



FACTORS INFLUENCING GROWTH OF DERIVATIVES MARKET IN KENYA: A CASE STUDY OF NAIROBI SECURITIES EXCHANGE

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ABSTRACT

The research objectives and research questions set out and the scope of study limited to Nairobi securities exchange. Descriptive research design was used in the study. The population census was drawn from the Nairobi Securities Exchange of 18 firms' financial participants and key staff from the Capital Markets Authority of Kenya as a result therefore stratified and purposive sampling technique was used to sample 114 employees in 18 firms. The sample size was 39 employees from 12 firms. Both primary and secondary data was used. Data collected was validated, edited, coded and then analyzed qualitatively from 33 respondents. The study revealed that 60.9% changes in growth of derivatives market in Kenya could be accounted for by changes in financial innovation, regional market integration, and risk management legal and regulatory frameworks. From the findings the study found out that there was a strong positive relationship between the study variables. The study further revealed that the regression model had a significance level of 0.1% which is an indication that the data was ideal for making a conclusion on the population parameters as the value of significance (p-value) was less than 5%. At 5% level of significance and 95% level of confidence; risk management showed a 0.0017 level of significance legal and regulatory showed 0.0027 level of significance, financial innovation showed 0.0028 level of significance; regional integration showed 0.0016 level of significance; hence the most significant factor was financial innovation. Overall financial innovation had greatest influence on growth of derivatives market in Kenya ($p < 0.05$).

Key Words: Integration, Kenyan Financial Market, Legal and Regulatory Framework, Financial Innovations, Risk Management, Derivatives Market

INTRODUCTION

According to Brigham and Houston (2008), a financial derivative is a security whose monetary value is derived from the price of some other underlying asset. The commonly traded financial derivatives include options, swaps and forward and futures contracts. Saracco (2007), on the other hand defined a derivative as a financial instrument based upon (or derived from) some asset, such as a stock when two people agree to exchange cash or something based on conditions affecting the underlying asset. Essentially, one party uses the trade as a way to mitigate (or hedge against) risk; the other party use the trade as a way to gain immediate income (through fees or premiums) and/or to speculate that future market conditions will provide profits.

Dodd (2002) stated that, a complete view of capital markets is a made up of securities markets; real estate investment trusts (REITS), banking industry, insurance and pension funds and the derivatives markets. Derivative market is investment market that is geared towards the selling and buying of derivatives for risk management and price discovery. Derivatives markets are divided into two; the over the counter (OTC) and exchange markets. OTC derivatives, on the other hand, are private contracts between two parties, typically either between the proprietary trading desks of two banks, or between a bank and one of its customers and these contracts are heterogeneous González-Hermosillo, (1994).

Blommestein and Antolin (2007) noted that there has been a growth in derivatives in both advanced and developing markets. Public debt directors in most advanced markets already use derivatives to some extent, and many developing market debt managers have begun to use them as well.

A derivative trading has a long history as back as 8000BC. The first written accounts of derivative contracts can be traced back to the philosopher

Thales of Miletus in ancient Greece, who negotiated what were essentially call options on oil presses for the spring olive harvest. De la Vega reported in 1688 that options and futures were trading on the Amsterdam Bourse soon after it was opened. Evidence also suggests that futures contracts for rice were traded in Japan in the 17th and 18th centuries (Chance, 1995). Most of the products were natural products of the soil. Between 16th and 18th century, trading of commodities in the western world utilized agreements that are similar to forward contracts. The problem was that the agreements were still between parties that must had to deal with each other directly and the parties had to trust each other party for trade to take place. Chicago Board of Trade (CBOT) was established in 1848 in order to bring order and control in the markets Pathak, (2011).

Derivative market helps in the management of financial risk exposure-to hedge a variety of risks. Essentially, such markets could contribute to a more efficient allocation of capital and cross-border capital flow, create more opportunities for diversification of portfolios, facilitate risk transfer, price discovery, and more public information (Tsetsekos and Varangis, 1997).

Originally, big derivative exchanges were exclusively located in the US. Present day, Europe is the most significant part in the global derivatives market, with over 40 percent of the global volume in derivatives trade significantly higher than its share in equities and bonds. Big European derivatives exchanges appeared only after demutualization and deregulation in the eighties and nineties. These European exchanges were more independent of their users (DBG, 2008). The European exchanges revolutionized trade by fully going electronic trading and setting industry regulations and principles. Derivative market in India has been in existence in more than one form for long duration. Derivative trade in India started in June 2000 after Securities and Exchange Board of India (SEBI) gave

them the final approval for resuming again. Since the re-introduction in 2000, India financial derivative market has shown a remarkable development in terms of volumes and numbers of traded contracts (Vashishtha and Kumar, 2010).

The first evidence of derivative trade in Africa is associated to Alexandria's futures market in Egypt which is regarded one of the oldest in the world. The first recorded cotton transaction took place in 1865 in Alexandria Café. It was here cotton merchants met and cut deals on supply and demand basis. Over the years, Egypt business grew and in 1899, Alexandria Cotton Exchange was created. In 1909, cotton forward contracts were legalized. However, after a series of agrarian reform laws, the Bourse was nationalized in the 1950s and subsequently abolished. Initiatives about the re-introduction of the exchange are revived from time to time (MFA, 2008).

In Africa, South Africa is in the forefront with other African countries debating whether it is beneficial to have the derivatives market, taking into consideration the costs involved in providing the necessary infrastructure and the regulatory framework into place. The growth of exchange-traded derivative instruments in South Africa started in the late 1980s. The South African Futures Exchange (SAFEX) was informally launched in 1987 and over the years evolved as a leading emerging market.

It started trade on financial futures including options on futures- gold futures, the creation of the Agricultural Markets Division in 1995 led to the introduction of a range of agricultural futures contracts for commodities such as maize, wheat and sunflower seeds. Later options on agricultural products were launched in 1998. In 2001, JSE Securities Exchange, in South Africa, absorbed SAFEX to become Africa's most active and important commodity exchange.

Kenya agricultural commodity exchange (KACE) has been dealing with agricultural products like tea and coffee. KACE was established in 1997, as a forum for trade in spot and forward contracts for a range of commodities. It is a private sector firm launched in Kenya in 1997 to facilitate competitive and efficient trade in agricultural commodities, provide reliable and timely marketing information and intelligence, provide a transparent and competitive market price discovery mechanism and harness and apply information and communication technologies (ICTs) for facilitating trade and information access and use in Kenya and subsequently scale out to the East African Community (www.kacekenya.co.ke). In addition the oil industry has been doing swaps for currency to avoid currency volatility effects thus reduced effect on oil prices

The Kenyan government is putting together a derivatives exchange. At present, there are no exchange traded derivatives or documented over-the-counter derivative markets in the country. The first steps have already been made in this direction as relevant legislation is being put in place. The then finance minister Uhuru Kenyatta in the 2011 budget talked of the development of a derivatives exchange which is a very welcome move.

Statement of the problem

The derivative market is not a new thing in the global financial market. However, in the African context it is almost non-existent with only South Africa boasting of an organized over-the-counter derivative market. Prior studies have shown that investors have used these derivative instruments to hedge and to speculate in currencies, commodities, stocks, bonds and other assets (Hull, 2006). This has seen an inflow of capital into countries with an organized derivative market. With the present discovery of oil in Kenya, tea production and expansion of the financial sector, this presents a

perfect opportunity for developing a derivatives market.

Ithai, (2013) dealt with credit derivatives in the banking sector and concluded that regulatory issue was the impediment to derivatives absorption. Oil as a commodity is traded using the forward and futures contracts in order to hedge against price volatility and this would be done better over an organized derivatives market. According to Olatundun (2009), emerging economies are featured by shallow financial market and inadequate access to finance which is a major problem and derivatives trading would greatly assist in providing solutions. To date derivatives market has received low levels of empirical investigation among the possible factors influencing growth of derivatives market. This is the gap in knowledge that the study intends to fill.

Objectives of the study

The general objective of the study was to establish the main factors that influence growth of derivatives market in Kenya. The specific objectives of the research were:

- To evaluate the extent to which integration of Kenyan financial market with international markets influence growth of derivatives market
- To determine how the legal and regulatory framework influence growth of derivatives market.
- To assess to what extent financial innovations drive the growth of derivatives market in Kenya
- To find out the extent to which risk management influence the growth of derivatives market in Kenya.

LITERATURE REVIEW

Theoretical Review

Portfolio Theory

Harry M. Markowitz published in 1952 a path-breaking article (Markowitz, 1952) which he expected in 1991, argued that the traditional application of one-dimensional investment criteria such as the Net Present value (NPV) criterion should be replaced by two dimensions: Expected returns and risk, defined as the standard deviation of the return distribution. He argued also that investors should not look at securities individually. It is unrealistic to assume that investors or investment advisors can predict the future return of individual stocks.

However, based on empirical analysis of the co-variation of the returns of several securities, it is possible to make portfolio judgment, in which the imperfect correlation between the securities can be exploited for diversification. The focal of investors should be on the effect of combining securities. In a realistic setting, investors must make a trade-off between expected returns and risk. The available investment globally constitutes an efficient frontier with a slope shape which reflects the interchange in the financial market between all investors with a dissimilar degree of risk-aversion. If an individual investor wants a higher expected return, he must accept a higher risk.

In 1993-1994, J.P. Morgan revised their technical paper and popularized the concept of Value-at-Risk (VaR) as portfolio risk measure to be applied by financial markets in the capital adequacy calculations to be presented to financial regulators. VaR is a measure estimated by means of historical statistics on volatility and correlations among a sample of financial assets and focusing on the probability of incurring losses. For a given portfolio, probability and time horizon, VaR is defined as a threshold value, which can be used to guide the portfolio managers to keep the probability of suffering losses below a certain level.

Theory of Market Microstructure

Derivatives markets is based on the theory of market micro structure which is a field in financial economics and concerned with the details of how securities exchange occurs in markets, most commonly financial markets. Market microstructure deals with market structure issues, design, price formation and price discovery, transaction and timing cost, information and disclosure, and market maker and investor behavior according to O'Hara, (2007)

Market microstructure is the study of the processes and results of exchanging assets under a specific set of rules. In addition market micro structure examines trading in instruments. These instruments according to Harris (2002) include common stocks, preferred stocks, bonds, convertible bonds, warrants, options, futures contracts, foreign exchange contracts, swaps, reinsurance contracts, commodities, pollution credits, water rights and other betting contracts.

The market structure and design focuses on the relationship between price determination and trading rules of the derivatives. Market infrastructure allows the smooth and efficient operation of the derivatives exchange and hence it should be well structured. A well-structured market will provide efficient price discovery, low cost risk management and help capital markets in raising capital (Dodd, 2007).

The evolution of technology has great influence the exchange architecture. Modern finance theory treats a derivatives exchange as an information (Tsetsekos, 1997). The transaction cost and timing cost focuses on the impact of transaction cost on investment returns and execution methods. Transaction costs include order processing costs, adverse selection costs, inventory holding costs, and monopoly power. According to Harris (2002), transaction costs include all costs associated with trading. These include explicit costs, implicit costs and missed trade opportunity costs. Traders must effectively manage their costs to successfully trade.

The information and disclosure focuses on the market information and transparency, and the impact of the information on the behavior of the market participants. Transparency is the ability of market participants to observe the information in the trading process (O'hara, 1995) across different markets. Information-based microstructure models have demonstrated that the information available in the trading process can affect the trading strategies of market participants. It thus follows that the market equilibrium depends on the degree of transparency.

Option Pricing Theory

In 1973, Fischer Black and Myron S. Scholes published an article (Black and Scholes, 1973), which revolutionized financial theory and laid the foundation of a phenomenal growth in derivatives markets in the following decades. The so-called "Black-Scholes Formula" determines the value of a European call option as a function of the exercise price, the market price of the underlying asset, the time distance to exercise, the risk-free interest rate and the volatility of the underlying asset. The formula is based on the assumption that investors are able continually to adjust their portfolios. The sphere of finance is the study of economic resources across time and environment. To capture the influence of financial innovation you need sophisticated tools to analysis for decision like option pricing.

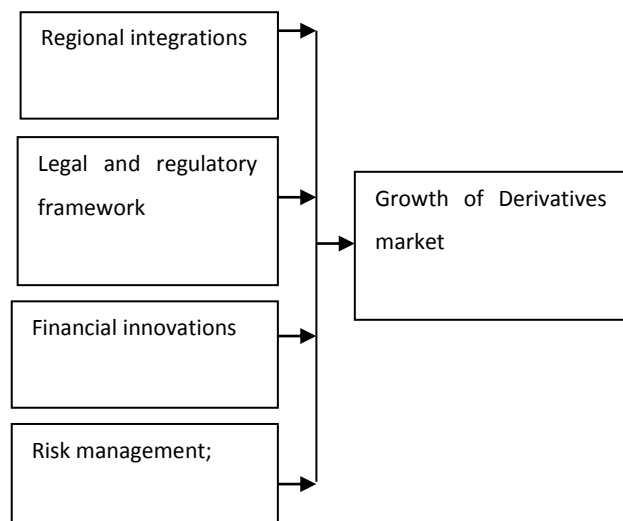
Agency Theory

The principle agency relationships arise when parties engage other persons to perform some service on their behalf, which involves delegating some work in making authority to the agents. The contract between the parties will typically contain a set of commissions in order to limit divergences between their interests. In order to ensure desirable results, the principals will also pay upfront costs. Issues associated with the separation of

ownership and controls are intimately associated with agency problems. It follows that capital structure theory and agency problems are related. Jensen and Meckling investigate the incentives faced by the parties involved.

A company can be seen as an intermediary for a set of contracting relationships among individuals. The firm is a legal fiction, which serves as a focus for a complex process in which the conflicting objectives of interested parties are brought into equilibrium within a framework of agreed relationship. Agency theory has contributed to the corporate governance literature and the regulation of listed companies. The analysis of potential conflicts of interest supports the formulation of rules concerning shareholder rights, investor protection, disclosure and transparency. Asymmetric information is important for the distribution of power between managers and shareholders, because managers always know more about the company than the external owners do, but asymmetric information plays a broader role in financial markets.

Conceptual Framework



Independent variables **Dependent variable**

Fig 1: Conceptual Framework

Source; Author,(2015)

Empirical Review

Financial Derivatives

According to Brigham and Houston (2008), a financial derivative is any security whose value is derived from the price of some other underlying asset. The commonly traded financial derivatives include options, swaps and forward and futures contracts. Saracco (2007), on the other hand derivative is a financial instrument based upon (or derived from) some asset, such as a stock or stock index (in the case of an equity derivative).

Udo (2004) stated that Developed economies are characterized by high financial deepening which has, in turn, led to the growth and development of the entire economy. Countries with high financial deepening are likely to have the potential to generate positive employment, improved productivity and growth. Further Udo (2004) noted that continued decrease in the size of financial assets in most SSA countries due to non-existing or poor functioning of the capital markets, as well as the absence of structural reforms relating to financial institutions, contributes to shallow financial deepening. Dabla-Norris (2012) refers financial deepening to the process of enhancing and broadening financial systems by increasing the depth, liquidity, efficiency, and volumes of financial institutions and markets, diversifying domestic sources of finance, and extending access to banking and other financial services.

According to Ngugi et al. (2009) capital market development makes the financial market move towards a level of complete market which is the financial deepening. When the capital markets develop, they offer opportunities to the investors to diversify their financial asset basket and the firms' opportunity to diversify the sourcing of finance. Moreover, access and size and depth have significant implications on the real activity, economic growth and welfare. Derivatives markets are believed to bring about financial deepening in an economy through the various services they

provide. Tsetsekos and Varangis (1997) stated that the process of introducing successful derivative products was lengthy and that both government regulations and a self-regulatory structure are usually needed. There is a fine balance between government's regulatory role and an exchange's self-regulations. The basic assumption is that having a well-functioning derivatives market is in the interest of all concerned.

IMF (2002) found out that the most common problems that constrain the development of local derivatives markets are relatively underdeveloped markets for underlying instruments, weak or inadequate legal and market infrastructure and restrictions on the use of derivatives by local and foreign entities. MFA (2008) identified several trends which have characterized the development of derivatives exchanges in emerging markets. First, the consolidation of exchanges within or between countries aimed to achieve higher efficiency and market.

Second, increasing cooperation denoted by the signing of memoranda of understanding between exchanges in different countries which serve a variety of purposes including personnel training, sharing of internet-based trading platforms, and joint listing of products. Third, a preference for financial over commodity derivatives products in the newly created exchanges in emerging markets contrasting with older exchanges, which usually started trading just commodities. Finally, the segregation of trading rights and membership rights allowing outside ownership of the exchange that is demutualization in stock and derivatives exchanges. Ersen and Karagozoglu (2003) found out that between 1989 and 2000, 183 derivatives contracts were introduced by 10 derivatives exchanges in emerging countries and that were mostly futures contracts on financial assets. They indicated that 45 percent of the contracts launched by emerging country exchanges failed on average after 2.75 years. Roopnarine et al. (2005) found out that

investors and top executives in the CARICOM region were not ready or adequately prepared to allow the development and expansion of derivatives trading because of the fears they had on the derivatives and) further recommended that; first education and knowledge among all market participants should be enhanced, then reinforce information standardization, financial compensation schemes of employees and disclosure at all levels of the derivatives industry

Olatundun (2009) pointed that South Africa success was as a result of their gradually relaxing exchange controls and further developing its financial market with the introduction of the currency futures market. According to Mugo (2009) introducing derivatives exchange based on Asia's emerging markets, the study concluded that derivatives' trading has immense benefits and stressed that emerging markets should strive to establish derivatives markets to enjoy the benefits of derivative trading as enjoyed by most developed markets.

Legal and Regulatory framework in derivatives market

The past five decades have been characterized by liberalization and deregulation, Sewel,(2007). An important implication is that people and institutions have experienced more freedom. They have been allowed more and more to define and follow their own goals within the framework of laws and regulations. In deregulated financial markets, the market participants are allowed to try to maximize profits, wealth or utility or whatever goal they may have, and the market development must be understood as the result of their efforts to do so (Alberta Market Solutions Ltd., 2003). Unconstrained optimal behavior of investors, company managers, banks, institutional investors and households is exactly what financial theory is about.

Liberalized domestic regulation intensified international competition, rapid innovations in new financial instruments, and the explosive growth in information technology fuel this change (Tidd & Hull, 2003). Taxes tend to constitute an increase in explicit transaction costs, which could affect market liquidity. Such taxes can become impediments to the creation of deep and liquid markets in the sense that raising trading costs can constitute an entry barrier, attracting fewer dealers and investors (Ahuja, 2006). Legal, regulatory, and prudential frameworks should be developed for purposes of governance and supervision of the markets. The three basic objectives of regulation are to protect market integrity, to ensure fierce levels of competition, and to prevent fraud (Sewel, 2007).

According to Edward and Green, (2004) said that for new derivatives trading, the regulator will need to establish its policy on licensing intermediaries. This extends to clients of those intermediaries and proprietary traders so that all market users will need to make preparations to participate in the market. The period of time the market operator takes to draft, review and finish new derivatives rules should not be According to Green and Edward (2004), the primary legal uncertainty associated with derivatives in U.S. had been over provisions of the Commodities Exchange Act (CEA), pursuant to which the CFTC arguably possesses exclusive jurisdiction over transactions involving contracts of sale of a commodity for future delivery i.e. future contracts as well as options on such contracts.

Financial Innovation

Financial innovation is defined as the introduction of a new instrument to a market or the production of an existing one in a new manner, Bhattacharyya & Nanda, 2000). Financial innovations appear because market participants are constantly searching for new modalities to make greater profits.

The Central Bank of Kenya launched a Real Time Gross Settlement (RTGS) system known as the Kenya Electronic Payments and Settlement System (KEPSS) in July 2005 in an effort to modernize the country's payment system in line with global trends (Oloo, 2007). The process of "financial innovation" includes important changes in financial instrument, institutions, practices and markets. Financial innovations include new forms of derivatives (credit derivatives, weather derivatives) insurance contracts, corporate securities, and pooled investment products; process innovations include improvements on securities-distribution methods and pricing transactions.

According to Noyer (2007), financial innovation has not only opened up new opportunities for the sector participants, but also increased new market players arising from new products in the financial market. The primary revenue-enhancing innovations occurring today are in platform automation for branch and phone center employees, and in the newest distribution channel, internet and mobile banking. While these innovations have aspects in common, they each serve different needs in the distribution strategy of commercial banks (Mansury & Love, 2008).

Increased Financial Markets Integration

In economic terms, integration implies price convergence. Fully integrated financial markets imply that traders can perform transactions freely anywhere within an area. In a financially integrated region, therefore, prices for similar financial assets—i.e., those with similar expected risk-adjusted returns—should converge, Baele et al. (2004).

Thus, perfect integration in the securities infrastructure requires the same and open access to trading, clearing and settlement platforms for their users or providers. Financial integration therefore

implies greater co-movement of prices in the region and is typically accompanied by an increase in the share of financial assets traded within the region and that held by regional participants, Shy, (2001)

According to Hasan and Schmiedel, (2004); financial integration, mainly reflected in increased competition in domestic markets, has contributed to a more developed and sounder local financial system. Exposure to global capital markets has increased competition as well as the number of intermediaries and investors, leading to more transparent pricing and lower transaction costs. Foreign players' involvement in local markets has changed trading patterns by promoting the use of more sophisticated instruments, thus contributing to the adoption of the best international market practices, Lee, (1998). The use of more complex instruments, such as derivatives, has led to more efficient risk management by banks and other private entities. Arbitrage opportunities have increased, resulting in more efficient market pricing. Financial integration has also driven forward the adoption of actions aimed at improving understanding of monetary policy decisions. These developments, together with deepening credit markets, have strengthened the expectations and credit transmission channels of monetary policy.

Risk Management

Risk management is the process of identifying, quantifying, and managing the risks that an organization faces, D. w cox(2007). As the outcomes of business activities are uncertain, they are said to have some element of risk. These risks include strategic failures, operational failures, financial failures, market disruptions, environmental disasters, and regulatory violations.. People and institutions are confronted with risk in some form, whenever they make transactions in financial markets. Several financial markets and institutions provide opportunities to transfer risk, Bernanke,

B.S, (2008). Due to financial innovation, these opportunities have been improved tremendously in the last five decades. Insurance companies owe their existence to the presence of risk-aversion.

Shiller (1993) argued that new financial products should be introduced to track the health of regional industries, housing prices, and other shocks that affect many individuals' livelihoods. The key thing to note about this hedging is that the conditions under which it provides a satisfying explanation for financial activity are simple and clear. Individuals on the two sides of a trade should be differentially exposed to some source of risk and the trade they undertake should mitigate this. Banks also partly owe their existence to the presence of risk-aversion. Depositors are willing to accept an interest rate, which is considerably lower than the interest rate paid by borrowers to the bank. They do it because the bank carries the default risk on the borrowers.

Credit default swaps and other derivatives are designed to transfer risk between seller and buyer. Risk does not disappear, when it is traded. It is moved from one market participant to another at a price. Such risk transfers increase the welfare of the society as risk-averse market participants improve their own utility by paying risk-willing counterparties to carry the risk, John C Hull(2007)

Risk-takers play an important role in financial markets. Banks carrying the default risk on their borrowers have a strong incentive to monitor the performance of them. Credit evaluation by bankers is indispensable, Merton (1995). Value at Risk-VaR, results depend upon volatility inputs, since volatility is used to create the dispersion of portfolio values, and as volatility used by the VaR models increases, initial margin will increase, Lopez, J., (1999). Initial margin is dynamic in this sense – it rises and falls according to changes in volatility inputs of the VaR models. Increases in model volatility, such as

might occur in a crisis, could cause significant increases in initial margin requirements.

From the perspective of a market participant, initial margin therefore gives rise to both a current liquidity requirement, needed to fund current margin obligations, and a contingent liquidity requirement, resulting from potential increased margin calls should volatility increase. Risk shifting – commonly called hedging – is the transfer of risk from one entity who does not want it to another entity that is more willing or able to bear it. In doing so, derivatives can help discover the price of underlying assets, commodities, events or certain types of risk.

Growth of Derivative Market

The growth of derivative markets during the past decade is that many institutional portfolio managers added commodity derivatives as an asset class to their portfolios. This addition resulted in substantial growth in the use of commodity derivatives—growth out of proportion with the historical levels associated with commercial hedging. This shift was part of a larger change in portfolio strategy away from traditional equity investment and toward derivatives based on assets such as real estate and commodities. Financial globalization facilitates greater diversification of investments and enables risk to be transferred across national financial systems through derivative instruments Jobst, (2007). Remolona (1993), states that the most successful exchange derivatives are those which add liquidity to the underlying markets. Both studies complement each other by providing the understanding of cash inflows into economies with organized derivative markets as speculators are willing to provide liquidity by expecting to make some money of their risk exposure. This buttresses the necessity for a derivatives market in emerging economies especially. Fratzscher (2006) pinpoints

the strong development of equity derivatives in Korea and India is a reflection of a robust operational and legal infrastructure backed up by an organized cash market. According to Jobst, both countries have well designed trading platforms, which provides access to both domestic and foreign institutional investors and reliable tax regimes which ensures the equitable treatment of cash and derivatives trade. Moreover, the study also shows that countries lagging have weak trading infrastructures, no universal market practices, shortcomings in relevant laws that create uncertainty about whether derivatives contracts can be enforced, bans on short selling and restrictions on investment by foreigners. Jobst (2007) provides some insight into the workings of the Asian emerging derivatives market and pitches its success on certain requisite conditions such as a legal framework backed by an organized cash market.

RESEARCH METHODOLOGY

This researcher employed descriptive research design. The target population was the 18 investment firms who have 114 employees that participated in the NSE, but only 12 formed the sample comprising of 39 employees since it would be more logical when they are eliminated from the study. The main data collection instrument was questionnaire containing both open ended and close ended questions. Secondary data was collected from CBK and CMA statistics from 2013 to now.

RESULTS AND DISCUSSIONS

This study had targeted 39 respondents from the NSE list of participant firms (Investment firms). However, due to the study limitation, 33 responses were achieved which represent 85% response rate. Most (75%) of the respondents were aged between 30 and 39 years, 18% of the respondents were in

the ages 20 to 29 years while 7% of the respondents were aged between 40 to 49 years. Majority (65%) of the respondents were male while female respondents comprised of 35%. Most of the (60.6%) respondents were degree holders, 39.4 % of the respondents had attained a post graduate education level. This implies the majority of the financial/investment advisors/analysts were knowledgeable in the securities markets. Majority (60%) of the respondents had attended a course on financial derivatives while 30% had not attended a course on financial derivatives. This meant that majority of the financial/investment advisors had the right and required skills and knowledge to implement the aspect of financial derivatives in their individual organizations. The findings indicated that majority (68.4%) of the respondents had between 0 to 5 years as well as 31.6% of who had between 6 and above years. This implied that most of the investment/financial advisors/analysts were young in their organizations. On nature of respondents in the organization, most (51.6%) of the respondents were researchers, 36% traders, 12% were financial analyst. On experience of derivatives market, most (57%) of the respondents had experience of between 2 years and 5 years while 43% had 0 to 1 year experience on derivatives market.

Integration of Kenya Financial Market with the International Markets

Results indicated that most (65%) of the respondents agreed with the statement that expansion of Kenya financial institutions was the key driver to growth of derivatives market while 35% disagreed with the statement This meant that the growth of derivatives had been caused by regional expansion of Kenyan financial institutions.

On role of increased cross border capital inflows on derivatives market, the findings indicated that most (61%) of the respondents agreed and 39% strongly

disagreed with the statement that cross border inflows would influence growth of derivatives market. This meant that cross border inflows influenced the growth of derivatives market.

Legal and Regulatory Framework Influence on Growth of Derivatives Market

The findings indicate that most (98%) respondents agreed that CMA and CBK acts greatly influenced the growth of derivatives market. This meant that acts aid in establishing and regulating of the trading activities and relationships between including those who are allowed to participate.

On regulatory issues influencing growth of derivatives market, the findings indicated that majority (45%) of the respondents perceived the customer protection regulation in line with legal and regulatory framework as adequate while 46% of the respondents perceived the customer protection regulation as very adequate. However, 9% of the respondents perceived customer protection regulation as inadequate. This meant that the legal and regulatory framework influenced development of derivatives markets through customer protection regulations.

On trading and clearing rules, majority (69.6%) of the respondents perceived trading and clearing rules as adequate with 23.31% of the respondents perceiving the trading and clearing rules as very adequate. However, 9.09% of the respondents perceived the trading and clearing rules as inadequate. This implied that the legal and regulatory framework influenced development of derivatives markets through trading and clearing rules.

On licensing of market dealers, the study findings indicate that most (69.6%) of the respondents perceived the licensing of market dealers as adequate while 23.31% of the respondents

perceived the licensing of market dealers as very adequate. However, about 9.09% of the respondents perceived the licensing of market dealers as inadequate. This implied that the legal and regulatory framework influenced development of derivatives markets through licensing of market dealers.

On reporting of market dealers, the study findings indicated that majority (68%) of the respondents perceived the reporting of market dealers as adequate while 16% of the respondents perceived the reporting of market dealers as very adequate. However, 16% of the respondents perceived that reporting of market dealers as inadequate. This meant that the measures put in place for reporting of market dealers were good for development of derivatives markets.

On registration of financial institutions, about 65% of the respondents perceived the registration of financial institutions as adequate while 12% of the respondents perceived the registration of financial institutions as very adequate. However, 23% of the respondents perceived the registration of financial institutions as inadequate. This meant that the registration of financial institutions in place was good for development of derivatives markets.

On Capital requirements, about 68% of the respondents were of the opinion that capital requirements were adequate with 19% of the respondents perceiving the capital requirements as very adequate. However, 10% of the respondents perceived the capital requirements as inadequate. This meant that the capital requirements in place are good for growth of derivatives markets

Financial innovation influence to the growth of derivatives markets

On mobile money Transfer, the study findings indicate that 55% of the respondents agreed while 45% disagreed with the statement that mobile

money transfer influenced the growth of derivatives market and was preferred in Kenya by young respondents. This meant that indeed mobile money transfer influenced growth of derivatives market in Kenya should be preferred by the markets.

On Real Time Gross Settlement, the study findings indicated that 82% of the respondents agreed while 18% disagreed with the statement that real time gross settlement (RTGS) influenced the growth of derivatives market and was preferred in Kenya by respondents. This meant that indeed RTGS influenced growth of derivatives market in Kenya should be preferred by the markets because it reduces risk exposure to firms

On Internet Banking, about 58% of the respondents agreed and 12% strongly disagreed with the statement that internet banking influenced the growth of derivatives market. However, approximately 30% of the respondents neither agreed nor disagreed. This implied that derivatives could flourish with the increase use internet banking. On Swift Transfers, the study findings indicated that 62% of the respondents agreed while 38% disagreed with the statement that swift transfer influenced the growth of derivatives market and was preferred in Kenya by respondents. This meant that indeed telegraphic influenced growth of derivatives market in Kenya should be preferred by the markets participants because it reduced risk exposure to firms

Risk Management Influence in the Growth of Derivatives Market

The study findings indicated that 78% of the respondents agreed while 22% disagreed with the statement that risk management influences the growth of derivatives market and is preferred in Kenya by respondents. This means that indeed insurance influences growth of derivatives market in Kenya should be preferred by the markets

participants because it reduced risk exposure to firms.

It implied therefore that the insurance products like forwards, options, and swaps incentive to growth of derivatives market.

On which of the insurance products is the key driver influencing growth of derivatives market, (48%) of the respondents strongly agreed that REITS was the key driver 28% swaps 15% was because of insurance 6% while 3% had no idea in relation to what was the key drivers of the insurance products that influenced derivatives market. This meant that REITS would influence the use of derivatives market.

Factors Influencing Growth of Derivatives' Market

Majority (45%) of the respondents indicated they agreed the risk management was the fundamental aspect for the growth of derivatives market, 36% agreed that financial innovation was another key driver while 12% said that regional integrations was the reason why they are embracing derivatives market to provide seamless flow of funds and reduce translation risk exposures. 7% where of the view that the new legislations by CMA and CBK had

Regression Analysis

Table 1: Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	0.809	0.655	0.609	0.195

Source, Researcher (2016)

Table 1 above was a model fit which establish how fit the model equation fits the data. The adjusted R² was used to establish the predictive power of the study model and it was found to be 0.609 implying that 60.9% of the variations in derivatives markets' growth are explained by Financial innovations, Risk management; Regional integrations and Legal and

greatly influenced the growth of derivatives market. This implied that there was need to enhance high levels of foreign reserves since it would greatly improve derivatives trading

On whether seminars and workshops was a factor influencing the growth of the derivatives market, about 43% of the respondents strongly agreed with 32% of the respondents not agreeing with the statement that seminars would influence the growth of the derivatives market. However, approximately 25% of the respondents had no idea. This indicated that seminars play a role in growth of derivatives.

On the rate the support received from the central government in the development of derivatives markets, majority (68%) of the respondents rated the support received from the central government in the development of derivatives markets as fair, 22% of the respondents rated it as good, 6% of the respondents rated it as not supportive while only 4% rated the support received from the central government in the development of derivatives markets as great. This implies that there is need for the government to increase their support in the development of derivatives markets.

regulatory framework. Adjusted R squared is coefficient of determination which tells us the variation in the dependent variable due to changes in the independent variables. R is the correlation coefficient which shows the relationship between the study variables, from the findings shown in the

table above there was a strong positive relationship

between the study variables as shown by 0.809

Table 2: Analysis of variance

Model	Sum of Squares	df	Mean Square	F	Sig.
Regression	3.041	4	0.760	18.011	0.000
Residual	1.604	38	0.042		
Total	4.645	42			

Source, Researcher (2016)

From the ANOVA statistics, the processed data, which were the population parameters, had a significance level of 0.000 which showed that the data was ideal for making a conclusion on the population's parameter. The F calculated at 5% Level of significance was 18.011. Since F calculated

is greater than the F critical (value = 2.69), this shows that the overall model was significant that is there is a significant relationship between variables Financial innovations, Risk management; Regional integrations and Legal and regulatory framework and the growth of derivatives market.

Table 3: Coefficients

Model	Unstandardized Coefficients		Standardized	t	Sig.
	B	Std. Error	Coefficients		
(Constant)	1.351	0.432		3.127	0.002
Financial Innovation	0.627	0.236	0.627	2.657	0.009
Risk Management	0.689	0.248	0.689	2.778	0.006
Regional Integration	0.584	0.262	0.584	2.229	0.028
Legal acts	0.432	0.185	0.459	2.335	2.14E-02

Source, Researcher (2016)

The established regression equation was

$$Y = 1.351 + 0.627 x_1 + 0.689 x_2 + 0.584 x_3 + 0.432 x_4$$

The regression equation above had established that taking all factors into account (Financial innovations, Risk management, Regional integrations and Legal and regulatory framework)

constant at zero, growth of derivatives market in Kenya was 1.351. The findings presented also show that taking all other independent variables at zero, a unit increase in the financial innovation would lead to a 0.627 increase in the growth of derivatives market and a unit increases in the scores of risk management would lead to a 0.689 increase in the growth of derivatives market. The study also found

that a unit increase in the scores of regional financial market integration would lead to a 0.584 increase in growth of derivatives market and a unit increase in the scores of legal and regulatory frameworks would lead to 0.432 increases in the scores in the growth of derivatives market in Kenya. All the variables were significant ($p < 0.05$).

SUMMARY, CONCLUSIONS AND RECOMMENDATIONS

Legal and regulatory frameworks were found to influence derivatives market in Kenya through CMA and CBK act which has direct bearing in relation to trading and regulating the activities at NSE was quite mentioned by respondents to be a factor influencing derivatives market growth where a unit increase in legal and regulatory frameworks would lead to increase in derivatives market in Kenya by a factor of 0.205

It was clear also to the researcher that regional integration of financial markets with had great influence with most (65%) of the respondents agreed with the statement that expansion of Kenya financial institutions is also a factor influencing the growth of derivatives market. Furthermore, majority (61%) of the respondents were of the same view that cross border inflows influences growth of derivatives markets.

This means as financial institutions expand risk appetite increases and thus there is need for more financial products to reduce translation costs where unit increase in regional integration would lead to increase in financial growth of derivatives market in Kenya by a factor of 0.400

82% of the respondents believe that the growth of derivatives market in Kenya has been influenced by financial innovation. The existence of real time gross settlement, mobile money transfer, internet banking and use of telegraphic transfers in

settlements was an important aspect that influences the growth of derivatives market. This imply that financial innovation brought about by technological changes has driven the surge in embracing derivatives market; brought about by technological revolution that enhances speed and efficiency, where a a unit adoption in financial innovation would lead growth of derivatives market in Kenya by a factors of 0.138

Finally, Also 78% of the respondents agreed that risk management was also a factor influencing growth of derivatives market. Real estate, forwards, swaps and options provide investors with an opportunity to invest in as diversified portfolios thus reducing risk. Insurance was also mentioned by respondent to some extent to contribute to the growth of derivatives of market in Kenya.

More important is that 48% of the respondents preferred REITS as the major factor influencing growth of derivatives market in Kenya. This is shown by a unit increase in risk management would lead to increase in growth of derivatives market in Kenya by a factors of 0.614

The findings indicate that majority (75%) of the respondents were male with most (65%) of the respondents being aged between 30 and 39 years. Most of the (60.6%) respondents were degree holders with a majority (60%) of the respondents having attended a course on financial derivatives. The findings indicate that majority (68.4%) of the respondents had between 0 to 5 years as well as 31.6% of who had between 6 to 10 years having worked with the organizations. Most (61.6%) of the respondents were researchers. About 57% of the respondents had experience of 2 to 5 years. This means that men contribute more and that only researchers working in this financial institutions are 2 to 5 years old and they are degree holders

About (68%) of the respondents that the support received from the central government in the growth of derivatives markets as fair, 26% of the respondents said good, 10% of the respondents rated it as not supportive while only 3% rated the support received from the central government in the growth of derivatives markets as great. Most (53%) of the respondents were of the view that the main reasons for growth of derivatives market in Kenya is because of hedging and legal and regulatory aspects.

Conclusion

It can be concluded therefore, that in line with legal and regulatory framework is adequate, trading and clearing rules were adequate, reporting of market dealers was adequate and capital requirements were adequate. It was evident that regional expansion of Kenya financial firms, cross border inflows and external debt borrowing was found to influence growth of derivatives market. The study also concluded that real time gross settlement, swift transfers and mobile transfer.; of all these financial innovations it was concluded that real time gross settlement had major influence on growth of derivatives market. Also among the risk management techniques REITS was found to greatly influence the growth of derivatives market. Also insurance was mentioned by respondents contribute to influence growth of derivatives market.

The main reason for growth of derivatives market in Kenya would be legal and regulatory frameworks. The support received from the government in the growth of derivatives markets was fair. It is good that seminars be conduct seminars regarding the

use of derivatives more often. Further the success of derivatives markets in Kenya will largely be influenced by political environment and skills transfer.

Recommendations

In order to increase of derivatives markets in Kenya, the study recommends the following:

First, there is need for government to increase its present through increased spending on financial reengineering, regulation of the trading entities of derivatives markets and put in place measures grow the economy of the country. This will boost more financial products in the market.

Secondly, CMA should put in the necessary structures to catapult derivatives to a sophisticated market by preparing the guiding principles as well the trading platform requirements and on the licensing of market clearing houses and financial institutions. There is need for clearreporting procedure of derivatives. There should be seminars and workshops regarding derivatives market in Kenya by partnering with educational experts and higher institutions of learning to ensure that the market is supplied with skilled workforce.

Recommendations for further study

Derivatives is a wide topic that comprises large financial products that are currently under trading to more sophisticated financial products not operational in Kenya; thus, there is need to conduct a an empirical study on the derivatives markets from the private fund managers view on the various derivatives instruments that investors prefer.

References

Ahuja, N. L. (2006). Commodity Derivatives Market in India: Development, Regulation and Future Prospects

Alberta Market Solutions Ltd. (2003). Derivatives Market Development: Key Success Factors in Building a New Derivatives Market, A White Paper retrieved from <http://www.albertasolutions.com> March 2015

Asani, S. (2006) Indian Derivatives Markets. Oxford University Press publishers, New Delhi retrieved from <http://www.newyorkfed.org> January 2015

Bank of Guyana, (1996) National development strategy; Chapter 6: Macroeconomic Policies:

Bernanke, B.S, 2008, Risk Management and Financial Institutions, Federal Reserve Bank of Chicago's Annual Conference on Bank Structure and Competition, Chicago, Illinois, May 15. Retrieved from <https://www.imf.org/external/pubs/ft/wp/2009/wp09196.pdf> May, 2015

BIS, (2010). International banking and financial market developments Quarterly Review retrieved from <http://www.bis.org> January 2015

Black, F. & Scholes, M., 1973: The Pricing of Options and Corporate Liabilities. Journal of Political Economy. 81, 3, p. 637–654.

Brigham and Houston ,(2008), Fundamentals of financial management 10th edition, pp 122, saurabhprinterspvt ltd India.

Bartram, S.M., Brown G. W., and Fehle F.R. (2003). International Evidence on Financial Derivatives Usage Change,

Blommestein H. and Antolin P. (2007), "Governments and the Market for Longevity- Indexed

D.M. (1995) A Chronology of Derivatives, Derivatives Quarterly 2 (Winter), 53-60.

Central Bank of Kenya (2011), Annual Reports, Central Bank of Kenya, Nairobi.

CFA, (2009) Derivatives and alternative investments, program curriculum level 1 vol.6 Pearson Custom publishing.

Dabla-Norris, E. (2012). Expanding Financial Sectors in Low-Income Countries; IMF Strategy, Policy, and Review Department

Dodd, R. & Griffith-Jones, S. (2007). Brazil's Derivatives Markets: Hedging, Central Bank Intervention and Regulation ECLAC/CEPAL Dolores,

D. w cox(2007).Frontiers of Risk Management: Key Issues and Solutions M.D.C. (2007). Purposive Sampling as a Tool for Informant Selection: Ethnobotany research& applications. A journal of plants, people and applied research

Ersen, P. & Karagozoglu, A. (2003) Introduction of derivatives exchanges in emerging markets, Hofstra University working paper.

FCIC, (2011) *The Financial Crisis Inquiry Commission downplaying derivatives*. Retrieved November 2014 <http://triplecrisis.com>

Flavell, R. (2010): *Swaps and other derivatives*, 2nd ed., Chichester: John Wiley & Sons Ltd. ISBN: 978-0-470-72191-9.

Golafshani, N. (2003). *Understanding Reliability and Validity in Qualitative Research: The Qualitative Report* Volume 8 Number 4 December 2003 597-607

Harris, L. (2002). *Trading & Exchanges: Market Microstructure for Practitioners*, Oxford Press, Oxford, 2002

Hasan, I. and H. Schmiedel (2004), "Networks and equity market integration: European evidence", *International Review of Financial Analysis*, 13, pp. 601-619. Retrieved from <https://www.ecb.europa.eu/pub/pdf/scpops/ecbocp33.pdf> September, 2015

Hasbrouck, J. (2004). *Empirical Market Microstructure; Economic and Statistical Perspectives on the Dynamics of Trade in Securities Markets* Hsieh,

H-F. & Shannon S.E. (2005). *Three approaches to qualitative content analysis*

Ilyina, A. (2004). „The role of financial derivatives in emerging markets“

IMF, (2003) *Global Financial Stability Report: Market Developments and Issues*, Chapter IV: The Role Of Financial Derivatives In Emerging Markets: retrieved 20/3/2015 from <http://www.imf.org>

John C Hull, —*Risk Management and Financial Institutions*, Pearson Education, 2007

KACE. Retrieved January 2015 from <http://www.kacekenya.co.ke>

Kiess, L., & Bloomquist, P. (2009). *Research methodology: (3rd)*. London: New Age International Publishers. Pp. 33- 37

Kothari, C.R. (2004), *Quantitative Techniques*, 2nd ed., New Delhi: Vikas Publishing House Pvt. Ltd.,

Lee, R. (1998), "What is an exchange? The automation management and regulation of financial markets", Oxford University Press Inc., New York. Retrieved from <https://www.ecb.europa.eu/pub/pdf/scpops/ecbocp33.pdf> September, 2015

Lopez, J., 1999. Regulatory evaluation of value-at-risk models. *J. Risk* 1, 37–64, retrieved from http://www.petronet.ir/documents/10180/2323250/Elements_of_Financial_Risk_Management,_Second_Edition-Peter_Christoffersen_Academi August 2015

Martin M.A (2009). Derivatives usage by non-financial firms in Emerging markets: the Peruvian case. *Journal of Economics, Finance and Administrative Science* Vol. 14 N^o 27 December 2009 Mathers Holdings, (2010). LLC, <http://www.realmarkits.com>. Retrieved December 2014

Mfa, (2008). Structure and Concentration of Organized Derivatives Trade, 1994-2006 <http://www.mfa-2008.com> retrieved 11/03/2015

Markowitz, H.M., 1991, Portfolio Selection: Efficient Diversification of Investments, 2nd Ed., Basil Blackwell, Cambridge MA & Oxford, UK.

Miller M.J, (2012). RES 600: Graduate Research Methods: Reliability and validity. Western International University http://michaelmillerphd.com/res500_lecturenotes/Reliability_and_Validity.pdf

Mugenda and Mugenda, (2003). Research methods. African Centre for Technology Studies, Nairobi.

Mugo W. F. (2009). Introducing Derivatives Exchange: Asia's Emerging

Markets Experience, Graduate School of International Studies Sogang University, Seoul Korea

Ngugi R., Amanja D. &Maana I. (2009) Capital market, financial deepening and economic growth in Kenya <http://www.csae.ox.ac.uk> retrieved January 2015

O'Hara, M. (2007) Market Microstructure Theory, Blackwell, Oxford, 1995

Olatundun J.A, (2009). The Derivatives Market in South Africa: Lessons for sub-Saharan African Countries IMF, WP/09/196 <http://www.imf.org>. Retrieved April 2015

Oloo, M. (2007). The Banking Survey, Kenya. Think Business Ltd. Nairobi

Orodho J.A. (2004) Techniques of Writing Research Proposals and Reports in Education, Masda Publishers

Orodho, C.R. (2003). *Elements of Education and Social Science Research Methods*. (2nd ed). New Delhi.India: Kanezja Publishers. pp.45 - 67

Roopnarine K.A, Seuraj S. Watson P. K,(2005). Toward the Enhancement of Derivatives trading in the Caricom sub region, Research Department, Central Bank of Trinidad & Tobago

Sahoo, M.S. (2000). "Taxability of income arising from derivatives contracts."NSE News. December 2000. Pp. 9-10,Retrieved April 2015 FROM <http://www.scribd.com>.

Saksena, S. (2003) Legal Aspects of Derivatives Trading in India Evolution of derivatives trading in India

Sewel, M. (2007) Market Microstructure; retrieved from http://finance.martinsewell.com/microstructure_retrieved_march_2015 Sharpe, W.F., 1964, "Capital Asset Prices – A Theory of Market Equilibrium Under Conditions of Risk", Journal of Finance, 19, No.3, 425-42.

Singh, S. (2009) Study of derivatives; Ludhiana stock exchange limited Ludhiana Derivatives <http://tdx.cat>Retrived 23/04/2015

Shiller, R. J., Marco Markets: Creating Institutions for Managing Society's Largest Economic Risks Oxford: Oxford University Press. 1993.

Tian LI, (2005) Necessity of the Establishment of Financial Derivative Market in China. The Journal of American Science,

Tsetsekos, G &Varangis P. (1997). The Structure of Derivatives Exchanges: Lessons from Developed and Emerging Markets, the World Bank, (Washington), Dec.

Tidd, J. & Hull F. M. (2003). Service Innovation: Organizational Responses to

Technological Opportunities & Market Imperatives. London: Imperial College Press.

UdoNdebbio, J.E. (2004). Financial deepening, economic growth and development: Evidence from selected sub-Saharan African countries.

Vashishtha, A& Kumar S. (2010) Development of Financial Derivatives Market in India- A Case Study. International Research Journal of Finance and Economics ISSN 1450-2887 Issue 37

World Bank, (2000) Lessons in Structuring DerivativesExchanges, retrieved from <http://netec.mcc.ac.uk> March 2015