2011). Multiechelon procurement and distribution policies for traded commodities. *Management Science*, 57(12), 2228-2244. DOI: 10.1287/mnsc.1110.1430
- Graham, J. R., & Rogers, A. (2002). Is Corporate Hedging Consistent with Value Maximization? An Empirical Analysis. *Journal of Finance*, 57(2), 815–40.
- Hadi, M.A., David ,D.P., Closs,S.J., & Briggs, M.(2013). Mixed-Methods Research in Pharmacy Practice: Recommendations for Quality Reporting. *International Journal of Pharmacy Practice*.
- Hagelin N. and Pramborg,B. (2004). Hedging foreign exchange exposure: Risk reduction from transaction and translation hedge, *Journal of International Financial Management and Accounting*, 15, 1-20.
- Hankins, K.W. (2007). *How do Financial Firms Manage Risks.Unraveling the Interactions of Financials and Operational Hedging*. London: Mc Graw Hill.
- Haron, R. (2014). Derivatives, Pricing Efficiency and Gharar: Evidence on Embedded Options in Malaysia. *Journal of Islamic Finance*, 3(2),(039 – 048).
- Hill, C.A., & McDonnell, B.H.(2015). *The Agency Cost Paradigm: The Good, the Bad, and the Ugly* . Minnesota: University of Minnesota Law School. Huang, P. (2003).*Two Essays on Corporate Hedging: The Choice of Instruments and Methods*.A Dissertation Submitted to the Graduate Faculty of the Louisiana State University and Agricultural and Mechanical College.

- Irungu, G. (2012). *Corporate sector under pressure to device ways of countering shillings swings. Business daily.* Retrieved from: <http://www.businessdaily.com/>
- ISDA. (2008). *ISDA Research Notes.* Retrieved from: www.isda.org/researchnotes/pdf/researchnotes-Autumn2008.pdf.12/8/2012.
- Ithai, J. K. (2013). Factors leading to slow adoption of derivatives use in Kenya: A case study of commercial banks in Kenya. *International Journal of Social Sciences and Entrepreneurship*, 1(3), 454-468.
- Iqbal, Z. (2015). Financial Distress around Introduction of Hedging in the Oil and Gas Industry. *International Journal of Business*, 20(1), 79-89.
- Jensen, M.C., & Meckling, W.H. (1976). Theory of the Firm: Managerial Behaviour, Agency Costs and Ownership Structure. *Journal of Financial Economics*, 3 (4), 305-360.
- Jing, M. A. (2015). *Corporate Governance and Social Responsibility Information Disclosure.* Eastern Academic Forum, Beijing: Beijing Jiaotong University.
- Judge, A. (2003). Why do Firms Hedge? A Review of the Evidence, *Working Paper*, Middlesex University.
- Judge, A. (2006). *Why Do Firms Hedge? A Review of the Evidence of UK Firms.* *European Journal of Finance*, 12(3), 407-41.
- Kamau, C.G., Namusonge, G.S., & Bichanga, W.O. (2016). *Effect of Management Practices on Creative Accounting among Corporations Listed at the Nairobi Securities Exchange*. Unpublished PhD Thesis. Juja: Jomo Kenyatta University of agriculture and technology.

- Kariuki, S.N., Namusonge, G.S., & Orwa, G.O. (2015). Firm Characteristics and Corporate Cash Holdings: A Managerial Perspective from Kenyan Private Manufacturing Firms .*International Journal of Advanced Research in Management and Social Sciences*, 4(4), 51-70.
- Karihe, J.N., Namusonge, G.S., & Iravo, M. (2016). *Determinants of occupational stress affecting employees' performance in public universities in Kenya*. Unpublished PhD Thesis. Juja; Jomo Kenyatta University of Agriculture and Technology.
- Kaiser, H. F. (1960). The application of electronic computers to factor analysis. *Educational and Psychological Measurement*, 20(3), 141-151. doi: 10.1177/001316446002000116.
- Kasimolo, T.M & Mugo, G.E. (2015). Corporate Hedging Strategies in the Financial Sector in Kenya. *International Journal of Economics and Finance (IJEF)*, 1(4), 122 -246.
- Kiama,G.K. (2014) .*Risk Management Strategies used by National Bank of Kenya to Enhance its Corporate Image*. Unpublished Msc Project. Nairobi: University of Nairobi.
- Kimeu, S. N. (2011). *Impact of Hedging Fuel Prices on Corporate Profitability. Case Study of Kenya Airways Ltd*. Unpublished MBA Project. Nairobi: University of Nairobi, Kenya.
- Kintu, A., & Ngugi, P.K. (2013). Determinants of Corporate Hedging Practices used by Companies Listed in Nairobi Securities Exchange:A Case of Uchumi Supermarket. *International Journal of Economics and Finance* 1(2),383-398.

- Kinyua, J.M. & Ali, A.I.(2016).The Role of Strategic Management Factors in Managing Growth of Small and Medium Enterprises- A Survey of Small and Medium Enterprises in Mombasa County. *The International Journal of Business and Management*, 2(2),129-156.
- Kothari, C.R. (2004). *Research Methodology- Methods and Techniques*. (2nd ed.). New Delhi: New Age International Ltd Publishers.
- Kuhn, J. (2007). *Corporate Risk Management and Hedging by Medium – Sized Companies in Denmark*. Unpublished MA. Thesis, Denmark: University of Denmark.
- Klimczak, K. M. (2008) .Corporate hedging and Risk Management Theory: Evidence from Polish Listed Companies. *Journal of Risk Finance*, 9(1),20-39.
- Klimczak, K.M. (2005). *Corporate Risk Management from Stakeholders' Perspective*. Proceedings of TRANS'05, SGH, Warsaw: 371-80.
- Li, X., & Wu, Z. (2009). Corporate Risk Management and Investment Decisions. *Journal of Risk Finance*, 10(2),155-168.
- Liu, Y., & Rodriguez, J.C. (2014). *The Determinants of Corporate Hedging and Firm Value:An Empirical Research of European Firms*. Unpublished Master project, Tilburg: Tilburg University.
- Luo, R.H.(2016).Foreign Currency Derivaties and Corporate Value: Evidence From China.*The Journal of Developing Areas, Tennessee State University, USA*, 6(1),117-129.
- Magee, S.(2012).*The Effect of Foreign Currency Hedging on The Probability of Financial Distress* .Applied Finance Centre, Sydney: Macquarie University.

- Maina, R.A., Namusonge, G.S., & Kabare, K. (2016). Role of Intrapersonal Traits in Service Delivery by Devolved Governments in Central Kenya. *The International Journal of Business and Management*, 4(2), 296-304.
- Malleswari, B. (2013). Derivatives as a Tool of Risk Management. *International Journal of Humanities and Social Science*, 2(4),12-15.
- Markowitz, H.M. (1952). Portfolio Selection. *Journal Finance*, 7(1),77-91.
- Matolo, D.M. (2014). *Effects of Foreign Exchange Risk on Firm Value of Commercial State Corporations in Kenya*. Unpublished Msc Project. Nairobi: University of Nairobi.
- Mayers, D., & Smith Jr C.W. (1982).On the Corporate Demand for Insurance. *Journal of Business*, 55(2),281–296.
- Mbui, C., Namusonge, G.S. & Mugambi, F. (2016). *Effect of Strategic Management Practices on Export Value Addition in the Tea Subsector in Kenya* . Unpublished Phd Thesis. Juja: Jomo Kenyatta University of Agriculture and Technology.
- Mbuvi, L., & Namusonge, G., & Arani, W. (2016).Factors Affecting Automation of Inventory Management in Micro, Small and Medium Enterprises: A Case Study of Kitui County . *International Journal of Academic Research in Business and Social Sciences*, 6(1),39-59.
- Mccolgan, P. (2001). *Agency Theory and Corporate Governance: A Review of the Literature from a UK Perspective*. Uk: University of Strathclyde.
- Merton, R. C. (1974). On the Pricing of Corporate Debt: The Risk Structure of Interest Rates. *Journal of Finance*, 29, 449–70.

- Messo, R.J. (2016). Alternative Method of Mitigating Risk on Medium and Large Corporations. *International Journal of Business and Management*, 11(11), 164-174.
- Miah, A.Q. (2016). *Applied Statistics for Social and Management Sciences*. SingaporeAsian Institute of TechnologyBangkok Thailand: Springer.
- Mittal, S., Khakhar, D., & Mittal, D.(2015). Hedging- An Effective Tool for Risk Management. *International Multidisciplinary Research Journal (RHIMRJ)*.
- Mizerka, J., & Stróżyńska, A. (2013). Factors Influencing the Use of Derivatives in Poland. *Journal of Finance*, 2(1), 557-560.
- Modigliani, F., & Miller M.H. (1958). The Cost of Capital, Corporation Finance, and the Theory of Investment. *American Economic Review*, 48(3), 261–97.
- Monda, B., Giorgino, M., & Modolin, I. (2013). *Rationale for Corporate Risk Management: A Critical Literature Review*. Department of Management, Economics and Industrial Engineering.
- Mossin, J. (1966). Equilibrium in a Capital Asset Market. *Econometrica*, 34(4), 768-783.
- Msedu, A., & Abid, F. (2010). Corporate Hedging Strategy and Firm value. *Journal of Finance and Economics*, 44, 105 – 128.
- Muchina, S.W., Namusonge, G.S.,& Sakwa, M. (2015). *Determinants of share price volatility of companies listed on Nairobi Securities Exchange in Kenya* . Unpublished PhD. Thesis. Juja: Jomo Kenyatta University of Agriculture and Technology.

- Murungi, C. M., Murage, K. & Wanjau, K. (2014). Challenges facing non- financial firms in hedging financial risks using derivatives. *International Journal of Social Sciences and Entrepreneurship*, 1(10), 361-374.
- Mwanza, C. N.(2014).*The Effect of Foreign Exchange Rates on the Performance of the Nairobi Securities Exchange*. Unpublished Msc Project. Nairobi: University of Nairobi.
- Nairobi Securities Exchange (2015). *Nairobi Securities Exchange*. Retrieved From <http://www.nse.co.ke/newsite/inner.asp?cat=companies>
- Namusonge, G.S., Muturi, W., & Olaniran, O. (2016).The Role Of Innovation On Performance Of Firms On Nigerian Stock Exchange. *European Journal of Research and Reflection in Management Sciences*, 4(1), 40-50.
- Namusonge, G.S., Lyani, M.N., & Sakwa, M.(2016). Accounts Receivable Risk Management Practices and Growth of SMEs in Kakamega County, Kenya. *Expert Journal of Finance*, 4(1) ,31-43.
- Namusonge, G.S. (2010). *Week 10: Research Design in Business* [PowerPoint slides]. Unpublished manuscript, DBA 4101 Research Methods, Jomo Kenyatta University of Agriculture and Technology.
- Namusonge, G.S. (2011). *Week 4: Agency Theory* [PowerPoint slides]. Unpublished manuscript, DBAF 4110, Theory of Finance, Jomo Kenyatta University of Agriculture and Technology.
- Nance, D. R., Smith, Jr., & Smithson, C.W. (1993). On the Determinants of Corporate Hedging. *Journal of Finance*, 48(1), 267–84.
- Ndungu’u, N. S. (1999). Price and Exchange Rate Dynamics in Kenya: An Empirical Investigation (1970-1993)” Research Paper 58, AERC.

- Ndung'u, N. S., & Ngugi, R. W. (2000). *Banking Sector Interest Spread in Kenya*. KIPPRA Discussion Paper No 5.
- Ndung'u, L. W. & Mouni, G. G. (2016). Effect of fuel hedging on the profitability of the airline industry in Kenya. *International Academic Journal of Economics and Finance*, 2(1), 16-30.
- Nguyen,N.(2015). *Does Hedging increase Firm Value?* Unpublished MSc Thesis. Lund: Lund University.
- Njoroge,N.N.,Matumo,N.G.,& Maina, K.E.(2013). Factors influencing Development of Financial Derivatives Markets: A Survey of Listed Companies in Kenya. *Global Advanced Research Journal of Management and Business Studies*, 2(5), 258-267.
- Njagi, C.G. (2016).*The effects of Risk Management Practices in Performance of Hotels in Mombasa County*. Unpublished Master Project. Nairobi: University of Nairobi.
- Nunnaly, J.C., & Bernstein, I.H.(1994). *Psychometric Theory* (3rd ed.). New York: McGraw-Hill.
- Nyagilo,V.O.(2015). Viability of Financial Derivative (Stock Option) Securities Market: A Case of Nairobi Stock Exchange. *International Journal of Current Business and Social Sciences*, 1(3), 49-71.
- Ochieng, N.W., & Ntoiti, J. (2016). Effects of Foreign Exchange Hedging Practices on Financial Performance of Non-Financial Firms: A Case of Listed Companies at Nairobi Security Exchange. *Journals of Strategic Management*. 4(21), 365-381.

- Okelo, C.A., Namusonge, G.S., & Iravo, M. (2014). Cost of Capital as a Determinant of Financial Risk of Companies Listed on the Nairobi Securities Exchange in Kenya. *The International Journal of Business & Management*, 2(8), 80-84.
- Okelo, C.A., Namusonge, G.S., & Iravo, M. (2015). *Determinants of Financial Risk of Companies Listed on Nairobi Securities Exchange in Kenya*. Unpublished Phd Thesis. Juja: JKUAT.
- Oduor, C.O. (2014). *The Effect of Foreign Exchange Risk Management Strategies on the Financial Performance of Forex Bureaus in Nairobi County*. Unpublished Msc Research Project. Nairobi: University of Nairobi.
- Oduor, J., & Khainga, D. (2010). *Equilibrium Real Exchange Rates and Real Misalignment in Kenya: A Fundamental Equilibrium Approach*. Kippra Discussion paper No.108.
- Ongore, V.O. (2011). Firm Ownership, Board Managerial Discretion and Performance Empirical Evidence from Kenya. *Journal of Economics and Management*, 1(2), 40-57.
- Olweny.T., Namusonge, G.S., & Onyango,S. (2012). The Influence of Socio-Cultural Background on Individual Investor Risk Tolerance at Nairobi Securities Exchange. *International Journal of Arts and Commerce*, 1(4), 87-106.
- Panaretou, A. (2013). Corporate Risk Management and Firm Value: Evidence from the UK Market. *The European Journal of Finance*, DOI:10.1080/1351847X.2013.766625.
- Park, D., & Kim,J. (2015). Financial Derivatives Usage and Monetary Policy Transmission: Evidence from Korean Firm-level Data. *Global Economic Review: Perspectives on East Asian Economies and Industries*, 44(1), 101-115. DOI: 10.1080/1226508X.2015.1012093

- Punch, K.F. (2003). *Survey Research . The basics*. London: Saga Publication Ltd.
- Rabera, J.M. & Namusonge, G.S.(2016). Effect of Knowledge of Green Procurement on Implementation of Green Public Procurement in Secondary Schools in Trans-Nzoia County, Kenya. *International Journal of Recent Research in Social Sciences and Humanities (IJRSSH)*, 3(2),17-21.
- Ramlal, I. (2009). Determinants of Hedging: An Empirical Investigation of Mauritius. *Journal of Financial Risk Management*,6(3).
- Rao, G. S. (2012). Derivatives in Risk Management. *International Journal of Management and Social Science*, 1(4),55-60.
- Ross, S. A., Westerfield, R. W., Jordan, B. D., & Jeffrey, J.(2012). *Financial Risk Management with Derivatives* . (8th ed.). New York: McGraw-Hill/Irwin.
- Rindfuss, R.R., Choe, M.K., Tsuya, N.O., Bumpass, L.L., and Tamaki, E. (2015). Do low survey response rates bias results? Evidence from Japan. *Demographic Research* ,32(26), 797–828. doi:10.4054/DemRes
- Salama, F.M.& Zoubi, T.A (2015). Does Effective Monitoring by the Board Of Directors affect the Relationship between Global Diversification and Financial Leverage? *Corporate Ownership and Control*, 12(2),644-658 .
- Sang, T.L., Karama, Z., & Osman, Z. (2013).The Determinants of Corporate Hedging. *Journal of the Asian Academy of Applied Business*, 2(1),44-55.
- Saunders, M., Philip, L., & Thornhill, A. (2009). *Research Methods for Business Students*. (5th ed.). New Delhi: Pitman Edinburgh.
- Sekaran, U. (2000). *Research methods for business: A skill-building approach*. New York: John Wiley

- Sharifi,O.(2014). Financial Risk Management for Small and Medium Sized Enterprises.(SMES).*International Journal of Information, Business and Management*, 6(2),81-94.
- Sharpe, W.F. (1964). Capital Asset Prices: A Theory of Market Equilibrium under Conditions of Risk. *Journal of Finance*, 19(3),425-442.
- Siddiqui , A. (2012). *Kenyan Bankers urges corporate strategies for Hedging*. Retrieved from: <http://www.corporatehedginginkenya.com/>.
- Smith., S.S.(2014). Accounting: An Emerging Business Partner. *Journal of Finance and Accounting*, 2(6), 6-10. doi: 10.11648/j.jfa.s.2014020602.12.
- Smith, C.W., & Stulz, R.M. (1985). The Determinants of Firms' Hedging Policies. *Journal of Finance and Quantitative Techniques*, 20(4),391-405.
- Smith, C.W., Jr., & Stulz R.M. (1985). The Determinants of Firms' Hedging Policies. *Journal of Financial and Quantitative Analysis*, 20(4),391–406.
- Spano, M. (2009). *Evidence on Determinants of Corporate Hedging in UK*. New York: University of New York.
- Sprcic, D.J. (2013).Corporate Risk Management and Value Creation. *Montenegrin Journal of Economics*, 9(2),17-26.
- Sprcic, D. M. (2007). *Corporate Risk Management Practices: Evidence from Croatian and Slovenian Companies*. Unpublished PhD thesis, Greenwich: University of Greenwich.
- Sprcic, D. M., Tekavcic, M., & Sevic, Z. (2009). Corporate Risk Management Practices in Croatian Companies. *Economics Journal*, 59(78),344-369.

- Stulz, R. M. (1984). Optimal Hedging Policies. *Journal of Financial and Quantitative Analysis*, 19(2), 127–40.
- Tabachnick, B. G., & Fidell, L. S. (2007). *Using multivariate statistics* (5th ed.). Boston, MA: Allyn and Bacon.
- Tufano, P. (1996). Who manages risk? An empirical examination of the risk management practices in the gold mining industry. *Journal of Finance*, 51(4), 1097–1137.
- Triki, T. (2005). *Research on Corporate Hedging Theories: A critical Review of evidence to date*, working paper 05-04, Department of Finance and Canada Research Chair in Risk Management.
- Uhuru, K.B.(2014) *The Effect of Foreign Exchange Rate Fluctuation on the Financial Performance of Motor Vehicle Firms in Kenya*. Unpublished Msc Finance Project. Nairobi: University of Nairobi.
- Vural-Yavas, C.(2016). Determinants of Corporate Hedging: Evidence from Emerging Markets. *International Journal of Economics and Finance*, 8(12), 151-162.
- Wang, X., & Fan, L. (2011). The Determinants of Corporate Hedging Policies. *International Journal of Business and Social Science*, 2(6), 29-38.
- Wang, X., & Fan, L. (2011). The Determinants of Corporate Hedging Policies. *International Journal of Business and Social Science*, 2(6), 29- 38.
- Wanjiku, M.N.(2012). *Determinants of Corporate Hedging of Companies quoted at the Nairobi Securities Exchange*. Unpublished MBA Project. Nairobi: University of Nairobi.

- Waweru, I. (2012, February 19) Fuel Hedge promises Kenya Airways smooth ride in volatile while market. *Business Daily*. Retrieved from <http://www.businessdaily.com/>
- Weeks, M.P. & Namusonge, G.S. (2016). Influence of Information Technology Practices in Procurement on Organization Performance in Public Institutions in Kenya A Case of Jomo Kenyatta University of Agriculture and Technology. *International Journal of Economics, Commerce and Management*, 4(5), 484-502.
- Williams, A.(2003). How to Write and Analyse Questionnaire. *Journal of Orthodontics*, 19(2),127-40.
- Yaghmale, F. (2009). Content validity and its estimation. *Journal of Medical Education*, 3(1), 1-3.
- Yeasmin, S. & Rahman, K. F. (2012). Triangulation' Research Method as the Tool of Social Science Research. *Bangladesh University of Professionals Journal*, 1(1),154-163.
- Yong, A.G., & Pearce, S. (2013).Beginner's Guide to Factor Analysis: Focusing on Exploratory Factor Analysis. *Tutorials in Quantitative Methods for Psychology*, 9(2),79-94.
- Yu, H.F., & Liang, J.H. (2011). Management Ownership and Corporate Performance. *African Journal of Business Management*,5(4),1441-1453.
- Zhang, R. (2012). *The Use of Foreign Currency Derivatives and Firm Value in U.S.* Unpublished Masters Thesis. Tilburg: Tilburg University.

Zhang, Y.,Luan, H., Shao,W., Yingjun,Z., & Xu,Y. (2016). *Managerial risk preference and its influencing factors: analysis of large state-owned enterprises management personnel in China*. Rizhao China: Qufu Normal University.
doi:10.1057/s41283-016-0001-9

APPENDICES

Appendix i: Introduction Letter



**JOMO KENYATTA UNIVERSITY
OF
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JKUAT MOMBASA CAMPUS**

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Email: jkuatmombasa@jkuat.ac.ke

OFFICE OF THE DIRECTOR
MOMBASA CAMPUS
P. O. BOX 81310-80100
MOMBASA

REF. JKU/MSA/ACA/07/07


25/09/2014

TO WHOM IT MAY CONCERN

SUBJECT: ABDULLAH IBRAHIM ALI REG. NO. HD433-C005-2428/2011

This is to confirm that the above named is a bonafide student of Doctor of Philosophy in Business Administration – Finance Option in this campus. He is expected to collect data in your organization. His study is titled: **Determinants of Corporate Hedging of Firms in Nairobi Securities Exchange in Kenya.**

Any assistance given to him where this information might be required will highly be appreciated.


AGGREY WANYAMA
AG. DEPUTY REGISTRAR.



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ABDULLAH IBRAHIM ALI
JOMO KENYATTA UNIVERSITY OF
AGRICULTURE AND TECHNOLOGY
MOMBASA, KENYA.

Dear Sir /Madam,

RE: REQUEST FOR RESEARCH DATA – INFLUENCE OF FINANCIAL DETERMINANTS ON CORPORATE HEDGING IN KENYA LISTED COMPANIES IN NSE

I am a post graduate student at the Jomo Kenyatta University of Agriculture and Technology, studying Doctorate of Business Administration (PhD) degree specializing in Finance. In partial fulfillment of the requirement of the stated degree I am conducting a study entitled

“Influence of Financial Determinants on Corporate Hedging of Firms in Nairobi Securities Exchange”

You have been selected for this study; I would greatly appreciate if you can complete the attached questionnaire.

The information obtained will be used purely for academic purposes and findings of the study shall be made available upon your request.

Kindly avail any other information or comment not included in the questionnaire that you think is important for this study.

Yours Faithfully,

Abdullah Ibrahim Ali
Cell. No. 0722 287363
E-mail: allhyie@yahoo.com

Appendix ii: Questionnaire

_____ Name (optional)

PART I: QUESTION ABOUT THE RESPONDENT (Tick the relevant boxes)

1. Gender

- a) Male
- b) Female

2. Age

- a) 20-25
- b) 26-35
- c) 36-45
- d) 46-55
- e) 56-65
- f) More than 65

3. Formal education

- a) High school
- b) College
- c) Bachelor degree
- d) Master degree
- e) PhD

4. Have you attended educational programmes regarding risk management?

- a) Yes
- b) No

PART II: GENERAL INFORMATION ABOUT THE COMPANY

5. Has your company used hedgers? (Financial instruments such as forwards, swaps, options or futures) during last year?

Yes 1 No 0

For your company, what is the importance of the different forms of corporate hedging in managing corporate risks? (Please choose one option per row)

Forms of Corporate Hedging	Very important	Important	Somewhat important	Less important	Not important
6. Financial instruments (derivatives and/or foreign debt)					
7. Commodity means					
8. Operational means					

9. INDUSTRY

(In the case your company belongs to more than one industrial segment, mark as many fields as you consider necessary for describing your company)

- Agricultural
- Commercial and services
- Telecommunication and technology
- Automobile and accessories
- Insurance
- Investment
- Growth Enterprise Market Segment
- Manufacturing and allied
- Construction and allied
- Energy and petroleum
- Banking

PART III:FINANCIAL DETERMINANTS OF CORPORATE HEDGING

INSTRUCTIONS: TICK (√) APPROPRIATE COLUMN PROVIDED AGAINST OPTION OF YOUR CHOICE.

KEY FOR RATING

STRONGLY AGREE (SA) 5 POINTS

AGREE (A) 4 POINTS

UNDECIDED (U) 3 POINTS

DISAGREE (D) 2 POINTS

STRONGLY DISAGREED 1 POINT

D) FIRM LIQUIDITY

To what extent does liquidity influence corporate hedging in your company?

Liquidity Indicators	Strongly agree	Agree	Undecided	Disagree	Strongly disagreed
10. Cash holding affects corporate hedging					
11. Lines of credit influence corporate hedging					
12. Dividend payout affect corporate hedging					
13. Corporate profits influence corporate hedging.					
14. Uniqueness of firm product influence corporate hedging.					
15. Selling general and administrative cost affects corporate hedging					

16. Describe other strategies apart from above which are being used by your firm in safeguarding against liquidity risk

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.....

.....

II) FIRM LEVERAGE

How does leverage affects corporate hedging in your firm?

Leverage Indicators	Strongly agree	Agree	Undecided	Disagree	Strongly disagreed
17. Equity offering affects corporate hedging					
18. Market price of equity shares effect corporate hedging					
19. Debt capacity influence corporate hedging					
20. Debt covenants affects corporate hedging					
21. Availability and need for internal funds affects corporate hedging					
22 .Non debt tax shield affects corporate hedging.					

23. Describe other strategies apart from above which are being used by your firm in safeguarding against financial distress

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.....

III) FIRM SIZE

To what extent does firm size affects corporate hedging in your firm?

Firm Size Indicators	Strongly agree	Agree	Undecided	Disagree	Strongly disagreed
24. Firm size affects corporate hedging					
25. Willingness to hedge affects corporate hedging					
26. Cost of setting hedging department affects corporate hedging					
27. Bankruptcy cost affects corporate hedging					
28. Firm investment opportunity affects corporate hedging					
29. Cash stock affects corporate hedging					
30. Internally generated funds affect corporate hedging					
31. Dividends payments affects corporate hedging					

32. Describe other strategies apart from above which affect corporate hedging because of the size of your firm

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IV) FIRM MANAGERIAL RISK AVERSION

What is the effect of managerial risk aversion on corporate hedging in your firm?

Managerial Risk Aversion indicators	Strongly agree	Agree	Undecided	Disagree	Strongly disagreed
33. Amount of shares owned by managers in your company influence corporate hedging					
34. Compensation plan of your company affects corporate choices.					
35. Executive stock option compensation influence corporate hedging.					
36. Managerial competence (skills) affects corporate hedging.					
37. Management tenure affects corporate hedging.					
38. C.E.O age affects corporate hedging.					
39. C.E.O years with your firm affect corporate hedging.					

40. Specify other strategies apart from above which are used in corporate risk management with regard to managerial risk aversion

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V) FIRM FOREIGN EXCHANGE EXPOSURE

To what extent does foreign exchange exposure affects corporate hedging in your firm?

Foreign Exchange Exposure Indicators	Strongly agree	Agree	Undecided	Disagree	Strongly disagreed
41. Foreign derivatives affect corporate hedging.					
42. Foreign currency denominated debts affects corporate hedging					
43. Combined use of foreign debt and foreign derivatives affects corporate hedging					
44. Documented firm policy on derivatives use influence corporate hedging					

45. Which other foreign exchange exposure risks which you consider to be important to your company's operations apart from the above? Please name them

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.....

What is the importance of the following currency instruments in your company as risk management tool?

Currency Risk Instrument	Very important	Important	Somewhat important	Less important	Not important
46. Currency forward					
47. Currency futures					
48. Currency swap					
49. OTC (over-the-counter) currency option					

What general means does your company consider in order to manage different types of foreign exchange rate risks? (Please choose one or several options per row)

Types of FX exposure:	(1) Financial instruments				None
	Financial derivatives			Foreign debt	
	Forward	Options	Swaps		
50. Transaction Exposure					
51. Translation Exposure					
52. Economic Exposure					

In general, what is the effect of the following financial objectives on corporate hedging of your company? (Please choose one option per row)

Financial Objectives	Very important	Important	Somewhat important	Less important	Not important
53. Shareholders value affects corporate hedging					
54. Risk management is influenced by corporate hedging					
55. Cost advantages is affected by corporate hedging					
56. Reduce cash flow volatility to maintain stability					

Thank you very much for participating in this survey.

Your effort is highly appreciated!

Appendix iii: Listed Companies In Nairobi Securities Exchange Agricultural

1. Eaagads Ltd
2. Kapchorua Tea Co. Ltd
3. Kakuzi Ltd
4. Limuru Tea Co. Ltd.
5. Rea Vipingo Plantations Ltd.
6. Sasini Ltd.
7. Williamson Tea Kenya Ltd.

COMMERCIAL AND SERVICES

8. Express Ltd
9. Kenya Airways Ltd
10. Nation Media Group Ltd
11. Standard Group Ltd
12. TPS Eastern Africa (Serena) Ltd
13. Scangroup Ltd
14. Uchumi Supermarket Ltd
15. Hutchings Biemer Ltd
16. Longhorn Kenya Ltd

TELECOMMUNICATION AND TECHNOLOGY

17. Safaricom Ltd

AUTOMOBILES AND ACCESSORIES

18. Car and General (K) Ltd
19. Sameer Africa Ltd.
20. Marshalls (E.A.) Ltd.

INSURANCE

21. Jubilee Holdings Ltd.
22. Pan Africa Insurance Holdings Ltd.
23. Kenya Re-Insurance Corporation Ltd.
24. CIC Insurance Ltd.

25. British – American Investments Company (Kenya) Ltd.

26. Liberty Kenya Holdings Ltd

INVESTMENT

27. Olympia Capital Holdings Ltd.

28. Centum Investment Co. Ltd.

29. Trans-Century Ltd.

MANUFACTURING AND ALLIED

30. B.O.C Kenya Ltd

31. British American Tobacco Kenya Ltd.

32. Carbacid Investments Ltd.

33. East African Breweries Ltd.

34. Mumias Sugar Co. Ltd.

35. Unga Group Ltd.

36. Eveready East Africa Ltd.

37. Kenya Orchards Ltd.

38. A.Baumann Co. Ltd.

CONSTRUCTION AND ALLIED

39. Athi River Mining (ARM) Ltd.

40. Bamburi Cement Ltd.

41. Crown Paints Ltd.

42. E.A. Cables Ltd.

43. E.A. Portland Cement Ltd.

ENERGY AND PETROLEUM

44. Kenol Kobil Ltd.

45. Total Kenya Ltd.

46. KenGen Ltd.

47. Kenya Power & Lighting Co. Ltd.

48. Umeme Ltd.

BANKING

49. Barclays Bank of Kenya Ltd

50. CFC Stanbic of Kenya Holdings Ltd
51. Diamond Trust Bank Kenya Ltd.
52. Housing Finance Co. Ltd
53. Kenya Commercial Bank Ltd
54. National Bank of Kenya Ltd
55. NIC Bank Ltd
56. Standard Chartered Bank
57. Equity Bank Ltd
58. The Co-operative Bank of Kenya
59. I & M Holdings Ltd.

GROWTH ENTERPRISE MARKET SEGMENT (GEMS)

60. Home Afrika Ltd.
61. Atlas Development Support Services
62. Flame Tree Group Holdings
63. Kurwitu Ventures Ltd

INVESTMENT SERVICES

64. Nairobi Securities Exchange

Source: (Nairobi Securities Exchange, 2015)

Appendix iv: Registered Stock Brokers and Investment Banks in Nairobi
Securities Exchange List of Investment Banks in Kenya

<p>Dyer & Blair Investment Bank Ltd Goodman Tower, 7th floor, P.O. Box 45396 00100 Tel: 3240000/2227803/4/5 Fax: 2218633 Email: shares@dyerandblair.com Web: www.dyerandblair.com</p>	<p>Francis Drummond and Company Limited Hughes Building, 2nd floor, P.O. Box 45465 00100 Tel: 318690/318689 Fax: 2223061 Email: info@drummond.co.ke Web: www.drummond.co.ke</p>	<p>Ngenye Kariuki & Co. Ltd. (Under Statutory Management) Corner House, 8th floor, P. O. Box 12185-00400 Tel: 224333/2220052/2220141 Fax: 2217199/241825 Email: ngenyekari@wananchi.com Web: www.ngenyestockbrokers.co.ke</p>
<p>Suntra Investment Bank Ltd Nation Centre, 7th Floor, P.O. Box 74016-00200 Tel: 2870000/247530/2223330/2211846/0724- 257024, 0733-222216 Fax: 2224327 Email: info@suntra.co.ke Web: www.suntra.co.ke</p>	<p>Old Mutual Securities Ltd IPS Building, 6th Floor, P. O. Box 50338- 00200 Tel: 2241379, 2241408 Fax: 2241392 Email: info.oms@oldmutualkenya.com Web: www.oldmutual.co.ke</p>	<p>SBG Securities Ltd Cfc Stanbic Centre, 58 Westlands Road, P. O. Box 47198 – 00100 Tel: 3638900 Fax: 3752950 Email: sbgs@stanbic.com Web: www.sbgsecurities.co.ke</p>
<p>Kingdom Securities Ltd Co-operative Bank House, 5th Floor, P.O Box 48231 00100 Tel: 3276940/3276256/3276154 Fax: 3276156 Email:</p>	<p>Afrika Investment Bank Ltd Finance House, 9th Floor, P.O. Box 11019-00100 Tel: 2212206 / 2210178/2212989//34363 9</p>	<p>ABC Capital Ltd IPS Building, 5th floor, P.O. Box 34137-00100 Tel: 2246036/2245971 Fax: 2245971 Email: headoffice@abccapital.co.ke</p>

info@kingdomsecurities.co.ke **Fax:** 2210500
Email:
info@afrikainvestmentbank.com
Web:
www.afrikainvestmentbank.com

Sterling Capital Ltd
Barclays Plaza, 11th Floor, Loita Street,
P.O. Box 45080- 00100
Tel: 2213914/244077/
0723153219/0734219146
Fax: 2218261
Email: info@sterlingib.com
Web: www.sterlingib.com

ApexAfrica Capital Ltd
Rehani House, 4th Floor,
P.O. Box 43676- 00100
Tel: 242170/2220517
Fax: 2215554
Email: invest@apexafrica.com
Web: www.apexafrica.com

Faida Investment Bank Ltd
Crawford Business park,
Ground Floor, State House Road,
P. O. Box 45236-00100
Tel: +254-20-7606026-35
Fax: 2243814
Email: info@fib.co.ke
Web: www.fib.co.ke

NIC Securities Limited
Ground Floor, NIC House,
Masaba Road,
P.O.Box 44599-00100
Tel: 2888 444 / 0711 041 444
Fax: 2888 505
Email: info@nic-securities.com
Web: www.nic-securities.com

Standard Investment Bank Ltd
ICEA Building, 16th floor,
P. O. Box 13714- 00800
Tel: 2228963/2228967/2228969
Fax: 240297
Email: info@sib.co.ke

Kestrel Capital (EA) Limited
2nd Floor, Orbit Place,
Westlands Road,
P.O. Box 40005-00100
Tel: 251758/2251893,2251815,250082
Fax: 2243264
Email: info@kestrelcapital.com
Web: www.kestrelcapital.com

Discount Securities Ltd. (Under Statutory management)
Nairobi,
P O Box 42489-00100
Tel: 2219552/38, 2773000
Fax: 2230987

African Alliance Kenya Investment Bank Ltd
1st Floor,Trans-national Plaza,
P.O. Box 27639 - 00506
Tel: 2762610/ 2762628 /

Renaissance Capital (Kenya) Ltd
Purshottam Place ,6th Floor, Westland , Chiromo Road,
P.O BOX 40560-00100

Email: discount@dsl.co.ke
Web: www.dsl.co.ke

2762000/ 2762557/
0733333140
Fax: 2731162
Email:
securities@africanalliance.co.ke
Web:
www.africanalliance.com

Tel: 3682000/3754422
Fax: 3632339
Email: info@rencap.com
Web: www.rencap.com

Genghis Capital Ltd
Prudential Building, 5th Floor,
P.O Box 1670-00100
Tel: 8008561, 2337535/36,
2373984/968/969
Fax: 246334
Email: info@gencap.co.ke

CBA Capital Limited
CBA Centre Mara Ragati
Road Junction, Upper
Hill,
P.O. Box 30437-00100
Tel: 0202884000/+254
20 2884000 / 365,
0711056365
Fax: 0202734616

Equity Investment Bank
Limited
Equity Centre, Hospital
Road, Upper Hill,
P.O Box 75104 – 00200
Tel: +254-20-2262477
Mobile: +254-732-
112477/+254-711-026477
Fax: +254 20 2711439
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www.equitybankgroup.com

KCB Capital
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/ 2852000
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investmentbanking@kcb.co.ke
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