

**FACTORS HINDERING DERIVATIVES TRADING AT THE NAIROBI STOCK
EXCHANGE**

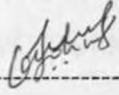
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**A RESEARCH PROJECT IN PARTIAL FULFILLMENT OF THE
REQUIREMENTS FOR CONFERMENT OF THE DEGREE OF MASTER OF
BUSINESS ADMINISTRATION OF THE UNIVERSITY OF NAIROBI**

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DECLARATION

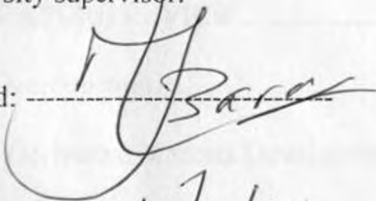
This research project is my original work and has not been presented for a degree in any university.

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This research project has been submitted for examination with my approval as the university supervisor.

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ABBREVIATIONS

AMD :	Agricultural Markets Division
ANOVA:	Analysis of Variance
ATS :	Automated Trading System
CDS :	Central Depository System
CE	Commodities and Futures Exchanges
CMA :	Capital Markets Authority
DEA :	Data Envelopment Analysis
EMEs :	Emerging Market Economies
FOMS	Futures and Options Market Segment
FX :	Foreign Exchange
GOI :	Government of India
MBA :	Master of Business Administration
MSP :	Minimum Support Price
NSE :	Nairobi Stock Exchange
OTC :	Over the Counter
ROA :	Return on Assets
ROE :	Return on Equity
SAFEX:	South African Futures Exchange
WFP :	World Food Programme
WRS :	Ware House Receipt System

DEDICATION

I dedicate this work to my dear wife Naomi Khakasa for her love, support and encouragement,

and

My beloved children Marion and Collins for their constant joy and happiness.

To my parents,

Andrew and Elizabeth, for their determination to educate me and for their exemplary support and inspiration all through.

You are all so special to me.

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ABSTRACT

As from early 2000s, the Nairobi Stock Exchange (NSE) and the market regulator Capital Markets Authority (CMA) endeavored to reform the market. As part of the market reforms agenda, the Authority initiated market reforms in 2001 which led to the reorganization of the NSE into four distinct segments: the Main Investments Market Segment (MIMS); Alternative Investments Market Segment (AIMS); Fixed Income Securities Market Segment (FISMS); and the Futures and Options Market Segment (FOMS). To date all but the FOMS remain active. The derivatives market in Africa and specifically the NSE remains underdeveloped. One of the major hindrances to the derivatives market development, which is the focus of this paper, is the regulatory and policy environment. There is need to develop these so as to provide a framework within which the market can operate effectively and efficiently. Other disabling factors to the development of the derivatives market discussed in this paper includes; the level of investor sophistication and awareness is low; lack of commodities on large scale; high frictional costs in the market structure; inadequate risk management; inadequate liquidity; and segmented regulation.

The study further explores the efforts being done by the NSE and the CMA towards the development of the market. This includes the findings of the study undertaken by the CMA on the viability of establishing a futures and options market segment at the NSE. To help understand the factors hindering derivatives market development; in this concept paper, I have explained key concepts relating to derivatives market development and the various types of derivatives. The benefits and uses of derivatives and their down side/ disadvantages have also been highlighted, drawing from real life experiences across the globe. An overview of studies on derivatives and derivative markets in Latin America, India, South Africa, Asia and Kenya has been discussed.

CHAPTER ONE

INTRODUCTION

1.1 Background to the Study

A derivative has been defined by the Basel Committee on Banking and Supervision (2004) as a contract whose value depends on the price of an underlying assets but which does not require any investment of principal in those assets. As a contract between two counterparties to exchange payments based on an underlying prices or yields, any transfer of ownership of the underlying asset and cash flows becomes unnecessary. Derivatives can also be seen as financial instruments used by all economic agents to invest, speculate and hedge in financial markets, Kothari and Hentchel (2001). Derivatives are usually broadly categorized by the relationship between the underlying and the derivative (forwards, options, swaps and futures), the type of underlying (equity derivatives, Foreign exchange derivatives, interest rate derivatives and credit derivatives) and the market in which they trade (exchange traded or over the counter).

There are four major classes of derivatives: futures, forwards, options and swaps contracts. These four types can be combined with each other in order to create a synthetic asset or liability which suits any kind of need. This extreme flexibility and freedom widely explain the incredible growth of these instruments on world financial markets (Allayannis and Weston 2001).

Hull (1998), posits that futures and forwards are contracts to buy or sell an asset on or before a future date at a price specified today. A futures contract differs from a forward contract in that the futures contract is a standardized contract written by a clearing house that operates an exchange where the contract can be bought and sold, while a forward contract is a non-standardized contract written by the parties themselves.

Options are contracts that give the owner the right, but not the obligation, to buy (in the case of a call option) or sell (in the case of a put option) an asset. The price at

which the sale takes place is known as the strike price, and is specified at the time the parties enter into the options. The contract also specifies a maturity date. In the case of European options, the owner has the right to require the sale to take place on (but not before) the maturity date; in the case of American options, the owner can require the sale to take place at any time up to the maturity date. If the owner of the contract exercises this right, the counterparty has the obligation to carry out the transaction (Kolb 1995).

Kolb (1995) defines swaps as contracts to exchange cash (flows) on or before a specified future date based on the underlying value of currencies/exchange rates, bonds/interest rates, commodities, stocks or other assets. Swaps are generally over the counter (OTC) contracts with a longer duration than futures and options and satisfy the need of a single client of the bank, a firm or financial institution. They tend to create new investment opportunities in order to hedge against any type of risk or speculation. In these contracts the notional value of the contract does not represent the risk taken by the two or more counterparts by periodical payments.

Brigham and Houston (2004) observe that financial derivatives are not new; they have been around for years. A description of the first known options contract can be found in Aristotle's writings. He tells the story of Thales, a poor philosopher from Miletus who developed a "financial device, which involves a principle of universal application." People reproved Thales, saying that his lack of wealth was proof that philosophy was a useless occupation and of no practical value. But Thales knew what he was doing and made plans to prove to others his wisdom and intellect.

According to Brigham and Houston (2004), one of the first formal markets for derivatives was the futures market for wheat. Farmers were concerned about the price they would receive for their wheat when they sold it in the fall and millers were concerned about the price they would have to pay. The risks faced by both parties could be reduced if they could establish a price earlier in the year. Accordingly, mill agents would go out to the wheat belt and make contracts with the farmers that called for the farmers to deliver grain at a predetermined price. Middlemen came into the picture and trading in futures was established. The Chicago Board of Trade was an early market place. Thus, farmers could sell futures on the exchange and millers could

buy them there. This improved the efficiency and lowered the cost of hedging operations.

The derivatives markets have grown more rapidly than any other major market in recent years, Greenspan, (1999). First, analytical techniques such as the Black-Scholes options pricing model have been developed to help establish fair prices and having a better basis for pricing hedges makes the counter parties more comfortable with deals. Second, computers and electronic communications make it much easier for counter parties to deal with one another. Third, globalization has greatly increased the importance of currency markets and the need for reducing the exchange rate risks brought on by global trade. Recent trends and developments are sure to continue if not accelerate, to the use of derivatives for risk management is bound to grow.

Derivatives do have a potential down side. These instruments are highly leveraged, so small miscalculations can lead to huge losses. Derivatives are also complicated, hence, not well understood by most people. For example, one trader, Nick Leeson, a relatively low-level employee, operating in the Far East, entered into transaction that led to the bankruptcy of Britain's 200 years old bank (Barings Bank), the institution that held the accounts of the Queen of England, (Global Perspectives, 1995). Just prior to the problems at Barings, Orange County, California went bankrupt due to its treasurer's speculation in derivatives. Procter & Gamble got into a nasty fight with Bankers Trust over derivatives related losses. More recently, the high-profile hedge fund, Long Term Capital Management LP nearly collapsed of bad bets made in the derivatives market. The Procter & Gamble, Orange County, Barings Bank and Long Term Capital Management affairs made the headlines, causing some people to argue that derivatives should be regulated out of existence to protect the public. However, derivatives are used far more often to hedge risks than in harmful speculation but these beneficial transactions never make the headlines (Brigham and Houston, 2004).

Hedging theory often assumes that firms use derivatives for risk reduction. According to Sinkey and Carter (2000), firms' derivative activities can increase the value of a firm by reducing the expected costs of financial distress. However, there are also theories predicting the use of derivatives by firms' owners to increase firm riskiness. These theories build on the Black-Scholes (1973) analogy between options and

corporate claims. Accordingly to the analogy, higher volatility is beneficial to equity owners – holders of call options payoff increases when the volatility of the underlying assets value increases. Hence, shareholders of leveraged firms have incentive to increase firm riskiness to transfer wealth from bondholders to shareholders.

Kothari and Hentchel (2001) investigate whether US firms systematically reduce or increase their riskiness with the level of derivative activities. They found that firms' use of derivatives does not measurably increase or decrease their return volatility. The association between derivatives usage and risk is of interest in the banking industry because banks are the major users of derivatives and they use derivatives for various purposes. In particular, banks use derivatives as end users to hedge on balance sheet risks and as dealers to increase non-interest revenue.

The NSE financial and trading results point to the fact that derivatives market is very underdeveloped. This is evident from the daily “no activity” results reported on the FOMS. Odundo (2009) presents the capital markets product structure and lists futures and options, swaps, commodities, forward contracts, currency dealing and arbitrage as part of the derivatives segment of the NSE. He further posits that these derivatives, among other financial assets including asset backed securities, mortgage backed securities, commodities, *sukuks* and municipal bonds are unexploited opportunities.

1.2 Statement of the Problem

Global evidence suggests that derivatives markets have grown more rapidly than any other market in recent years, according to Greenspan (1999). The Kenyan picture, however, portrays a nascent and emerging situation. Derivatives are not traded on the Nairobi Stock Exchange and use of derivatives by companies is very limited.

In 2002, the NSE sought to strengthen the institutional arrangement by undertaking senior management and board study tours to gain exposure on the operations and regulation of financial products such as futures and options. Furthermore, the CMA planned that a futures and options market would be established once the establishment of an electronic depository trading and settlement was completed. The CMA sought to expand the market horizon by carrying out a study on the viability of establishing a futures and options market segment (CMA Annual Report 2002). Whereas the

Automated Trading System (ATS) was established in 2006, it was expected that the derivatives segment would take off sooner. To date, the derivatives market is yet to be operational. As part of the market reforms agenda, the Authority initiated market reforms in 2001 which led to the reorganization of the NSE into four distinct segments: the Main Investments Market Segment (MIMS); Alternative Investments Market Segment (AIMS); Fixed Income Securities Market Segment (FISMS); and the Futures and Options Market Segment (FOMS). To date all but the FOMS remain active.

All over the world, most companies in many economies use derivatives in their risk management endeavors. Glenn and Guthrie (2006) in their study analyzing the optimal hedging policy of a firm that has flexibility in the timing of investment, show that hedging adds value by allowing investment to be delayed in circumstances where the same frictions would cause it to commence prematurely. They also show that greater timing flexibility increases the optimal quantity of hedging, but has a non-monotonic effect on the additional value created by hedging.

Corporate risk management is thought to be an important element of a firm's overall business strategy. Smith and Stulz (1985) draw upon extant theories of corporate risk management to argue "the primary goal of risk management is to eliminate the probability of costly lower-tail outcomes, those that would cause financial distress or make a company unable to carry out its investment strategy." Financial derivatives; thus, currency, interest rate, and commodity derivatives are one means of managing risks facing corporations. If a firm's derivative positions generate positive cash flows or value in periods of economic adversity, then those derivatives are deemed to hedge the firm's risk.

Although much work has been done regarding derivatives and risk management, there is a dearth of information regarding the use of derivatives. At the University of Nairobi, as at the year 2009, only one research had been conducted on derivatives. The study by Mwanza (2007), investigated whether the level of derivative activities is associated with the market's perception of banks interest rate and exchange rate risk. The objective of the study was to determine the type of derivatives used by banks and establish whether use of derivatives affects the exposure to interest rate risk.

1.3 Objectives of the Study

The primary objective of this study is to investigate the factors that have hindered the development of the derivatives market at the Nairobi Stock Exchange. More specifically, the study will endeavor to;

1. Explore the general social, economic, legal and political factors that hinder derivatives trading at the NSE despite derivative markets' exponential growth globally.
2. Assess the NSE's progress in developing the market infrastructure for derivatives' trading.

1.4 Significance of the Study

Over the last few decades financially engineered products, i.e. derivatives, have become an increasingly important part of a firm's risk management strategy. Although much has been done regarding derivatives and risk management, there is a dearth of information regarding the use of derivatives to increase firm performance. This paper investigates the factors hindering derivatives' trading at the NSE.

This study will contribute to literature about derivatives. Currently there is very little information about derivatives and thus scholars and researchers stand to benefit from this study. Most, if not all of the information on derivatives available is on the practices in the West and little is known about local practice.

The NSE, CMA, stock brokerage firms, Government of Kenya and investors will benefit from this study. The study gives the stake holders a challenge by following up on what has delayed the development of the derivatives market. The CMA sought to expand the market horizon by carrying out a study on the viability of commodities futures market in Kenya (CMA Annual Report 2002). The findings of this study will thus be used by the stakeholders in their endeavors to develop the market.

This research will benefit companies, arbitragers and speculators by providing more knowledge on derivatives. Companies would thus effectively incorporate derivatives in risk management. The knowledge would still be useful for speculative and arbitraging purposes and enhancing efficiency. Government regulatory authorities and

NSE market players will use the findings of this study to formulate an enabling regulatory framework and policy on derivatives. The findings will enable them review existing trading and settlement infrastructure to accommodate and roll out new products including derivatives.

CHAPTER TWO

LITERATURE REVIEW

2.0 Introduction

This chapter explores the views outlined in literature concerning development of agricultural derivative markets, regional development of equity derivative markets and development of hedging instruments in emerging markets. It examines the managerial incentives for use of derivatives and their effects on efficiency and firm value. Public interest concerns on the economy have also been discussed. The chapter examines studies carried out in the United States of America, India, Latin America, Europe, Asia, Middle East and Kenya.

2.1 Derivative Markets Development and Mechanisms

2.1.1. The development of Indian agricultural derivatives markets

According to Thomas, (2007) local markets for futures on agricultural commodities have been recorded to have been around from the 1800. These were banned in the late 1860s, and revived in the early 1880s. After the successful equity market reforms of 1890s, the commodities derivatives regulator tried to replicate similar reforms for the commodity derivatives markets. This effort got significant support in 1999 when the Government of India (GOI) suggested that the Minimum Support Price (MSP) as a price hedging instrument could be replaced with derivatives markets. However, the condition was that these markets were liquid and efficient, backed by prevailing best practices of trading, clearing and settlement.

Local exchanges trading a single commodity still exist. Initial evidence indicates that local exchanges that were successful before the national exchanges were established continue to retain their business. However, recent evidence suggests that local exchanges are steadily losing to the national, multi-commodity exchanges. Commodity derivatives are physically settled and this is a departure from equity derivatives.

2.1.2 Regional development of equity derivatives markets

In a survey carried out by Well (2004), derivatives market growth continues almost irrespective of equity cash market turnover growth. Since 2000, cash equity turnover has fallen in the developed markets, but derivatives turnover continued to rise steeply and steadily. Equity derivatives business, like interest rate derivatives, is highly concentrated. Using notional value as the measure, the two main US markets and the two cross-border European markets accounted for about 75 % of the total. This was most apparent in index derivatives, which make up 99 % of the notional value of equity derivatives. Equity market volume and derivatives market notional value are strongly correlated, with a ratio of roughly 1:1 but with significant differences between individual markets. Scandinavia (excluding Sweden) seems to have relatively smaller derivatives markets compared to their cash markets, while the Israeli and Korean businesses seem large relative to their cash markets.

Well (2004) posits that the strongest barriers to derivative markets are often regulatory. There are three linked reasons and these are statutory barriers, failure to understand and fear of short-selling. Statutory barriers fall into three types: first, laws that specifically prohibit derivatives or do not specifically permit them; laws that do not clarify which entity has regulatory jurisdiction over derivatives, and laws that prohibit gambling or make gambling contracts unenforceable, and where derivatives are not clearly distinguished from gambling. Sometimes, the legal framework supports forward contracts where the norm is physical delivery at the time of expiry. But most exchange contracts can be cash-settled, and even if physical delivery is permitted, it is a very rare occurrence.

2.1.3. Hedging instruments in emerging market economies

Saxena and Villar (2008) examined the development of hedging instruments in emerging market economies (EMEs) over the last decade. Of all such markets, the foreign exchange (FX) derivatives market was the most important and most developed in EMEs. The demand for hedging in the FX market was driven by investors' desire to invest in emerging market bonds and equities. FX derivatives markets were most developed in countries with deep and efficient spot markets (e.g. Hong Kong and Singapore). However, they had also developed in some other EMEs

(namely Brazil, India, Korea, Mexico, Russia and South Africa). The banking sector was the biggest user of OTC derivatives in EMEs.

Among FX derivatives, FX swaps dominate the OTC derivatives market in EMEs as they enable foreign investors to access the local money market. FX forwards were dominant in Korea and Taiwan and were fairly liquid in a few other EMEs (e.g. Chile, Hong Kong, India, Russia, Singapore and South Africa). Currency swaps constituted a very small share of FX derivatives and were traded mainly in Brazil and Korea. FX options had relatively large trading volumes in Hong Kong, India and Singapore. While the FX derivatives market was quite developed in EMEs, the OTC derivatives market for hedging interest rate risk was rather underdeveloped and mostly concentrated in interest rate swaps. Some reasons for their underdevelopment may include the low level of interest rate risk, which in any event mostly resides with the banking sector and could be handled in other ways. CDS provides a hedge against credit risk, but for EMEs they are mostly concentrated on sovereign entities instead of corporations.

2.1.4. Managerial incentives and the use of foreign-exchange derivatives by banks

Adkins et al. (2006) observe that managerial compensation and ownership were important factors in the hedging decisions of banking firms. Managers who received larger option awards were less likely to hedge using derivatives. Further, greater equity holdings by managers were associated with a greater probability of hedging, and given the decision to hedge, a greater level of derivatives usage.

These results were consistent with Tufano's (1996) research on the hedging behavior of gold-mining firms and showed the applicability of hedging theory to a regulated industry, such as banking. Additionally, they found that larger annual bonuses and smaller options awards added to both the likelihood and extent of hedging. Finally, the results indicated that greater equity ownership by institutional investors was associated with a greater probability of hedging, and given the decision to hedge, a greater level of derivatives usage.

2.1.5 Derivatives usage and bank efficiency

According to Berger and Humphrey, (1997) inefficiencies in the banking industry are quite large, approximately 20% of the industry's costs and half of potential profits. Smith and Stulz (1985), argue that there are three major benefits from using derivatives: reduced taxes under a progressive tax schedule, reduced expected cost of financial distress, and reduced agency cost problems.

Smith and Stulz (1985) develop financial distress arguments for derivative usage for hedging purposes and claim that hedging reduces the volatility of the firm's value by reducing the likelihood of costly financial distress and thus increasing the expected value of the firm. The researchers proceed to argue that hedging can increase firm value by reducing the probability of bankruptcy in firms that are financially distressed. Derivative use can reduce agency costs through being a cost efficient way of aligning the interests of managers and stockholders and by aligning the interests of bondholders and shareholders. Since banks can use derivatives to hedge, they can reduce the volatility of their cash flow and pay out greater levels of income as dividends, assuring their bondholders that sufficient cash flow is available for debt payment. Additionally, the use of derivatives for hedging helps alleviate the incentive and monitoring problems caused by managerial risk aversion (Carter and Sinkey, 1998).

2.1.6 Derivatives and increased firm value in the banking industry

Firm value can indeed be enhanced under certain circumstances such as preventing/diminishing the costs of financial distress, agency costs (through increasing the proportion of future states in which equity holders are the residual claimants), and progressive tax system costs. Additionally, firm value can be heightened by improving contracting terms, providing net cash inflows in those states in which the firm's cash flows are low and thus boosting its ability to meet obligations in additional states (Bessembinder and Kalok 1991).

According to Merton (1995), there will be an increased usage of financial derivatives and other financially engineered products in the future in the banking industry. In his view, if effective hedging is used to remove those risks of the business which are not adding to value (i.e. interest rate and currency risks), then risk could be lowered

without impacting the profitability of the given bank while simultaneously allowing the bank to raise capital more easily. He proceeds to argue that derivatives can improve economic performance by lowering transaction costs or increasing liquidity, and by reducing agency costs. The use of derivatives allows banks to improve their capital buffers that absorb risk, resulting in lower costs and greater value (Smith and Stulz, 1985). Thus, the proper use of derivatives can lower banks financing costs, and consequently improve their efficiency (Merton, 1995).

2.1.7. Derivatives markets: sources of vulnerability in U.S. financial markets

Dodd (2004) studied the ways in which derivatives markets posed several types of public interest concerns to the US economy by creating new and greater sources of vulnerability. The first and most obvious concern was the way in which derivatives markets expanded risk-taking activity relative to capital. By enhancing the efficiency of transactions and the leveraging of capital, derivatives could increase speculation just as well as they lowered the cost of hedging. Secondly, derivatives markets could provide new opportunities for destructive activities such as fraud and manipulation; and they could facilitate unproductive activities such as outflanking prudential financial market regulations, manipulating accounting rules and evading or avoiding taxation. The third concern involves the creation of new types and levels of credit risk as OTC derivatives contracts are traded in order to shift various types of market risk. The new credit risk is not subject to collateral (i.e. margin) requirements, and is not handled in the most economically efficient manner. The fourth concern is the liquidity risk, especially in the interest rate swaps market, which is susceptible to creditworthiness problems at one or more of the major market participants. The last concern is systemic risk, arising especially from the OTC derivative markets, and the strong linkages between derivatives and underlying asset and commodity markets.

Dodd (2004) claimed that each of these concerns is linked to one or more concepts of market failure or market imperfections. These are the externality of risk taking, the externality of the information content of prices, the absence of destructive competition and systemic risk. The first danger posed by derivatives comes from the leverage they provide to both hedgers and speculators. Derivatives transactions allow investors to take a large price position in the market while committing only a small amount of capital. Thus the use of their capital is leveraged.

Another danger involves transparency. Some derivatives are traded on formal futures and options exchanges which are closely regulated. Other derivatives are traded over-the-counter (OTC) in markets that are almost entirely unregulated. In the OTC markets, there is very little information provided by either the private market participants or collected by government regulators. The prices and other trading information in these markets are not made freely available to the public like is the case with futures and options exchanges. Instead that information is hoarded by each of the market participants. As a result of this lack of information in the OTC market, it substantially reduces the ability of the government and other market participants to anticipate and possibly preempt building market pressures, major market failures, or manipulation efforts.

2.1.8 Advantages and disadvantages of derivatives

Kigen (2008) stated that although the benefits and costs of derivatives remain the subject of spirited debate, the performance of the economy and the financial system suggests that those benefits have materially exceeded the costs. There are different types of derivatives including: options, swaps, forwards and futures. Options give one the right but not the obligation to buy or sell an asset at a certain price, swaps take place when two parties agree to swap cash flows and forwards and futures agree on a price today for delivery of the product at some point in time in the future. While futures are exchange traded, forwards are agreements made between two parties.

Derivatives are used to reduce risk exposure. They are however a zero-sum game and thus it only works to the advantage of one of the parties involved in the transaction. Derivatives help in the facilitation of the exchange of risk and thus, soften the impact of a downturn in the economy. Derivative use can reduce agency costs through being a cost efficient way of aligning the interests of managers and stockholders and by aligning the interests of bondholders and shareholders. They can improve economic performance by lowering transaction costs or increasing liquidity, and by reducing agency costs.

On the negative side, derivatives can actually increase the risk exposure. This is both to inexperienced and experienced investors. Long Term Capital Management (LTCM)

which was a firm made up of PhD holders and high level academicians lost USD 4 billion in derivatives. In January 2007, Société Générale incurred a loss of USD 7.2 billion from derivatives trading through one of its traders. Amaranth Advisors lost USD 6.4 billion in September 2006 when it took the wrong side of a derivatives transaction. It had taken a long position (bought) when the price of natural gas fell. Derivatives also increase the level of debt in the economy exponentially. High amounts of debt can cause recession and this has been cited as one of the reasons for the 1920s - 1930s depression.

2.2 Empirical Studies

Rivas and Ozuna (2006) conducted a study investigating whether the use of derivatives by banks in Latin America affected their efficiency. The data used in this study were obtained from three different sources: the Heritage Foundation webpage and information published by the Central Bank of each Latin American country. These data sources contained the income statements and balance sheets of state, private, and foreign banks operating in Latin America. They examined the financial statements in order to identify banks which contained information regarding derivatives usage. The result of this extensive and detailed examination indicated that only the banks from Brazil, Chile, and Mexico contained information relating to derivatives usage. As such, the analysis was limited to these three Latin American countries. After eliminating banks with missing values, the final data set consisted of 116 Brazilian banks, 27 Chilean banks, and 39 Mexican banks.

The researchers obtained the data for the variable derivatives for Brazil and Mexico from Bank Scope as at 2001 and for Chile they obtained it from data published by the *Superintendencia de Bancos e Instituciones Financieras de Chile* as at 2002. The variable derivatives came from the total notional value of derivatives used by each bank. To determine whether derivatives usage increases bank efficiency, they employed a two-stage approach. The objective of the first stage was to measure the efficiency of Latin American banks. In this study, they used the DEA (data envelopment analysis) model. Their use of the DEA approach to measure the efficiency of Latin American Banks was justified in that data regarding the price of inputs and outputs in the Latin American banking sector was practically non-existent.

To measure the effects of derivatives usage on banking efficiency, they used regression analysis on the efficiency scores obtained in the first stage on a variable representing derivatives usage and control variables that had been documented to affect efficiency scores. In this study, the concern was about the use of derivatives rather than the extent of their value. Therefore, they used the dummy variable DERIVATIVES, which took the value of 1 if a bank used derivatives, 0 otherwise. On average, derivatives user banks had a greater efficiency scores than non-user banks in the three countries. The Mann-Whitney and Kruskal Wallis tests and a one-way analysis of variance (ANOVA) were employed to examine the mean efficiency score differences between derivatives user banks and non-user banks. Overall, and in line with theory, the results indicated that the use of derivatives increases the efficiency of Latin American banks. Additionally, they found that as Latin American banks got larger, their efficiency levels increased. Lastly, the results showed that regulatory and institutional constraints negatively affected the efficiency of Latin American banks.

Rivas and Griffin (2008) conducted a study on whether hedging affected firm performance, with evidence from the banking industry. They obtained banking data from the US Federal Reserve, considering the period 1995-2006. Only banks with at least \$100 million in total assets were considered, as these banks were considered to have the need for and the means to use derivatives in any significant quantity. The variables total assets, total equity and net income were used directly from the Federal Reserve data. The authors developed variables which were created for purposes of answering the research question.

Linear regression was then performed for each sample year using SPSS (Statistical Package for Social Sciences) with the determinants deemed as measures of performance used as the dependent variables and the hedging factors used as the independent variables. Between approximately 4,000 and 4,500 banks were used as observations for any given year. Statistical significance levels were listed at the 1%, 5%, and 10% levels.

Three of the most common ratios of firm performance were used; Return on Assets (ROA), Return on Equity (ROE) and Tobin's Q. For ROA and ROE, although statistical significance was found throughout the variables considered, the results were somewhat mixed. It seemed to indicate that interest-rate swaps (as a ratio of total

assets) and derivatives used for purposes other than trading (i.e. hedging) were positively correlated with performance and return on investment. Tobin's Q shows a consistent negative correlation with derivatives held for trading, perhaps indicating that derivatives trading adds very little value to firm performance (and perhaps detracts from performance). Forwards and futures were highly positively significant for all three dependent variables (options purchased) and (other than trading) were also highly positively significant for all three dependents, seeming to indicate that there was a highly significant positive relationship between total assets, total equity and net income and hedging techniques.

For many of the examined variables, there was a statistically significant positive relationship between profit and liquidity indicators and options used for hedging (i.e. risk management) purposes. This would seem to indicate that more profitable banks used hedging techniques and vice versa. However, options purchased for purposes other than hedging can be detrimental to the financial health of the bank and add very little to profit or liquidity. Therefore, their study substantiates other studies on the value of hedging and extends those benefits to the banking industry.

2.3 Local Studies

Very few researches have been done locally on derivatives. At the University of Nairobi, as at the year 2009, only one research had been conducted on derivatives. The study by Mwanza (2007), investigated whether the level of derivative activities is associated with the market's perception of banks' interest rates and exchange rate risk. The objective of the study was to determine the type of derivatives used by banks and establish whether use of derivatives affects the exposure to interest rate risk. The research took the form of an empirical study based on data recorded at the NSE, which included the banks' published financial reports, and share value. The whole population of seven quoted banks from 2001 to 2006 was studied. The study was restricted to quoted banks only. Data was obtained from balance sheet extracts and other financial disclosures contained in the financial statements and reports filed at the NSE. Market value of shares and interest rate on bonds and treasury bills was also obtained from the NSE and Central bank of Kenya reports in form of monthly bulletins.

The data collected were in the form of stock return, market index return, long and short-term interest rates and other financial data extracted from financial reports from 2001 to 2006, which included asset-book value, interest income, and notional values of derivatives and book values of equity. Data used in the study was collected from the NSE, Central Bank of Kenya and the Capital Markets Authority. In his analysis, the researcher was investigating the effect of derivative activities on banks' interest rate and exchange rate exposures. The study involved a two-stage procedure using the augmented market model developed by Young (1993). The interest rate and exchange rate risk exposure were estimated in stage one and then employed as the dependent variable in the stage two regressions.

Using the entire population of quoted banks in estimating the interest rate and exchange rate exposure, the study found a positive relationship between bank stock return and long term and short-term interest rate and exchange rate. The study also found that the level of derivative activities was positively associated with long term interest rate exposure. Use of derivatives seems to reduce banks' short term interest rate exposure but not long term interest rate exposure. A possible explanation for this finding is that banks use derivatives to speculate long term interest rate changes. An alternative explanation is that long-term interest rate exposure is difficult to hedge relative to short-term interest rate exposure because of the lack of liquidity associated with long-term interest rate instruments. The researcher felt that the association between derivative usage and risk is beneficial to players in the banking industry. Banks use derivatives as end users to hedge on balance sheet risks and as dealers to increase non-interest revenue as derivatives provide an easy means for banks to alter their risk profiles.

2.4 The South African futures exchange

The South African futures exchange (SAFEX) consists of a financial markets division (equity derivatives) and an agricultural markets division (AMD). The measures of the financial markets division have grown from R3.4 million at its formation in 1990 to R69 million at June 1997. SAFEX experienced a growth of 10.36 million contracts during the 1996/97 financial year, a year-on-year increase of 35 percent. AMD was formed in 1995 and by 30 June 1997, the net reserves amounted to R3.2 million compared with the original operating forecast of R1.4 million.

SAFEX has kept abreast of developments in the world financial markets, and continues to make steady progress despite intensifying competition from international derivative exchanges and over-the-counter alternatives. The SAFEX reserves have grown sufficiently to allow a significant reduction in the fees it levies per future or options contract. Consequently, all fees were reduced by 50 per cent in 1997 and the charges on allocated trades were removed. The Exchange is directed by an executive committee consisting of up to 11 elected members all with full voting rights, and additional non-voting nominated people that the executive appoints. The exchange is governed by members, but through their use of the exchange services, they are also its clients. The exchange is a self regulatory authority and exercises its regulatory functions in terms of the Financial Markets Control Act, 1989 and its rules.

2.5 Conclusion

Overall, banks are the major users of derivatives and they use them for various purposes. Empirical results indicate that the use of derivatives increases bank efficiency. Banks can use derivatives to improve their efficiency by reducing the explicit cost of financial distress and the probability of bankruptcy. The results further show that regulatory and institutional constraints can negatively affect the efficiency of banks. Although derivatives have their downside, their benefits indeed outweigh the disadvantages.

Building on the development of financial derivatives in the US during the 1970s, derivatives markets have expanded worldwide to the point where they are thoroughly integrated into the operations of debt and equity capital markets. One notable feature of this growth has been the strong relative development of derivatives markets in the western countries as compared to Africa. The development of the South African derivatives market however offers hope that indeed growth of this market will spread to other African stock exchanges.

CHAPTER THREE

RESEARCH METHODOLOGY

3.1 Introduction

The chapter outlines the research design that was used in the study. It explains the location of the study and it describes the instrument for data collection, data collection procedure, and data analysis and presentation.

3.2 Research Design

This is a case study which took a descriptive approach aimed at establishing the factors hindering derivatives' trading at the NSE. Kombo and Tromp (2006) assert that a case study should be used if one intends to analyze an issue in detail. The design was found to be best suited for this study since it is based on an in-depth and longitudinal (over a long period of time) examination and investigation of a single entity and would enable causation exploration in order to find underlying principles.

The design gives an opportunity to ask very specific and qualitative questions about the hindrances, progress and any success in the path to the development of the derivatives market at the bourse. It provides a systematic way of looking at events, collecting data, analyzing information and reporting the results. As a result, the study availed a sharpened understanding of why the NSE has lagged behind in trading in derivatives, and what needs to be looked at more extensively in future research.

3.3 Data Collection

Primary data was collected using an interview guide (see Appendix II). In-depth interviews were carried out with two top managers at the NSE who are involved in marketing and product development (product development manager and head of market and product development). Three members (research-corporate finance manager and two dealers) from three stock brokerage firms who are members of the NSE and one manager (research and product development) at the CMA were also interviewed. The CMA manager and stock brokers were interviewed because they are key stakeholders at the NSE

and major decisions at the exchange such as new product development would require consultations with these entities for successful implementation. CMA is the regulatory body while the stock brokers are registered members of the NSE and market participants who trade on the exchange. Their responses were therefore critical for the purpose of this study. The three stock brokers were selected out of nineteen registered member firms of the NSE (see Appendix III).

Two of the selected brokerage firms are among the top indigenous firms while the third has foreign linkages and is the leading stockbroker on the Kenya stock market for foreign and local institutional investors, with a strong focus on market and company research. It is the largest stockbroker on the NSE and the market leader for trading large "blue chip" companies in Kenya such as Safaricom, East African Breweries, Barclays bank of Kenya and Equity bank. Over the years, the firm has received several awards from Euromoney magazine as the "Best Stockbroker in Kenya".

Purposeful sampling technique was applied in selection of the brokerage firms. The interview technique was chosen because of its interactive nature. It helps one to go in-depth as the discussions are held. This type of interview was previously effectively used by Kamanda (2006), who carried out a case-based study in his Master of Business Administration (MBA) project titled "Factors Influencing the Regional Growth Strategy of the Kenya Commercial Bank Limited".

The interview guide was designed based on the research objectives. It consisted of three sections with the first seeking to find out the general information about the respondents' work position. Section II contained questions specific to endeavors being undertaken by the NSE towards development of the derivatives market. Section III focused on the probable factors hindering derivatives trading and the roadmap actions that need to be undertaken towards development of the derivatives market. A five-point Likert Scale was used to determine the main factors and to what level they are hindering derivatives trading. According to Mugenda and Mugenda (1999) the Likert Scale can be used to rate or rank subjective and intangible components in research. The numerical scale helps minimize the subjectivity and makes it possible to use quantitative analysis. An introduction letter; authority to carry out research and interview was issued to every respondent during the interview (see Appendix I).

3.4 Validity and Reliability of the Instrument

The reliability of the instrument was established through involving and administering the same interview guide to respondents from the CMA and Stock Brokerage firms who are key stake holders in development of new products at the NSE. Content validity was achieved through sharing the instrument with different MBA research students and lecturers before administering it, to obtain independent corroborating views.

Pilot testing was done to help establish the validity and reliability of the data collection tool. The pretest was done on a sample of two respondents; one from the NSE and one from the CMA. Convenience sampling technique was used for the pretest. The pretest formed a good basis upon which amendments to the interview guide were made.

3.5 Data Analysis

Completed interview guides were edited for completeness and consistency before processing the responses. A database was prepared and data analyzed using Microsoft Excel and SPSS computer package version 17. Data was summarized, evaluated and ranked in form of frequencies, percentages, mean and standard deviations. Factor analysis was employed in data analysis. Factor analysis was important for reducing factors by putting similar ones together. Content analysis and descriptive analysis were also used. Content analysis was used to analyze the respondents' views about factors hindering derivatives' trading at NSE. According to Berelson (1971), the method of content analysis enables the researcher to include large amounts of textual information and systematically identify its properties such as frequencies of most used keywords by detecting the more important structure of its communication content. Holsti (1969) posits that content analysis is useful in making inferences and descriptions about characteristics of data obtained and the effects.

To facilitate establishment of the research objectives and description of the research findings, a descriptive statistics table that involved number of respondents in each element or factor was used. The mean of the respondents in terms of the Likert Scale points and the standard deviations from the mean were used. The mean helped in

measuring the average response and therefore indicated the average of the occurrences of all the Likert Scale points. Standard deviation facilitated the determination of the degree of variability of responses from the mean response. According to Cooper and Emory (1995), descriptive statistics tables describe the parameters of the population better because they express the views and feelings of the respondents in greater detail and hence effect on the Likert Scale elements.

CHAPTER FOUR

DATA ANALYSIS AND INTERPRETATION

4.1 Introduction

This chapter presents the analysis and the interpretation of the research findings of the data collected through the interviews. From the study sample target of six respondents (see Appendix IV), they all responded and interviews were carried out with each and every respondent. These comprised of two managers from the NSE, one from CMA and one member each from three brokerage firms.

This response rate was made possible by the fact that the researcher made prior bookings with each of the target interviewees and clearly stated the anticipated duration of the intended interview. Copies of the interview guide were also left with them for their review and familiarity before the scheduled interview.

4.2 Factor analysis

Table 1 KMO and Bartlett's Test

Kaiser-Meyer-Olkin Measure of Sampling Adequacy		.793
Bartlett's Test of Sphericity	Approx. Chi-Square	51.302
	Df	25
	Sig (P-value)	.002

To determine the number of components, only the Eigen Values greater than or equal to 1 were considered. In addition, the KMO measure and the Barlett sphericity test were affected. The extraction method was principal axis factoring; the rotation method was varimax with Kaiser Normalization. With the recommended value of 0.6, in order to perform factor analysis in the KMO measure, it was necessary to perform factor analysis on the data since the KMO measure was 0.793.

Table 2: Total Variance Explained

Component	Initial Eigen values			Extraction sums of squared loadings		
	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %
1	1.934	7.130	7.130	1.934	7.130	7.130
2	1.884	6.978	14.108	1.884	6.978	14.108
3	1.803	6.678	20.786	1.803	6.678	20.786
4	1.710	6.333	27.119	1.710	6.333	27.119
5	1.623	6.011	33.130	1.623	6.011	33.130
6	1.598	5.919	39.049	1.598	5.919	39.049
7	1.521	5.633	44.682	1.521	5.633	44.682
8	1.455	5.389	50.041	1.455	5.389	50.041
9	1.381	5.115	55.186	1.381	5.115	55.186
8	1.315	4.870	60.056	1.315	4.870	60.056
9	1.260	4.667	64.723	1.260	4.667	64.723
10	1.213	4.493	69.216	1.213	4.493	69.216
11	1.051	3.893	73.109	1.051	3.893	73.109
12	.968	3.585	76.694			
13	.812	3.001	79.695			
14	.721	2.670	82.365			
15	.699	2.589	84.954			
16	.634	2.348	87.302			
17	.587	2.174	89.476			
18	.511	1.893	91.369			
19	.453	1.678	93.047			
20	.419	1.552	94.599			
21	.398	1.474	96.073			
22	.337	1.248	97.321			
23	.279	1.033	98.354			
24	.242	.896	99.250			
25	.203	.271	99.521			
26	.073	.247	99.768			

From the total variance explained table/Eigen values (a measure of the variance explained by factors), factor extraction was done to determine the factors using Eigen values greater than 1. Factors with Eigen values less than 1.00 were not used because they account for less than the variation explained by a single variable. The result indicates that 26 variables were reduced into 11 factors. The eleven factors explain 73.11% (Cumulative percentage) of the total variation, the remaining 16 factors together account for 26.89% of the variance. The explained variation 73.11% is greater than 70% and therefore, factor analysis was important for reducing factors by putting similar ones together.

Table 3: Factor loading of variables

Component	Factor	Reliability Coefficient	Eigen Value
F1	Regulatory environment	0.713	1.934
F2	Lack of knowledge about derivatives	0.850	1.884
F3	High frictional costs in the market structures	0.885	1.803
F4	Inadequate risk management	0.785	1.710
F5	Lack of legal protection/ netting in case of bankruptcy	0.884	1.623
F6	Presence of rich OTC offerings by banks that hinders currency contracts	0.725	1.598
F7	Segmented regulation for derivatives	0.694	1.521
F8	Lack of large, active retail investor population	0.801	1.455
F9	Different government and Central bank regulatory jurisdictions	0.712	1.381
F10	Inadequate liberalization of commissions	0.720	1.315
F11	Institutional fragmentation of the market	0.8407	1.260

Extraction Method: Principal Component Analysis. Rotation Method: Varimax with Kaiser Normalization. The reliability in the factors was achieved through calculation of Cronbach Alpha coefficient; it explains to what extent the variables in the study are explained by the factors. Factor one explains variable by 71.3% with the high Eigen Value of 1.934 meaning that factor one is the leading factor in explaining factors hindering derivatives trading at NSE. The rank of each factor reduces with the reduction in the level of Eigen Value.

Table 4: Factor Correlation Matrix

Facto r	F1	F2	F3	F4	F5	F6	F7	F8	F9	F10	F11
F1	1.000	.376	.324	.387	.402	.311	.289	.421	.315	.301	.317
F2	.376	1.000	.398	.371	.383	.354	.455	.388	.397	.365	.318
F3	.324	.398	1.000	.345	.312	.328	.367	.302	.361	.333	.321
F4	.387	.371	.345	1.000	.311	.296	.415	.360	.329	.344	.356
F5	.402	.383	.312	.311	1.000	.354	.312	.345	.365	.371	.387
F6	.311	.354	.328	.296	.354	1.000	.398	.315	.432	.324	.318
F7	.289	.455	.367	.415	.312	.398	1.000	.376	.301	.328	.421
F8	.421	.388	.302	.360	.345	.315	.376	1.000	.360	.344	.296
F9	.315	.397	.361	.329	.365	.432	.301	.360	1.000	.376	.398
F10	.301	.365	.333	.344	.371	.324	.328	.344	.376	1.00	.345
F11	.311	.318	.321	.356	.387	.318	.421	.296	.398	.345	1.00

There is a low correlation between different factors, the maximum being 0.455 (between the factors “F2- Lack of knowledge about derivatives” and “F7- Segmented

regulation for derivatives”). This means that all the 11 factors are independent, which implies that they are measuring unrelated dimensions.

4.3 Descriptive Statistics

The mean of the respondents in terms of the Likert Scale points and the standard deviations from the mean were used. The mean helped in measuring the average response and therefore indicated the average of the occurrences of all the Likert Scale points. Standard deviation facilitated the determination of the degree of variability of responses from the mean response. Below is the descriptive statistics table that involved number of respondents in each element or factor.

Table 5: Descriptive Statistics

	Factors	N	Mean	Std. Deviation
High frictional costs in the market structure	F8	6	5.00	.000
Institutional fragmentation of the market	F11	6	4.50	.577
Lack of a large, retail investor population	F4	6	4.50	.577
Lack of knowledge about derivatives	F1	6	4.25	.957
presence of rich OTC offerings by banks that hinders currency contracts	F9	6	4.00	.000
Ceilings on foreign investment at the NSE	F6	6	4.00	.000
Lack of support from securities houses	F7	6	3.50	.577
Limited electronic infrastructure	F2	6	3.50	.577
Regulatory restrictions	F10	6	3.25	2.062
Inadequate liberalization of commissions	F5	6	2.25	.957
Regulatory environment	F3	6	1.50	.577
Overall Means Score			3.66	

The overall means score of the extent is 3.66. Values above 3 mean that such factors hinder derivatives trading at the NSE to larger extent. High frictional costs in the market structure had a means score of 5 meaning that it hinders to a very large extent while regulatory environment hinders to a very small extent with a mean score of 1.5. The standard deviation gave the deviations of various responses from the mean; in the case of regulatory restrictions there was divergent opinion as shown by Std. 2.062 since respondents gave non-consistent response.

Individual statistical analysis of each factor was done to evaluate and rank the data in form of frequencies, percentages, means, median and standard deviation. The mean

helped in measuring the average response and therefore indicated the average of the occurrences of all the Likert Scale points. The standard deviation and variance facilitated the determination of the degree of variability of responses from the mean response. The median indicates the middle or centre value. Following are tables and interpretations for each factor based on the five-point Likert Scale. The points on the Likert Scale were; *very large extent*, *large extent*, *moderate extent*, *small extent* and *not at all*.

Table 6: Lack of knowledge about derivatives

	Frequency	%	Cumulative %			
Valid Very large extent	2	33.3	33.3	N	Valid	6
Large extent	2	33.3	66.7		Missing	0
Moderate extent	1	16.7	83.3		Mean	2.17
Small extent	1	16.7	100.0		Median	2.00
Total	6	100.0			Std. Deviation	1.169
					Variance	1.367

On lack of knowledge about derivatives, two out of the six respondents indicated that the factor hindered derivatives trading to a very large extent; two indicated that the factor hindered to a large extent, one respondent each indicated moderate extent and small extent respectively. This factor had a mean of 2.17, median of 2.00, variance of 1.367 and a standard deviation of 1.169. As depicted from the table, 33.3% indicated *very large extent*, 33% *large extent* and 16.7% each for *moderate extent* and *small extent*. None of the respondents selected *not at all*. This clearly points to the fact that this factor strongly hinders derivatives trading at the NSE.

Table 7: Regulatory environment

	Frequency	%	Cumulative %			
Valid Very large extent	4	66.7	66.7	N	Valid	6
Large extent	2	33.3	100.0		Missing	0
Total	6	100.0			Mean	1.33
					Median	1.00
					Std. Deviation	.516
					Variance	.267

Regulatory environment had a mean of 1.33, median of 1.00, variance of 0.267 and a standard deviation of 0.516. Four respondents felt that the current regulatory environment hinders derivatives trading to a very large extent while two indicated that the factor hindered to a large extent. No respondent indicated *moderate extent*, *small*

extent or *not at all*. Of all the respondents 66.7% indicated *very large extent* while 33.4% indicated *large extent*. This definitely is one of the strongest factors hindering derivatives trading at the NSE.

Table 8: Lack of a large, retail investor population

		Frequency	%	Cumulative %		
Valid	Very large extent	1	16.7	16.7	N	6
	Large extent	1	16.7	33.3	Valid	
	Moderate extent	1	16.7	50.0	Missing	0
	Small extent	1	16.7	66.7	Mean	3.33
	Not at all	2	33.3	100.0	Median	3.50
	Total	6	100.0	100.0	Std. Deviation	1.633
					Variance	2.667

From the six respondents, one each indicated that lack of a large, active retail population hindered derivatives trading to a very large extent, large extent, moderate extent and small extent while two felt that the factor did not at all hinder derivative trading. This represented 16.7% each for *very large extent*, *large extent*, *moderate extent* and *small extent*. 33.3% felt that the factor did not hinder derivatives trading at NSE at all. This factor had a median of 3.50, variance of 2.667, mean of 3.33 and a standard deviation of 1.633. Overall, 66.7% pointed to the fact that the factor hinders derivatives trading although to varying extents. Notwithstanding the degree of variability of hindering extent, this factor is considered a hindrance to derivatives trading at NSE.

Table 9: Inadequate liberalization of commissions

		Frequency	%	Cumulative %		
Valid	Very large extent	1	16.7	16.7	N	6
	Moderate extent	2	33.3	50.0	Missing	0
	Small extent	2	33.3	83.3	Mean	3.33
	Not at all	1	16.7	100.0	Median	3.50
	Total	6	100.0		Std. Deviation	1.366
					Variance	1.867

On inadequate liberalization of commissions, the mean score was 3.33 with a standard deviation of 1.366, variance of 1.867 and median of 3.50. Of the six respondents, one felt that this factor hindered derivatives trading to a very large extent, two felt that it hindered to a moderate extent, two indicated that it hindered to a small extent while one felt that it did not hinder at all. This represented 16.7% for *very large extent*, 33.3% for *moderate extent*, 33.3% for *small extent* and 16.7% for *not at all*. Overall, 83.3% pointed out that this factor hindered derivatives trading at NSE while only 16.7% felt that the factor did not hinder derivatives trading at all.

Table 10: Ceilings on foreign investment at the NSE

		Frequency	%	Cumulative %		
Valid	Moderate extent	1	16.7	16.7	N Valid	6
	Small extent	3	50.0	66.7	Missing	0
	Not at all	2	33.3	100.0	Mean	4.17
	Total	6	100.0	100.0	Median	4.00
					Std. Deviation	.753
					Variance	.567

16.7% of the respondents felt that ceilings on foreign investment at the NSE hindered derivatives trading to a moderate extent, 50% to a small extent while 33.3% thought that the factor did not hinder at all. This had a mean of 4.17, median of 4.00, variance of 0.567 and a standard deviation of 0.753. Notwithstanding the level of hindrance, 66.7% felt that this factor hindered derivatives trading at the NSE.

Table 11: Lack of support from securities houses

		Frequency	%	Cumulative %		
Valid	Moderate extent	2	33.3	33.3	N Valid	6
	Small extent	2	33.3	66.7	Missing	0
	Not at all	2	33.3	100.0	Mean	4.00
	Total	6	100.0	100.0	Median	4.00
					Std. Deviation	.894
					Variance	.800

Of the six respondents, 33.3% each felt that lack of support from securities houses hindered derivatives trading at NSE to a moderate extent and small extent. A further 33.3% indicated that the factor did not hinder at all. On this factor, the mean was 4.00

while the standard deviation was 0.894. It had a median of 4.00 and variance of 0.800. Overall, 66.7% felt that this factor hindered derivatives trading at the NSE.

Table 12: High frictional costs in the market

	Frequency	%	Cumulative %			
Valid	Very large extent	1	16.7	16.7	N Valid	6
	Moderate extent	4	66.7	83.3	Missing	0
	Small extent	1	16.7	100.0	Mean	2.83
	Total	6	100.0	100.0	Median	3.00
					Std. Deviation	.983
					Variance	.967

High frictional costs in the market had a mean score of 2.83, median of 3.00, variance of 0.967 and a standard deviation of 0.983. One respondent, representing 16.7% each indicated that this factor hindered derivatives trading to a very large extent and to a small extent while four respondents representing 66.7% indicated that it hindered to a moderate extent. None of the respondents selected *not at all*. This therefore indicates that this factor was a strong hindrance to derivatives trading at the NSE.

Table 13: Presence of rich OTC offerings by banks that hinders currency contracts

	Frequency	%	Cumulative %			
Valid	Very large extent	1	16.7	16.7	N Valid	6
	Large extent	1	16.7	33.3	Missing	0
	Moderate extent	2	33.3	66.7	Mean	2.83
	Small extent	2	33.3	100.0	Median	3.00
	Total	6	100.0		Std. Deviation	1.169
					Variance	1.367

This factor had a median value of 3.00, a mean of 2.83, standard deviation of 1.169 and a variance of 1.367. Out of the six respondents, 16.7 % each felt that the presence of rich OTC offerings by banks that hinders currency contracts hindered the development of derivatives trading to a very large extent and to a large extent while 33.3% each indicated that it hindered to a moderate extent and to a small extent. The

fact that all the respondents unanimously felt that this factor was a hindrance to derivatives trading at the NSE notwithstanding the level of variability in extent of hindrance indicates that this was a strong hindering factor.

Table 14: Regulatory restrictions

	Frequency	%	Cumulative %		
Valid Very large extent	1	16.7	16.7	N Valid	6
Moderate extent	2	33.3	50.0	Missing	0
Small extent	2	33.3	83.3	Mean	3.33
Not at all	1	16.7	100.0	Median	3.50
Total	6	100.0	100.0	Std. Deviation	1.366
				Variance	1.867

On regulatory restrictions, 16.7% of the respondents indicated *very large extent*, 33.3% indicated *moderate extent* while another 33.3% indicated *small extent*. Only one respondent representing 16.7% felt that this factor did not hinder derivatives trading at the NSE at all. This factor had a median value of 3.50, mean of 3.33, and standard deviation of 1.366 and a variance of 1.867. In overall, 83.3% felt that this factor hindered derivatives trading at the NSE.

Table 15: Institutional fragmentation of the market

	Frequency	%	Cumulative %		
Valid Very large extent	1	16.7	16.7	N Valid	6
Large extent	1	16.7	33.3	Missing	0
Moderate extent	2	33.3	66.7	Mean	2.83
Small extent	2	33.3	100.0	Median	3.00
Total	6	100.0		Std. Deviation	1.169
				Variance	1.367

On this factor, the median value was 3.00, the mean score was 2.83, the variance was 1.367 and the standard deviation was 1.169. Out of the six respondents, one each; representing 16.7% showed that institutional fragmentation of the market hindered derivatives trading at the NSE to a *very large extent* and *large extent* while two

respondents each, representing 33.3% pointed out that the factor hindered to a *moderate extent* and *small extent*. All the respondents therefore felt that this was a hindrance factor, notwithstanding the degree of extent.

Table 16: Inadequate risk management

		Frequency	%	Cumulative %		
Valid	Very large extent	1	16.7	16.7	N Valid	6
	Large extent	2	33.3	50.0	Missing	0
	Moderate extent	1	16.7	66.7	Mean	2.67
	Small extent	2	33.3	100.0	Median	2.50
	Total	6	100.0	100.0	Std. Deviation	1.211
					Variance	1.467

Inadequate risk management had a median value of 2.50, mean score of 2.67, a variance of 1.467 and a standard deviation of 1.211. One out of the six respondents indicated that this factor hindered derivatives trading at the NSE to a very large extent and this represented 16.7%. Two respondents representing 33.3% showed that it hindered to a large extent, one respondent representing 16.6% indicated *moderate extent* while another one respondent representing 16.6% indicated *small extent*. None of the respondents selected *not at all*.

Table 17: Segmented regulation for derivatives

		Frequency	%	Cumulative %		
Valid	Very large extent	3	50.0	50.0	N Valid	6
	Large extent	1	16.7	66.7	Missing	0
	Moderate extent	1	16.7	83.3	Mean	2.00
	Small extent	1	16.7	100.0	Median	1.50
	Total	6	100.0	100.0	Std. Deviation	1.265
					Variance	1.600

Three respondents indicated that segmented regulation for derivatives hindered development of derivatives market at the NSE to a very large extent. This represented 50% of the responses. One respondent each representing 16.7% showed that this factor hindered to a *large extent*, *moderate extent* and *small extent*. None of the respondents selected not at all. This factor had a mean value of 2.00, median of 1.50, variance of 1.600 and a standard deviation of 1.265.

Table 18: Different government and Central Bank regulatory jurisdictions

		Frequency	%	Cumulative %		
Valid	Very large extent	3	50.0	50.0	N Valid	6
	Small extent	2	33.3	83.3	Missing	0
	Not at all	1	16.7	100.0	Mean	2.67
	Total	6	100.0	100.0	Median	2.50
					Std. Deviation	1.862
					Variance	3.467

Three respondents, representing 50% indicated that different government and Central Bank regulatory jurisdictions hindered development of derivatives trading at NSE to a very large extent while 2 respondents felt that it hindered to a small extent. This represented 33.3%. One respondent representing 16.7% felt that this factor did not hinder at all. The median value was 2.50 while the mean score was 2.67, the variance was 3.467 and the standard deviation was 1.862.

Table 19: Lack of legal protection/ netting in case of bankruptcy

		Frequency	%	Cumulative %		
Valid	Large extent	2	33.3	33.3	N Valid	6
	Moderate extent	2	33.3	66.7	Missing	0
	Not at all	2	33.3	100.0	Mean	3.33
	Total	6	100.0		Median	3.00
					Std. Deviation	1.366
					Variance	1.867

On lack of legal protection/ netting in case of bankruptcy, two respondents felt that the factor hindered derivatives trading to a large extent while another two felt that it

hindered to a moderate extent. These represented 33.3% each. The remaining two respondents representing the other 33.3% indicated that the factor did not hinder trading of derivatives at NSE at all. The median value on this factor was 3.00, the mean score was 3.33 while the variance and standard deviation were 1.867 and 1.366 respectively.

Table 20: Limited electronic infrastructure

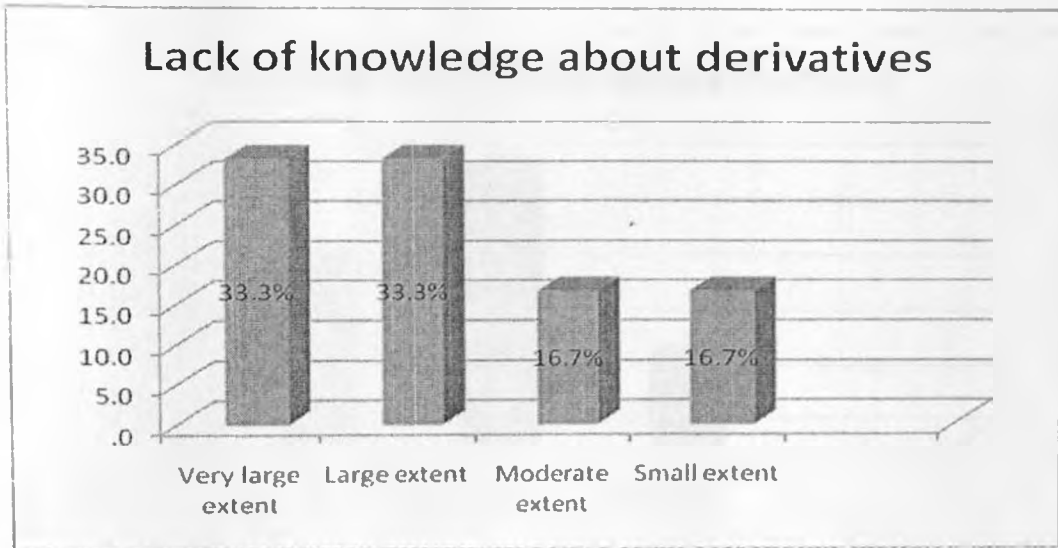
		Frequency	%	Cumulative %		
Valid	Moderate extent	2	33.3	33.3	N Valid	6
	Small extent	3	50.0	83.3	Missing	0
	Not at all	1	16.7	100.0	Mean	3.83
	Total	6	100.0		Median	4.00
					Std. Deviation	.753
					Variance	.567

Out of the six respondents, two indicated that limited electronic infrastructure hindered derivatives trading at the NSE to a moderate extent while three felt that it hindered to a small extent. Only one respondent felt that this factor did not hinder at all. These responses represent 33.3%, for *moderate extent*, 50% for *small extent* and 16.7% for *not at all*. This had a mean of 3.83, a median of 4.00, a variance of 0.567 and a standard deviation of 0.753.

4.4 Graphs and Charts

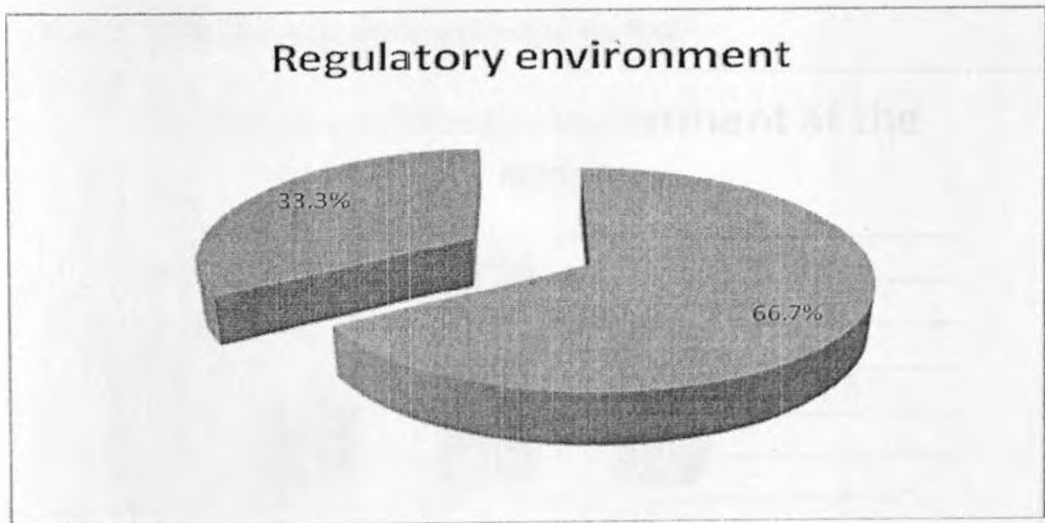
Data presentation was done using bar graphs and pie charts as depicted below. This was based on percentages, and the comparisons were based on the Lickert Scale factors. These factors were *very large extent*, *large extent*, *moderate extent*, *small extent* and *not at all*.

Graph 1: Lack of knowledge about derivatives



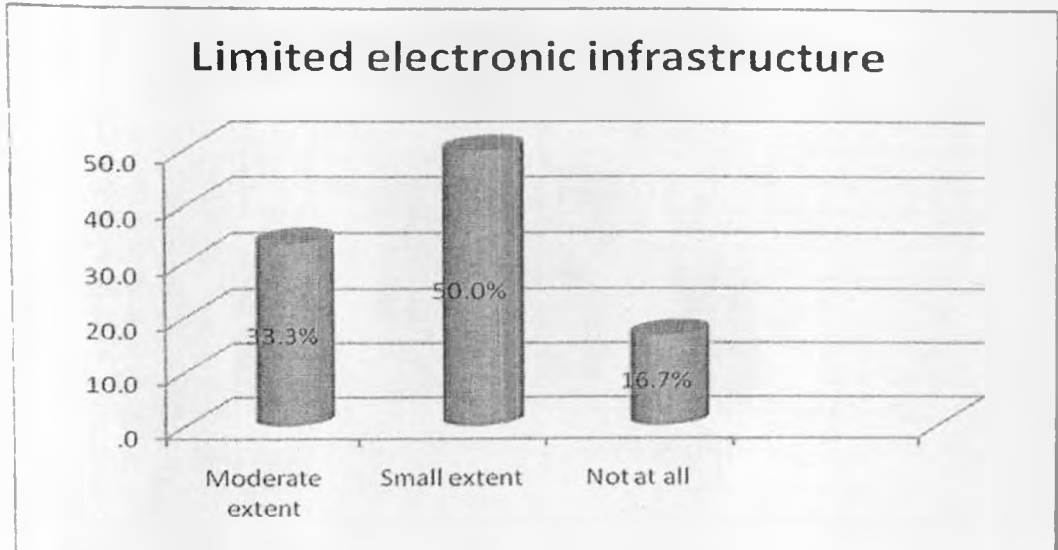
factor hindered derivatives trading to a very large extent while another 33% indicated that it hindered to a large extent. 16.7% each indicated that this factor hindered to a moderate extent and to a small extent.

Chart 2: Regulatory environment



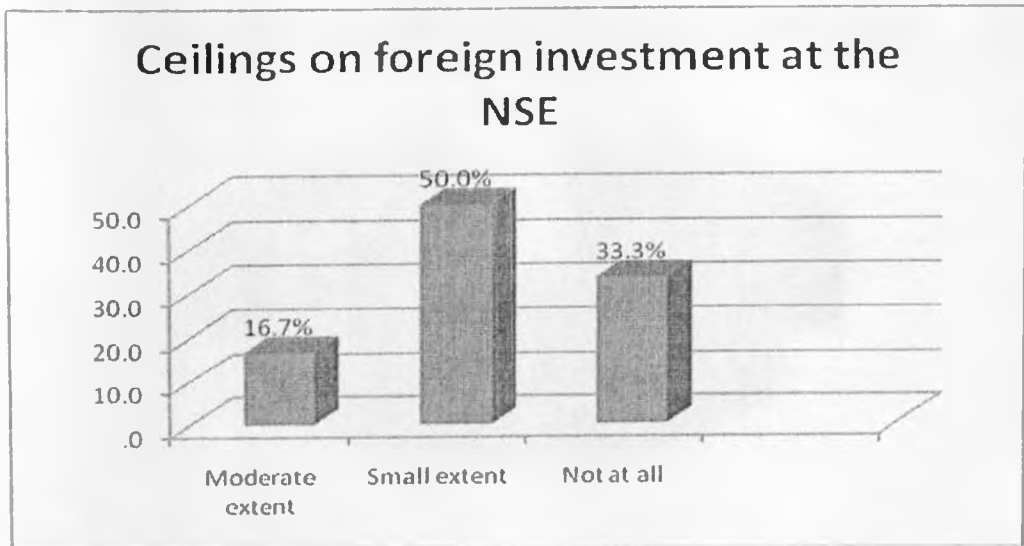
Regulatory environment had the highest score as the greatest hindrance to derivatives trading. 66.7% indicated that it hindered derivatives trading at the NSE to a very large extent while 33.3% indicated that it hindered to a large extent.

Graph 3: Limited electronic infrastructure



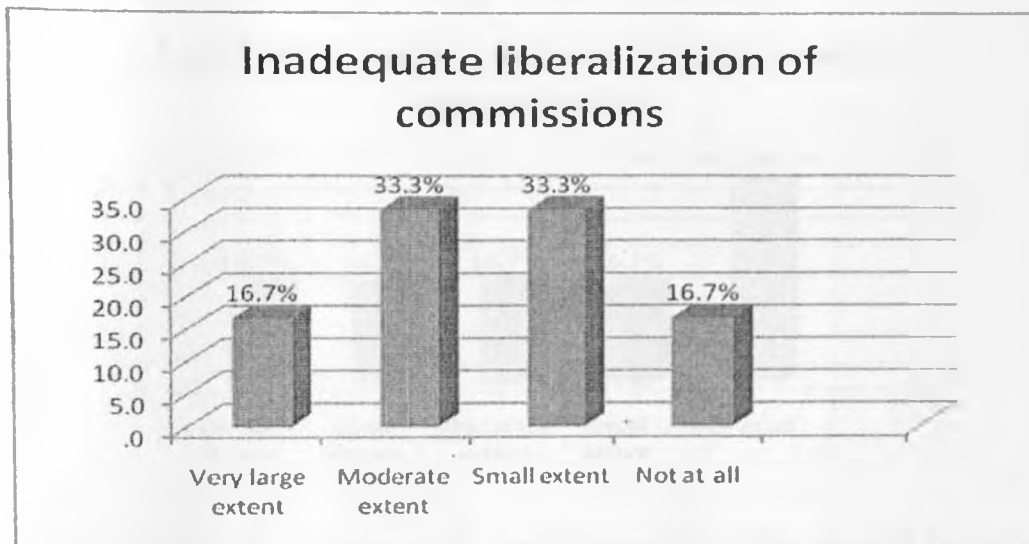
33.3% of the respondents felt that limited electronic infrastructure hindered derivatives trading to a moderate extent while 50% indicated that it hindered to a small extent. 16.7% of the respondents felt that this factor did not hinder at all.

Graph 4: Ceilings on foreign investment at the NSE



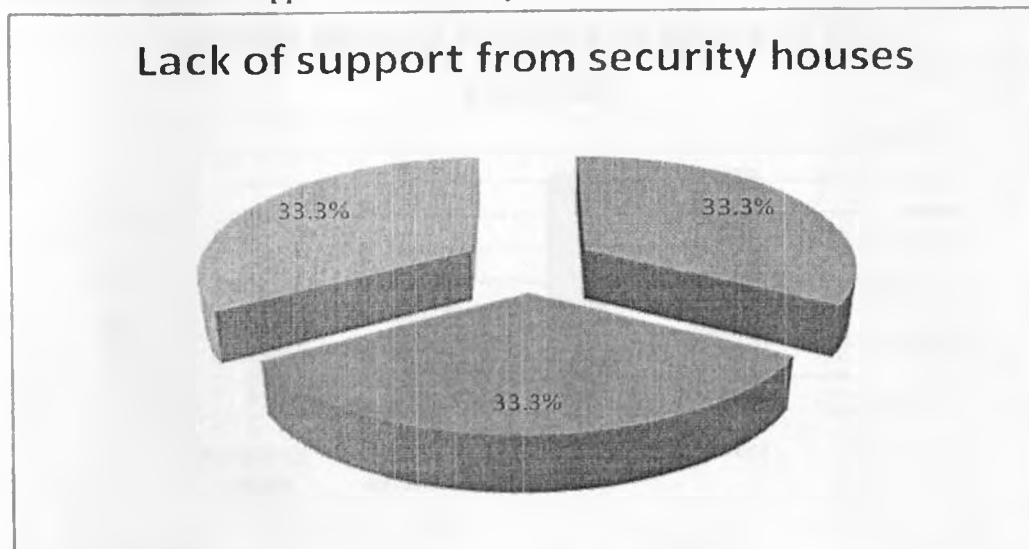
Out of all the respondents, only 16.7% felt that ceilings on foreign investment at the NSE hindered derivatives trading to a moderate extent while 50% felt that it hindered to a small extent. The remainder, representing 33.3% indicated that the factor did not hinder at all.

Graph 5: Inadequate liberalization of commissions



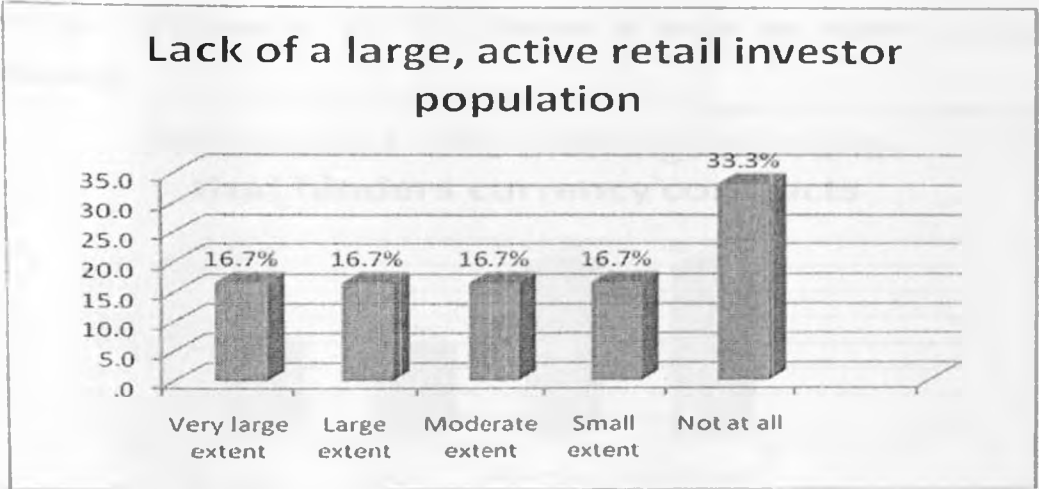
On liberalization of commissions, 16.7% of respondents indicated that this factor hindered derivatives trading to a very large extent, 33.3% indicated that it hindered to a moderate extent, while another 33.3% indicated that it hindered to a small extent. 16.7% indicated that this factor did not hinder at all.

Chart 6: Lack of support from security houses



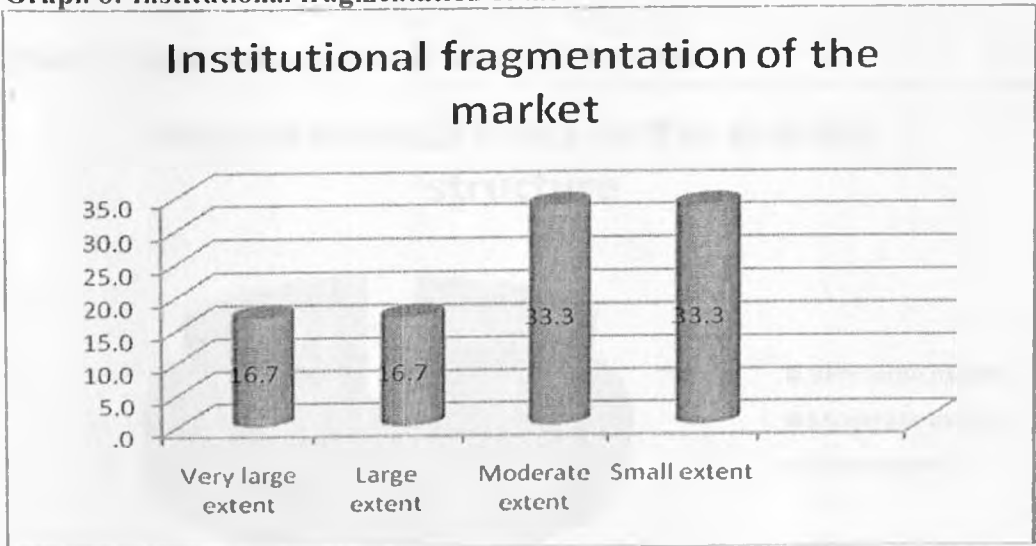
As shown in chart 6 above, 33.3% of the respondents felt that lack of support from security houses hindered derivatives trading to a moderate extent, another 33.3% felt that it hindered to a small extent and the remaining 33.3% indicated that it did not hinder at all.

Graph 7: Large of a large, active retail investor population.



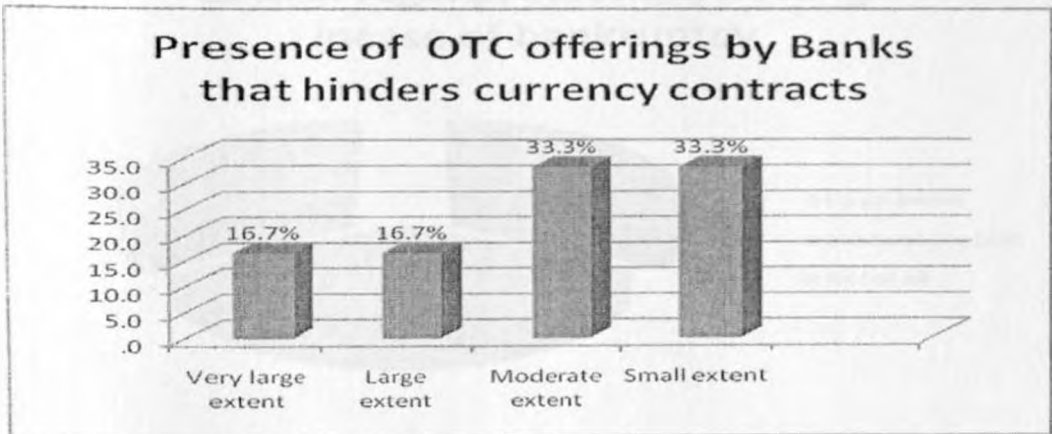
16.7% felt that lack of a large, active retail investor population hindered derivatives trading at the NSE to a very large extent. Another 16.7% felt that it hindered to a large extent, another 16.7% to a moderate extent and yet another 16.7% indicated that it hindered to a small extent. 33.3% indicated that this factor did not hinder derivatives trading at NSE at all.

Graph 8: Institutional fragmentation of the market.



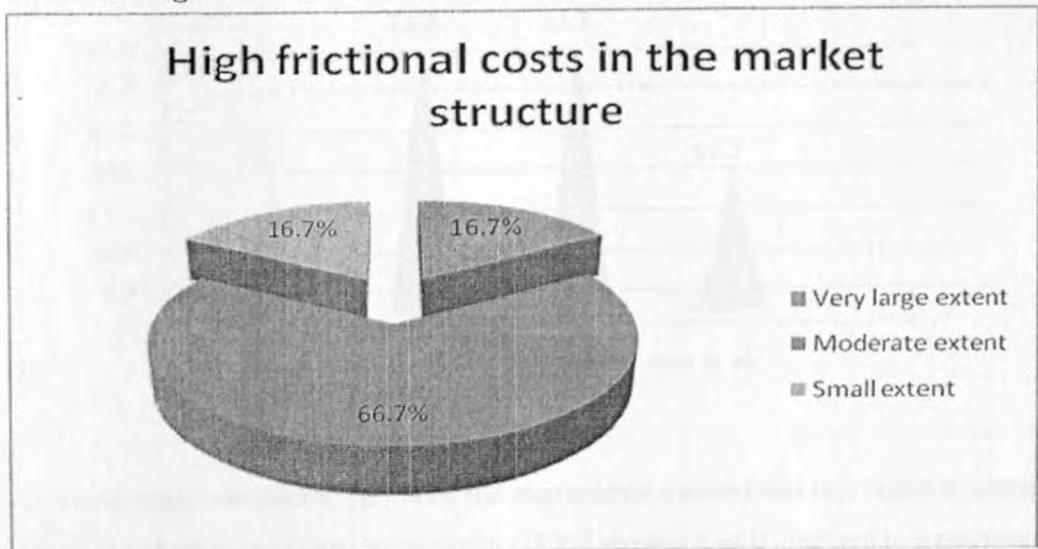
On institutional fragmentation of the market, 16.7% of the respondents showed that this factor hindered derivatives trading at NSE to a very large extent, while another 16.7% felt that it hindered to a large extent. 33.3% indicated that it hindered to a moderate extent while the remainder, representing another 33.3% showed that it hindered to a small extent.

Graph 9: Presence of rich OTC offerings by banks that hinders currency contracts.



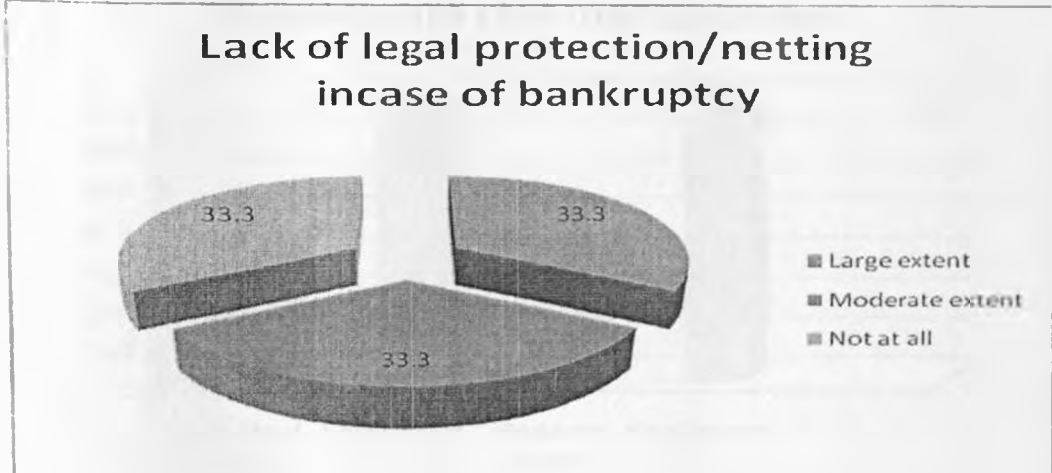
As depicted in the graph above, 16.7% of the respondents felt that this factor hindered derivatives trading to a very large extent while another 16.7% indicated that it hindered to a large extent. 33.3% showed that this factor hindered to a moderate extent while the remainder, representing another 33.3% indicated that it hindered to a small extent.

Chart 10: High frictional costs in the market structure.



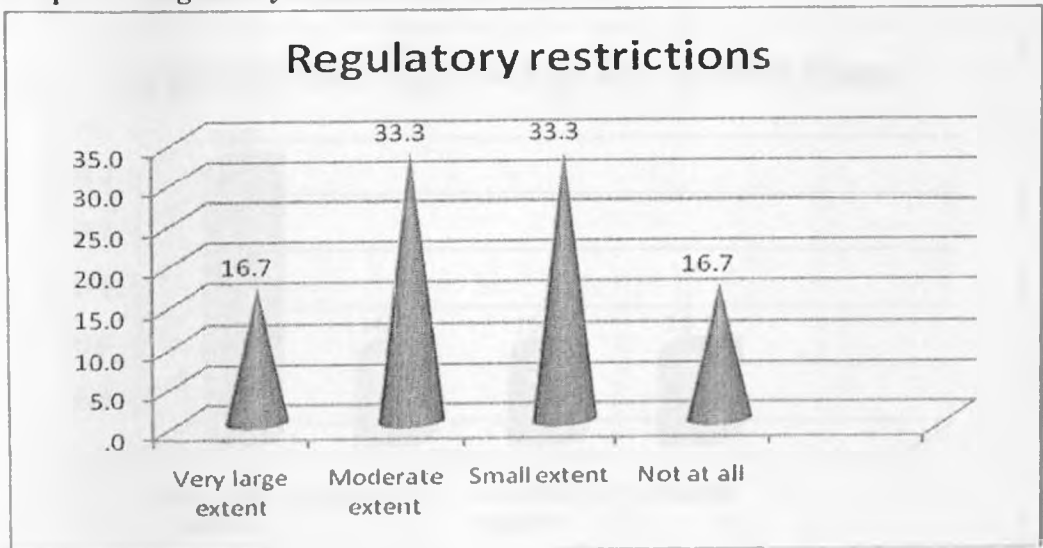
16.7% of the respondents felt that high frictional costs in the market structure hindered derivatives trading to a very large extent, 66.7% indicated that it hindered to a moderate extent and the remainder, representing 16.7% felt that it hindered to a small extent.

Chart 11: Lack of legal protection in case of bankruptcy.



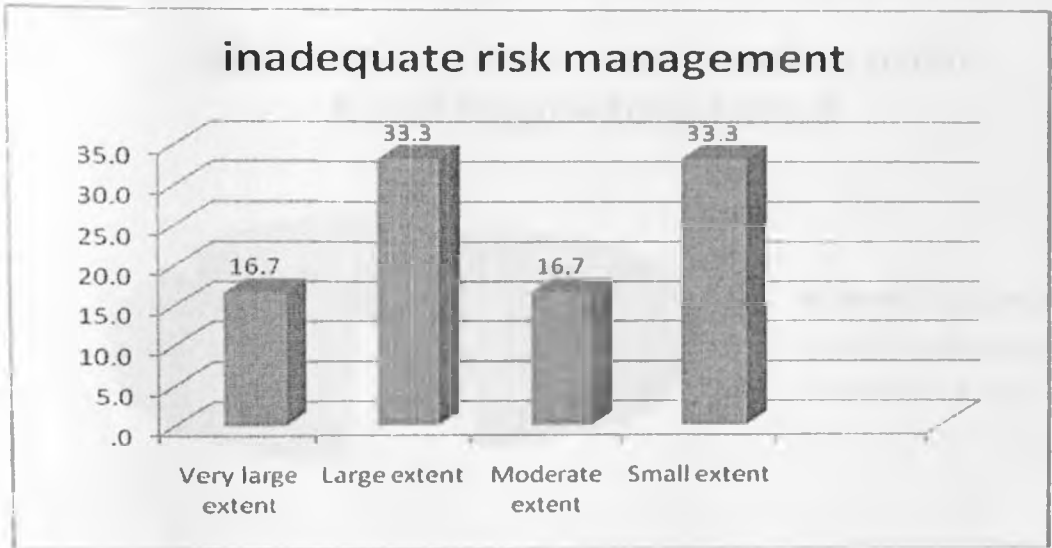
33.3% indicated that this factor hindered derivatives trading at NSE to a large extent, 33.3% felt that it hindered to a moderate extent, while the other 33.3% showed that it did not hinder at all.

Graph 12: Regulatory restrictions.



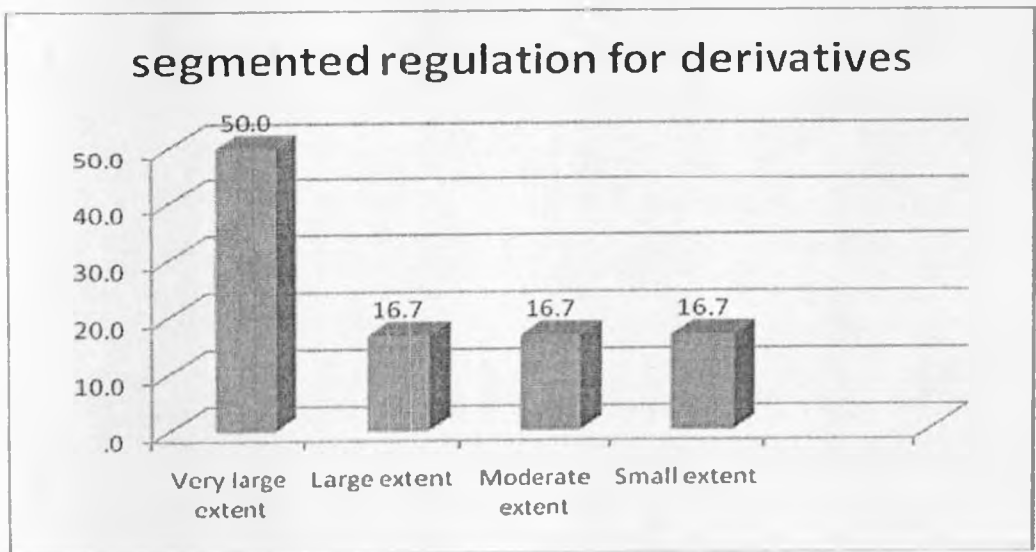
On regulatory restrictions, 16.7% of the respondents showed that this factor hindered derivatives trading to a very large extent, 33.3% showed that it hindered to a moderate extent, another 33.3% felt that it hindered to a small extent while the rest, representing 16.7% felt that it did not hinder at all.

Graph 13: Inadequate risk management.



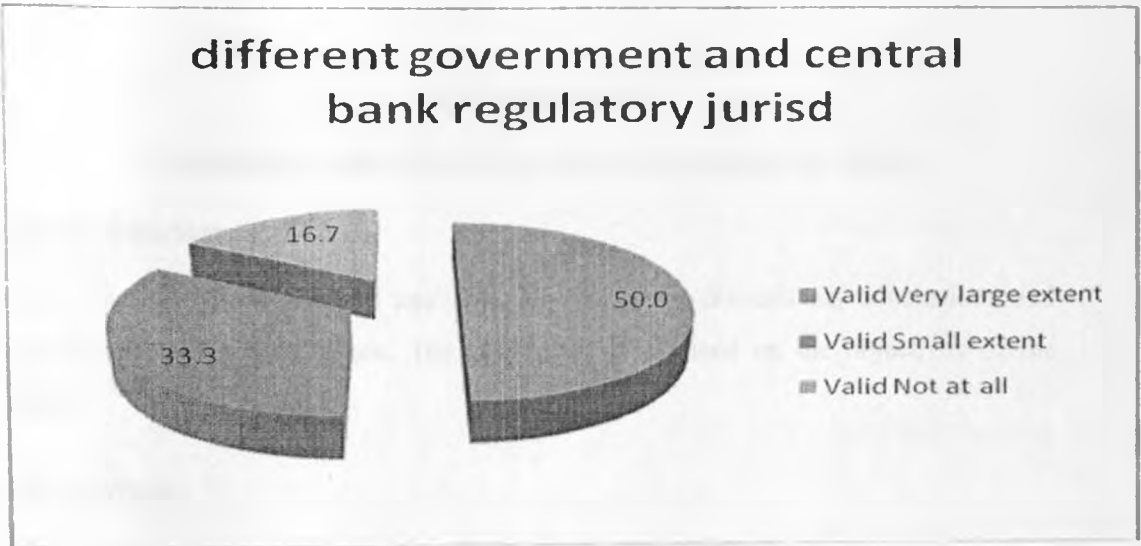
As depicted in the graph above, 16.7% felt that this factor hinders derivatives trading at NSE to a very large extent, 33.3% felt that it hindered to a large extent, 16.7% felt that it hindered to moderate extent while 33.3% felt that it hindered to a small extent.

Graph 14: Segmented regulation for derivatives.



On segmented regulation for derivatives, 50% of the respondents indicated that this factor hindered derivatives trading at NSE to a very large extent. 16.7% felt that it hindered to a large extent, another 16.7% to a moderate extent while the remainder representing yet another 16.7% indicated that it hindered to a small extent.

Chart 15: Different government and Central Bank regulatory jurisdictions



Of all the respondents, 50% indicated that different government and Central Bank regulatory jurisdictions hindered derivatives trading at NSE to a very large extent, while 33.3% felt that it hindered to a very small extent. Only 16.7% indicated that it did not hinder derivatives trading at NSE at all.

CHAPTER FIVE

FINDINGS, CONCLUSIONS AND RECOMMENDATIONS

5.1 Introduction

From the data collected and analyzed, the following discussions, conclusions and recommendations were made. The responses were based on the objectives of the study.

5.2 Findings

The study found out that there were distinct factors hindering development of derivatives trading at the NSE. From the factor analysis and the descriptive analysis fifteen factors have emerged as being the hindrances to derivatives trading at the NSE. Aside from the Likert scale factors, other factors were obtained directly from the interviews and discussions with the respondents. From the analysis, it has come out clearly that the major hindrance rotates around the regulatory environment.

5.2.1 Factors hindering derivatives trading at the NSE

First, derivatives are generally not well understood all over the world. There is little knowledge about derivatives and their trading mechanisms by the investor population. Kenya is a developing economy and hence, there is an even lower awareness on the part of the investors.

Secondly, the regulatory environment on derivatives is not well established. There is no policy position in regards to the market model to adopt; thus, whether it should be a segment of the NSE or a stand alone. There exists a lot of government intervention especially in the agricultural sector. For instance, the government imports cereals in times of shortage and subsidizes the same when it sells to the market. This distorts the market forces of demand and supply thereby negatively influencing a proper operation of a commodities futures market. Still on regulation, there is no regulated commodities market in place. A vibrant commodities market is a prerequisite for a derivatives market. There exists a lack of proper regulation on liberalization of flow

of cereals across borders and hence, border movements of commodities interfere with the market prices. Furthermore, restrictions imposed by regulators, sometimes on the basis of misunderstanding of the impact of derivatives, have tended to keep the financial derivatives market small.

Thirdly, there are inadequate storage facilities where farmers can store their produce. Besides, commercial farming in the country is not well developed. Inadequate infrastructure such as roads and railway contribute to non development of large scale commercial farming. Lack of certified warehouses and a warehouse receipt system by the National Cereals and Produce Board hinders development of a commodities futures market.

Fourthly, lack of a large, active retail investor population is also a hindering factor. Currently the NSE has about 50 listed companies. This is so low compared to more developed African exchanges such as Cairo stock market which has over 200 listed companies. The Kenya economy is thus not vibrant enough to enhance development of the derivatives market.

Fifth, there is inadequate liberalization of commissions and brokerage firms. The restrictive regulations in place hinder the “good faith” depositors would have in brokers. Additionally, high frictional costs in the market structures result from these restrictions, hence preventing other market players.

Sixth, currency contracts rarely trade well in developed markets. They may not trade well in Kenya due to the presence of rich OTC offerings by banks that hinders currency contracts. This is so because the banking industry is relatively well developed in Kenya (if the number of banks and the annual profits they earn is anything to go by).

The seventh factor is that the Kenya stock market has experienced bankruptcy of brokerage firms and subsequently being put under statutory management. The securities firms have not been able to promote derivative products to the mass retail market. The institutional fragmentation of the market has thus not helped in derivatives market development.

Eighth, the product range at the NSE is too narrow. This leads to domestic interest rates being insufficiently free to provide much scope for derivatives products. A single product exchange provides no other active products to fall back upon.

Further, sophistication of market mechanisms is relatively essential, although derivatives can still operate largely by open outcry on a trading floor. The Kenyan investors are generally less sophisticated. Derivatives market development would require more sophisticated investors. This is because the derivatives market operating mechanisms are more complex.

Risk management, even if crude, must be good enough to prevent systemic disaster. Investors at NSE, like at any other market, would require more sophisticated risk management measures. This is not currently in place.

Segmented regulation for derivatives exists at the NSE albeit without a clear policy and legal framework. Such segmentation hampers a clear understanding of the regulations governing derivatives trading. On the same note, the government and the Central Bank have different regulatory jurisdictions and this creates space for arbitrage. The regulatory environment thus needs to be clearly framed for a proper development of the market.

On the Kenyan scene, there exists no legal protection for closeout netting in case of bankruptcy. This contributes to investor apathy and lack of confidence. Furthermore, the systems at the NSE are weak. There is lack of a sound back office technology, and underdeveloped systems and structures of OTC market. There is therefore limited electronic infrastructure.

Lastly, as a demonstration of the Government's commitment to the East African Community regional integration, all citizens of the East African Community Partner States who invest in securities listed on the NSE and earn dividend income are treated the same as Kenyan residents and therefore pay withholding tax at 5%; the Capital Markets Act has been amended to increase the percentage of the equity offer in an initial public offer that is reserved for Kenyans, from 25% to 40% and citizens of the other East African Community Partner States can also access this allocation; foreign

investors can now acquire shares freely in the stock market subject to a minimum reserved ratio of 25% for domestic investors in each listed company (2002); there are no capital gains tax, suspended since 1985; as far back as 1997, foreign investors pay 10% withholding tax on dividends, domestic investors pay 5%. Such restrictions, although having been relaxed in the recent past have to some extent hindered derivatives trading at the NSE.

5.2.2 Study tours abroad, introduction of the CDS/ATS and demutualization of the NSE

According to the CMA Annual Report 2002, the regulatory body sought to strengthen the institutional arrangement by undertaking senior management and board study tours to gain exposure on the operations and regulation of financial products such as futures and options. However, no tours have since been undertaken by either the NSE or the CMA as of September 2010.

The CDS was introduced at the NSE in 2004 and the ATS in 2006. Although completion of the automation process would provide an impetus for development of a futures and options market, the main objective of the automation was to increase liquidity to establish a platform and infrastructure to facilitate trading more efficiently.

NSE is in the process of demutualization. According to Akhtar et al. (2002), demutualization refers to the change in legal status of the exchange from a mutual association with one vote per member and possibly consensus-based decision making, into a company limited by shares, with one vote per share (with majority-based decision making). Demutualization of the NSE is anticipated to provide an impetus to development of derivatives. This is because it will be motivated by profitability; it will provide for enhancement on the level of regulation and product growth which will increase turnover and liquidity. Given the profit motivation and probable new participants (owners), the derivatives agenda may be more speedily driven.

5.3 Findings of the study by the CMA on viability of commodities and derivatives market in Kenya.

The CMA sought to expand the market horizon by carrying out a study on the viability of establishing a futures and options market segment (CMA Annual Report 2002). The study was undertaken and released to the public in February 2010. Below are the findings of the study.

5.3.1 Ways of improving efficiency in commodities futures markets in the region

First, there is need for regulation of a commodities market. No market functions in a vacuum. In order to be efficient, the market needs an active, committed role of the government: a role of oversight, disciplining those who try to manipulate the market to their own benefit and ensuring the sanctity of contracts; and an enabling role, providing the necessary legal and regulatory framework and an even infrastructural framework, without which market actors cannot function properly. However, over regulation should be avoided.

Overregulation in the past was mainly due to a lack of understanding of the functioning and purpose of commodity exchanges. Commodity exchanges, if they function well, are an image of physical markets. Supply and demand conditions on the physical market, which would otherwise be known only to a small number of well-placed companies, are made visible, for all to see, through the functioning of the futures market. If supply/demand conditions are bad, from the government's point of view, the exchange may be the messenger that brings the bad news, but should not be blamed for this.

The relation between commodity exchanges and the government need not be one of adversaries. Insufficient understanding of the role and usefulness of commodity exchanges can lead to policies that hurt the exchanges and their users. Additionally, exchanges can neither do without the government, nor without a framework, which can only be created by the government. Governments need to police the exchanges so that direct and indirect users can rest assured that, indeed, the exchanges serve the public rather than a particular private interest. Governments can enable the functioning of exchanges through the provision of an appropriate legal and regulatory framework. Taking into account the large potential benefit of commodity exchanges

for a country's economy, governments can also facilitate the growth of emerging exchanges by providing targeted support.

A common explanation of the failure of domestic forward markets focuses on problems of enforcement; in the absence of a margin system or collateral, producers have an incentive to renege on the forward contract if prices subsequently rise. Knowing this, private traders would be reluctant to engage in forward transactions with producers. Overseas buyers, in turn, would be unwilling to commit to forward transactions with private traders. However, similar problems have been resolved through certain mechanisms in rural credit markets. Credit markets and forward markets share the characteristic that a promise is made today that may not be fulfilled tomorrow. It is therefore important that this market is regulated and organized, and that mechanisms are in place to require the various players in this market to fulfill their promises of delivery or payment.

An organized and regulated commodities exchange with a recognized trading platform provides security, standardized products and delivery. The contracts are secured, as their validity is guaranteed by the exchange. Futures contracts are standardized. In other words, the parties to the contracts do not decide the terms of futures contracts; but they merely accept terms of contracts standardized by the Exchange. This eliminates lots of risks that come with unrecognised platforms. Though delivery is not mandatory, the exchange specifies the quality of the goods to the last minute detail. This ensures that the commodity is of standardized quality.

Governments must therefore provide a common regulatory or insurance standard and some release of liability, or at least a backing of the insurers, before a commodity market can begin trading. One issue that presents major difficulty for investors in commodities products is the liability accruing to the purchaser and unless the product can be guaranteed or insured to be free of liability based on where it came from and how it got to market, it becomes impossible for sellers to guarantee a uniform delivery.

Secondly, the need for a watertight and efficient warehousing systems; Warehousing is the single most important factor in the development of efficient commodities and futures markets in any economy. The following activities are crucial in building

confidence of key stakeholders such as depositors, buyers and financiers in these systems. They are based on experience in the region, successful or otherwise, as well as from international best practice. First, the mutual link between WRS (Ware House Receipt System) and Commodities Exchanges (CE) needs to be recognized and actively pursued; implying that WRS initiatives should be complemented with the development of exchange trading systems and existing CEs should develop credible WRS. This would assure delivery of traded commodities as well as ease liquidation of collateralized stocks, thereby encouraging uptake for trading and financing purposes.

Secondly, robustly enforced rules, procedures and standards are critical in engendering confidence in these systems. These should include, among others, trade-friendly commodity standards, clear certification and/or licensing criteria for warehouses, operators and their personnel. Within the common law framework that exists in most countries in the region, warehouse and trading regulations, which are enforceable on the basis of contract laws, can provide legal basis for prescribing the basis for participation in receipting and exchange trading. However, specific warehouse legislation can further boost confidence in the receipts by clarifying the legal rights of, especially, third-party holders of the receipts.

Third, regulatory oversight of the exchange and others issuing tradable warehouse receipts should be exercised by relevant CMA or similar agency – this may require reform of particular national securities and exchange legislation.

Fourth, deriving from other warehouse legislation, self-regulated CEs and other entities authorized to control the issuing of tradable receipts should be responsible for effective enforcement of regulations, standards and legislations.

Fifth, warehouse legislation if enacted should address, among others, the issue of transferability (or negotiability) of receipt, rights of third-party holders, and the powers of the regulator (which, as in the case in Uganda, has been delegated to the Uganda Commodity Exchange). Model warehouse legislation can be made available to guide WRS promoters, who may also be provided with technical assistance in the form of legal expertise required to draft laws that take cognizance of country specific circumstances.

And lastly, to assure commercial sustainability, user fees have to be charged. To avoid making the system exclusive as a result of this, promoters should strategically target depositors who are able to deliver economic volumes. This may imply specifically targeting relatively large-scale farmers, traders and processors as depositors. However, to ensure that smallholder farmers are not excluded from utilizing the receipt system, collective marketing by well-organized, and primary-level farmer organizations should be promoted. Furthermore, links between WRS initiatives and micro-finance institutions supported inventory credit schemes need to be promoted as a means of encouraging aggregation. These measures notwithstanding subsidies may be required over a period of 4-5 years in developing a WRS which is widely-accessible.

The third factor for improving efficiency in commodities futures markets in the region is an active Government role in ensuring enhanced WRS. It should be acknowledged that government has a crucial facilitating role in the development of WRS and CEs in a given country/ region, including the following: first, maintaining an enabling policy environment that minimizes uncertainty in the market, particularly by avoiding *ad hoc* interventions which distort the market and discourages private stockholding such as import and export bans and restrictions on movement of commodities.

The second factor is creating a supportive legal and regulatory framework that is consistent with the national context but also allows for regional harmonization in order to enable stakeholders exploit regional trading opportunities. Thirdly, the need to provide financial support for building capacity of key players and in particular to ensure the emergence of a cadre of competent professional warehouse operators. Fourth, utilizing the WRS and CE in public sector procurement. The case of the World Food Programme (WFP), which has begun to use these systems in procuring relief food supplies, needs to be closely monitored so that lessons and best practices can be learnt to guide public procurement for strategic food reserves. This will not only have an important developmental impact but is also likely to significantly improve the cost-effectiveness of this activity.

Fifth, taking steps to promote investment in storage infrastructure especially in strategic locations as well as in improving market information collection and

dissemination and lastly, to ensure effective advocacy for public partnership in developing WRS and CEs, there should be a synthesis and dissemination of accumulated evidence-based material on the required role among stakeholders as a basis for dialogue with government.

The last factor on improving efficiency in commodities futures markets in the region is enhancing capacity and performance of WRS and CEs in the region. First and foremost, there is need for recognizing that potential warehouse operators may lack adequate storage capacity, particularly in surplus-producing areas, strategic investment by government and donors in expanding capacity may be necessary in some countries. This may be achieved through refurbishing existing state-owned facilities or constructing new facilities which should be leased to licensed/certified operators.

Furthermore, market information systems need to be strengthened to provide not only timely price information but also regularly updated crop budgets (supply and demand) and forecasts. And lastly, training and capacity building for key stakeholders is critical, including for warehouse operators to assure compliance, depositors and buyers as well as financiers.

5.3.2 Policy issues in establishing a commodity futures exchange

It is important to determine whether a 'commodity' itself constitutes a capital markets product or its derivative. If it does, then a firm can be registered as a commodities exchange within the authority's jurisdiction. If it does not, then the firm may either have to be registered as a commodities and futures exchange for purposes of being regulated, or barred from trading in futures or derivatives. Alternatively futures and derivatives aspect of the trading can be directed to the existing stock market, while the commodities trading aspect remains with the commodities exchange.

The second factor relates to the regulatory framework for commodities and derivatives markets. As the current commodities market activity picks up and the volumes rise, the market requires a strong and independent regulator. In some countries this market is regulated by a forwards markets commission (FMC) which is under the department of consumer affairs (ministry of consumer affairs, food and

public distribution) while in other countries such as Hong Kong it is regulated by the capital markets regulator. It is therefore important to determine who will regulate this market. If it is a separate regulator from the capital markets regulator, it needs to work closely with the capital markets regulator due to the inter-relationship between the two markets. It is also important formulate the necessary legal and regulatory changes and reforms to introduce and organize a commodity and derivatives trading market in the country.

The third factor is on ownership of a commodities exchange. It is important to make a policy decision on who will be the key owners of a commodities exchange, and whether or not, the commodities exchange would be demutualized to enhance corporate governance and whether it will have self regulatory organization (SRO) features post-demutualization. This is important as it is the trend with many of the top commodities exchanges, and may affect the Authority's regulatory role.

Next is the need for a free market. Commodity and futures trading can generally be conducted only in commodities which have competitive markets. It is necessary that the market forces of demand and supply largely determine the prices. Kenya is still a food importing country. There is also currently some move towards price controls by the Government. Further, sooner or later, to enable commodities or futures trading to work, the government will have to integrate the internal food-grains market with the global markets. It is appreciated in the policy circles that even in a shortage situation, a futures market helps to smoothen the demand for the commodity and has a beneficial impact of reducing intra-seasonal price-spreads. The effectiveness of Kenya's marketing boards in price stabilization is also an important factor, because if commodity prices will be continuously stabilized through strategic reserves, price differentials may be too narrow for the exchange to work.

The fifth factor is on warehousing infrastructure and standardization. Despite some market-determined and largely uncontrollable factors causing fragmented spot markets, it would be necessary to address some of the other issues, which contribute to fragmentation. The prices of commodities are influenced by their qualities, grades, seasons of production, the quality of storage and warehousing etc. Unlike securities, commodities come in different grades and qualities. Commodities are also bulky,

involving difficulties in transportation, which affects spatial integration. These issues can be addressed by introducing a nationwide warehouse receipt system. For a commodity derivatives market to work efficiently, it is necessary to have a sophisticated, cost-effective, reliable and convenient warehousing system in the country. Further, independent labs or quality testing centers should be set up in each region to certify the quality, grade and quantity of commodities so that they are appropriately standardized, with no shocks waiting for the ultimate buyer who takes the physical delivery. Warehouses also need to be conveniently located.

The other factor is trading infrastructure. Introduction of institutional reforms has also in the past been cited as a major factor affecting the growth and development of commodity derivatives markets. Setting up a modern exchange is considered necessary to create competitive pressure on the existing exchanges to adopt reforms. Diverse views have been expressed on the question of having such a nationwide multi-commodity exchange. It is also important to determine the system of trading, whether open outcry or electronic. In case the decision is to have an electronic platform, emphasis should be on an internet-based RECOTIS - an electronic database of clients interested in buying, selling, importing, exporting or distributing agricultural commodities – (or equivalent platform) for dissemination of market information.. The exchange would collect and disseminate marketing information on commodity offers, bids and prices through RECOTIS as frequently as it compiles the data, sometimes, several times a day. Information recipients can dialogue back-and-forth with the exchange's information technologists for more information.

A good delivery system is the backbone of any commodity trade transaction. In some countries, at maturity all outstanding contracts should be settled by physical delivery and this makes the delivery and settlement system inefficient. To avoid this, a delivery and settlement system should be in place to ensure that participants square off their positions before maturity. In practice, most contracts are settled in cash but before maturity. There is a need to make necessary legal modifications to bring the law closer to the widespread practice and save the participants from unnecessary problems.

The other factor is on tax and legal bottlenecks. There are at present restrictions on the movement of certain goods from one point to another. These need to be removed so that a truly national market could develop for commodities and derivatives. Also, regulatory changes are required to bring about uniformity in taxes across the counties in Kenya.

Lastly, a transition to modern systems and practices needs to be made by adopting policies which will unleash competitive pressures after the derivative markets are revived by traditional players rather than a demutualised nationwide multi-commodity entity thrusting new systems and practices on the traditional players. For example, allowing the stockbrokers trading in derivative segment of the security markets to trade in commodity derivatives market would hasten the transition to modern methods of trading, clearing and settlement.

5.3.3 Policy Recommendations

There is an urgent need for the Authority to expeditiously develop regulations on futures and derivatives trading to cover existing activities such as foreign currency dealings and expected demand for these activities. All futures and derivatives product should strictly be traded through the NSE in the Futures and Options Market Segment (FOMS), created in 2001. The main areas should include among others, regulations on electronic trading, delivery and settlement infrastructure; and market participants.

Secondly, existing commodities exchanges in Kenya should be regulated by a regulator to be established by the relevant ministry such as ministry of trade, agriculture or cooperatives and dealing with physical commodities. This regulator will have the powers to issue licenses for operating warehouses and commodities traders, suspend and revoke licenses where necessary, issue, suspend or revoke licenses for specialized personnel employed by warehouse keepers, e.g. weighters and graders, manage a registry of warehouse receipts and enforce grading standards for commodities.

Thirdly, market intermediaries trading in futures and derivatives at the NSE will have to be approved by the Authority, even if already licensed by the primary regulator of

the commodities market. Existing stockbrokers and investment banks should be allowed to trade in these products.

Fourth, the Authority needs to define and distinguish between commodities, derivatives and futures products in its rules and regulations, such that pure commodities' trading falls outside its jurisdiction. And last but not least, the Authority needs to work closely with the primary regulator of the commodities exchange once established by the minister of trade due to the inter-relationship between the two markets. Areas that will require cooperation include demutualization of existing exchanges, trading platform and clearing and settlement system.

5.3 Conclusion

There are many factors hindering derivatives trading at NSE. The regulatory environment in Kenya is however the major hindrance to development of the derivatives market. There is therefore an urgent need for the CMA to expeditiously develop policy guidelines and a regulatory framework on commodity (and even) futures and derivatives trading. Derivatives market development requires high level consultations among various stakeholders. These include the Ministry of Agriculture, Ministry of Trade, Treasury, CMA and the NSE.

Adoption of an appropriate market model is required. This would determine whether to adopt a derivatives segment or a stand-alone market. The next level is licensing of intermediaries and review of the existing trading and settlement infrastructure to accommodate new products and rolling out the process.

The strategic plans at the NSE and CMA towards development of the derivatives market should be speeded up. All stake holders including the Central Bank of Kenya, commercial banks, Ministries of Agriculture, Trade and Finance and stock brokerage firms should work together towards ensuring conducive regulatory framework for development of new products including derivatives.

Demutualization of the NSE is underway and this is expected to bring in new market players with a profit motive. This is expected to give the exchange a more efficient,

robust and entrepreneurial perspective which effectively may push for speedy development of the derivatives market.

5.5 Limitations and areas for further studies

This was a case study which focused on specific factors hindering development of the derivatives market at NSE. The study does not give generalizations of factors hindering derivatives market development in Africa or the East African region. Africa as a whole has really lagged behind in developing the derivatives market. Similar studies targeting other African stock markets may be undertaken. Other major stakeholders in development of derivatives market such as the Commodities Futures Market include the Ministry of Agriculture, Ministry of Trade and the Ministry of Finance. Data was not collected from these stakeholders for the purpose of this study. Other studies incorporating data from all the stakeholders are recommended.

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APPENDICES

APPENDIX I: INTRODUCTION LETTER

Evans A. Mutende
University of Nairobi
School of Business
P.O. Box 30197
NAIROBI.

15th September 2010

Dear -----

RE: REQUEST FOR RESEARCH DATA

I am a post graduate student at the University of Nairobi, Faculty of Commerce. In order to fulfill the degree requirements, I am undertaking a management research project. The study is entitled:

“Factors Hindering Derivatives’ Trading at the Nairobi Stock Exchange”

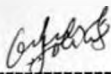
You have been selected as part of this study. This is to kindly request you to assist me collect the data by responding to the following questions. The information you give will be used purely and solely for academic purposes and will be treated with utmost confidentiality.

Should you require a copy of the research paper, I will gladly oblige.

Thank you in advance.

Regards,

Yours Faithfully,
Evans A. Mutende
Student



Joseph Barasa
Research Supervisor

APPENDIX II: INTERVIEW GUIDE

SECTION 1: PERSONAL PARTICULARS

- i) Name (Optional) -----
- ii) Department -----
- iii) Designation -----
- iv) Current Job Assignment -----
- v) Years of work experience in the current assignment-----

**SECTION II: ENDEAVORS BEING UNDERTAKEN BY THE NSE
TOWARDS DEVELOPMENT OF DERIVATIVES MARKET AT THE
BOURSE**

- a) Derivatives are not traded on the NSE. Why? -----

- b) In 2002 the NSE undertook management and board study tours to gain exposure on the operations and regulation of financial products such as futures and options. How many tours were undertaken? -----

c) To which specific stock exchanges did they visit? -----

d) How many people travelled and what were their designations/positions? -----

e) As at 2002, the NSE sought to expand the market horizon by carrying out a study on the viability of establishing a futures and options market segment. What were the findings of the study?

SECTION III: PROBABLE FACTORS HINDERING DERIVATIVES TRADING AND THE ROAD MAP ACTIONS NEEDED FOR THEIR DEVELOPMENT AT NSE

f) It was envisaged that the derivatives market would be operational once the Automated Trading System was established. Why hasn't derivatives trading started yet the ATS was established in 2006?

g) The derivatives market has grown exponentially in other regions of the world over the years. Why has the NSE lagged behind?

h) Are there any institutional and/ or infrastructural factors that NSE needs to implement to enhance development of the derivatives market? If yes what are they?

i) To what extent will the demutualization of NSE affect the growth of the derivatives market?

j) The following are probable factors hindering derivatives market development. On a scale of 1-5 where 5 - very large extent and 1- not at all. Indicate the extent to which each of these in your perception has hindered the growth of the derivatives market at the NSE.

	Very large extent	Large extent	Moderate extent	Small extent	Not at all
Lack of knowledge about derivatives					
Limited electronic infrastructure					
Regulatory environment					
Lack of a large, active retail investor population					
Inadequate liberalization of commissions					
Ceilings on foreign investment at the NSE					
Lack of support from securities houses					
High frictional costs in the market structures					
Presence of rich OTC offerings by Banks that hinders currency contracts					
Regulatory restrictions					
Institutional fragmentation of the market					
Too narrow a product range at the NSE					
Lack of a mutual offset facility					
Lack of tax breaks for the exchange and its traders					
Pre-emption of interest					

Low market capitalization		•			
Inappropriate strategy to market conditions					
Unsophisticated investors					
Inadequate liquidity					
Inadequate risk management					
Segmented regulation for derivatives					
Different government and central bank regulatory jurisdictions					
Lack of legal protection/netting incase of bankruptcy					
Tax events that distort the market					
Inappropriate accounting rules					
Obsolete valuation rules not revealing executable prices.					

k) What are the current roadmap actions towards development of derivatives trading at NSE?

Thank you for your Cooperation.

APPENDIX III: LIST OF MEMBER FIRMS OF THE NSE

1. Drummond Investment Bank Limited
2. Suntra Investment Bank Limited
3. Kingdom Securities Limited
4. Sterling Investment Bank Limited
5. NIC Securities Limited
6. Discount Securities Limited (Under Statutory Management)
7. Genghis Capital Limited
8. Dyer & Blair Investment Bank Limited
9. Reliable Securities Limited
10. Afrika Investment Bank Limited
11. Apex Africa Capital Limited
12. Standard Investment Bank Limited
13. African Alliance Kenya Securities
14. Ngenye Kariuki & Co. Limited (Under Statutory Management)
15. CFC Stanbic Financial Services
16. ABC Capital Limited
17. Faida Investment Bank Limited
18. Kestrel Capital (EA) Limited
19. Renaissance Capital (Kenya) Limited

Source: NSE

APPENDIX IV: STUDY RESPONDENTS

NO.	FIRM	POSITION TITLE	NO. OF YEARS IN THE FIRM	DEPARTMENT
1	Nairobi Stock Exchange	Head of Market and Product Development	10 years	Market and Product Development
2	Nairobi Stock Exchange	Market and Product Development Manager	1 year	Market and Product Development.
3	Capital Markets Authority	Manager	8 years	Research & Product Development
4	Kingdom Securities Limited	Dealer	5 years	Dealing
5	Suntra Investment Bank Limited	Manager	3 years	Research, Corporate Finance
6	Kestrel E.A. Investment	Dealer	2 years	Dealing

Source: Research data