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**EFFECT OF USAGE OF DERIVATIVE FINANCIAL INSTRUMENTS  
ON FINANCIAL PERFORMANCE OF NON-FINANCIAL FIRMS  
LISTED AT THE NAIROBI SECURITIES EXCHANGE, KENYA**

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## **EFFECT OF USAGE OF DERIVATIVE FINANCIAL INSTRUMENTS ON FINANCIAL PERFORMANCE OF NON-FINANCIAL FIRMS LISTED AT THE NAIROBI SECURITIES EXCHANGE, KENYA**

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### **Abstract**

**Purpose:** The purpose of this study is to examine the effect of derivative financial instrument utilization on the financial performance of non-financial firms recorded at the Nairobi Securities Exchange. The objectives that guided this study are to assess the impact of use of derivatives in risk management on financial performance of non-financial firms listed on the Nairobi Securities Exchange (NSE).

**Methodology:** The study embraced the regression model. A census of all the 47 non-financial firms listed at the NSE as at December 2017 constituted the target population where only 11 listed non-financial firms were financial derivative instruments users. The study utilized qualitative and quantitative research techniques especially the utilization of descriptive research design. The data for this study was collected using questionnaires, audited financial statements and annual reports of individual firms for the multi year time frame covering 2013-2017 (the two years comprehensive).

**Results:** The study discovered that greater part of the firms (66.67%) utilizes Forwards, 22.22% utilize Swaps and 11.11% utilize Futures and Options for financial risk management. From the study the outcomes were as per the following: presence of debt in the financial structure of the non-financial firms listed at the NSE does not influence its financial performance as estimated by return on assets (ROA), use of derivatives in efficiency in trading influences the financial performance of the firms, use of derivatives in price stabilization is statistically significant and utilization of derivatives in price discovery does not influence the financial performance of the firms. By and large, the performance of the recorded non-financial firms at the NSE amid the time of study was 8.13 with a standard deviation of 10.67.

**Unique contribution to Theory, Practice and Policy:** The study recommended that firms should combine both debt and equity in their financial structure. It is therefore incumbent on firms' managers and financial advisors to continuously study the market and advice on the appropriateness of the proportions of the various sources of finance based on market circumstances at any given time.

**Key Words:** *Derivative Financial Instruments, Financial Performance, Non-Financial Firms and Nairobi Securities Exchange*

## **1.0 INTRODUCTION**

### **1.1 Background to the Study**

Derivatives are a critical component of the global economy, with notional market size surpassing \$700 trillion by 2001, Bartram, Brown and Fehle (2009). In perspective of the 2009 International Swaps Derivatives Association (ISDA) overview report, 94% of the world's 500 biggest firms utilize derivatives to oversee financial risks, and 88% of the firms utilize derivatives to oversee foreign exchange risk. Before the end of June 2014, Bank of International Settlements (BIS) reports, the notional benefit of outstanding interest rates and foreign exchange derivatives held by worldwide non-financial firms was \$15.7 trillion and \$9.1 trillion respectively.

The first derivatives were organized to anchor the supply of goods both in time and topographical distance and additionally to relieve against changes in prices and risks. Derivatives encouraged trade and contracts advanced over history essentially to meet the particular needs of products traders. In addition, derivatives were for instance instruments for farmers to insure themselves against a product failure, for traders to finance their future business activities, for pioneers to get assets for their expeditions yet additionally for governments and places of worship to fund-raise.

#### **1.1.1 Global Perspective of Derivatives Instruments**

Derivatives instruments came to existence in early 17<sup>th</sup> century with commodity derivatives being the very first type. Simple commodity futures (rice futures) were the first ever such derivative contracts, traded on The Dojima Rice Exchange in Japan. The founding of the Chicago Board of Trade (CBOT) in 1848 and its establishment solved the problem of credit risk among the trading parties. It provided centralized location to negotiate formal contracts by developing rules and product standards that allowed the grain market to operate more efficiently. Existence of formal contracts enabled the traders to hedge effectively against fluctuations in the market.

With over 40% of the global volume in derivatives trade, Europe is the most noteworthy in derivatives trade which is significantly higher than its share in equities and bonds, Cheptorus et al., (2017). Big European derivatives exchanges seemed only after demutualization and deregulation in the eighties and nineties. These exchanges were more independent of their users and they revolutionized trade by fully going electronic trading and setting industry regulations and principles.

The Bombay Cotton trade association in India began futures trading 1875 in the zone of commodities. Afterwards, the Government of India in 1952 prohibited money repayment and options trading thereby derivatives trading moving to informal forwards markets. As of late government policy have moved for an expanded part of market based pricing and less suspicious derivative trading. In India, derivatives trading began in 2000 after Securities and Exchange Board of India (SEBI) allowed the last endorsement for the reintroduction and from that point forward financial derivatives market in India have demonstrated a colossal development both as far as volume and quantities of traded contracts (Vashishtha & Kumar , 2010).

### **1.1.2 African Perspective of Derivatives Market**

The first evidence of derivatives trade in Africa was associated with the Alexandria's futures market in Egypt where the cotton transaction was first recorded in 1865. Alexandria Cotton Exchange was created in 1899. 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 have been revived from time to time, MFA (2008).

The JSE is South Africa's largest exchange. The South African Future Exchange (SAFEX) is the futures exchange subsidiary of JSE Limited. The SAFEX consists of two divisions: the financial markets division for trading of equity derivatives and an agricultural division for trading agricultural derivatives. SAFEX was formed in 1990 to trade financial instruments with the agricultural division added in 1995. The SAFEX recorded growth out of informal market forces in April 1987, Adelegan (2009). In 2001, JSE ingested SAFEX to become Africa's most active and essential commodity exchange.

Amid the period, Rand Merchant Bank, a local merchant founded an informal financial market. These were subsequently followed by introduction of option contracts in October 1992, followed by agriculture commodity futures in 1995 and the realization of a fully automated trading system in May 1996. White maize/corn was one of the original derivatives introduced and the contract size has changed over time including the recent 2014 change.

Various different nations are looking into the possibility of introducing commodity exchanges such as Côte d'Ivoire, Ghana, Uganda and Morocco. Some other like Malawi, Zambia and Nigeria have had short-lived exchanges for which factors including inappropriate trading software, staff training and government intervention undermined their success, MFA (2008).

### **1.1.3 Derivatives Market in Kenya**

Derivatives in Kenya emerged from the mid 2000's amongst stakeholders in the financial industry including the regulator consequently the requirement for a derivatives platform. This was one of various reforms seen as due to the sector. There was a consequent reorganization of the Nairobi Stock Exchange into four principle segments, one of which is the Futures and Options Market Segment (FOMS) where its operationalization did not take off, Mutende (2013). The Nairobi Stock exchange in 2011 changed its name to Nairobi Securities Exchange which was a reflection of its vital arrangement to develop into a full service Securities Exchange including offering services identified with derivatives.

The commonly utilized derivative instruments by Kenyan firms are the forward contracts and swaps where firms use forward contracts to hedge against their imports and exports while swaps are utilized when making arrangements to exchange money streams after some time. Kenya is in desperate need of having developed and regulated financial derivative markets that will empower firms' hedge their income fluctuations easily (Ngugi et al., 2013).

An investigation by Nzuki (2010) discovered that oil firms in Kenya appear to give due consideration to crude oil price volatility. As a consequence they utilize a highbred of derivatives, principally future and forward contracts. Mbungu (2013) in her examination on the elements prompting the moderate adoption of derivatives use in Kenya discovered that legal frame work and trade liberation are the principle factors preventing derivatives use. However, the examination was restricted to Kenyan Commercial Banks. .



As at 31st December 2013, 64 firms were listed in NSE across 10 sectors that included: Automobiles & accessories, Energy & Petroleum, Agriculture, Banking, Investments, Telecommunication & technology, Insurance, Manufacturing & Allied, Commercial & Services, and Construction & Allied, CMA annual report (2014). Among the listed firms, 22 were within the banking and insurance sectors (financial firms) while 42 were listed within the nonfinancial sectors.

The CMA Act, set up pursuant to the Capital Markets Act, CAP 485A Laws of Kenya is the principal, state sanctioned and independent regulator of securities. This included all matters related to derivatives in the jurisdiction. On March 2016 the Cabinet Secretary for National Treasury through a legal notice no. 37 enacted the Capital Markets (Derivative Markets) Regulations, 2015. The secondary legislation has principles relating to various aspects of a derivatives market, including but not limited to licensing requirements and duties of a derivatives exchange and a clearing house, licensing of derivative brokers, inspection powers of the authority and market offences.

In October 2015, The CMA affirmed the Nairobi Securities application for the operation of derivatives market. In January 2016, the securities exchange signed up six lenders as clearing banks for the prospective derivatives market, Miriri (2016). The bourse in April 2016, additionally deferred the launch of the platform stating it needed to deepen knowledge among participants and create public awareness.

## **1.2 Statement of the problem**

The flood of international financial liberalization has seen financial markets presenting different creative financial instruments, for example, financial derivatives to enable speculators to confine venture risk, Cheng (2015). Derivatives in Kenya are mostly utilized by non-financial firms enthused about securing profit edges by purchasing and offering money at specific rates or keeping up instability risks at a specific level to maintain a strategic distance from decrease of financial performance, Irungu (2016). Anyway numerous firms in Kenya that utilization derivatives instruments have recorded blended outcomes relying upon the procedures they use to support against the risk they confront.

In an investigation by Nzuki (2010), he set up that derivative usage and subsequently their impact in Kenyan oil firms is beneath ideal level (31% to 60% against an ideal level of 93%) which realized the discussion about the moderate pace of advancement of financial derivatives in Kenya and by extension the impact of the performance of firms. Cherop (2010) on the other hand studied how fluctuations in currency prices influenced tea exports utilizing the instance of small holder's tea processing plants in Kenya and established that it prompted vulnerabilities in general earnings.

Further, Gachua (2011) analysed how a firm's exposure to changes in prices of foreign currency influenced an organization's overall financial results using an instance of listed firms. The findings demonstrated that firms were contrarily influenced by changes in the foreign currency prices. Besides, Chege (2016) discovered that a positive correlation between the hedging strategy utilized and the overall financial performance exists on his study about the relationship between hedging strategies and financial performance of non-financial firms listed at the NSE.

In his findings, Gitogo et al., (2013) asserted that there exists a relationship between the financial derivatives and financial performance of commercial banks. Some studies argue that

use of financial derivatives maximize firm value by enhancing net cash flows, (Allayannis & Weston (2001); Carter, Rogers & Simkins, (2006)). Research presents contrary arguments showing that management engage in hedging with derivatives to maximize their own utility, Jin and Jorion, (2006). A survey of large listed South African non-financial firms by Correia, Holman and Jahreskog (2012) found that 90% of respondents used derivatives for hedging. However, empirical evidence has shown mixed results on firms' motives for hedging with financial derivatives. Notably, this study therefore intends to have an analysis of financial derivative use on the financial performance of non-financial firms listed at the NSE.

## **2.0 LITERATURE REVIEW**

### **2.1 Theoretical Review**

#### **2.1.1 Capital Structure Irrelevance Theory**

This theory relates to the immateriality of hedging first posited by Modigliani and Miller (1958). The theory expresses that the capital structure of a firm comprising of equity, debt and/or preference stock is autonomous of its financial performance which is mainly affected by the company's underlying assets. Put differently, "regardless of how a company chooses to fund its operations will not affect its financial value or performance with the assumptions that there is absence of government intervention, quality and quantity of information is the same, and no taxes or other unnecessary fees are present."

Little wonder Frankfurter and McGoun (1999), contend that the theory is unnecessarily impregnated, as it is impossible to have a perfect market economy. A study by Carter, Rogers and Simkins (2004) on 26 airline companies in the US between the years of 1994—2000 refutes the irrelevancy of firm hedging based on their findings that there was a 14.94-16.08% increase in the Tobin's Q ratios used to represent the value of these firms. They concluded that the cost of jet fuel significantly affected cash flow, in that high jet fuel costs led to lower cash flows and contrariwise.

Jin and Jorion (2006) strongly supported this theory in their study which was a composition of a dataset of 119 U.S. companies, with 330 firm year observations in the oil and gas industry between years 1998—2001. They used a pooled-OLS estimation technique with the Tobin's Q ratio as the dependent variable, and hedging activity dummies as the independent variables. They concluded that there were no differences between the Tobin's Q ratios representing firm values of firms that hedged with those that did not.

Therefore, "hedging does not confer a special advantage since investors can hedge on their own." This relationship became negatively effective on firm value when the exposures were hedged although more than 90% of the firms in the sample showed a significant relationship between exposures to oil and gas commodity prices and stock prices, in that an increase in commodity prices led to an increase in stock prices.

Deducing from this theory in informing the study, it will expound on the research objective (i) and research question (i) of this study. Moreover, this theory will explicate to inform on the variable under study on Risk Management by giving more insights to its functionality on hedging.

### **2.1.2 Agency Theory**

In describing agency theory, Jensen and Meckling (1976), Ross (1933) and Fama (1980) asserts that the enthusiasm of the principals and the agents are asymmetrical intrinsically because of the theory's rationality assumption. Accordingly, the theory of agency helps in "fathoming the guideline and the agent issues with a point of guaranteeing a better relationship among them" and therefore the key stakeholders in the derivatives market are the shareholders and the managers subsequently giving rise to the principal-agent conflict.

Ammon (1998), in his study recognized four groups of people with various interests namely: "Owner-managers holding some company shares (internal shareholders), present and imminent buyers of shares (external shareholders), obligation holders and other stakeholders." He opined that agency cost arises when there is a decline in value of the principal's asset when contrasted with its value without agency conflicts. The Agency cost theory therefore is a direct opposite of the capital structure theory and supports the hedging of financial risks, which ought to be an action taken by an agent to diminish these costs since a principal would have already factored in the costs of any potential conflicts of interests while starting a new business with an agent in the first place which is in line with the opinion of Jensen and Meckling (1976).

The agency theory further explains that decisions on capital structure must aim at reducing the cost related to agency by reducing equity in the capital structure. This is done by "increasing the financing by debt" which eventually increases the market value of the firm as well as reducing the conflicts that may exist or arise between managers of a firm and the shareholders. The theory is further founded on the notion that a manager's behavior can be controlled by debt financing since the managers will use the free cash flow to interest payment of the debt to obtain funds for the firm's investment projects. This theory therefore supports the use of debt to improve the firm's financial performance, Mwangi, Muturi and Ngumi (2016).

### **2.1.3 Stakeholder theory**

This theory originally advanced by Freeman (1984), states that "corporate entities should be treated as major social institutions as they have grown to affect every day economic life." He hypothesizes again in Freeman (2010) that the "21st century is for managing stakeholders" namely: governmental bodies, political groups, trade associations, trade unions, customers, suppliers, employees, communities and financiers—because the value maximizing objective of businesses for shareholders no longer works, drawing support from the problems of corporate governance that was noticed in the aftermath of the financial crisis. Therefore, there should be a "balance between satisfying stakeholder interests by aligning them with the direction of a business."

Cassano et al., (2015) argued that to improve relations with stakeholders there are is need to have voluntary formal publication of documents and communication of company's strategy about risk management so that have a mature corporate culture where transparency in the communication reflects fair and respectful to all stakeholders' expectations behaviors. Maintaining this value therefore is difficult and expensive and can lead to potential financial distress, which is why risk management is necessary.

Judge's (2006) research on 400 nonfinancial UK firms of both hedgers and non-hedgers for the year 1995, observed that 5 out of all 7 variables used to represent expected financial

distress costs in models 1-5 namely: “tax loss carries forwards dummy, gross gearing, interest cover, net interest receivable dummy, credit rating, foreign sales and cash ratio” were positive and significant at a 1% level with firms hedging decisions, thereby directly affecting firm value and performance. He suggested that bigger firms with export and import activities as well as companies with high short term debts, which are susceptible to volatile earnings more commonly, apply derivatives risk management to limit their downside risk of financial distress. Similarly, the researcher tends to agree with the study by Judge’s but looks forward to narrow the study towards performance and not value and performance to yield refined results on the same.

## **2.2 Empirical Review**

A firm has distinctive destinations to risk management. The financial derivatives give an intense tool to constraining risks that firms and people look in the conventional course of their business. All in all, derivatives intermediaries deal with their risks to strike a harmony between risk and return. Their picked trade-off commonly results in some exposure to risk. Most organizations have an internal strategy and risk management policy which offers rules to the chief financial officers on the points of confinement and kind of hedge that can be taken at a given time. In this way, it is essential for organizations that they can’t disregard the requirement for all around characterized risk management approaches. It is likewise sensible for organizations to ban the utilization of financial derivatives for speculative purposes. An intriguing phenomenon that this study will endeavor to investigate as policy use and effecting is a key component to substratum impact of the financial instrument.

Otsyula (2014) explored “challenges facing the utilization of financial derivatives in hedging interest rate risk by the commercial banks in Kenya.” The researcher examined five commercial banks; two major banks, one medium bank and two little banks according to the Central Bank of Kenya Commercial Banks classification. The study uncovered that the effort by commercial banks in Kenya to utilize the use of financial derivatives for purposes of hedging against interest rate risk are essentially hampered by the financial institution policy and market trading platform innovation. The study additionally unwound that however the Central Bank of Kenya had satisfactory assets at hand to hedge interest rate risk utilizing financial derivatives among the commercial banks in Kenya, the banks financial institution policies and trading platforms hampered the hedging of interest rate risks utilizing financial derivatives.

According to Deutsche Börse Group (2008), the efficiency of the derivatives market has increased significantly in recent years. This is true both in terms of cost efficiency and price efficiency. The exchange segment has proven particularly efficient due to the standardization of exchange-traded derivatives, available economies of scale and its complete automation. Cost efficiency refers to costs associated with trading derivatives from a customer’s perspective. These are transaction costs that exchanges and intermediaries charge explicitly as well as implicit transaction costs that are included in the derivatives transaction price, for example spreads that market makers receive in both the OTC and the on-exchange segment.

In perspective of Lenee and Oki (2017) in their study about “financial derivatives and firm performance: observational proof from financial and non-financial firms,” the study utilized the longitudinal research design in the composition of an adjusted board dataset containing 5 financial and 5 nonfinancial organizations, randomly chosen from the UK FTSE 100 index. In breaking down firm size, financial organizations had the most noteworthy average market



capitalization of \$77 million in 2007 and 2013 respectively. Nonfinancial organizations on the other hand recorded the most astounding average market capitalization in 2014 of \$70 million. By and large average book estimation of financial organizations remained at \$67 million, while that of nonfinancial organizations was \$141 million for the whole 10-year time frame.

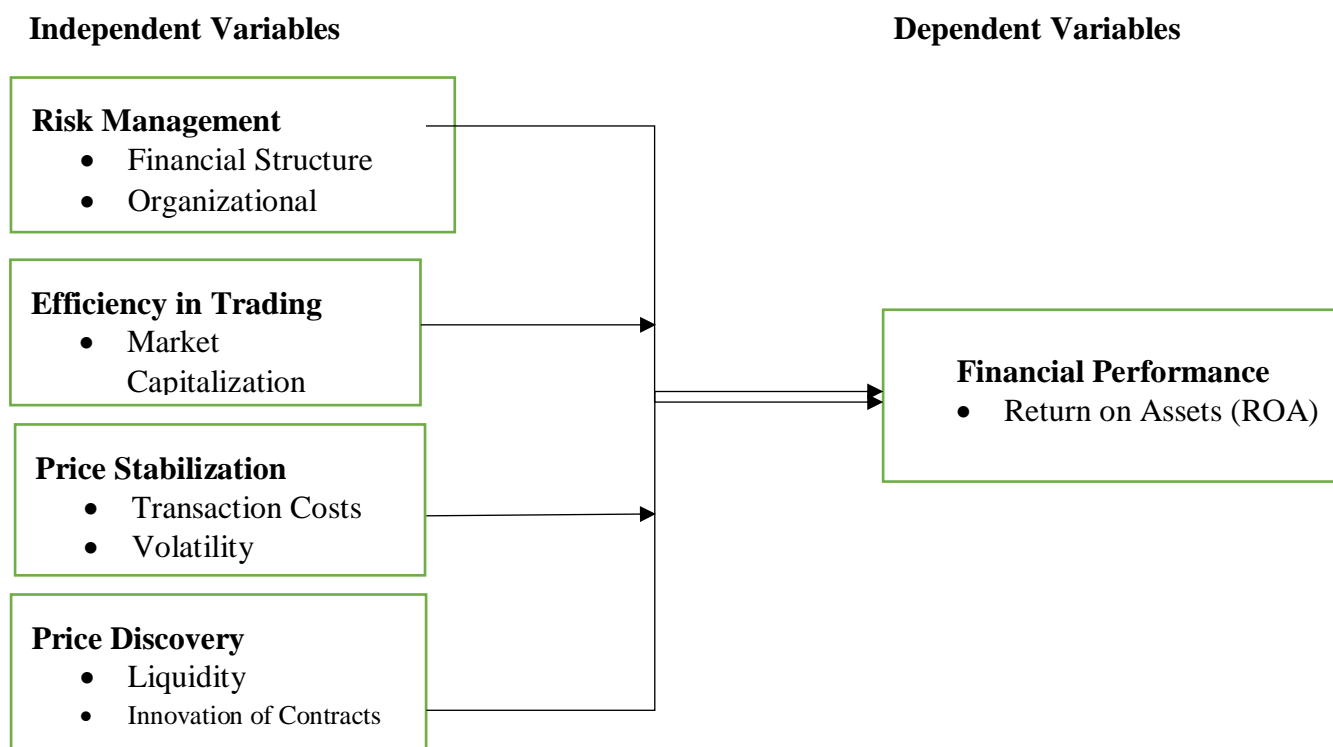
As per Maniar (2000) on his study about “the Impact of Derivatives Trading on the Underlying Securities; A Case Study on National Stock Exchange of India,” the researcher examined “the impact of the introduction of derivatives (futures and options) in the Indian market on the volatility and the trading volume of the underlying index.” The goal of the study was to perceive the effect of introduction of financial derivative instruments (futures and options) on the conditional volatility and trading volume of the NSE index. The researcher discovered proof that the conditional volatility of the underlying asset declined after the derivative markets were introduced. The researcher also concluded that the adoption of derivatives could help balance out their spot markets, expanding the investment opportunity set and enhancing the daily market operation.

Further, Debasish (2007) embraced an empirical study on “Impact of Index Futures Trading on Spot Market in India” where he researched “the Effect of Futures Trading on the Volatility and Operating Efficiency of the Underlying Indian Stock Market” by utilizing a sample of selected individual stocks. The target of the study was to establish whether the index futures trading in India caused a noteworthy change in spot market volatility of the selected fundamental individual stocks. The researcher compared the spot price volatility changes before and after the futures trading was presented in the stock indices. The outcomes demonstrated that the introduction of Nifty Index Futures exchanging India was related with both reduction in spot price volatility and decreased trading efficiency in the underlying stock market.

“Liquidity is the most vital characteristic for a well-functioning market,” Harris (2002). Liquidity in the underlying market suggests there is enthusiasm for the benefit itself and therefore a demand for investors to utilize derivatives to hedge their exposure to that advantage. A proficient price discovery process is in this manner described as the “quick change of market prices from the old to the new balance with the entry of new information,” Yan and Zivot (2007).

As indicated by Hawkesby (1999), he discovered that individual and institutional investors will probably foresee the future prices of the underlying assets by analyzing the operational activities within the derivatives market. He additionally expressed this was a direct result of the “forward looking nature of derivatives and the way that information was assimilated quickly in the derivatives market.” In perspective of Kavussanos et al. (2008), he expressed that this price discovery role profited the capital markets as it empowered traders to improve evaluation of risk management, portfolio management and budget planning decisions whereby eventually better investment decisions were made at last.

## 2.4 Conceptual Framework



**Fig 1 Conceptual Framework**

## 3.0 RESEARCH METHODOLOGY

The study embraced the regression model. A census of all the 47 non-financial firms listed at the NSE as at December 2017 constituted the target population where only 11 listed non-financial firms were financial derivative instruments users. The study utilized qualitative and quantitative research techniques especially the utilization of descriptive research design. The study used questionnaires, audited financial statements and annual reports of individual firms for the multi year time frame covering 2013-2017 (the two years comprehensive).

## 4.0 FINDINGS

### 4.1 Background Information Results

The study collected limited amount of biographical profile of the respondents to paint a general picture about the sample. The designations of the respondents included Chief Financial Officers, Assistant Financial Controllers, Financial Accountants and Financial Analysts. The findings in table 4.3 below revealed that a majority (44.44%) served over ten years in their current firm.

**Table 1: Respondents Experience in the Firm**

<b>Experience in the Firm</b>	<b>Respondents</b>	<b>% of the total</b>
1 - 3 Years	2	22.22
4-9 Years	3	33.33
10 or More Years	4	44.44
<b>Total</b>	<b>9</b>	<b>100</b>

A majority (77.78%) of the respondents had over ten years' experience in the industry where they work making the respondents very experienced and able to respond to the questionnaire.

**Table 2: Respondents Experience in Industry**

<b>Experience in the Industry</b>	<b>Respondents</b>	<b>% of the Total</b>
1 - 3 Years	0	0.00
4-9 Years	2	22.22
10 or More Years	7	77.78
<b>Total</b>	<b>9</b>	<b>100</b>

## 4.2 Descriptive Results

The study carried out descriptive statistics for the general background and the independent variables in order to achieve the stated objectives of which was to identify the effect of usage of financial derivative instruments on financial performance of non-financial firms listed at the NSE in Kenya.

### 4.2.1 Descriptive Results for Type of Derivatives Used

In order to obtain complete response on various financial derivative instruments used, four major instruments were provided. The respondents were asked to indicate the hedging strategies used by their firms for financial risk management. The findings of the study were summarized in Table 3. From the table, a majority (66.67%) of the respondents used Forwards, 22.22% said that their firms used swaps and 11.11% used futures and options for financial risk management.

**Table 3: Derivative Instrument Used**

Derivative Instrument	Respondents	% of the Total
Forwards	6	66.67
Swaps	2	22.22
Futures and Options	1	11.11
<b>Total</b>	<b>9</b>	<b>100</b>

#### 4.2.2 Descriptive Results for Risk Management

The study sought to assess the effect of utilization of derivatives in risk management on financial performance of non-financial firms listed at the NSE in Kenya. Firm risk management was assessed by the financial structure and organizational structure. From the outcomes showed in table 4, the mean value of debt to equity ratio was 0.5062. This shows that by and large non-financial firms listed in the NSE in Kenya were profoundly geared. The greatest proportions of their assets were financed by long term obligation. The standard deviation of 2.33527 connotes an incredible variation owing debtors to equity proportion as proof by the way that the base observed debt to equity was - 5.19 (Kenya Airways) while the maximum was 3.30 (KPLC). Organizational structure on the other hand had a mean value of 4.44 inferring that most respondents concurred that organizational structure in risk management of their firms supported effective financial performance of the companies.

**Table 4: Descriptive Statistics of Risk Management**

Proxy	Minimum	Maximum	Mean	Std. Deviation
Debt to Equity Ratio	-5.19	3.30	.5062	2.33527
Organisational structure	4	5	4.44	.527
Valid N (listwise)	9			

#### 4.2.3 Descriptive Results for Efficiency in Trading

Regarding Market Capitalization, the study found that the maximum market capitalization was 31,811.95 (Safaricom PLC) while the minimum value for the studied firms for the period under consideration was -14,962.45 (Kenya Airways). The mean market capitalization was 3,736.6189 with a standard deviation of 12,150.08. In respect to Turnover, the maximum value was 168,178.97 (Safaricom PLC) while the minimum is 523.36 (Olympia Capital Holdings). Its mean was 59,740.36 with a standard deviation of 62,907.48.

**Table 5: Descriptive Statistics of Efficiency in Trading**

	Minimum	Maximum	Mean	Std. Deviation
Market Capitalization	-14962.45	31811.95	3736.6189	12150.08347
Turnover	523.36	168178.97	59740.3640	62907.47833
Valid N (listwise)	9			

#### 4.2.4 Descriptive Results for Price Stabilization

As outlined from table 6 beneath, the mean value for volatility was 4.22 while the standard deviation was 0.441. In regard to transaction costs, the mean value was 3.67 with a 1.323 standard deviation.



**Table 6: Descriptive Statistics of Price Stabilization**

Proxy	Minimum	Maximum	Mean	Std. Deviation
Volatility	4	5	4.22	.441
Transaction costs	1	5	3.67	1.323
Valid N (listwise)	9			

#### 4.2.5 Descriptive Results for Price Discovery

The study sought to establish the effect of use of derivatives in price discovery on the financial performance of non-financial firms listed at the NSE in Kenya. Innovation of contracts had a mean of 4.22 with a standard deviation of 0.441. Liquidity on the other hand had a mean of 4.56 with a standard deviation of 0.527.

**Table 6: Descriptive Statistics for Price Discovery**

Proxy	Minimum	Maximum	Mean	Std. Deviation
Liquidity	4	5	4.56	.527
Innovation Of Contracts	4	5	4.22	.441
Valid N (listwise)	9			

#### 4.3 Performance of Firms

As demonstrated in table 7, the mean value of return on assets for the 9 firms was 8.1304 with a standard deviation of 10.67 and a minimum and maximum values of - 9.24 (Kenya Airways) and 22.90 (BAT) respectively. The positive return on assets demonstrates that the firms were on average considered profitable albeit a few firms were operating at a loss as reflected in the negative minimum observed values.

**Table 7: Descriptive Statistics for Firm Performance**

Proxy	Minimum	Maximum	Mean	Std. Deviation
Return on Assets	-9.24	22.90	8.1304	10.66897
Valid N (listwise)	9			

#### 4.4 Inferential Analysis

The researcher used inferential analysis to accomplish the specific objectives of the study. The study used Pearson Correlation Coefficient to test the association between the independent and dependent variables analysis. The study additionally utilized regression investigation to test the statistical significance of the predictors.

##### 4.4.1 Pearson Correlation Analysis

Pearson correlation test was conveyed and the outcomes on table 8 underneath demonstrate that there were no noteworthy correlations between the predictors in the model. Most of the independent variables had an average positive correlation with the dependent variable apart from Price Discovery which had a negative correlation (-0.061) which indicates that an increase in price discovery may lead to a decrease in firm's financial performance. The

correlations between the proxies on the other hand had no noteworthy effect on the possible results of the model.

**Table 8: Correlation Matrix**

		Return on Assets	Risk Management	EffTrad	PriceStab	PriceDisc
Return on Assets	Pearson Correlation	1				
Risk Management	Pearson Correlation	.482	1			
EffTrad	Pearson Correlation	.125*	-.087	1		
PriceStab	Pearson Correlation	.588*	.407*	-.193	1	
PriceDisc	Pearson Correlation	-.061	-.077	-.472	.461	1

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

#### 4.5 Regression Analysis

The model summary demonstrated the percentage of dependent variable (Financial Performance of Non-Financial Listed Firms) that could be explained by the autonomous variables. From table 9 underneath, 59.9% (R Square) of financial performance of firms listed in the NSE could be explained by the autonomous variables when every single other factor were kept constant.

**Table 9: Model Summary**

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Durbin – Watson Statistic
1	.774 <sup>a</sup>	.599	.579	3.40640	2.217

a. Predictors: (Constant), PriceDisc, RiskManagement, EffTrad, PriceStab

The Durbin-Watson test statistic shows that the residuals from the regression are not auto correlated. As a rule of thumb, the Durbin-Watson test statistic in the ranges of 1.5 to 2.5 is relatively normal while values outside this range could be a cause for concern. Since the DW statistic is 2.217 it can be concluded that there was no autocorrelation among the model residual.

Table 10 is the analysis of variance and it demonstrates that the model is statistically significant since  $p < .05$  (Sig. = .0464)

**Table 10: ANOVA**

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	477.443	4	119.361	1.102	.0464 <sup>b</sup>
	Residual	433.173	4	108.293		
	Total	910.616	8			

a. Dependent Variable: Return on Assets

b. Predictors: (Constant), PriceDisc, RiskManagement, EffTrad, PriceStab

Coefficients Table 11 below demonstrates that the contributions of the Efficiency in Trading and Price Stabilization independent variables are statistically significant as the p-values are less than .05, except for risk management and price stabilization which is statistically insignificant (Sig.>.05).

**Table 11: Coefficients Table of Performance of Companies Listed in the NSE Against Independent Variables**

		Unstandardized Coefficients		Standardized Coefficients		Collinearity Statistics		
		B	Std. Error	Beta	T	Sig.	Tolerance	VIF
1	(Constant)	35.749	68.140		3.525	.0000		
	Risk Management	-1.425	2.816	-.338	-.506	.639	.266	3.757
	Eff Trad	5.489E-06	.010	.036	.087	.00935	.704	1.421
	Price Stab	7.642	5.166	1.101	1.479	.0213	.215	4.654
	Price Disc	-9.250	9.466	-.578	-.977	.384	.340	2.942

a. Dependent Variable: Return on Assets

$$Y = 35.749 - 1.425 X_1 + 5.489E-06 X_2 + 7.642 X_3 - 9.250 X_4 + \mu_t$$

#### 4.6 Discussion of Findings

The findings of the study established a negative coefficient for risk management at 5% level of significance. This therefore implies a unit increment in risk management will prompt 0.506 units decrease in the firm performance. This infers the firms' utilized excessive debt suggesting high risk of bankruptcy in this way reducing the performance of the firms. The findings are consistent with the empirical study by Mwangi, Muturi and Ngumi (2016). The findings were likewise consistent with MM (1963) capital structure immateriality theory that the measure of debt in the capital structure does not influence the performance and the value of the firm. The results additionally concur with Ebaid (2009) who concluded that capital structure had practically zero effect on a firm's performance in Egypt.

The efficiency in trading of firms is emphatically related with the financial performance of the firms. With a p-value of 0.00935, efficiency in trading is statistically significant at 5% level of significance. A unit increment therefore in efficiency in trading will prompt 0.036 units' increment in the performance of the firms. The outcome is in accordance with Deutsche Börse Group (2008) who contend that the productivity of the derivatives market has expanded fundamentally as of late both as far as cost effectiveness and price efficiency. The discoveries of this study are additionally consistent with the study by Howells and Bain (2002) and Kavussanos et al., (2008) who demonstrated that "the introduction of a derivatives exchange in a capital market is advantageous as derivatives can complete the market and enhance productivity."

Price stabilization is statistically significant at 5% level of significance in explaining the variation in the performance of firms. A unit increment in price stabilization will prompt 1.101 unit increments in the financial performance of the firms. The outcomes are consistent with the study by Maniar (2000) who concluded that “the adoption of derivatives could help balance out their spot markets, expanding the venture opportunity set and enhancing the day by day market operations.”

The study has reported a negative coefficient of price discovery with the performance of the firms. Price discovery with a p-value of more than 0.05, is statistically not significant in causing the variation in the performance of the firms. This can be ascribed to the low levels of regulations of non-financial firms and the frail form nature of our markets since the securities bought on the market are not dictated by the forces of free market activity.

## **5.0 SUMMARY CONCLUSIONS AND RECOMMENDATIONS**

### **5.1 Summary of findings**

The study revealed that the financial performance of the non-financial firms amid the time of study was 8.13 with a standard deviation of 10.67. On a similar note, the mean for risk management for the nine non-financial firms was 4.5907 with standard deviation of 2.53289. Further on efficiency in trading, the average was 63,476.9829 with a standard deviation of 69,198.17391. Subtly, price stabilization in the nine non-financial firms amid the study time frame recorded a mean of 7.8889 with a standard deviation of 1.53659. The price discovery of commodities for the nine non-financial firms had a mean of 8.7778 and standard deviation of 0.66667. In the midst, the study established a negative correlation coefficient for risk management with the financial performance of the firms. Agreeably, efficiency in trading had a positive correlation coefficient with the performance of the firm at 5% level of significance. The study uncovered that price stabilization of commodities is emphatically connected with return on assets of the nine recorded non-financial firms. On the contrary, the study built up a negative coefficient of stabilization with the financial performance of the firms. Lastly, the study found that there was a positive effect of usage of derivative financial instruments on financial performance of non-financial firms listed at the NSE, Kenya.

### **5.2 Conclusion**

The study concluded that risk management does not influence the firm’s performance since the study results demonstrates that it is statistically insignificant therefore the study concludes that presence of debt in the financial structure of the non-financial listed at the Nairobi Securities Exchange does not influence a firm’s financial performance. The study also concluded that that use of derivatives in improving efficiency in trading influences the performance of the firms. It viably satisfies its economic function of price effectiveness subsequently full filling the basic function of a well-functioning market. From the findings, the study concludes that usage of derivatives in price stabilization is statistically significant. It was also possible to conclude that utilization of derivatives in price stabilization is statistically significant.

### **5.2 Recommendations**

The study recommended therefore recommended that firms combine both debt and equity in their financial structure. It is therefore incumbent on firms’ managers and financial advisors to continuously study the market and advise on the appropriateness of the proportions of the



various sources of finance based on market circumstances at any given time. This way, their decisions shall boost firm's competitiveness and consequently financial performance. This study recommends that sound risk management process such as ensuring that procedures and policies that delineate clearly the lines of responsibility for managing risk

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