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*Full Length Research Paper*

# Factors influencing development of financial derivatives markets: a survey of listed companies in Kenya.

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The Kenyan economy is becoming more and more open with international trading constantly increasing and as a result Kenyan firms become more exposed to foreign exchange rate fluctuations. The relative price changes affect the firms' competitive market position, leading to changes in cash flows and ultimately, in firms value. While it was observed that firms use a variety of instruments to manage financial risks, it was not clear whether the full potential of these instruments is being realized since not all firms use derivatives and not all firms use all types and more important, whether they are used appropriately. The study found out that the use of financial derivatives instruments by quoted companies in Kenya is mainly influenced by legal and regulatory framework, market environment, operational efficiency and the role of financial market intermediaries. Hence the study concluded that there is need of building upon existing financial derivatives instruments so as to enhance efficiency and effectiveness in their use in Kenya as modern tools for financial risk management.

**Keywords:** Derivatives market, counterparty-risks, Systematic risks, Unsystematic risks, emerging markets, hedging

## INTRODUCTION

Financial derivatives are instruments whose value is derived from one or more underlying financial asset. The underlying instrument could be financial security, a securities index, or some combination of securities, indexes, and commodities (Balvinder, 1995). Pandey (2005) refers derivatives as financial instrument whose pay-off is derived from some other asset which is called an underlying asset. They refer to those items that do

not have their own independent values, rather they have derived values. Derivatives have a significant place in finance and risk management. According to Chance (1995), the evolution of derivatives can be traced back to the Bible in Genesis chapter 29. About year 1700B.C, Jacob purchased an option costing him seven years of labour that granted him the right to marry Laban's daughter Rachel. Jacob's prospective father –in-law, however, reneged, making this not only the first derivative but the first default on a derivative. Laban required Jacob to marry his older daughter Leah. Jacob married Leah, but because he preferred Rachel, he

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purchased another option, requiring seven more years of labour, and finally married Rachel. Around 580B.C, Thales the Milesian purchased options on olive presses and made a fortune off of a bumper crop in olives. So derivatives were around before the time of Christ. Other developments followed after these. Balvinder (1995), said the first exchange-traded financial derivatives emerged in response to the collapse of the Bretton Woods system of exchange rates established in 1944. Under this system, most governments agreed to fix the exchange rate of their currencies relative to the U.S. dollar, which was convertible into gold. In 1971, the U.S. Treasury abandoned the gold standard for the dollar, causing the breakdown of the fixed-exchange system, which was replaced by a floating-rate exchange system. The need to hedge against adverse exchange –rate movements provided an impetus for currency futures to emerge. Foreign currency futures were introduced in 1972 at Chicago Mercantile Exchange “Mere”. In 1973, the Chicago Board of Trade (CBOT) created the Chicago Board Options Exchange (CBOE) to facilitate the trade of options on selected stocks. The advancements in options pricing research along with improvements in computer technology laid the groundwork for new portfolio management techniques. Balvinder (1995), further said the increasing globalization of commerce is exposing firms to various financial risks, unrelated to their lines of business. Some of these risks are firm or situation specific with no ready-made exchange traded instruments to offset such risks. The management of these risks has created a new line of financial derivatives, the over-the-counter (OTC) derivatives. These derivatives are privately negotiated arrangements between parties that permit either one or all parties to obtain their desired financial flows. The OTC derivatives have grown faster than the exchange-traded contracts in the recent years. According to Pandey (2005), financial derivative instruments have mushroomed very quickly from simple financial futures to a wide variety of exotic and complicated securities. The four basic types of derivative contracts in practice are futures contracts, forward contracts, swaps and options. Kenya being one of the leading emerging markets and a player in the global market is faced with systemic risk which results from market linkages. Balvinder (2005) imply that shocks arising in one market may be transmitted to other market as well. Kenya still lags behind in development of a well-functioning regulated financial derivatives market. The commonly used derivatives instruments by Kenyan companies are the forward contracts and swaps. Companies use forward contracts to hedge against their imports and exports while swaps are used when making arrangements to exchange cash flows over time. Howton and Perfect (1998) argues that currency swaps and interest rate swaps are commonly used by financial institutions for an agreement providing exchange payments denominated in one currency for payments in another currency over a

period of time. The floating interest rates are mostly tied to LIBOR. Therefore, Kenya is in dire need of having a well-developed and regulated financial derivatives market that would enable companies’ hedge their cash flows fluctuations with an ease.

### Statement of the Problem

Management of financial risks has been a big concern for investors, analysts, managers and shareholders around the world. Balvinder (2005) stated that, derivatives are used to manage foreign exchange rate and interest rate risk. While these instruments are only one tool of risk management, the use of derivatives can be interpreted as a proxy for corporate risk management, and various theories have established a case for hedging at the firms level based on market imperfections such as underinvestment, price and exchange rate volatility, taxes, financial distress and management incentives.

However, according to UNCTAD (2006), technological innovation and liberalization of global financial market has generated a surge in financial derivative market development for managing global and domestic commodity price risks. As a proactive approach for minimizing uncertainty, risk management tools are increasingly replacing government support programmes as an alternative for raising price predictability and enhancing producer income stability. While the expansion in world trade has spurred income growth in emerging markets and elevated demand for all services and products, it has also contributed to greater price volatility, leading to a need for instruments that could mitigate uncertainties associated with unexpected price changes.

Financial derivatives markets have reached a remarkable development in recent years, but this pattern has not attained the same strength in developing countries. In consequence, an important question arises: what is the development degree of financial derivatives markets in emerging countries and which variables influence the use of derivatives in top companies?

The Kenyan economy is becoming more and more open with international trading constantly increasing and as a result the Kenyan firms become more exposed to foreign exchange rate fluctuations. Exchange rate changes can lead to changes in the relative prices of the firm’s inputs and outputs. The relative price changes can affect the firms competitive market position, leading to changes in cash flows and, ultimately, in firms value. While it can be observed that firms in developed economies use a variety of instruments to manage financial risks, it is not clear whether the full potential of these instruments is being realized in developing economies notably Kenya since not all firms use derivatives and not all firms use all types and more important, whether they are used appropriately.

## GENERAL OBJECTIVE

The general objective of the study was to document and analyze the development of financial derivatives market in Kenya.

## Hypotheses

The study was guided by the following hypotheses.

**Ho:** Development of financial derivatives market does not rely on legal and regulatory framework.

**H1:** Market environment does not determine development of financial derivatives market.

**H2:** Operational efficiency does not play a great role in the development of financial derivatives market.

**H3:** Development of financial derivatives market does not depend on established financial markets intermediaries.

## LITERATURE REVIEW

### Theoretical Orientation

Fama (1991) said that an efficient market exists when security prices reflect all available public information about the economy, financial markets, and the specific company involved. The implication is that market prices of individual securities adjust very rapidly to new information. As a result, security prices are said to fluctuate randomly about their "intrinsic" values. New information can result in a change in "intrinsic" value of a security, but subsequent security price movement will follow a random walk i.e. changes in price will not follow any pattern.

Van Horne (1985) affirmed that innovations in financial products, such as the securitization movement, and in processes, like the ATM machine, are the lifeblood of the financial markets. Such innovation comes about to exploit profit opportunities arising from operational inefficiencies. A second foundation is the drive for complete markets. This merely means supplying securities with the features desired by investors. In steady-state equilibrium, the financial markets would be highly efficient and reasonably complete. Lipsey and Chrystal (2007) argued that market works best when everyone is well informed. People cannot make maximizing decisions if they are poorly informed about the things they are buying or selling. Lack of relevant information is one of the constraints for market failure.

Gertler (1988), said that one party having insufficient knowledge about the other party involved in a transaction to make accurate decisions is an important aspect of financial markets. The presence of asymmetric information leads to adverse selection and moral hazard problems. Adverse selection is an asymmetric

information problem that occurs before the transaction occurs. Potential bad credit risks are the ones who mostly actively seek out loans. Thus the parties who are the most likely to produce an undesirable outcome are mostly likely to want to engage in the transaction. Moral hazard on the other hand arises after the transaction occurs. The lender runs the risk that the borrower will engage in activities that are undesirable from the lender's point of view because they make it less likely that the loan will be paid back. Because moral hazard lowers the probability that the loan will be repaid, lender may decide that they would rather not make a loan.

Van Horne (1985) said every country taxes income of foreign companies doing business in that country. The type of tax imposed varies. Some of these countries differentiate between income distributed to shareholders and undistributed income, with a lower tax on distributed income. Less-developed countries frequently have lower taxes and provide certain other tax incentives to encourage foreign investment. The taxation policies of foreign governments are not only varied but also highly complex.

According to Belozertsev (2006), market liberalization is critical for the continued growth of derivatives market. Widespread government interventions in financial market help explain the existence of only one liquid market (CBOT) for price management. Also, potential protectionist measures such as sudden export and import restrictions would impede the price discovery and risk transfer functions of the new developed markets. The individual exchanges will need to be watchful in monitoring the activities on their exchanges in order to maintain participant confidence in their organization.

Research on co-location externalities can be traced back at least to Marshall (1890), who explains that the productivity of firms is improved if they are located in the same city, because of knowledge spillovers. Henderson (1986) offered empirical evidence that worker productivity is higher in firms that are located near other firms in the same industry.

The modern portfolio theory acknowledges the effects of behavioural economics such as bounded rationality of investors, market inefficiencies and other variables such as the effects of transaction fees and taxes on investments left out in the portfolio selection theory by Markowitz in the assumptions inherent in his theory (Brigham, 2005). Although the modern portfolio theory is based on mathematical modeling of portfolio's return based on the volatility of expected returns and on asset's weight in the portfolio, it does leave the decision on what is the most preferable portfolio choice to the decision maker (investor). The investor whose main aim may be to maximize returns or investment information chooses an investment portfolio that he/she prefers. The modern portfolio theory factors in the effects of price changes, credit limits and the fact that not all assets are divisible. It thus leaves the portion of portfolio assets selection process to the behavioural attributes of the decision

maker. The implication of this theory is that an individual enhances the probability of attaining an expected investments return level by diversifying into various unrelated investment alternatives such as holdings in both real and financial assets (Fischer and Jordan, 1995).

## EMPIRICAL REVIEW

This section aims at reviewing and presenting research done by others. It intends to show evidence of what other researchers have done on factors influencing development of financial derivatives markets in Kenya. By reviewing the work of others, the researcher aims at identifying the research gap and understanding what has been clearly researched on the relation to this study.

Adelegan (2009) pointed out that the South African Futures Exchange grew out of an informal market in April 1987. At that time a local merchant bank, Rand Merchant Bank, started an informal financial market. Subsequently, option contracts were introduced in October 1992, agriculture commodity futures in 1995 and a fully automated trading system in May 1996. The Equity Derivative division of the Johannesburg Stock Exchange (JSE) has been in the operation since 1990, coordinating trading activities in warrants, single stock futures (SSF), and equity indices and interest rate futures and options. Market participants are retail investors, professional traders, asset managers and short-term equity traders.

According to Batson's court report (2003), the flexibility of derivatives contracts also affords opportunities for abuse. For example Enron's bankruptcy illustrates how Enron was able to borrow significant sums from investors without showing the associated debt in its public accounts, by using families of options or forwards on energy commodities. Each such family derivatives position formed a circle of offsetting contracts whose net cash flows were those of a routine debt contract. Even the rating agencies (Moody's, standard and poor's) were unable to see through the lack of disclosure of these debt positions.

Duffie (2007) argue that the growth and economic efficiency of derivatives industry, both in developed and emerging sub-Saharan market, rely on international harmonization of accounting standards based on fair-market valuation. Effective accounting disclosure provides information that is crucial to investment decisions and corporate governance. Derivatives pose special challenges to effective accounting disclosure. The fair market values of some types of derivatives can be difficult to estimate because of reliance on complex mathematical models, whose empirical relevance or inputs are often difficult to validate. This has been especially the case for structured credit products that are exposed to the degree of correlation of default of different borrowers. Moreover, a derivative contract can

pack a lot of economic exposure into a contract that has little or no market value when written.

Falconbridge (2007) argues that proximity is determined not only by physical geography, but also by time zone. A time zone convenient for meeting or phoning customers-or the firm's overseas trading desks-facilitates personal interactions and increases efficiency. London's has advantageous time zone over other cities. It is easier to be global from London (for Asian, Africa and US time zones). One can catch Asian close and work through the US open (obvious but not to be discounted!). He further noted that "most global correlation books are run out of London (time-zone reasons). London also has time-zone advantages with respect to the Europe, including the fast-growing countries of Eastern Europe.

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. On the other hand, a security was subject to SEC jurisdiction, and thus a regulatory regime that was completely different in structure and philosophy.

Poon (2003), when considering positive co-location externalities, emphasized the focus on banking services in the literature exploring the growth of international financial centres. A related literature on the emergence of "world cities," however, places a broader emphasis on the joint location of various knowledge-related activities, such as legal services, accounting, corporate headquarters, political, educational, and cultural functions, and of course financial services. Rantisi (2002) emphasized the role of clusters of professional services (manifested in professional associations such as those for law, advertising, and accounting) in explaining regional economic development through collective learning. Proximity to customers is important as location determines the ease with which a dealer or investment banker can meet with hedge-fund and corporate clients in order to structure appropriate derivatives strategies or products.

Rice (2007) commented that one of the weaknesses of the financial derivatives market regulatory structure is that it is deeply fragmented at the product level as well as at the level of service providers. Regulatory "turf" battles continue, and impose especially heavy burdens on the introduction of new exchange traded derivatives. At the level of financial institutions, fragmentation of financial derivatives market regulation borders on the comical. In addition to oversight by the central bank, a single financial holding company could potentially be subject to oversight.

Vashishtha and Kumar (2010) argued that innovation of derivatives have redefined and revolutionized the landscape of financial industry across the world and

derivatives have earned a well-deserved and extremely significant place among all the financial products.

## **DATA AND METHODOLOGY**

### **Research Design**

In this study the survey design was used. According to Shajahan (2005), survey is a fact –finding study. It is a method of research involving collection of data from a population or a sample thereof at a particular time. It requires expert and imaginative planning, careful analysis and rational interpretation of findings. It entails collecting data from members of a population in order to determine the current status of that population with easy comparison.

### **Study Population**

The study sought response from all those institutions and corporate bodies engaged in use and development of financial derivatives instruments and markets. The target population was the 138 comprising of 8 departments of Capital Market Authority of Kenya (CMA), 58 Quoted Companies at NSE and 72 other financial market intermediaries. The respondents were the staff from finance department, research policy analysis and planning, market supervision and legal affairs of the respective accessible population.

### **Sampling Method**

The study used probability sampling methods since they are the one commonly used in quantitative and qualitative research. Stratified random sampling techniques were used to obtain a sample of respondents. According to Cooper and Schindler (2008), stratified sampling is a probability sampling procedure in which the population was divided into two or more relevant strata and a random sample was drawn from each stratum. Stratified random sampling techniques aimed at a sample that was a true representative to the accessible population, the method considered all members of the accessible population where they were proportionally reduced to arrive at a smaller number that was easy to handle. The accessible population was all those who were taken as respondents and were the stakeholders of the population under study. The use of a sample of 41 was informed by adequacy and resources in that it captured a variety of responses and facilitated comparable analysis, Nachimias (1991)

### **Data Collection Instruments and Techniques**

Data was obtained through primary and secondary sources. Primary data was obtained through

questionnaires which were open and closed ended. The questionnaires were divided into three sections targeting staff of Capital Market Authority, Quoted Companies at Nairobi Stock Exchange and Financial Market intermediaries. Data was collected on legal and regulatory framework, market environment, operational efficiency and financial market intermediaries. The questionnaire was structured to cover all the parameters for the independent variables respectively. The secondary data was obtained from various financial journals; internet published financial statements and documents. The secondary data complements information from the primary data.

### **Data Analysis and Reporting**

Questionnaires were edited for completeness and consistency in this research. Quantitative and qualitative methods were used for data analysis. Data was tabulated and classified into sub-samples for common characteristics. The responses were coded for analysis. Descriptive statistics were used to answer the research questions and objectives in relation to the research area. Quantitative data was analyzed using (SPSS). Correlation analysis was used to determine the relative strength of each variable.

## **DATA ANALYSIS AND PRESENTATION OF FINDINGS**

- **Response Rate:** In order to establish the proportion of the respondents who responded to the questionnaires the researcher analyzed the response rate as shown in table 4.1:

Out of 38 respondents 2 were Capital Market Authority Staff representing an overall response of 5.26%, 16 were Quoted Companies Staff representing an overall response of 42.11% and 20 were Financial market intermediaries staff representing an overall response of 53.63%. There were more responses from financial market intermediaries staff and quoted companies than in Capital market Authority since more questionnaires were administered to them. The table shows 100% response rate of Quoted companies' staff, 94.12% of financial markets Intermediaries staff and 90.91% of Capital market staff. With 92.68% response rate this is a good response for as this study is concerned. Response from Capital Market Authority in particular was of great importance to the study because in real terms they are the one whom give direction and formulate policies on development of financial derivatives market to be used by other respondents

- **Legal and regulatory framework:** This is the variable which measures the criteria to be met in policy formulation, direction and application in a financial derivatives market. The researcher sought to know how

Table 4. Response Rate

| Category                                | Questionnaire Issued | Questionnaire Returned | Percentage (%) |
|---|----------------------|------------------------|----------------|
| Capital Market Authority staff.         | 2                    | 2                      | 100.00         |
| Quoted Companies staff.                 | 17                   | 16                     | 94.12          |
| Financial market intermediaries' staff. | 22                   | 20                     | 90.91          |
| Total                                   | 41                   | 38                     | 92.68          |

Source: Author, (2012)

financial derivatives market are regulated by Capital market Authority in order to adhere to the rules and regulation existing in the financial market. The researcher went to the field with four variables securitization of fixed assets, demutualization of NSE, Tax harmonization and Accounting standards compliance. The study showed that legal and regulatory frameworks are addressed by CMA. This accounted to 29.4% of the respondents, 23.5% showed they are either fully addressed or less addressed while 17.6% showed they are fairly addressed and 5.9% showed they are not addressed.

- **Securitization of fixed assets:** In order to find out how fixed assets would be more available in the financial derivatives market, the respondents were asked whether securitization of fixed assets would make them to be more liquid and available for use in the financial derivatives market.

- The study showed the use of fixed assets in the financial derivatives market depended on their availability. This accounted for 41.2% available and 29.4% very available while fairly available, less available and not available accounted for 17.6 % and 5.9% respectively.

- **Demutualization of Nairobi stock exchange:** In order to find out the role of CMA in liberalization of Nairobi Stock Exchange, the respondents were asked to give their opinion. The study showed that 30% and 20% of the respondents are satisfied and very satisfied with the demutualization processes while 25% were less satisfied, 15% were indifferent of what was going on and 10% were not satisfied. This shows that over 50% were satisfied with demutualization processes.

- **Tax harmonization:** The study sought to establish the role played by CMA in facilitating global tax harmonization in relation to financial derivatives market. According to most respondents from the data gathered in the field 38.1% were fairly positive about the role played in ensuring tax is harmonized while 23.8% were very positive, 19% less positive, 14.3% positive and 4.8% not positive. Hence this shows that tax harmonization plays a role in financial derivatives market.

- **Facilitation of accounting standards compliance:** In order to find out how Companies trading in the financial derivative instruments required accounting standards compliance. According to most respondents

from the data gathered in the field 52.9% said compliance in accounting standards was fairly facilitated while 23.5% were less facilitated, 11.8% were facilitated and 5.9 % were fully facilitated and not facilitated respectively. Hence accounting standards need to be harmonized.

### Correlation on legal and regulatory frameworks

From the finding of the study, it was noted that there was generally weak correlation between the various legal and regulatory frameworks. For example, demutualization of NSE correlated poorly with securitization of fixed assets at 0.413, similarly tax harmonization correlated poorly with demutualization of NSE at 0.254 while accounting harmonization correlated poorly with tax harmonization at 0.091. The implication of these weak relationships between the various legal and regulatory frameworks is that there exists no statistically significant multi-collinearity problem meaning that the regulatory body use one legal and regulatory framework at a time although they can concurrently accommodate additional one. This confirm the study by Duffie (2007) who argued that the growth and economic efficiency of derivatives industry rely on effective disclosure providing information that is crucial to investment decisions and corporate governance.

- **Market environment:** In order to measure the above variable the researcher presented to the respondent a number of questions on the level of skilled personnel, recruitment policies derivatives awareness and training and development.

- **Skilled personnel:** The study sought to know the level of skilled personnel for companies using financial derivatives instruments. According to the most respondents from the data gathered from the field 47.6% were fairly skilled, 33.3% very skilled while 14.3% and 4.8% were less skilled. Hence this shows that companies need skilled personnel to manage financial derivatives market.

- **Recruitment policies:** The study sought to know the recruitment policies for companies using financial derivatives instruments. The study showed that 47.1% of the respondents had sufficient recruitment policies, 23.5% of the respondents had fairly sufficient recruitment policies while 11.8 % were not sufficient or

very sufficient and 5.9% were less sufficient. This shows that firms have recruitment policies in place for financial derivatives market.

- **Derivatives awareness:** The study posed questions on the level of awareness of financial derivatives among the corporate bodies. The study showed that most of the respondents were not aware of financial derivatives instruments as represented 72.2% of the respondents while 11.2% and 5.6 % respectively were aware of them. This shows that campaign should be undertaken to familiarize corporate on the availability and use of financial derivatives instruments.

- **Training and development:** The researcher posed question on the need for staff training in use of financial derivatives market .The study showed that staffs need more training and development in use of financial derivatives as represented by 47.1% fairly positive and 23.5% less positive while 29.5% offered staff training and development. Staff training and development was necessary for an efficient financial derivatives market.

### **Correlations on the market environment factors**

The study sought to find out the relationship between various factors that influence market environment.

The research study revealed a generally weak correlation between the various market environment factors. For example, recruitment policies correlated poorly with skilled personnel at 0.064. Similarly, derivatives awareness had a negative correlation with recruitment policies at -0.158 while training and development correlated poorly with recruitment policies at 0.161. The implication of these weak relationships between the various capacity building factors is that there exists no statistically significant multi-co- linearity problem meaning that quoted companies and financial market intermediaries use one factor at a time although they can concurrently accommodate additional capacity building factors. This was confirmed by studies carried by Poon (2003) and Rantisi (2002) on the joint location of various knowledge related activities.

- **Operational efficiency:** This is a variable that measures the way the financial derivative market operate. The researcher intended to know how corporate bodies embrace financial innovation, derivatives pricing and time zone harmonization.

- **Financial innovation:** In order to find out the effectiveness in use of financial derivatives instruments among corporate. The researcher posed questions on the extent of financial innovation among the corporate bodies. The study showed that 42.9% of the respondent fairly embraced financial innovation, 38% of the respondent fully embraced financial innovation while 14.3% and 4.8% embraced and less embraced financial innovation. Hence financial innovation is critical operational efficiency.

- **Pricing financial derivatives:** In order to find out how derivatives are priced among the corporate. The researcher posed question on availability of qualified personnel capable of pricing financial derivatives. According to most respondents from the data gathered in the field, 72.2% of the respondent said that the corporate have qualified personnel to price financial derivatives while 27.8% have no qualified personnel.

- **Harmonization of Global Time zone:** The study sought to find out how harmonization of global time zone played a role in bringing customers close to the financial derivatives market. The study showed that 44.4% of the respondents said that harmonization of global time zone was most harmonized, 33.3% of respondents were for fairly harmonized while 11.1% were for harmonized, 5.6% for less harmonized and not harmonized respectively.

### **Correlation on the operational efficiency**

In order to establish whether there was a relationship between operational efficiency and their association, correlation between the various factors was done.

The research study revealed a generally weak correlation between the various operational efficiency factors. For example, pricing of financial derivatives correlated poorly with financial innovation at 0.272. Similarly, global time zone harmonization had a negative correlation with pricing of financial derivatives at -0.044. The implication of these weak relationships between the various operational efficiency factors is that there exists no statistically significant multi-co linearity problem meaning that quoted companies and financial market intermediaries use one factor at a time although they can concurrently accommodate additional operational efficiency factors. This confirmed the study by Van Horne (1985) who said that innovations in financial products are the lifeblood of the financial markets as such innovation comes about to exploit profit opportunities arising from operational inefficiencies.

- **Role of financial market intermediaries:** In order to measure the above variable the researcher presented to the respondent a number of questions on adequacy in savings and investment culture.

- **Adequacy in savings:** In order to find out how savings among the small investors played a role in financial derivatives transactions. The researcher posed question on the need of savings in the economy. According to most respondents from the data gathered in the field, 33.3% of respondents agreed savings were very good and good, 22.2% of respondents said it was excellent and 11.1% of respondents said it was fair. Hence savings among small investors were essential in derivatives market.

- **Investment channel:** The researcher sought to find out if credit policies were developed to ensure smooth capital flow in financial derivatives market. The

study showed that 35% of the respondent said investment channel was developed, 30% of the respondents said it was either very developed or less developed while a partly 5% said it was fairly developed. Hence Investment culture through credit policies development and enhancement play a role in financial derivatives use.

- **Liquidity Levels:** The researcher sought to find out how organized derivative exchange impact on liquidity level of transactions undertaken. The study showed that 38.1% of the respondent said that impact of liquidity level was positive and fairly positive, 19% of the respondents said it was very positive while 4.8% were less positive. Hence liquidity level had positive impact on an organized derivatives market.

### **Correlations on the role of financial market intermediaries**

The study sought to find out the relationship between various factors on role of financial market intermediaries. The research study revealed relatively strong positive correlation between liquidity levels and investment channels at a correlation of 0.827 while there was a weak correlation between investment channels and adequacy of savings at 0.139. The positive strong correlation at 0.827 i.e. 82.7% implies that liquidity levels has a positive relation with investment channels. This confirmed the theory on information asymmetry as highlighted by (Lipsey and Chrystal, (2007)).

### **Coefficient of correlation**

The coefficient of correlation enables a researcher to assess the strength of a relationship between the dependent variable and independent variable. The study wants to establish the relationship between the factors influencing development of financial derivatives market (dependent variable) and legal and regulatory frameworks, capacity building, operational efficiency and role of financial market intermediaries (independent variables).

### **Test of hypothesis of independent variables against dependent variable**

The researcher used the correlation coefficient for testing the hypothesis. Correlation tells the researcher the magnitude of the relationship between two variables. The bigger is the correlation the stronger the association between two variables. It also shows the direction of the relationship between the two variables. If the correlation coefficient is positive (+), it means that there is a positive relationship between the two variables.

The study summarized the null hypotheses of the four

independent variables and the level of significance with the dependent variable.

### **Correlation on legal and regulatory frameworks (X1)**

The study noted that there is a positive relationship between legal and regulatory frameworks and development of financial derivatives market as indicated by correlation of 0.175. Unit change of parameter measuring legal and regulatory frameworks will result to 0.175 percentage change of development of financial derivatives market. The significance level is 0.449 which is greater than 0.05 hence rejection of null hypothesis ( $H_0$ ) on legal and regulatory framework. This shows that the sampled data can be applied to the general population at 95% confidence level.

### **Test of hypothesis of market environment (X2)**

There is a positive relationship between market environment and development of financial derivatives market as indicated by correlation of 0.194. Unit change of parameter measuring capacity building will result to 0.194 percentage change of development of financial derivatives market. The significance level is 0.426 which is greater than 0.05 hence rejection of null hypothesis ( $H_0$ ) on market environment. This shows that the sampled data can be applied to the general population at 95% confidence level.

### **Test of hypothesis of operational efficiency (X3)**

There is a positive relationship between operational efficiency and development of financial derivatives market as indicated by correlation of 0.105. Unit change of parameter measuring operational efficiency will result to 0.105 percentage change of development of financial derivatives market. The significance level is 0.670 which is greater than 0.05 hence rejection of null hypothesis ( $H_0$ ) on operational efficiency. This shows that the sampled data can be applied to the general population at 95% confidence level.

### **Test of hypothesis of role of financial market intermediaries (X4)**

There is a positive relationship between role of financial market intermediaries and development of financial derivatives market as indicated by correlation of 0.148. Unit change of parameter measuring operational efficiency will result to 0.148 percentage change of development of financial derivatives market. The significance level is 0.545 which is greater than 0.05 hence rejection of null hypothesis ( $H_0$ ) on role of



financial market intermediaries. This shows that the sampled data can be applied to the general population at 95% confidence level.

## RESULT

In investigating factors influencing development of financial derivatives market in Kenya, the study concentrated on the variables; legal and regulatory frameworks, market environment, operational efficiency and role of financial market intermediaries. This study revealed the following;

On legal and regulatory frameworks the study noted that there are numerous factors that influenced development of financial derivatives market. These included securitization of fixed assets, demutualization of NSE, tax harmonization and Accounting standards harmonization. The study found out that securitization of fixed assets was very available at 29.4% of the respondents and available at 41.2% while 17.6% and 5.6% of the respondents were less available. This shows that over 50% of securitization of fixed assets was available. On demutualization of NSE 50% of the respondents were satisfied and very satisfied likewise the respondents for not satisfied. On Tax harmonization 38.1% of the respondents were fairly positive, 23.8% very positive while 23.8% were less positive. Accounting standards harmonization had 70.6% respondents who supported its facilitation while 23.5% of the respondents were less facilitated. Further the study revealed that there was generally poor correlation between the various legal and regulatory frameworks. For example accounting standards harmonization correlated poorly with tax harmonization at 9.1%, the same with securitization of fixed assets at -51.9%. This shows that the Government through Capital Market Authority has not harmonized all legal and regulatory frameworks for efficient market operations.

On market environment the study noted that most of the sources of market environment come from skilled personnel, proper recruitment policies, product awareness i.e. derivatives awareness and proper training and development of the human asset. The study found out that on skilled personnel 47.6% of the respondents had fairly skilled personnel, 33.3% were very skilled and a partly 19.1% had less skilled personnel. On recruitments policies 47.1% of the respondents had sufficient policies in place, 23.5% were fair, while 17.7% were not sufficient. There were 72.2% of the respondents who had no knowledge about derivatives instruments and only a partly 11.2% were informed. Training and development had 47.1% of the respondents, who were fairly positive about it, 23.5% were less positive and 29.5% of the respondents were positive about training and development. Further the study showed that there was generally poor correlation between the various determinants of market

environment. For example recruitment policies correlated poorly with level of skilled personnel at 6.4%, the same with training and development with recruitment policies at 16.1%. This shows that quoted companies and financial market intermediaries should put more emphasis on developing their human asset in order to remain competitive with the global changing trends.

On operational efficiency the study noted that financial innovation, pricing of financial derivatives and harmonization of global time zone were sources of operational efficiency on use of derivatives among quoted companies. The study found out that on financial innovation 42.9% of the respondents fairly embraced it, 38% and 14.3% of the respondents fully embraced and embraced it respectively while 4.8 % of the respondents did not embrace it. On pricing of financial derivatives 72.2% of the respondents had qualified personnel and 27.8% had not. On global time zone harmonization, 44.4 % of respondents said it was most harmonized, 11.1% were for harmonized, 33.3% were for fairly harmonized and 5.6% were for less harmonized. Further study revealed that there was generally poor correlation between the various determinants of operational efficiency. For example pricing of financial derivatives correlated poorly with financial innovation at 27.2%, the same to global time harmonization with pricing of financial derivatives at -4.4%. This shows that quoted companies and financial institutions should harmonize all of their operation in order to have a fit. Over or under emphasizing on a few does not bring the competitive advantage the company requires in the dynamic global market.

The study found out that adequacy in savings, investment channels and liquidity levels were financial market intermediaries factors which determined use of financial derivatives instruments. On adequacy in savings 33.3% of the respondents said savings to be good and very good, 22.2% excellent and 11.1% of respondents were fairly good. On investment channels 35% of respondents said it was developed, 30% of the respondents said to be very developed, 30% were less developed and 5% of the respondents were fairly developed. On liquidity levels 38.1% of respondents were either positive or fairly positive, 19% of respondents were positive and 4.8% of respondents were less positive about liquidity levels. The liquidity levels correlate well with investment channel at 82.7% positive association while on the other investment channel correlate poorly with adequacy of savings at 13.9%. This shows that financial market intermediaries should match savings and investments to ensure optimal utilization of cash circulating in the economy.

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## RECOMMENDATIONS

Based on the findings, the study offers the following recommendations:

- The Government through CMA needs to strengthen the legal and regulatory frameworks since they play a great role in development of financial derivatives market.
- Market environment need to be addressed by all stakeholders in this market in regard to training and development of staff, recruitment as well as creating awareness of financial derivatives instruments.
- In terms of operational efficiency, companies need to embrace financial innovation as it will lead to creativity in financial risk management. Derivatives pricing techniques need to be addressed likewise the harmonization of global time zone to enable Kenyan economy to be a 24 hours economy.
- Financial market intermediaries need to match savings and investments by ensuring that there is optimal utilization of cash circulating in the economy.

## CONCLUSION

Based on the results of this study we conclude that the use of financial derivatives instruments by quoted companies in Kenya is mainly influenced by legal and regulatory framework, market environment, operational efficiency and role of financial market intermediaries. From the feedback given in the field, it was evident that there is need by the Government through Capital Market Authority to synchronize tax harmonization, demutualization processes, securitization of fixed assets and harmonization of accounting standards. Market environment was noted to be crucial in use of derivatives instruments however more effort has to be done in ensuring staff are well trained and developed, recruitment policies are put in place as well as companies recruit skilled personnel for this function. The knowledge on financial derivatives instruments and how they are used should be communicated to all staff in the organization.

Operational efficiency was considered to play a great role in financial creativity, pricing techniques and compliance with the global time zones. However there is poor linkage between operational efficiency factors hence a dire need for companies to fully address them. Financial market intermediaries played a great role in ensuring that there are adequate liquidity levels in the economy to necessitate savings and investments among the quoted companies.

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