

**THE EFFECT OF CURRENCY DERIVATIVES ON THE  
VALUES OF LISTED COMMERCIAL BANKS IN KENYA**

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## **DECLARATION**

I, the undersigned, declare that this research project is my own work and has never been presented in any other university or college for a degree or any other award.

**Signed:** \_\_\_\_\_

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This research project report has been submitted for examination with my approval as the University Supervisor.

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## **DEDICATION**

I dedicate this study to my dear family members for all the support they gave me all the time as I prepared and worked on this project.

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## **LIST OF ABBREVIATIONS**

|       |   |
|-------|---|
| CBK   | Central Bank of Kenya                   |
| FOREX | Foreign Exchange Rate                   |
| FX    | Foreign Exchange                        |
| IRP   | Interest Rate Parity                    |
| MST   | Market Segmentation Theory              |
| NSE   | Nairobi Securities Exchange             |
| PPP   | Purchasing Power Parity                 |
| SSA   | Sub Saharan Africa                      |
| SPSS  | Statistical Package for Social Sciences |

## **ABSTRACT**

Despite the use of derivative contracts by banks having increased over the past two decades, the effect of derivatives on risks and market value of banks is still largely unknown. Despite more widely available data on derivative usage, the evidence obtained from empirical research on its effects is mixed. One possible answer to such contradictory results is whether banks use derivatives for trading or hedging purposes. Previous studies have used data disclosed by all kinds of firms including non-financial firms and banks, in trying to improve understanding of how firms use derivatives. This study seeks to fill the existing research gap by conducting a study on the effect of foreign exchange exposure on the value of listed commercial banks in Kenya. The study intends to address the following question: What is the effect of currency derivatives on the value of listed commercial banks in Kenya? This study adopted a descriptive research design which generally describes characteristics of a particular situation, event or case. The population of the study will constitute 10 listed commercial banks that were in operation as at December 2013. The study findings established a positive coefficient for price of swaps at 5% level of significance. A unit increase in price of swaps will lead to 1.469 unit increase in the value of the firm. Price option is positively related to the value of the firm. With a p-value of 0.033, price of options is statistically significant at 5% level of significance. A unit increase in price of options will lead to 3.719 units increase in the value of the firm. Size of the bank is statistically significant at 5% level of significance in explaining the variation in the value of the firm. A unit increase in the bank's size will lead to 3.015 unit increase in the value of the firm. Based on the study findings, the study recommends that commercial banks should encourage the use of currency derivatives because derivatives reduce the likelihood of financial distress by decreasing the variability in firm value, thus reducing the expected costs of financial distress. Commercial banks should avoid operating in debt. Leverage refers to the proportion of debt and equity in the capital structure of a firm. The financing or leverage decision is a significant managerial decision because it influences the shareholder's return and risk and the market value of the firm.

## **CHAPTER ONE INTRODUCTION**

### **1.1 Background of the Study**

Economies are getting more and more open with international trading constantly increasing and as a result companies become more exposed to foreign exchange rate fluctuations (Adler and

Dumas, 1984). Exchange rate fluctuations affect operating cash flows and firm value through translation, transaction and economic effects of exchange risk exposure. (Choi and Prasad, 1995)

Under the 1944 Bretton Woods Agreement, Central Bank interventions in foreign currency markets were frequent with relatively minor changes in exchange rates. But with the demise of the Agreement in 1973, exchange rates for major currencies have fluctuated freely, sometimes wildly. These currency fluctuations constantly change the values of foreign currency assets and liabilities, thereby creating foreign exchange risks. Managing these foreign exchange risks now constitutes one of the most difficult and persistent problems for financial managers of multinational firms (Mathur, 1982).

Stephen et al. (1998) introduced the concept of foreign exchange fluctuations as appreciation or depreciation of one currency against the other and appreciation or strengthening of a currency as a rise in its value against other currencies. Depreciation is thus a fall in value of one currency against other currencies. This appreciation and depreciation of a currency is what the term as foreign exchange fluctuation. It is these changes in exchange rate that give the rise to undesirable effects on a company's foreign operations. Hence the need for the use of currency derivatives by banks to hedge against the negative effects of foreign exchange fluctuations.

Despite the use of derivative contracts by banks having increased over the past two decades, the effect of derivatives on risks and market value of banks is still largely unknown. Despite more widely available data on derivative usage, the evidence obtained from empirical research on its effects is mixed. (Peek and Rosengren, 1997). One possible answer to such contradictory results is whether banks use derivatives for trading or hedging purposes. Previous studies have used data

disclosed by all kinds of firms including non-financial firms and banks, in trying to improve understanding of how firms use derivatives. (Bartram, Brown and Conrad, 2011)

In practice, banks' involvement in the derivatives market has been considerably asymmetric with respect to trading and hedging activities with banks more likely to speculate with derivatives (Minton et al. 2009). Therefore, the primary objective of this study is to empirically investigate whether commercial bank's use of derivatives to manage forex exposure has had an effect on firm value.

### **1.1.1 Currency Derivatives**

New types of financial instruments such as derivatives and securitized products have grown rapidly in recent years. These new instruments have been developed owing to the progress in computer technology, which has facilitated statistical analysis and management of risk. (Frame and White, 2004) Depending on the type of underlying assets, the values of the derivative contracts can be derived from the corresponding equity prices, interest rates, exchange rates, commodity prices and the probabilities of certain credit events. (Anderson and McKay, 2008)

There are various currency derivatives used by commercial banks. They include the following: A future is a standardized contract between two parties to buy or sell a specified asset of standardized quantity and quality at a specified future date at a price agreed today (the futures price). The contracts are traded on a futures exchange. The party agreeing to buy the underlying asset in the future assumes a long position, and the party agreeing to sell the asset in the future assumes a short position. The price is determined by the instantaneous equilibrium between the forces of supply and demand among competing buy and sell orders on the exchange at the time of the purchase or sale of the contract. The future date is called the delivery date or the final

settlement date. The official price of the futures contract at the end of the day's trading session on the exchange is called the settlement price for the day of business on the exchange.

A forward is a non-standardized contract between two parties to buy or sell an asset at a specified future time for a certain price agreed today. It can be contrasted with a spot contract which is an agreement to buy or sell an asset today. Forward contracts are designed to neutralize risk by fixing the price the hedger will pay or receive for the underlying asset. It costs nothing to enter a forward contract. The party agreeing to buy the underlying asset in the future assumes a long position, and the party agreeing to sell the asset in the future assumes a short position. The price agreed upon is called the delivery price, which is equal to the forward price at the time the forward contract was entered into. The difference between the spot price and the forward price is the forward premium or forward discount, generally considered in the form of a profit, or loss, by the purchasing party.

Forwards can be used to hedge risk as a means of speculation or to allow a party to take advantage of the quality of the underlying instrument which is time sensitive. It is the oldest type of all derivatives. A forward contract is traded in an OTC market. The contract price of a forward contract is not transparent, as it is not publicly disclosed. A forward contract is less liquid and a counterparty risk is high due to its customized nature.

Option derivatives can either be a call option or a put option. A call option gives the holder the right to buy the underlying asset by a certain date for a certain price. A put option gives the holder the right to sell the underlying asset by a certain date for a certain price. This price is known as the exercise price or strike price while the date in the contract is known as the expiration or maturity date. The holder of the option has a right to buy but does not have to

execute the right, buy a holder of a forward contract or a futures contract is obligated to buy or sell the underlying asset. In return for granting the option, the seller collects a payment (the premium) from the buyer. Granting the option is also referred to as 'selling' or 'writing' the option. The buyer will exercise his right only if it is favorable to him. If it is not, he will not exercise his right because he has no obligation.

A swap on the other hand is a currency derivative in which two counterparties exchange cash flows of one party's financial instrument for those of the other party's financial instrument. The benefits depend on the type of instrument involved. In the case of bonds, the benefits in question can be the periodic interest (coupon) payments associated with such bonds. Specifically, the two counterparties agree to exchange one stream of cash flows against another stream. These streams are called the legs of the swap. Swaps can be used to hedge certain risks such as interest rate risk, or to speculate on changes in the expected direction of underlying prices.

Financial innovations such as futures and options differ from bank loans, bonds, stocks and other conventional financial instruments, in certain elements, namely, credit risk, interest rate risk, and price risk, are separated from underlying instruments, developed into individual financial products, and given a market life of their own. In the last 25 years, derivatives have become increasingly important in the world of finance. Derivatives are now traded actively on many exchanges throughout the world. Financial derivatives are also regularly traded outside exchanges by financial institutions, fund managers, and corporate treasurers in the over-the-counter (OTC) market. Financial derivatives are also added to new issues of debt and equity securities and may be embedded in these securities.

Some firms use derivatives for better financing terms. For example, banks offer more favorable terms to those firms that have reduced their market risks through hedging activities than to those without. Fund manager sometimes use derivatives to achieve specific asset allocation of their portfolios. For example, passive fund managers of specific index-tracking funds may need to use derivatives to replicate exposures to some not so liquid financial assets (Ansi and Ouda, 2009)

### **1.1.2 Firm Value**

Despite more widely available on derivative usage, the evidence obtained from empirical research on its effect is mixed. Allayannis and Weston (2001) present evidence the hedging foreign currency risk is associated with large (approximately 4%) increases in market value; Graham and Rodgers (2002) find that hedging can add an economically significant 1.1% to their market value by allowing firms to increase their debt capacity, However, Guay and Kothari (2003) show that the magnitude of cash flows generated by hedge portfolios is modest and unlikely to account for such large changes in value. Consistent with this Jin and Jorin (2006) use a sample of oil and gas producers and find insignificant effects of hedging on market value.

It is known that derivative securities provide economic benefits (Stoll and Whaley, 1985). The key attribute of these securities is their leverage, i.e., for a fraction of the cost of buying the underlying asset, they create a price exposure similar to that physical ownership. As a result, they provide an efficient means of offsetting exposures among hedgers or transferring risk from hedgers to speculators. In addition, derivatives promote information dissemination and price discovery. The leverage and low trading costs in these markets attract speculators, and as their presence increases, so does the information impounded into the market price.

Financial derivatives enable parties to trade specific financial risks (such as interest risk, currency, equity, commodity price, and credit risk) to other entities more willing or better suited, to take or manage these risks. The risk embodied in a financial derivative contract can be traded either by trading the contract itself or by creating a new (“reverse”) contract offsetting the risks of the existing contract. Offsetability means that it is often possible to eliminate the risk associated with a financial derivative by creating a new but reverse contract having characteristics that countervail the risk underlying the first derivative.

These effects ultimately influence the underlying commodity price through arbitrage activity, leading to a more broadly based market in which the current prices correspond more closely to its true value. Because this price influences production, storage, and consumption decisions, derivatives markets contribute to the efficient allocation of resources in the economy (Fleming and Ostdiek, 1998)

### **1.1.3 Effect of Currency Derivatives on Firm Value**

The theoretical framework for the exchange rate exposure of firms is based on the fact that, exchange rate exposure has a potentially positive or negative impact on profitability and value of the firm. This is captured in the valuation process in terms of the firm’s stock returns. Gandhi (2006) mentioned that currency derivatives like currency futures, currency forwards, currency swaps and currency options help in hedging foreign exchange risk as well. If hedging is not done properly and in the right way, it can become a serious source of risk, it can lead to serious financial loss to the firm and consequently erode firm value.

Derivatives reduce the likelihood of financial distress by decreasing the variability in firm value, thus reducing the expected costs of financial distress. (Smith and Stulz, 1985; Mayers and Smith,



1987) Sinkey and Carter (2000) provide similar evidence on the characteristics of banks that undertake risk management using derivatives which indicate that smaller banks are more likely to hedge. On the other hand, some studies argue that large firms have more resources to set up a hedging program and employ personnel with expertise in derivatives than do small firms hence are more likely to use derivatives. (Hoyt, 1989; Colquitt and Hoyt, 1997; Cummins et al. 1997; Cummins et. al 2001) They also argue that banks that generate higher profitability from intermediation are more likely to undertake derivative hedging programs to lock in profits, while those with lower profitability are more likely to assume risks or speculate using derivatives.

The theoretical literature on hedging relaxes the Modigliani Miller assumptions and develops specific reasons why individual firms may optimally choose to hedge. As one might expect, these reasons tend to involve either market frictions, such as taxes, transactional costs, and information asymmetries, or agency problems. For example, Smith and Stulz (1985) show that a convex tax function implies that a firm can reduce expected tax liabilities by using hedges to smooth taxable income. In addition, hedging may increase a firm's debt capacity, enabling it to add value by increasing the value of the debt tax shield (Leland, 1998). Froot, Scharfstein and Stein (1993) show that managers facing external financing costs may use hedging to reduce the probability that internal cash flows are insufficient to cover investments; Smith Stulz (1985) show that hedging can reduce expected costs of distress.

Foreign exchange exposure can be managed if the diversification of a portfolio is done across assets in different currencies. Cash flows of a portfolio can be affected or changed by the usage of derivative securities. The usage of currency derivatives additionally reduces the risk of the whole diversified portfolio. (Abken and Shikhande, 1997) Currency derivatives are not only

helpful in hedging the foreign exchange risk, but due to the resultant information, currency derivatives makes the currency markets more efficient (Liu, 2007).

#### **1.1.4 Commercial Banks in Kenya**

The banking sector in Kenya is governed by the company's Act, the Banking Act and the Central Bank Act and the various prudential guidelines issued by the Central Bank of Kenya. The banking sector was liberalized in 1995 when exchange controls were lifted. The Central Bank of Kenya is responsible for formulating and implementing monetary policy directed to achieving stability in the general level of prices and fosters the liquidity, solvency and proper functioning of stable market-based financial systems while supporting the economic policy of the Government (Central Bank of Kenya, 2012)

As at 31 December 2012, the banking sector comprised of the Central Bank of Kenya as the regulatory authority, 44 banking institutions, (43 commercial banks and 1 mortgage finance company), 2 representatives offices of foreign banks, 5 Deposit-Taking Microfinance Institutions and 126 Forex Bureaus, 31 of the banking institutions are locally owned while 13 are foreign owned (CBK, 2012).

The locally owned financial institutions comprise of 3 banks with public shareholding, 27 privately owned commercial banks, 1 mortgage finance company while 5 Deposit-Taking Microfinance Institutions and 126 bureaus are privately owned (Central Bank of Kenya, 2012).

The foreign owned financial institutions comprise of nine locally incorporated foreign banks and four branches of foreign incorporated banks.

A major development in the banking sector has been the introduction of mobile money transfer services. In 2012, a number of banks responded to the growing need of convenient straight-

through payments using mobile solutions. As a result, a number of banks continue to sign partnerships with money transfer service providers as they improve their banking-on-the-move menus.

In Kenya, there is the Kenya Agricultural Commodity Exchange (KACE) which deals with agricultural products. KACE was established in 1997, as a forum for trade in spot and forward contracts for a range of commodities. KACE is a private sector firm launched in Kenya to facilitate competitive and efficient trade in agricultural commodities, provides reliable and timely marketing information and intelligence, provide a transparent and competitive market price discovery mechanism and harness and apply information and communication (ICTs) for facilitating trade and information and subsequently scale out the East African Community ([www.kacekenya.co.ke](http://www.kacekenya.co.ke)). Among the countries that Kenya is looking up to as a model in the setting up of an agricultural commodity derivatives market is South Africa.

The Kenyan government is putting together a derivatives exchange. At present, there are no exchange traded derivatives or documented over the counter derivatives markets in the country. The first steps have already been made in this regard. The then finance minister Uhuru Kenyatta in the 2011 budget talked of the development of a derivatives exchange. The Capital Markets Authority of Kenya is in the process of establishing the exchange and established a department to cater for this and the request for proposals has already been done with submission of the financial proposals already in progress. Currently, Kenyan companies/firms that need to hedge use foreign exchanges through brokers.

## **1.2 Research Problem**

Two factors are widely recognized as being instrumental in the development of currency derivatives, and these are the end of Bretton Woods Agreement, as well as the removal of the Gold Standard in 1971. With the replacement of the fixed exchange rate system with the floating exchange rate system, exchange rate movements have become a big concern for investors, analysts, managers and shareholders. Given the frequent changes of supply and demand influenced by numerous external factors, this new system is responsible for currency fluctuations (Abor, 2005) Exchange rate fluctuation affect operating cash flows and firm value through translation, transaction, and economic effects of exchange rate exposure. As a result, derivatives have emerged as useful tools of managing foreign exchange exposure. The size and complexity of derivatives transactions has continued to concern regulators, academics and commercial banks alike.

Companies that have greater growth opportunities and tighter control are most likely to find currency derivatives attractive. This is because a variation in cash flows may impede a company's ability to grow hence it becomes imperative that such uncertainty be eliminated, and derivatives provide the means for doing that. In addition, it has been noted that those companies with a lot of foreign exchange fluctuations are more likely to protect themselves against losses by hedging. (Geczy, Milton & Schrand, 1997)

Derivatives markets have been established to further develop the financial system, enhance liquidity, manage risk, and meet the challenges of globalization. However, the development of derivatives markets, like the development of South Africa's derivatives market—the only one in Sub-Saharan Africa (SSA)—stems primarily from the need to “self-insure” against volatile

capital flows and manage financial risk associated with the high volatility of asset prices. This, in essence, affects firm value.

Locally, Mumoki (2009) did a study of foreign exchange risk management strategies and techniques used by banks to manage foreign exchange rate risk exposure and found that forward contracts were the most frequently used instrument. Futures contracts, foreign currency options and leading and lagging techniques were occasionally used. The effectiveness of derivatives as a tool to influence the value of the bank, however, has rarely been studied locally.

This study seeks to fill the existing research gap by conducting a study on the effect of foreign exchange exposure on a firm's market value on listed commercial banks in Kenya. The study intends to address the following question: What is the effect of currency derivatives on the value of listed commercial banks in Kenya?

### **1.3 Objective of the Study**

To establish the effect of currency derivative usage on the values of listed commercial banks in Kenya.

### **1.4 Value of the Study**

Kenyan corporate units are engaging in a much wider range of cross-border transactions with different countries and products. With this practice comes a variety of exposure risks. There is no organized information on how corporate enterprises in Kenya are dealing with this challenge.

The study will provide useful insight into the effective use of derivatives as an important exposure management tool.

The study will also add to the body of empirical literature on use of derivatives to deal with exchange rate exposure of companies.

It will also provide regulators with a deeper understanding that can be used to facilitate best practices and regulation policy formulation especially at this time when the NSE is preparing to launch a future exchange.

## **CHAPTER TWO: LITERATURE REVIEW**

### **2.1 Introduction**

This chapter considers literature relevant to the topic under study. The main issues under review are the theoretical review, management of foreign exchange risk, empirical review, foreign exchange exposure management, measurement of derivative usage, empirical review and measurement of derivative usage.

### **2.2 Theoretical review**

There are several theories of hedging, most of which arrive at the optimal hedging policies by introducing some friction to the classic Modigliani Miller model. For example, Smith and Stulz (1985) suggest that the structure of the tax code or the transaction costs of financial distress may induce firms to hedge. In Froot, Scharfstein, and Stein (1993), hedging can reduce the under-investment problem that would result from variation in cash flow and costly access to external financing. Also, in DeMarzo and Duffie (1995), even though shareholders can hedge on their own, hedging is optimal when managers have private information on the firm's expected profits.

#### **2.2.1 International Fisher Effect Theory**

Named after its proposer, U.S. economist Fisher (1867-1947), the International Fisher Effect (IFE) theory suggests that foreign currencies with relatively high interest rates will tend to depreciate because high nominal interest rates reflect expected rates of inflation. (Madura, 2010) Available evidence is mixed as in the case of the PPP theory. In the long run, a relationship between interest rate differentials and subsequent changes in spot exchange rate seems to exist

but with considerable deviations in the short run. The International Fisher Effect is known not to be a good predictor of short run changes in spot exchange rates. (Cumby and Obstfeld, 1981)

IFE states that the currency of a nation with a comparatively high interest rate will depreciate in value in comparison to the currency of a nation with a comparatively lower interest rate. It further implies that the extent of depreciation was equal to the difference in interest rates in those two nations. It is based on the observation that the level of real interest rate in an economy is closely linked to the level of local inflation rate and is independent of a government's monetary policies. Thus, in general, the higher the inflation rate, the lower the value of the currency (Hill, 2004)

### **2.2.2 Purchasing Power Parity Theory**

The first original reference of PPP theory was made by Ricardo in the early 19<sup>th</sup> century. However, Cassel popularized this theory in 1918. The Purchasing Power Parity (PPP) theory propounds that under a floating exchange regime, a relative change in purchasing power parity for any pair of currency calculated as a price ratio of traded goods would tend to be approximated by a change in the equilibrium rate of exchange between these two currencies (Shapiro and Rutenberg, 1996). The relationship between relative interest rates and foreign exchange rates is explained within the interest rate theory of exchange rate expectations. Nominal interest rate differentials between two countries tend to reflect exchange rate fluctuations.

Purchasing power parity (PPP) is an economic theory and a technique used to determine the relative value of currencies, estimating the amount of adjustment needed on the exchange rate between countries in order for the exchange to be equivalent to (or at par with) each currency's



purchasing power. It asks how much money would be needed to purchase the same goods in two countries, and uses that to calculate an implicit foreign exchange rate. Using that PPP rate, an amount of money thus has the same purchasing power in different countries (Lawrence, 1992)

### **2.2.3 Expectation Theory of Forward Rates**

Expectation theory suggests that the forward rates in current long term bonds are closely related to the bond market's expectation about the future short term interest rates. Expectation theory attempts to explain the term structure of interest rates. There are 3 main types of expectation theories; Pure expectations theory, market segmentation theory, and Preferred habitat theory (Robert, 1998)

In Pure expectations theory, it is assumed that any maturity of debt can substitute for any other through the aspect of compounding. For instance, if you have a view as to the one-year interest rate was one year from now (the forward rate), then you can determine the current two-year interest rate as the compounded sum of the current one-year rate and the one-year forward.

The Market segmentation theory (MST) acknowledges that different maturities of debt cannot be substituted for each other. This results in separate demand-supply relationships for short-term and long-term debt. Since investors (assumed to be risk-averse) prefer the less risky short-term maturities, the demand for short-term debt is much higher than that for long term debt, and thus prices for the former are higher, driving down their yields.

Preferred habitat theory is an extension of MST with posits maturity preferences, or habitats, for debt investors; some investors like 3-year bonds; some prefer 6-year maturities, etc. if you want to sell an investor a bond outside his preferred investment horizon, you must offer the investor a premium. Since it is assumed that more investors have short term habitats, it explains the higher

yields on long term debt, and is consistent with the tendency of short and long-term debt yield curve segments to retain their shape with overall yields change.

Expectation theories are predicated upon the idea that investors believe forward rates, as reflected (and some would say predicted) by future contracts are indicative of future short term interest rates. In foreign exchange, a theory that forward exchange rates for delivery at some future date are equal to the spot rates for that date. The theory only functions in the absence of a risk premium (Frank,1997)

## **2.3 Determinants of Firm Value**

To infer that hedging increases the value of the firm, the following variables come into play:

### **2.3.1 Size**

Bantram, Brown and Stulz (2011) find that firm size is an important determinant of both total and systematic risk. Booth, Smith and Stolz (1984) state that because setting up an effective hedging program is related to the economies of scale, larger firms are more likely to use derivative instruments compared with smaller companies. As large firms are more likely to use derivatives than small firms – for example, because of the existence of large start-up costs of hedging – the log of total assets was used to control for the effect of size. The log of total sales and the log of capital expenditures was used as an alternative to size to obtain similar results. (Allayannis/Weston, 2001) Since the evidence as to whether size leads to higher profitability is ambiguous, so is its expected sign with respect to Q.

### **2.3.2Leverage**

A firm's capital structure also has an effect on firm value. Graham and Rodgers (2002) demonstrated an increase in firm value by an average of 1.1%. However, too much debt means high risks of bankruptcy and the expected bankruptcy costs, which lead to low premium of firm value and low expectation from shareholders. All advantages and disadvantages resulting from leverage was incorporated by investors and be reflected in the share price of the firms. To control for differences in capital structure, the leverage variable defined as long term debt divided by shareholder's equity was used. (Allayannis/Weston, 2001). If there are tax shields with relation to the payments of interest, or the debt soothes the dispute between shareholders and creditors, the impact is positive. The sign with respect to Q will also be ambiguous.

### **2.3.2 Profitability**

It is expected that higher profitable firms have higher value on average. Firms with higher profitability are expected to have lower financial distress costs and have more resources to invest in positive net present value projects, which lead to higher cash flow to equity holders. The high returns of profitable firms was reflected in the stock price, which will consequently have a positive impact on the market value of the firm. All these benefits will lead to a higher firm value and a higher Tobin's Q for the higher profitable firms. To control for profitability, return on assets was used, defined as the ratio of net income to total assets. (Allayannis/Weston, 2001) More profitable firms have higher Q, so a positive sign is expected.

### **2.3.4 Investment growth**

Myers (1997) and Smith and Watts (1992) have argued that firm value also depends on future investment opportunities. If there are lots of investment opportunities available to the firms, it seems that these firms have the capacity to generate more cash flow to the firm and to the shareholders. Consequently, this was reflected in the stock price. So, the value of a firm having much more investment opportunities was higher compared with one of a firm with limited set of investment opportunities (Allayannis, 2001) Because hedgers are more likely to have larger investment opportunities, such control is important. Similar to Yermack (1996) and Sevaes (1996), we use the ratio of capital expenditures to sales as a proxy for investment opportunities. R&D expenditures is another variable that has also been used as a proxy for investment opportunities, but also a proxy for a firm's intangible assets of technological know-how and expertise (Morck and Yeung, 1991) It is expected to be positively related to firm value  $Q$ .

### **2.4 Empirical Review**

Froot et al. (1993) show that if capital markets are imperfect, hedging may increase firms' value by ensuring that they have sufficient internal funds. A variable cash flow would lead to more variability either in the amount raised externally or in the investment. Hence, firms with higher growth opportunities would prefer to hedge in order to mitigate their underinvestment problem.

Tufano (1996) found that the use of derivatives was positively related to the value of stocks held by managers and directors. Mian (1996) investigated all three types of hedging activities for a large sample of firms during 1992 and found strong evidence of economies of scale in hedging. An extensive number of researches have, since then, focused on the relationship between hedging and firm value. Geczy, Minton, and Schrand (1997) examined the hedging activities of a

sample of 500 companies and found that the use of currency derivatives is directly related to the amount of research and development.

Empirical examination of hedging theories has been affected by lack of data on hedging activities. Firms have not been disclosing their position in derivatives and this was considered an important aspect of strategic competitiveness. Haushalter (2000) examined the commodity hedging activities of firms in the oil and gas industry and found evidence consistent with the theory of financial costs and distress.

The first researchers to investigate on the contribution of derivatives to value maximization have been Allayannis and Weston ( Allayannis/Weston, 2001). In their article, “The use of foreign currency derivatives and firm market value” they consider the use of foreign currency derivatives in a sample of non-financial firms and how this practice affects firm value. In their research, they reveal a positive relationship between firm value and hedging. The impact of derivative usage is statistically and economically significant to firms with exposure to foreign exchange risk and it amounts to 4.87% of firm value on average, after a series of controls.

Koutmos and Martin (2003) used industry sector portfolios from four countries and found that the exchange rate exposure is asymmetric over different appreciation and depreciation periods. Furthermore, these asymmetries are more pronounced in the financial and non-cyclical sectors. Overall, studies of foreign exchange exposure find that multinational corporations and corporations with extensive foreign business have significant foreign exchange exposure. However, most studies find that this estimated exposure is less than expected by economic theory perhaps due to operational and financial hedges used by companies facing foreign exchange exposure. While a few studies have included domestic firms without foreign activity,

and generally found them not to be exposed to foreign exchange risk, no prior study has addressed the determinants of foreign exchange exposure of domestic firms. It is common practice among firm's operating units, operational hedges to manage long term exposure, whereas foreign exchange derivatives, financial hedges are more often used for managing short term exposure.

Allayannis, Rountree, and Weston (Allayannis, et al., 2005) examine the volatility of cash flows and its relationship with firm value. They support the hypothesis that investors value firms with smooth cash flows and find strong evidence that an increase in volatility of cash flows by one standard deviation leads to a reduction of 30% - 37% in firm value. Since derivative usage leads to minimization of volatility of corporate cash flows, it is made obvious the exact mechanism through which hedging affects firm value. In another empirical research in the U.S. oil and gas producers, Jin and Jorin (Jin/Jorin, 2006) disclose that derivative usage reduces the firm's stock price sensitivity with respect to oil and gas prices.

Bantram, Brown and Conrad (2011) also used a very large scale sample of non-financial firms from 47 countries to test the effect of derivative use on firm risk and firm value. This research uses a new method to reduce the effect of omitted variables bias and to improve the quality of the result and finds a strong evidence to support the hypothesis that using the financial derivative reduces both the total and systematic risk. However, this research still does not make a clear conclusion that the derivative activity would lead to a higher firm value compared to a firm without the risk management activity. It mentions that the effect of derivative used on firm value is positive but more sensitive to endogeneity and omitted variable. However, the usage of derivatives is related with firm value, abnormal returns and larger profits during the economic downturn in 2001 – 2002, suggesting that firms are hedging downside risk.

## **2.5 Summary of Literature Review**

In the literature review, three theories have attempted to explain the interaction of currencies in the foreign exchange market. They include the International Fisher Effect Theory, Purchasing Power Parity Theory and the Expectation Theory of Forward Rates. The use of currency derivatives is aimed at minimizing or eliminating the negative effects of currency fluctuations on the balance sheet and income statement values.

Quite a number of international empirical studies have been conducted on different aspects of derivatives hedging and forex exposure. Locally though, there is a rarity on studies that explore the relationship between usage of currency derivatives and the consequential effect on firm value.

In many empirical studies, exposure is measured by estimating the sensitivity of stock returns to exchange rate changes. The use of notional value as a measure of the extent of derivative usage is not a perfect construct since notional value does not indicate the direction of a transaction. However, a readily available alternative construct that is clearly superior to notional value simply does not exist (Nguyen and Faff, 2002)

Some well documented and applicable instruments of managing foreign exchange fluctuations risk in developed markets are underutilized in Kenya. The research gap thus exists in analyzing the instruments that are currently in use and those that can be applied locally in management of this currency risk and its effect on the value of listed commercial banks in Kenya.

## **CHAPTER THREE: RESEARCH METHODOLOGY**

### **3.1 Introduction**

This chapter contains the methodology, which was used in the study. It begins with a discussion of the overall research design, an explanation of the target population and the sampling procedure, which was used to arrive at the appropriate sample size. The next section will present the procedure and the data collection instrument that was used in the data collection and justification for the choices. The technique of data analysis is contained in the next section after which data preparation for data analysis is described, the appropriateness of the statistical methods used for analysis, and the data analysis model.

### **3.2 Research Design**

This study adopted a descriptive research design which generally describes characteristics of a particular situation, event or case. As described by Glass and Hopkins (1984), descriptive research design involves gathering of data that describes events and then organizes, tabulates, depicts, and describes the data collection and often uses visual aids such as graphs and charts to help the reader in understanding data distribution. The aim of the study is to evaluate the relationship between the use of currency derivatives and firm value. The research will use regression analysis to test the extent to which currency derivatives impacts on the value of the firm.

### **3.3 Study Population**

The population of the study constituted 10 listed commercial banks that were in operation as at December 2013. (Appendix 1) This was a census.



### **3.4 Data Collection**

Data was collected from secondary sources as this is readily available from commercial bank financial reports, Central Bank of Kenya reports and the Nairobi Securities Exchange (NSE).

Data collection for the extent of foreign exchange exposure will constitute individual bank quarterly average exchange rates for the following currencies: US Dollar; Sterling Pound; and the Euro. It also included individual as well as market returns during the study period. Data for forex derivative usage constituted quarterly trading component value of derivative contracts and bank size. According to the International Accounting Standards 32 and 39, it is mandatory for firms to disclose their usage of hedging instruments and their respective fair value in the notes of their annual reports in a uniform manner (Afza and Atia, 2011). The data was therefore obtained from the respective financial statements of the 10 listed commercial banks (Appendix 1). The data spans 6 years from January, 2008 through December, 2013.

### **3.5 Data Analysis**

SPSS version 20 was used to analyze the data. Data analysis was conducted by synthesizing the forex exposure and derivative usage and its control variables into a regression model which was subjected to a correlation analysis as well. Descriptive statistics was used to describe the data.

#### **3.5.1 Analytical Model**

Multiple regression analysis was used to determine the effect of derivative usage on the value of the listed commercial banks in Kenya. The regression method was useful for its ability to test the nature of influence of independent variables on the dependent variable. Regression makes it possible to estimate the co-efficient of the linear equation, involving one or more independent variables, which best predicted the value of the dependent variable (Cooper and Schindler, 2003)

The study used the following formula to calculate the value of commercial banks:

$$\text{Tobin's Q} = \frac{(\text{Equity Market Value} + \text{Liabilities Market Value})}{(\text{Equity Book Value} + \text{Liabilities Book Value})}$$

The regression model was as follows:

$$\ln(\text{Tobin's Q}) = \alpha + \beta_1 x_1 + \beta_2 x_2 + \beta_3 x_3 + \beta_4 x_4 + \beta_5 x_5 + \beta_6 x_6 + \varepsilon$$

Where

Tobin's Q is the proxy for firm value.

$\alpha$  is the constant term

$\beta_1, \beta_2, \beta_3, \beta_4, \beta_5, \beta_6, \beta_7$  are the beta co-efficients

$x_1$  is the price of swaps.

$x_2$  is the price of options

$x_3$  is the size control variable,

$x_4$  is the leverage control variable -

$x_5$  is the profitability control variable

$x_6$  is the investment growth variable

and  $\varepsilon$  is the error term.

The reason the natural logarithm of Tobin's Q was used was to control for the skewness of the variable.

### **3.5.2 Test of Significance**

Co-efficient of determination ( $R^2$ ) is a statistical measure of how close the data are to the fitted regression line. It is also known as the co-efficient of multiple determinations for multiple regressions.  $R^2$  is defined in terms of variation about the mean of y (firm value) so that when the model is arranged and the dependent variable changes  $R^2$  will also change. It is thus goodness of fit static given by ration of the explained sum of squares. (Allayannis/Weston, 2001)

Analysis of variance, popularly known as ANOVA, can be used in cases where there are more than two groups. The technique is used to compare the means of more than two samples. F test is used to measure variables which in this case are size, leverage, profitability and investment growth. Under the F test framework, two regressions are required known as the Restricted and Unrestricted Regressions, F calculated was tested against F critical to access significance. (Allayannis&Weston, 2001)

## **CHAPTER FOUR DATA ANALYSIS, RESULTS AND DISCUSSION**

### **4.1 Introduction**

This chapter presents the data analysis, results, interpretation, and discussion of the research findings. To achieve the objective of the study, SPSS version 20 was used to analyze the data. Linear regression was used to establish the effect of currency derivative usage on the values of listed commercial banks in Kenya.

### **4.2 Response Rate**

The study targeted a sample size of 10 listed commercial banks that were in operation as at 2013. Data was obtained from the financial reports for all the ten commercial banks making a response rate of 100%. This response rate was satisfactory to make conclusions for the study. Weisberg, Krosnick & Bowen (1996) recommended a response rate of 70%. According to Mugenda & Mugenda (2003), a response rate of 50 percent is adequate for analysis and reporting; a rate of 60 percent is good and a response rate of 70 percent and over is excellent. Based on the assertion, the response rate of 100% was excellent.

### **4.3 Descriptive Statistics**

Figure 4.1 gives a descriptive statistics of the ten listed commercial banks under study. The summary statistics considered are mean, standard deviation, minimum and maximum. The mean Tobin Q for the ten commercial banks is 3.01 with standard deviation of 1.16. This implies that market value for ten commercial banks is greater than their book value of their assets. Therefore the banks continued to invest in capital opportunities.

On average, the mean for price of swaps for the ten commercial banks is 500,543,000 with standard deviation of 244,259,000 during the study period. The average price of options is 963,493,180 with standard deviation of 539,659,920. The size of the ten commercial banks during the study period registered a mean of 181,850,190 with standard deviation of 74,601,640. The proportion of total liabilities to total assets for the ten commercial banks had a mean of 83.55% and standard deviation of 2.64. The ten commercial banks realized a mean 5.01% in profit with standard deviation of 1.40. Investments growth registered a mean of 27.55% with standard deviation of 34.72.

**Table 4.1: Descriptive Statistics**

|                            | Tobin Q | Price of Swaps in 000 | Price Of Options in 000 | Size in Millions | Leverage (% Total Liabilities/Total Assets) | Profitability (ROA) in % | Investment Growth |
|----------------------------|---------|-----------------------|-------------------------|------------------|---|--------------------------|-------------------|
| Kenya Commercial Bank      | 2.84    | 832,080               | 1,773,359               | 323,312          | 80.70                                       | 5.48                     | 20.739            |
| Equity Bank                | 1.76    | 579,240               | 1,727,600               | 238,194          | 78.72                                       | 7.25                     | 88.980            |
| Co-operative Bank of Kenya | 2.76    | 646,360               | 1,060,370               | 228,874          | 84.42                                       | 4.63                     | -11.113           |
| Standard Chartered Bank    | 3.02    | 425,510               | 1,331,510               | 220,524          | 83.66                                       | 6.04                     | 58.341            |
| CFC Stanbic Bank           | 1.88    | 415,900               | 700,423                 | 170,726          | 86.91                                       | 4.10                     | 62.333            |
| Barclays Bank of Kenya     | 1.37    | 919,640               | 1,192,090               | 207,010          | 84.36                                       | 5.76                     | -15.977           |
| NIC Bank                   | 3.94    | 191,490               | 522,060                 | 112,917          | 84.39                                       | 4.62                     | 30.520            |
| Diamond Trust              | 4.43    | 268,100               | 553,390                 | 114,136          | 83.73                                       | 4.85                     | -4.273            |
| I&M Bank                   | 4.89    | 253,830               | 596,210                 | 110,316          | 81.39                                       | 5.40                     | 8.543             |

|                        |      |            |              |            |       |      |        |
|------------------------|------|------------|--------------|------------|-------|------|--------|
| National Bank of Kenya | 3.20 | 473,280    | 177,920      | 92,493     | 87.19 | 1.92 | 37.426 |
| Mean                   | 3.01 | 500,543.00 | 963,493.18   | 181,850.19 | 83.55 | 5.01 | 27.55  |
| STDEV                  | 1.16 | 244,259.28 | 539,659.92   | 74,601.64  | 2.64  | 1.40 | 34.72  |
| Min                    | 1.37 | 191,490.00 | 177,920.00   | 92,493.00  | 78.72 | 1.92 | -15.98 |
| Max                    | 4.89 | 919,640.00 | 1,773,358.80 | 323,312.00 | 87.19 | 7.25 | 88.98  |

**Sources: Research Findings**

#### 4.4 Correlation Matrix

The Pearson product-moment correlation coefficient (or Pearson correlation coefficient for short) is a measure of the strength of a linear association between two variables and is denoted by  $r$ . The Pearson correlation coefficient,  $r$ , can take a range of values from +1 to -1. A value of 0 indicates that there is no association between the two variables. A value greater than 0 indicates a positive association, that is, as the value of one variable increases so does the value of the other variable.

A value less than 0 indicates a negative association, that is, as the value of one variable increases the value of the other variable decreases. Table 4.2 below gives a summary of the correlation between the dependent variables and the explanatory variables. All the explanatory variables show positive association with the dependent variable except leverage which is negatively correlated with value of the firm. Tobin Q shows a strong and positive correlation ( $R = 0.775$ ) with the price of swaps. Price of options has positive association with the value of the firm ( $R = 0.670$ ). With 5% margin of error, size of the firm positively relates with the value of the firm such that an increase in the size of the firm will lead to an increase in the value of the firm.

**Table 4.2: Correlation Matrix**

|                   |                     | Tobin Q | Price of Swaps | Price Of Options | Size  | Leverage | Profitability |
|-------------------|---------------------|---------|----------------|------------------|-------|----------|---------------|
| Tobin Q           | Pearson Correlation | 1       |                |                  |       |          |               |
| Price of Swaps    | Pearson Correlation | .775**  |                |                  |       |          |               |
|                   | Sig. (2-tailed)     | .008    |                |                  |       |          |               |
| Price Of Options  | Pearson Correlation | .670*   | .521           | 1                |       |          |               |
|                   | Sig. (2-tailed)     | .011    | .123           |                  |       |          |               |
| Size              | Pearson Correlation | .637*   | .254           | .214             | 1     |          |               |
|                   | Sig. (2-tailed)     | .047    | .072           | .070             |       |          |               |
| Leverage          | Pearson Correlation | -.042** | -.141          | -.165            | -.468 | 1        |               |
|                   | Sig. (2-tailed)     | .009    | .698           | .066             | .173  |          |               |
| Profitability     | Pearson Correlation | .834*   | .199           | .471             | .317  | -.318    | 1             |
|                   | Sig. (2-tailed)     | .015    | .581           | .091             | .057  | .064     |               |
| Investment Growth | Pearson Correlation | .404*   | -.080          | .118             | .137  | -.184    | .188          |
|                   | Sig. (2-tailed)     | .039    | .827           | .075             | .705  | .610     | .602          |

**Sources: Research Findings**

However, leverage has a weak and negative association ( $R = -.042$ ) with the value of the firm. This implies that an increase in debt financing by the banks will reduce the value of the firm. Profitability has strong and positive correlation ( $R = 0.834$ ) with the value of the banks. The study also established that investment growth has positive correlation ( $R = 0.404$ ) with the value of the ten commercial banks under study. An increase in investment growth will lead to an increase in the value of the banks.

#### 4.5: Pooled OLS Regression Model

Pooled Regression is usually carried out on time-series cross-sectional data – data that has observations over several different units or cross-sections. A pooled model is built by combining time-series observations across several groups. 10 listed commercial banks were involved.

##### 4.5.1 Analysis of Variance

The study used ANOVA statistics to establish the significance of the relationship between value of the banks and the explanatory variables. The regression model is significant given the level of significance 0.004 which is below 0.05; therefore the model is declared fit for estimation.

**Table 4.3: Analysis of Variance**

|            | Sum of Squares | Df | Mean Square | F     | Sig.  |
|------------|----------------|----|-------------|-------|-------|
| Regression | 11.154         | 6  | 1.859       | 8.074 | .004b |
| Residual   | .918           | 3  | .230        |       |       |
| Total      | 12.072         | 9  |             |       |       |

##### Sources: Research Findings

- a. Dependent Variable: Tobin Q
- b. Predictors: (Constant), investment growth, price of swaps, leverage, price of options, profitability, and size of the firm.

##### 4.5.2 Model Summary

Determination coefficient ( $R^2$ ) was carried out to determine the proportion of the variation in dependent variable that is attributed to the changes in the explanatory variables. The study established  $R^2$  of 92.4% which implies that 94.4% of the variation in Tobin Q is attributed to the changes in explanatory variables (price of swap, price of options, size of the company, leverage, profitability and investments growth).



The Durbin-Watson test statistic tests the null hypothesis that the residuals from an ordinary least-squares regression are not auto correlated. The Durbin-Watson statistic ranges in value from 0 to 4. A value near 2 indicates non-autocorrelation; a value toward 0 indicates positive autocorrelation; a value toward 4 indicates negative autocorrelation. Since the DW value of 1.925 was close to 2, then it can be concluded that there was no autocorrelation among the model residual.

**Table 4.4: Model Summary**

| <b>R</b>          | <b>R Square</b> | <b>Adjusted Square</b> | <b>R</b> | <b>Std. Error of the Estimate</b> | <b>Durbin-Watson</b> |
|-------------------|-----------------|------------------------|----------|-----------------------------------|----------------------|
| .961 <sup>a</sup> | .924            | .772                   |          | .55323                            | 1.925                |

**Source: Research Findings**

a. Predictors: (Constant), Investment growth, price of swaps, leverage, price of options, profitability, and size of the firm.

b. Dependent Variable: Tobin Q

### **4.5.3 Regression Coefficients**

Multiple regression analysis was used to determine the significance of the relationship between the dependent variable and all the independent variables pooled together. The results are given in the model summary in Table 5 below. The estimated model becomes:

$$\text{Ln(Tobin Q)} = -5.626 + 1.469\text{PS} + 3.719\text{PO} + 3.015\text{SIZE} - 0.486\text{LV} + 1.171\text{PRO} + 0.704\text{IG}$$

All the explanatory variables are statistically significant at 5% level of significance in explaining the variation in the value of the bank.

**Table 4.5: Regression coefficients**

|                   | Unstandardized Coefficients |            | Standardized Coefficients | t      | Sig. |
|-------------------|-----------------------------|------------|---------------------------|--------|------|
|                   | B                           | Std. Error | Beta                      |        |      |
| (Constant)        | -5.626                      | 67.676     |                           | -.083  | .939 |
| Price of Swaps    | -3.281                      | 1.390      | 1.469                     | -3.360 | .039 |
| Price Of Options  | -6.156                      | 6.236      | 3.719                     | -4.987 | .033 |
| Size              | 8.271                       | 7.875      | 3.015                     | 5.050  | .021 |
| Leverage          | -.213                       | .155       | -.486                     | -5.007 | .026 |
| Profitability     | .966                        | 1.567      | 1.171                     | 3.017  | .041 |
| Investment Growth | -.023                       | .011       | .704                      | -6.050 | .013 |

**Source: Research Findings**

a. Dependent Variable: Tobin Q

b. Predictors: (Constant), Investment growth, price of swaps, leverage, price of options, profitability, and size of the firm.

#### **4.6 Interpretation of the Findings**

The study findings established a positive coefficient for price of swaps at 5% level of significance. A unit increase in price of swaps will lead to 1.469 unit increase in the value of the firm. The price of options is positively related with the value of the firm. With a p-value of 0.033, price of options is statistically significant at 5% level of significance. A unit increase in price of options will lead to 3.719 units increase in the value of the firm. The result is consistent with Tufano (1996) who contends that hedging may increase firm's value by ensuring that they have sufficient internal funds. Allayannis et al (2001) also established that the impact of derivative usage is statistically and economically significant to firms with exposure to foreign exchange risk and it improves the firm's value.

Size of the bank is statistically significant at 5% level of significance in explaining the variation in the value of the firm. The study has established positive coefficient with the Tobin Q. A unit increase in the bank's size will lead to 3.015 unit increase in the value of the firm. The result is in

line with Bantram, Brown and Stulz (2011) who contend that that firm size is an important determinant of both total and systematic risk and because setting up an effective hedging program is related to the economies of scale, larger firms are more likely to use derivative instruments compared with smaller companies. Large firms use more derivatives than small firms because of the existence of large start-up costs of hedging.

The study has reported a negative coefficient of leverage with the size of the firm. Leverage, with a p value less than 0.05, is statistically significant in causing the variation in the value of the firm. A unit increase in leverage will lead to 0.486 units decrease in the value of the ten commercial banks used in the study. This implies that the firms used too much debt implying high risks of bankruptcy thereby reducing the value of the firms. Profitability is positively related with the value of the firms and is statistically significant in causing the changes in the value of the firm. A unit increase in the profitability of the firm will lead to 1.171 units increase in the value of the firm. It is expected that higher profitable firms have higher value on average. Firms with higher profitability have lower financial distress costs and have more resources to invest in positive net present value projects, which lead to higher cash flow to equity holders. The high returns of profitable firms were reflected in the stock price, which will consequently have a positive impact on the market value of the firm.

Investments growth has a positive coefficient with the value of the firm and is statistically significant at 5% level of significance in explaining the variation in the value of the firm. A unit increase in the investment growth of the firms will lead to 0.7041 units increase in the value of the firms. The result is similar to Allayannis, 2001 who argue that the value of a firm having much more investment opportunities was higher compared with one of a firm with limited set of investment opportunities

## **CHAPTER FIVE SUMMARY, CONCLUSION, AND RECOMMENDATIONS**

### **5.1 Introduction**

This chapter presents the summary of findings, conclusion, recommendations and suggestions for further research derived from the findings. The chapter also presents the limitations that were encountered with suggestions for further research.

### **5.1 Summary**

The objective of the study was to establish the effect of currency derivative usage on the values of listed commercial banks in Kenya. To achieve this objective a sample of 10 listed commercial banks that were in operation as at 2013 was studied. On average, the profitability of the commercial banks during the study period was 5.01% with standard deviation of 1.40. On average, the mean for price of swaps for the ten commercial banks was 500,543,000 with standard deviation of 244,259,000.

The average price of options was 963,493,180 with standard deviation of 539,659,920. The size of the ten commercial banks during the study period registered a mean of 181,850,190 with standard deviation of 74,601,640. The proportion of total liabilities to total assets for the ten commercial banks had a mean of 83.55% and standard deviation of 2.64. The study established a positive coefficient for prices of swaps and options with the value of the firms. Size of the firm has a positive coefficient with the value of the firm at 5% level of significance. However, the study established a negative coefficient of leverage with the size of the firms. The findings indicated that investments growth is positively correlated with the value the ten listed commercial banks.

## **5.2 Conclusion**

The objective of the study was to establish the effect of currency derivatives on the values of the listed commercial banks in Kenya. Based on the study findings in chapter four, the study has established that currency derivative positively affects the value of the commercial banks. Of the control variables used in the study, it was established that size of the bank, profitability and investments growth have positive effect on the value of the company. However, the study established that leverage negatively affect the value of the firms.

## **5.3 Recommendationsfor Policy**

Based on the study findings, the study recommends that commercial banks should encourage the use currency derivatives because derivatives reduce the likelihood of financial distress by decreasing the variability in firm value, thus reducing the expected costs of financial distress. Commercial banks should avoid operating in debt. Leverage refers to the proportion of debt and equity in the capital structure of a firm. The financing or leverage decision is a significant managerial decision because it influences the shareholder's return and risk and the market value of the firm.

The ratio of debt-equity has implications on the value of the firm. This affects the cost of the capital and this reduces leverage position of the company. Commercial banks should reduce debt financing of the companies since companies that are highly leveraged may be at risk of bankruptcy if they are unable to make payments on their debt; they may also be unable to find lenders in the future. The study recommends that commercial banks should employ strategies geared towards venturing into investments opportunities. These investment opportunities will generate more cash flow to the firm and to the shareholders. Consequently, this was reflected in the stock price thereby increasing the value of the firm.

#### **5.4 Limitation of the Study**

In carrying out this study, there was a limitation relating to incomplete records availed by the commercial banks. Financial institutions have a tendency of failing to reveal their true financial position. This puts to test the validity of the data used in the study therefore inference from the result might not convey the true result. ROA was used to measure the financial performance of commercial banks. However, financial performance could be measured using market ratios such as price earnings ratio, market yield ratio among others. It is possible that if any of those ratios were included in the study, the results would probably be different.

Time allocated for the study was insufficient while holding a full time job and studying part time. This made collection and analysis of data quite difficult. The researcher however succeeded in putting together this research in a timely manner.

Since commercial banks are not required by the Central Bank of Kenya to report on activities concerning the use of financial derivatives, the researcher could not access that information from one central source. The researcher therefore had to collect the information from all the different banks individually, making the process long and tedious.

#### **5.5 Suggestions for Further Studies**

Future studies can be done by considering financial firms or by using notional amount of derivatives usage along with dummy variables to check the impact of extent usage of derivative usage.

Further, another study should be done to establish why leverage has a negative correlation with the use of currency derivative. In the study, it was noted that an increase in debt financing by banks reduces the value of the firm as measured by Tobin's Q.

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## APPENDIX

### Appendix I : Listed commercial banks in Kenya as at December 2013

|    | <b>BANKING</b>                     |
|----|------------------------------------|
| 1  | Barclays Bank Ltd                  |
| 2  | CFC Stanbic Holdings Ltd           |
| 3  | Diamond Trust Bank Ltd             |
| 4  | I & M Holdings Ltd                 |
| 5  | Kenya Commercial Bank Ltd          |
| 6  | National Bank of Kenya Ltd         |
| 7  | NIC Bank Ltd                       |
| 8  | Standard Chartered Bank Ltd        |
| 9  | Equity Bank Ltd                    |
| 10 | The Co-operative Bank of Kenya Ltd |

Source: Nairobi Securities Exchange – 2013

### Appendix II : Regression Coefficients

|                   | Unstandardized Coefficients |            | Standardized Coefficients | t      | Sig. |
|-------------------|-----------------------------|------------|---------------------------|--------|------|
|                   | B                           | Std. Error | Beta                      |        |      |
| (Constant)        | -5.626                      | 67.676     |                           | -.083  | .939 |
| Price of Swaps    | -3.281                      | 1.390      | 1.469                     | -3.360 | .039 |
| Price Of Options  | -6.156                      | 6.236      | 3.719                     | -4.987 | .033 |
| Size              | 8.271                       | 7.875      | 3.015                     | 5.050  | .021 |
| Leverage          | -.213                       | .155       | -.486                     | -5.007 | .026 |
| Profitability     | .966                        | 1.567      | 1.171                     | 3.017  | .041 |
| Investment Growth | -.023                       | .011       | .704                      | -6.050 | .013 |

Sources: Research Findings

### Appendix III: Analysis of Variance

|            | Sum of Squares | Df | Mean Square | F     | Sig.  |
|------------|----------------|----|-------------|-------|-------|
| Regression | 11.154         | 6  | 1.859       | 8.074 | .004b |
| Residual   | .918           | 3  | .230        |       |       |
| Total      | 12.072         | 9  |             |       |       |

Sources: Research Findings