

**FOREIGN EXCHANGE RISK MANAGEMENT: STRATEGIES AND TECHNIQUES
USED BY BANKS IN KENYA TO MANAGE FOREIGN EXCHANGE RISK
EXPOSURE**

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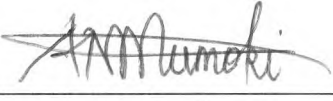
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**A MANAGEMENT RESEARCH PROJECT SUBMITTED IN PARTIAL
FULFILLMENT OF THE REQUIREMENT FOR THE AWARD OF MASTERS OF
BUSINESS ADMINISTRATION DEGREE, SCHOOL OF BUSINESS,
UNIVERSITY OF NAIROBI**

NOVEMBER, 2009

DECLARATION

I, the undersigned, declare that this Management Research Project is my original work and has not been submitted to any other college, institution or university for academic credit.

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This Management Research project has been submitted for examination with my approval as the appointed University supervisor.

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ABSTRACT

Considering that the banking sector is the backbone of the Kenyan economy, and that it is a critical vehicle that links the Kenyan economy to the rest of the world, which brings with it a myriad of risks particularly so the foreign exchange risk, adoption of appropriate risk management strategies and techniques is therefore an essential ingredient of a successful banking system in Kenya.

Many of the standard tools used to hedge currency risk, such as futures, swaps and options contracts, are either not available in emerging markets or, where available, are traded in illiquid and inefficient markets, making the range of products available extremely limited. This has put an extra burden on corporate treasurers to be able to find adequate hedge to their exposures in exotic currencies. Therefore, the purpose of this study was to find out what strategies and techniques are used by banks in Kenya to manage foreign exchange risk. To achieve this, the researcher sought to ascertain the strategies and techniques used by banks in Kenya to manage foreign exchange risk.

The research design adopted in the study was a census survey. The population used consisted of 42 commercial banks licensed to operate in Kenya as listed by the Central Bank of Kenya. Primary data collection, through the use of a questionnaire, was used to gather information from the target population outlining issues relevant to the study. Analysis was then done using Microsoft Excel. The analysis sought to generate descriptive statistics and frequencies. Finally the presentation of the results was done by use of frequency tables, graphical presentation and pie-charts.

The results of the study showed that the forward contract was the most frequently used instrument. The money market hedge and the currency swap were also frequently used. Parallel loans (Back-to-back loan), foreign currency denominated debt and cross hedging techniques were moderately used. Futures contract, foreign currency option and leading and lagging techniques were occasionally used. Prepayment was the least used technique.

Matching/ Natural hedging was the most utilized strategy. Engaging in spot transactions was also widely used. Diversification whereby banks financed in different currencies and or in different markets was employed by a few banks. Some banks engaged in risk sharing strategy and also invoiced in strong currencies. Avoidance was also employed to some extent. Netting was the least used strategy.

In conclusion, the strategies and techniques used by banks in Kenya to manage foreign exchange risk are matching/ natural hedging, engaging in spot transactions, diversification, risk sharing, invoicing in strong currencies, avoidance netting, money market hedge, parallel loans(back-to-back loan), foreign currency denominated debt and cross hedging, forward contract, futures contract, foreign currency option and leading and lagging and prepayment. The forward contract is the most frequently used instrument.

It can also be concluded from the study that majority of the banks in Kenya hedge all positions immediately. Others hedge selectively while some of the banks create additional exposure beyond that arising from its business activities in order to profit from exchange rate changes, meaning that the currency market in Kenya is not information efficient. Minority of banks use a fixed rule for partial hedging while leaving the remainder exposed. It can also be concluded that some banks do not hedge against foreign exchange rate risk at all.

In light of the above findings, it's imperative that banks in Kenya pick out best practices from each other and abroad in order to put foreign exchange exposure under control to mitigate the effects of losses due to this risk from resulting in crises in the economy.

DEDICATION

This paper is sincerely dedicated to my late brother David, for his undying love and heartfelt pride in all my achievements. To a life well-lived.

ACKNOWLEDGEMENT

My utmost gratitude goes to God for giving me grace and strength to complete this project and for bringing me this far. My sincere appreciation goes to my family, friends and colleagues for their encouragement and support. Last but not least I thank my supervisor Luther Otieno for his invaluable guidance and input.

Thank you all.

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CHAPTER ONE

INTRODUCTION

1.1 BACKGROUND

According to Bank of Jamaica (1996) foreign exchange risk is the exposure of an institution to the potential impact of movements in foreign exchange rates which arises from two factors: currency mismatches in an institution's assets and liabilities and currency cash flow mismatches. The amount at risk is a function of the magnitude of potential exchange rate changes and the size and duration of the foreign currency exposure.

Li (2003) observes that in today's digital economy, the financial industry is changing rapidly with an increase in the pace of financial innovations, a rapid expansion of cross-border financial transactions, the faster pace of transmitting shocks or mistakes throughout the international financial system and greater sensitivity on the part of financial market prices to changes in preferences.

Saunders and Cornett (2008) noted that extreme foreign exchange risk was evident in 1997 when a currency crisis occurred in Asia. The crisis began July 2 when the Thai baht fell nearly 50 % in value relative to the US Dollar, which led to contagious drops in the value of other Asian currencies and eventually affected currencies other than those in Asia e.g. The Russian ruble. On November 20, 1997, almost five months after the baht's drop in value, the value of the South Korean won dropped by 10% relative to the dollar. As a result of these currency shocks, the earnings of some U.S financial institutions were adversely impacted. Chase Manhattan Corp. announced a US Dollar 160 million loss in October from foreign currency trading and holdings of foreign currency bonds. The devaluation of the Argentinian peso in 2002 resulted in US Dollar 595 million loss to Citigroup. As economic conditions change, exchange rates can change substantially.

Bradley and Moles (2002) assert that foreign exchange risk management has become increasingly important since the abolishment of the fixed exchange rate system of Bretton Woods in 1971 which was replaced by a floating rates system in which the price of

currencies is determined by supply and demand of money which are frequently changing influenced by numerous external factors, this new system is responsible for currency fluctuations which expose companies to foreign exchange risk

Levi (1983) asserts that generally, companies are exposed to three types of foreign exchange risk: transaction (commitment) exposure which occurs where the value of existing obligations are worsened by movements in foreign exchange rates, economic (operational, competitive or cash flow) exposure which relates to adverse impact on equity/income for both domestic and foreign operations because of sharp, unexpected change in exchange rate and translation (accounting) exposure which arises from the need to translate accounts that are denominated in foreign currencies into the home currency of the reporting entity.

According to Carter et Al (2003), changes in exchange rates can influence a firm's current and future expected cash flows and ultimately, stock prices. The direction and the magnitude of changes in the exchange rate on firm value are a function of the firm's corporate hedging policy which indicates whether the firm utilizes operational hedges and financial hedges to manage currency exposure and the structure of its foreign currency cash flows.

Bank of Jamaica, March (1996) asserts that managing foreign exchange risk is a fundamental component in the safe and sound management of all institutions that have exposures in foreign currencies. This involves prudently managing foreign currency positions in order to control, within set parameters, the impact of changes in exchange rates on the financial position of the institution. The frequency and direction of rate changes, the extent of the foreign currency exposure and the ability of counterparts to honor their obligations to the institution are significant factors in foreign exchange risk management. A comprehensive foreign exchange risk management programme requires prudent foreign exchange risk management policies, control procedures governing the management of foreign currency activities, accounting and management information systems to measure and monitor foreign exchange positions, foreign exchange risk and foreign exchange gains or losses; and independent inspections or audits.

Brucaite and Yan (2000) state that exchange rate risk can be managed using financial (futures, forwards, options), operating (matching, risk sharing, netting) or practical strategies (pricing, diversification) strategies. Glaum (2000) observes that futures, forwards, options, swaps and other complex financial instruments today allow firms to transfer risk to other economic agents who are better able or more willing to bear them. He notes that instead of using the forward markets, the firm can achieve the same effect by using a money market hedge. Carter et Al, (2003) state that firms sometimes resort to foreign-currency-denominated debt as a means of hedging. Dawson et Al (1994) observe that other currency management methods involve back-to-back or overseas loans. Crabb (2003) states that some of the systematic risk can be reduced through the use of risk mitigation and transmission techniques: eliminate or avoid risks by simple business practices; transfer risks to other participants; and actively manage risks at the bank level (acceptance of risk).

Fatemi and Glaum (2000) in their study on risk management practices by German firms found out that 88% of their respondents used derivatives instruments where currency forward contracts ranked as the most frequently used instrument. Ranking succeedingly lower in their frequency of use are: interest rate swaps (average score = 1.57), currency swaps (1.25), caps and floors (1.20), interest rate forward contracts (1.03), and over the counter currency options (0.95). More than three quarters of the respondents indicate that they never use the other instruments listed: exchange-traded currency options, exchange traded currency futures contracts, exchange traded interest rate futures contracts, equity derivatives, commodity derivatives and structured derivatives.

Kyte (2002) defines forward rate agreements as contracts settled in cash which enable the buyer to agree to a pre-determined interest rate for a set period of time, Interest rate futures as contracts to borrow or lend a pre-determined sum of money on a specific future date at a pre-arranged interest. Options give a writer (seller) or holder (buyer) the right but not the obligation to either buy or sell the asset at a pre-arranged (strike) price within a specific time frame in the future. Interest rate swap are the exchange of two differing forms of interest rate payment obligation between two parties whose value is based on the

notional principal amount. Brucaite and Yan (2000) define natural hedging as a way to decrease currency exposure by covering cash outflows by inflows in the same currency, risk sharing as a means that the seller and buyer agree to share the currency risk in order to keep the long term relationship based on the product quality and supplier reliability, in anticipation of unpredicted exchange rate change and diversification as using funds in more than one capital market and in more than one currency.

While studying the banking sector, Omagwa (2005) observes that foreign commercial banks in Kenya engage in a number of transactions that expose them to foreign exchange risk. He found out that most banks carried out foreign exchange management to some extent. Muthungu (2003) found out that due to the turbulent business environment in Kenya, foreign exchange rates have fluctuated significantly in the recent past. Ubindi (2006) found out that foreign exchange bureaus in Kenya are exposed to foreign exchange risk and that they try to hedge against but that they also shy away from complex instruments and strategies due to their complexity and out of ignorance. Mwangi (2003) found out that 37 out of the 38 commercial banks that he studied borrowed funds from overseas giving evidence to the exposure of Kenyan banks to foreign exchange risk. He also noted that all the 37 banks hedged against this risk, therefore the need to study the strategies and techniques they employ to manage foreign exchange risk.

Empirical studies have been carried out to ascertain the use of derivatives and other risk management strategies to mitigate foreign exchange risk. Abor Joshua (2005) found out that in overall Ghanaian firms involved in international trade exhibit a low level use of the hedging instruments for managing foreign exchange risk. This may be attributed to the low level of education and sophistication among the firms' treasury personnel and due to the under developed nature of the financial markets. Carter et Al (2003) found out that the combined use of operating hedges and financial hedges is associated with decreased exchange-rate exposure and that the use of currency derivatives, particularly forwards and other derivatives, is useful in reducing exposure. Kyte (2002) observes that regardless of the currency exposure measure used, exposure is greater for firms that do not use currency derivatives.

1.2 STATEMENT OF THE PROBLEM

The banking sector is the backbone of the Kenyan economy. The banking sector provides funds for investments, growth and expansion of businesses and government projects through lending; encourage savings both at wholesale and retail levels; facilitate national, corporate and individual transactions, through the instruments and products that they offer, at both local and international level; carry out the payments system of the country and is also used by the Central Bank of Kenya to implement both the fiscal and monetary policies of the Government. The banking sector is also heavily relied on by the other sectors of the economy. In addition, the banking sector is a critical vehicle that links the Kenyan economy to the rest of the world. This brings with it a myriad of risks particularly so the foreign exchange risk. Li (2003) notes that increased volatility, greater independence and new risks have made the structure of risk exposure of banks and other financial institutions more complex. Increased market globalization and internationalization has been reflected in increased exchange rate fluctuations.

Considering the significant role played by the banking sector in Kenya, misdirected risk management can lead to dire consequences to the economy. Shah (2004) concurs with this view by indicating that due to inter-linkages in financial markets, collapse of one financial institution can lead to a chain reaction which can have serious consequences for a money-based economy. Adoption of appropriate risk management strategies and techniques is therefore an essential ingredient of a successful banking system in Kenya.

According to Al Janabi (2007), emerging markets' portfolio investments have the potential of high returns, however, the associated risk, including currency risk, can be significant. Many of the standard tools used to hedge currency risk, such as futures, swaps and options contracts, are either not available in emerging markets or, where available, are traded in illiquid and inefficient markets that are segmented and politically unstable, with weak regulations and financial infrastructure and lack historical financial data, making the overall process of hedging (and unwinding of a hedge) a difficult task. Consequently, since the range of products available is extremely limited, this has put an

extra burden on corporate treasurers to be able to find adequate hedge to their exposures in exotic currencies.

Since great attention has been accorded to foreign exchange risk management elsewhere, the only way to ascertain the foreign exchange risk management strategies and techniques employed by commercial banks in Kenya, for both foreign- owned and local since they all engage in activities that expose them to foreign exchange risk, is by conducting a study hence the need for this research.

1.3 OBJECTIVE OF THE STUDY

1. To ascertain the strategies and techniques used by banks in Kenya to manage foreign exchange risk.

1.4 IMPORTANCE OF THE STUDY

1. Commercial Banks: This research will help banks identify, analyze, implement and review protection strategies that will enable them minimize losses due to foreign exchange risk exposure. The findings will also help commercial banks come up with appropriate strategies by analyzing how other banks hedge against the risk and to assess where they stand in comparison with other companies.

2.The Government: The findings of the study will provide an insight to the regulatory body (Central Bank of Kenya) on salient aspects of foreign exchange that affect the banking sector therefore it will be in a better position to make timely and appropriate interventions to mitigate risk. It will also enable the government to implement regulation policies and requirements in how banks should manage foreign risk exposure in order to prevent the collapse of banks when global crises occur.

3. Academicians: this research will make a contribution to academic literature on the techniques used by banks to manage foreign risk exposures. The research will also make a contribution to the academic literature on the field of foreign exchange risk management in Kenya where very little is known about corporate practice in the banking sector due to few studies in the subject.

CHAPTER TWO

LITERATURE REVIEW

2.1 Introduction

This chapter delves into the body of existing literature and seeks to show existing knowledge gaps in as far as the outlined topic is concern. It looks and tries to come up with a common understanding of foreign exchange risk concept and foreign exchange risk exposures and their management. The chapter then provides an enumeration and evaluation of some of the strategies and techniques employed in foreign exchange risk management. These considerations therefore become a basis for this research study.

2.2 Foreign Exchange Risk Concept

Brucaite and Yan 2000 define exchange rate risk as the magnitude and likelihood of unanticipated changes in exchange rate. The increased volatility of international markets generates increased financial risk to the companies. Exchange rate change is one of the financial risks where the increased volatility is reflected to the greatest extent. Jacques (1981) defines foreign exchange risk as the risk that an entity will be required to pay more (or less) or receive less (or more) than expected as a result of fluctuations in the exchange rate between its currency and the foreign currency in which payment must be made. Foreign exchange risk is the additional variability experienced by a firm in its worldwide consolidated earnings that results from unexpected currency fluctuations. According to Glaum (2000), firms are exposed to foreign exchange risk if the results of their projects depend on future exchange rates and if exchange rate changes cannot be fully anticipated.

Saunders and Cornett (2008) explain that the potential size of a financial institution's foreign exchange exposure can be measured by analyzing the asset, liability and currency trading mismatches on its balance sheet and the underlying volatility of exchange rate movements. The larger the firm's net exposure in a foreign currency and the larger the foreign currency's exchange rate volatility, the larger is the potential loss or gain to a firm's earnings. The underlying concept of foreign exchange volatility reflects

fluctuations in the demand for and supply of a country's currency. Foreign exchange rate will appreciate in value relative to other currencies when demand is high or supply is low and will depreciate in value when demand is low or supply is high.

Li (2003) observes that exchange rates have been volatile ever since the breakdown of the Bretton Woods system of fixed exchange rates in the early 1970s. Occasional exchange rate crises have also led to sudden and significant exchange rate changes.

Li (2003) states that there have also been major changes in exchange rates as the result of shifts in monetary policies. Firms have therefore had to come to terms with ever-present and sometimes very significant exchange rate risk.

According to Saunders and Cornett (2008), the foreign exchange markets of the world have become one of the largest of all financial markets. Globally, over \$85 trillion in foreign exchange contracts traded in 2005. Trading turnover averaged as high as \$1.9 trillion a day, 90 times the trading daily volume in the New York stock exchange. Electronic foreign exchange trading volume more than doubled from \$700 billion in 2003 to over \$16,000 billion in 2005. The foreign exchange market is essentially a 24-hr market, moving among Tokyo, London and New York. Therefore, fluctuations in exchange rates and thus foreign exchange trading risk exposure continues into the night even when other financial institutions' operations are closed. This clearly adds to the risk from holding mismatched foreign exchange positions.

Train (1986) asserts that the foreign exchange market is the mechanism by which a person or firm transfers purchasing power from one country to another, obtains or provides credit for international trade transactions or minimizes exposure to the risks of changing foreign exchange rates. The foreign market not only links foreign currency flows around the world but they also tie together short-term capital markets in different countries. The foreign exchange market performs the function of transferring purchasing power because International trade and capital transactions normally involve parties living in countries with different national currencies. It also provides a third source of credit through specialized instruments like banker's acceptances and letters of credit, which is

available to finance international trade. Finally it also serves the sole purpose of minimizing foreign exchange risk by providing hedging facilities for transferring foreign exchange risk to someone else.

Recent Developments in International Inter-bank Relations by the G-10 Working Group (1992) and *Derivatives: Practices and Principles* by the G-30 Group (1993). The G-10 (1992) report, covering 63 intermediaries (55 banks, seven securities houses and one insurance firm) in G-10 (Belgium, Canada, France, Germany, Italy, Japan, Luxembourg, The Netherlands, Sweden, Switzerland, UK, USA) countries made the following key points which highlight the views of key participants in international financial markets: *The Funding Markets* (including the international deposits and CDs market, the commercial paper market, the repo market, the medium-note market, the corporate note and bond market, and the bank investment contracts and bank lending facilities market). Most participants agree that the inter-bank deposit market is on a decline particularly since 1990. They indicated one reason for this is the increased use of derivatives and other off balance sheet instruments to hedge or manage market risk in lieu of the inter-bank deposit market.

Omagwa (2005) observes that banks engage in a variety of transactions that expose them to foreign exchange risk. These are purchase of foreign currency to facilitate domestic borrowing, funding by the parent banks, foreign loans to meet domestic demand, international foreign currency transactions, correspondent banking relations with banks abroad, customer deposits in foreign currencies and investments in foreign currencies. Financial Supervision Commission (March 2006) observes that foreign exchange risk is not confined to proprietary positions taken by a bank and client driven transactions, but can also arise from known profit flows in foreign currency, and provisions for bad debts denominated in foreign currency. Li 2003 states that risks associated with de-segmentation, securitization, financial innovations, globalization and increased competition have emerged. Increased volatility, greater interdependence and new risks have also made the structure of the risk exposure of banks and other financial institutions more complex.

Nwankwo (1991) posits that as each bank has to be in a position to meet its own foreign currency demand on time, there are liquidity risks and there are also interest rate risks; for dealings in the forward foreign exchange market. Since exchange rate movements correlate with movements in relative interest rate, a mismatched currency position and a mismatched inherent position may frequently not be independent.

Financial Supervision Commission (March 2006) highlight that banks are exposed to a number of different risks in the conduct of foreign exchange and general business, and these may be categorized as Exchange rate risk (open position) which is the risk that the bank may suffer losses as a result of adverse exchange rate movements during a period in which it has an open position. Interest rate risk may arise from unmatched forward foreign exchange transactions. Settlement/ Herstatt/ time zone risk is a form of credit risk that arises from transactions where the currencies settle in different time zones. A transaction is not complete until settlement has taken place in the latest applicable time zone. Credit risk arising from the failure or default of a counterparty, where only one side of the transaction has settled. If a counterparty fails before any settlement of a contract occurs, the risk is limited to the difference between the contract price and the current market price (i.e. an exchange rate risk). Country risk essentially a form of credit risk arising from either the currency of the trade or the centre in which the counterparty is situated rather than the counterparty itself. There are implications for foreign exchange transactions. In the event of sanctions being imposed by the government of that country, or an international agency such as the United Nations, banks may not be able to sell balances or deliver currency in settlement of trades already completed.

2.3 Types of Foreign Exchange Exposures

2.3.1 Translation exposure

Yeager and Seitz (1989) assert that translation risk arises primarily from accounting conventions e.g. a US firm with interests in several countries must somehow convert all of its assets to dollar values for the purpose of preparing annual reports as in FASB 52(Financial Accounting Standards Board Statement 52). The risk of having to report a

loss because of the rules used in translating foreign assets, liabilities and income to the reporting currency is known as translation risk. Translation problems also arise in areas like depreciation computation and inventory calculations when business is conducted in more than one country and if any subsidiary has a mismatch between financial assets and liabilities denominated in other currencies.

Giddy and Dufey (1995) state that a decision must be made as to the exchange rate that is to be used for the translation of the various accounts. Translation exposure has to do with the location of the assets.

Madura and Fox (2007) state that translation exposure is affected by the percentage of business conducted by foreign subsidiaries, the location of foreign subsidiaries as it impacts on the volatility of the currency in relation to the home currency i.e. a weak foreign currency today results in a forecast of a weak exchange rate at the time that the earnings are remitted and the Accounting methods and procedures employed by the firm to translate when consolidating financial statement data.

Glaum (2000) asserts that considering that academics have been pointing out for many years that the accounting concept of exchange exposure is not an appropriate concept to be used in foreign exchange risk management; it is surprising that a number of firms still aim to hedge this type of exposure. By eliminating their translation exposure, the firms may actually create additional transaction exposure. The former has no direct cash flow implications; the latter involves real cash flows. The firms, in other words, hedge against "paper losses" while at the same time incurring the risk of real losses from their hedging transactions. Brucaite and Yan (2000) add that translation exposure is less important as translation losses are only book losses while operating and transaction are expected and real cash losses respectively i.e. accounting measures of exposure focus on the effect of currency changes on previous decisions of the firm, as reflected in the book values of assets acquired and liabilities incurred in the past.

Wihlborg (1989) highlights that in the short term, translation gains or losses on exposure have no cash flows effects i.e. they are not realized over the reporting period. Cash flow

gains and losses occur, however, if the company is liquidated, or in the future when assets and liabilities produce cash flows. Thus, ideally, translation exposure should capture the sensitivity of economic value, in a form of either liquidation value or present value of future cash flows, to exchange rate changes .

According to Shapiro (2002), as long as the information is fully revealed to the market, investors will be able to make an unbiased valuation of the firm; there should indeed be no need to hedge such exposure. Some firms are very exposed to such risk and may well argue that a failure to protect against such risk may be interpreted as a signal of weakness on the part of management.

The consequent fall in share price would affect the wealth of shareholders and therefore justify hedging. Translation exposure can be reduced by adjusting fund flow, forward contracts and exposure netting.

2.3.2 Transaction exposure

Glaum (2000) notes that previous empirical studies have shown that the management of transaction exposure is the centerpiece of corporate exchange risk management. The *transaction exposure concept* concentrates on contractual commitments which involve the actual conversion of currencies. A firm's transaction exposure thus consists of its foreign currency accounts receivables and payables, its longer-term foreign currency investments and debt, as well as those of its foreign currency cash positions which are to be exchanged into other currencies. Until these positions are settled, their home currency value may be impaired by unfavorable parity changes.

According to Giddy and Dufey (1995) what is involved is simply foreign currency assets and liabilities, whose value is contractually fixed in nominal terms. Transaction exposure has to do with the currency of denomination of assets like accounts receivable or payable. Flood and Lessard (1986) state that transaction exposure is the effect of unanticipated changes in real exchange rates on nominal cash flows (i.e., cash flows fixed in nominal terms) and primarily a short-term exposure that can be hedged using financial derivatives.

Madura and Fox (2007) assert that to assess transaction exposure, a firm needs to estimate its net cash flows in each currency, currency variability and currency correlations to see the degree to which two currencies move in relation to each other as it helps determine the firm's overall position in each currency. It also needs to measure the potential impact of the currency exposure on the net cash flow of a firm which can be viewed as streams of cash flows in differing currencies. Transaction exposure can have a substantial impact on a firm's earnings. It is not unusual for a currency to change by as much as 10% in a given year. This effect could possibly eliminate any profits from exporting.

Shapiro (2002) states that by managing transaction exposure, financial managers may be able to increase cash flows and enhance the value of their firms and decide on whether to hedge this exposure and choose among the hedging techniques available. Methods banks employ in managing transaction exposure include use of forward hedge, money market hedge, risk shifting, pricing decisions, exposure netting, currency collars and foreign currency options.

2.3.3 Economic exposure

Glaum (2000) highlights that exchange rate changes can lead to changes in the relative prices of the firm's inputs and outputs. The relative price changes can affect the firm's competitive market position leading to changes in cash flows and, ultimately, in firm value. An exchange risk management approach which limits itself to transaction exposure, i.e. to those foreign currency cash flows which are contracted at any given point in time, ignores these fundamental, longer-term effects of exchange rate changes. The *economic exposure concept* intends to capture these effects. Economic exposure is defined as the sensitivity of the firm's future cash flows to unexpected exchange rate changes. The exposure encompasses all cash flows, no matter whether a currency conversion is involved and regardless of their timing. The firm's economic exposure thus includes its transaction exposure, but it also comprises the expected cash flows of future periods which are not contracted yet. The exposure can be measured by sensitivity analysis, simulation or by regressing the firm's cash flows on the foreign exchange rates.

Giddy and Dufey (1995) highlight that economic exposure is tied to the currency of determination of revenues and costs. The currency of determination refers to revenue and operating expense flows the cash flow, even while denominated in local currency, is determined by the relative value of the foreign currency.

Flood and Lessard (1986) provide a framework for analyzing a firm's competitive position and the extent of its economic exposure. In their model, firms are categorized as having either high or low sensitivities to changes in exchange rates for their inputs or prices, or both. Firms which have a mismatch between their costs and price sensitivities, have the greatest degree of economic exposure. Firms which have either high or low sensitivities to both costs and prices, that is, multinational firms, importers with common costs or protected domestic producers sourcing locally, have low economic exposures.

Glaum (1990) observes that the fact that most firms do not attempt to manage their economic exposure can be explained by the complexity of this concept. In order to measure a firm's economic exposure one needs to analyze the elasticity of demand in its markets for inputs and outputs, the flexibility of its production processes and the strategies of its competitors. The tools which are available for altering a firm's economic exposure are the choice of its products and markets, the restructuring of its sourcing, production and marketing processes, and changes in its longer-term financial policies. Obviously, such policies cannot be implemented easily as they require time and are expensive.

Logue (1995) and Chowdhry and Howe (1999) argue that operating exposure cannot be effectively managed using financial hedges. Instead, they suggest that long-term strategy adjustments (i.e., operational hedges) are the most effective way of managing long-run operating exposure. Madura and Fox (2007) suggest that a firm can restructure its operations to reduce their economic exposure. This involves shifting the sources of costs or revenues to other locations in order to match cash inflows and outflows in foreign currencies. Shapiro (2002) state that remedies available in managing economic exposure are market management of risk, market selection, pricing strategies, product strategy,

production management of risk, planning for exchange rate changes and financial management of exchange rate risk.

A number of studies have attempted to provide insight into the practices of foreign exchange risk management. Fatemi and Glaum (2000) found out that most of the firms used derivative instruments for hedging purposes and that translation exposure was the foreign exchange exposure that most of the firms were greatly concerned with. Glaum (2000) found out that most of the firms were concerned with managing their transaction exposure and that they adopted selective hedging strategies. Brucaite and Yan (2000) studied financial risk management of Two Swedish firms (SKF and Elof Hansson and found out that forwards were the main instruments used for exposure hedging, translation risk was not considered important and didn't hedge against it. They also found out that transaction exposure was the most important.

2.4 Foreign Exchange Risk Management

Carter et Al (2003) observe that the practice of corporate risk management has changed dramatically over the past two decades. Today risk management of currency exposure has evolved into a firm wide exercise (the combined use of both financial and operational hedges as part of an integrated risk management strategy aiming at reducing exposure to foreign-exchange risk) that addresses both short-term and long-term exposures and encompasses financial as well as operational hedges. Anifowoshe (1997) notes that the practice of managing foreign exchange resources has evolved broadly in line with the globalization and liberalization of economies and financial market. This has spanned over such areas as risk management and active portfolio management. Li (2003) defines financial risk management as the practice of defining the risk level a firm desires, identifying the risk level a firm currently has, and using derivatives or other financial instruments to adjust the actual level of risk to the desired level of risk.

Giddy and Dufey (1995) note that the first step in management of corporate foreign exchange risk is to acknowledge that such risk does exist and that managing it is in the interest of the firm and its shareholders. The next step, however, is much more difficult:

the identification of the nature and magnitude of foreign exchange exposure. In other words, identifying what is at risk, and in what way. Redja (1998) also defines risk management as a systematic process for the identification and evaluation of pure loss exposure faced by an organization and for the selection and implementation of the most appropriate techniques for treating such exposure. The process involves: identification, measurement, and management of the risk.

Bank of Jamaica (March 1996) asserts that the establishment of aggregate foreign exchange limits that reflect both foreign currency dealing or trading activities (transactional positions) and overall asset/liability infrastructure, both on- and off-balance sheet (structural) positions helps to ensure that the size and composition of both positions are appropriately and prudently managed and controlled and do not overextend an institution's overall foreign exchange exposure. An effective accounting and management information system in place that accurately and frequently records and measures its foreign exchange exposure and the impact of potential exchange rate changes on the institution are mandatory. Monitoring and reporting techniques that measure the net spot and forward positions in each currency or pairings of currencies in which the institution is authorized to have exposure; the aggregate net spot and forward positions in all currencies and transactional and translational gains and losses relating to trading and structural foreign exchange activities and exposures should also be in place.

Anifowoshe (1997) observed that some of the objectives which management of foreign reserve seeks to achieve include security, liquidity, profitability and adequacy of the reserves. According to Carter et al, (2003), the ultimate goal of firm wide risk management is to reduce risk while placing the firm in a position to benefit from opportunities that arise from exchange rate changes. Al Janabi (2006) states that the primary goal in foreign-exchange risk management is to shelter corporate profits from the negative impact of exchange rate fluctuations. The Integrated Risk Management Paradigm identifies the objectives of risk management under Post-loss objectives as Survival, Continuity of operations, Earnings stability, Continued growth and Social

responsibility. The Pre-loss objectives as Economic efficiency, Reduction in anxiety, Meeting externally imposed obligations and Social responsibility.

Fatemi and Glaum 2000 found out that among the goals and objectives of risk management “ensuring the survival of the firm” turns out to be the most important goal. “Increasing the market value of the firm” ranks as the second most important goal. Other important goals, in their order of importance, are influencing the behavior of subsidiaries and managerial employees, increasing profitability, reducing cash flow volatility, and reducing earnings volatility.

2.5 Foreign Exchange Risk Management Strategies and Techniques:

2.5.1 Hedging Strategies

David et al (2001) defines hedging as the taking of a position, acquiring either a cash flow, an asset, or a contract that will rise or fall in value to offset a fall or rise in the value of the existing position. Hedging can also be defined as “all actions taken to change the exposed positions of a company in one currency or in multiple currencies” (Prindl, 1976). Kyte (2002) notes that macro hedging is done on the whole portfolio while micro-hedging is on an individual product level. Saunders and Cornett (2008) defines on-balance- sheet hedging involves making changes by directly matching its foreign asset and liability book the on-balance-sheet assets and liabilities to protect financial institution profits from risk. Off-balance-sheet hedging involves no on-balance-sheet changes but rather involves taking a position in forward or other derivative securities to hedge foreign exchange risk.

Glaum (2000) proposes that firms that aim to reduce or eliminate exchange risk can hedge individual foreign exchange positions by a counterbalancing transaction in the forward markets, with a currency option or with another hedging instrument (“micro hedge approach”). Alternatively, the firm can first identify its net position in a given currency by subtracting expected cash outflows (“short positions”) from expected cash inflows (“long positions”) of the same time horizon. Since the effects exchange rate changes have on long and short positions cancel each other out, only the net position is

effectively exposed to exchange risk, and hence only this net exposure needs to be considered for hedging ("macro hedge approach"). The macro hedge approach reduces the number and volume of the hedging transactions.

Glaum (2000) found out that some firms do not hedge their foreign exchange rate risk at all as they are not (significantly) exposed to foreign exchange risk, others hedge all open positions immediately and others follow a fixed rule according to which they always hedge a certain portion of their exposure with forward and/or option contracts, while leaving the remainder exposed. For example, some firms always hedge half of their exposure; others always hedge a third of their position with forward contracts, another third with currency options and leave the remaining third unhedged. More than a third of the firms indicated that their management has complete discretion to decide whether or not to hedge all exposure on the basis of exchange rate forecasts. Firms that follow selective hedging strategy hedge only those positions for which they expect a currency loss while leaving open positions for which they expect a currency gain basing on the managers' ability to forecast appreciations and depreciations of the relevant currencies over the planning horizon. The managers thus implicitly reject the efficient market hypothesis which states that (in its semi-strong version), financial market prices always reflect all publicly available information.

2.5.2 Strategies and Techniques

2.5.2.1 Avoidance

According to The Integrated Risk Management Paradigm, avoidance occurs when decisions are made that prevent a risk from even coming into existence. Risks are avoided when the organization refuses to accept the risk for even an instant. While avoidance is the only alternative for dealing with some risks, it is a *negative* rather than a *positive* approach. If avoidance is used extensively, the firm may not be able to achieve its primary objectives. For this reason, avoidance is, in a sense, the risk management technique of last resort. Avoidance should be used in those instances in which the exposure has catastrophic potential, and the risk cannot be reduced or transferred.

Generally, these conditions exist in the case of risks for which both the frequency and the severity are high.

2.5.2.2 Risk Sharing

According to Eiteman (1997) risk sharing means that the seller and buyer agree to share the currency risk in order to keep the long term relationship based on the product quality and supplier reliability, so they will not destroy the long term relationship just because of the unpredicted exchange rate change. Brucaite and Yan (2000) note that the risk sharing arrangement is intended to smoothen the impact, on both parties, of volatile and unpredictable exchange rate movements.

2.5.2.3 Diversification

Brucaite and Yan (2000) suggest diversification of both operating and financial policies. The firm can diversify its operations through, such branches of it's activity as, sales, location of production facilities, raw material sources, while financial policy diversification can be done using funds in more than one capital market and in more than one currency. Saunders & Cornett (2008) note that diversification across many assets and liability markets can potentially reduce the risk of portfolio returns and cost of funds. To the extent that domestic and foreign interest rates or stock returns for equities do not move closely together over time, potential gains from asset-liability portfolio diversification can offset the risk of mismatching individual currency asset-liability positions.

Crabb (2003) suggests that significant diversification benefits are possible across the network. The network could raise debt capital for all of its implementing partners and any foreign exchange risk is likely to be absorbed in the pool of cash flows generated by these partners and used to meet the obligations because currency volatility in one region of the network does not imply equal volatility in another. Another source of substantial diversification is by diversifying across the sources of funds. If the network incurs debt in three major currencies such as the U.S. dollar, the euro, and the yen, and then distributes these funds across many different currencies, a reduction in the risk of exchange rate

changes is possible. Although it is possible that each of the developing market currencies would move against all three hard currencies in the same manner, any higher debt service costs in one hard currency can be offset against lower costs in another. Madura and Fox (2007) assert that currency diversification helps to limit the potential effect of any single currency's movements on the value of a firm. If the foreign currencies were highly correlated with each other, diversification would not be effective since the currencies move in tandem.

2.5.2.4 Natural hedging

According to Van Horne (2001), the relationship between revenues and costs of a foreign subsidiary sometimes provides a natural hedge, giving the firm ongoing protection from exchange-rate fluctuations. The key is the extent to which cash flows adjust naturally to currency changes. It is not the country in which a subsidiary is located that matters, but whether the subsidiary's revenue and cost functions are sensitive to global or domestic market conditions. When pricing and cost are both globally determined the firm has little exposure to exchange rate fluctuations since there is a natural hedge because protection of value follows from the natural workings of the global market place. When pricing and cost are both domestically determined, as domestic inflation affects costs, the subsidiary is able to pass along the increase in its pricing to its customers. Margins are relatively insensitive to the combination of domestic inflation and exchange-rate changes hence a natural hedge. The firm is exposed where costs are determined globally whereas prices are determined domestically and also where pricing is globally determined whereas cost is domestically determined. If a firm has a natural hedge then to add a financing or a currency hedge creates a net risk exposure where little or none existed before i.e. you will have undone a natural hedge that the firm has by virtue of the business it does abroad and the sourcing of such business.

According to Brucaite and Yan (2000), matching, also called "natural hedging", is a way to decrease currency exposure by covering cash outflows by inflow in the same currency. The advantages of natural hedging is that transaction exposure can be effectively covered without any transaction cost and it also offers a particular advantage to companies, which

are subject to exchange rate control regulation that constrains their activities in the foreign exchange market. For example, it provides an acceptable solution to the problem where it is apparent that an exposure exists but there is no “coverable exposure” as such defined for purposes of exchange control.

Bradley and Moles (2000) state that operational hedging involves firms in decisions as to the location of their production facilities, sourcing of inputs, the nature and scope of products, the firm’s choice of markets and market segments, and strategic financial decisions, such as the currency denomination of the firm’s debt. The objective is to match the input and output sensitivities so as to reduce the degree of exposure (Rawls and Smithson, 1990).

▪ **2.5.2.5 Payments netting**

Brucaite and Yan (2000) highlight that the netting system is often based on a re-invoice centre establishment, where each separate subsidiary deals only with its own currency, leaving all the transaction exposure to re-invoicing centre. There are some advantages of re-invoice centre: it is easy to control the overall firm’s activity when all the currency exposure is netted in one place, thus ensure that the firm as a whole follows a consistent policy, lower transaction cost because of the centralized netting system and each subsidiary can concentrate on what they are specialized in. The major drawback is that it insulates the internal suppliers from their ultimate external customer market, which will mislead the firm to set suboptimal pricing and other commercial decisions.

This system is used in international transactions by multinational companies and involves reducing fund transfers between affiliates to only a netted amount. It requires the firm to have a centralized organization of its cash management. As a result, measurable costs such as the cost of purchasing foreign exchange, the opportunity cost of the float (time in transit) and other transaction costs with inter-affiliate cash transfers are minimized or eliminated. The payoff from multilateral netting systems can be large relative to their expense (Bogusz, 1993; Shapiro, 2002).

2.5.2.6 Prepayment

Hill (2001) says that this method of payment requires the buyer to pay the seller in full before shipment is made. Dennis (1993) observes that payment is usually made in the form of international wire transfer to the exporter's bank account or foreign bank draft. If currency is thought to appreciate, then prepaying enables the company to pay at a lower rate. If the future rate finally depreciates, the firm is worse off than if it had done nothing. The primary disadvantage of prepayment is that it can limit the exporter's sales potential.

2.5.2.7 Leading and lagging

Shapiro (2002) defines leading and lagging as an adjustment in the timing of payment request or disbursement to reflect future currency movements. Hill (2001) asserts that a lead strategy involves attempting to collect foreign currency receivables early when a foreign currency is expected to depreciate and paying foreign currency payables before they are due when a currency is expected to appreciate. A lag strategy involves delaying collection of foreign currency receivables if that currency is expected to appreciate and delaying payables if the currency is expected to depreciate. Madura and Fox (2007) highlight that leading and lagging involves accelerating payments from weak-currency countries to strong-currency countries and delaying inflows from strong-currency to weak-currency countries. The firm must be in the position to exercise some control over payment terms. Leading and lagging is a zero-sum game; that is, while one party benefits, the counterpart loses and this might lead to loss of business. Leading and lagging can be done in many ways including tightening or extending credit, early or late settlement of inter-subsidiary accounts, reinvesting funds or repatriating them, adjusting transfer prices and dividend payments.

2.5.2.8 Cross Hedging

According to Shapiro (2002), cross hedging occurs when for some reason the common hedging techniques cannot be applied to the first currency and can be done by using futures contracts on another currency that is correlated with the one of interest. A cross hedge is not a perfect hedge but can substantially reduce exposure. Madura and Fox (2007) assert that the firm identifies the currency that can be hedged and its correlation to

the currency that cannot be hedged. The more highly correlated the currencies, the more effective the strategy.

2.5.2.9 Parallel Loan (Back-to-Back Loan)

Shapiro (2002) explains that a parallel loan or back-to-back loan involves an exchange of loans in different currencies at a specified exchange rate and future date. It represents two swaps of currencies, one swap at the inception of the loan contract and another swap at the specified future date. Madura and Fox (2007) explain that the parties agree to pay the interest on each other's loan and repay the amount borrowed on maturity. The critical aspect of the arrangement is that companies will find themselves paying interest in the currency of their choice which due to circumstances may not be the currency of the original loan. If a firm finds that it has significant yen revenues and wants to protect itself from changes in the value of the yen, it can do so by arranging more of its payments in yen. Dawson et al (1994) observe that a change in exchange rates will thus not affect the income to the financial statements of the investor.

2.5.2.10 Overseas Loan/ Foreign currency-denominated debt

Dawson et al, (1994) explains that an overseas loan is a bank loan obtained from a bank in the same country and in the currency of the country where the asset is situated. This type of loan will not be affected by the movement of exchange rates as it is designed so that the loan is raised in the currency of the asset, matching liability with asset, avoiding the risk of exchange rate changes causing a divergence between the amount of loan outstanding and the asset value. Van Horne (2001) notes that if a firm is exposed in one country's currency and is hurt when that currency weakens in value, it can borrow in that country to offset the exposure. This can be done through instruments like international bond financing, in the Eurocurrency market, trade bills, loans, multiple currency bonds, cocktail bonds and dual currency bonds.

Bradley and Moles (2000) suggest that a possible reason for the popularity of foreign currency-denominated debt is the flexibility that it provides. One advantage is that it is an add-on to the asset liability management process. In addition, the creation of a financial

liability within normal capital structure parameters only has a small impact on the firm's existing or future business operations. Given the existence of early call or redemption provisions on debt and the currency swaps market it is also relatively easy to modify the exposure at a later date. Furthermore, foreign currency denominated debt might be considered a hybrid strategy having features of both operational and financial hedging which would explain its popularity.

2.5.2.11 Insurance

According to Dixon (1994), a global player dealing in derivative transactions with an unattached net position, implying a large exposure at the end of the day or period, the net exposed position of the firm can be insured. The premium amount would depend on two factors: the risk associated with the player's net exposed position and the entire risk profile of the insurance company's portfolio. The advantages of insuring a derivative contract are: it would protect the global player from net exposure, which would otherwise be left either unmatched/unhedged or hedged with another financial instrument and would help financial markets spread risks which would immediately reduce overall systematic risk to the financial system. However, the concept of insurance would only be acceptable if the trade-off between risk and return is sufficient to compensate the insurer for the ultimate net exposure risk that they face. Dixon and Bhandari (1997) explain that insurance proposal has a major drawback in that the level of risk to be insured is not easily quantifiable. This would effectively make it impossible to cover the risk. Indeed, the notion of insurance in this area has been variously described as silly and absurd.

Crabb (2003) suggests that insurance products exist to assist multinational firms operating in countries with high levels of geopolitical and economic risks. These products are primarily public agency guarantees, but some private insurance companies are now offering many different types of catastrophic loss policies. In this case, the insurance company bears the risk that a major devaluation occurs in one of the countries. The public agency products of this type generally cover war and political turmoil, two events likely to lead to currency devaluations.

2.5.2.12 Money Market Hedge

Yeager & Seitz (1989) observe that Money Market (Balance Sheet) Hedging is widely used to control translation risk, although it can be used to control transaction risk.

Essentially, a company strives to have net financial assets in each currency exactly equal to financial liabilities in that currency. Giddy & Dufey (1995) explain that the cost of the money market hedge should be the same as the forward or futures market hedge, unless the firm has some advantage in one market or the other. The money market hedge suits many companies because they have to borrow anyway, so it simply is a matter of denominating the company's debt in the currency to which it is exposed. If a money market hedge is to be done for its own sake, the firm ends up borrowing from one bank and lending to another, thus losing on the spread. This is costly, so the forward hedge would probably be more advantageous except where the firm had to borrow for ongoing purposes anyway.

2.5.2.13 Borrowing Policy

Madura and Fox (2007) observe that for many firms, the exposure of their profits to exchange rate changes will be predictable as the pattern of trade will not change greatly. For such companies such knowledge will over time guide their choice of currency in which to borrow. The currency disposition of the borrowings is used as a partial, long-term hedge of the cash flows arising from investments overseas and as a hedge against any future business.

2.5.2.14 Pricing strategy

Brucaite and Yan (2000) observe that the pricing strategy and demand sensitivity to competitors' price are two important factors, which affect the firm's exchange exposure. Therefore, it would be logical to presume that if a flexible pricing strategy is set, then the firm can handle the exchange rate exposure easily. There still exist some costs associated with pricing changing policy; such as: long term customer relationship and the customer's loyalty to the firm.

2.5.2.15 Derivative Instruments

2.5.2.15.1 Forwards

Abor, (2005) defines a forward contract as a contract made today for delivery of an asset at a pre-specified time in the future at a price agreed upon today. No money changes hands until the expiry time. Kyte (2002) highlights that forward rate agreements (FRA) allow a firm to benefit from locking into a fixed rate which protects against loss if rates go up and also give the flexibility of not being obliged to honour the agreement i.e. if rates go down, the firm can pull out. Disadvantages arise from problems in finding suitable counterparties. With matches hard to find, this causes a lack of liquidity in the market. In addition, if rates move unfavourably, the buyer can end up paying more than necessary, while the seller gets less. Lastly, there is an element of default risk. If counterparties go bust or choose to default from the contract, this forces the buyer to sell at a lower rate.

Dawson et al (1994) define forward contracts as privately negotiated, customized transactions. Forwards are useful for hedging specific amounts of currencies but they are not negotiable and therefore may lack flexibility. Bradley and Moles (2000) observe that while forwards may be useful in managing short-term transactional exposures, such financial hedges do not prevent the competitive position of the firm from being eroded (or strengthened) by currency movements in the long run.

2.5.2.15.2 Futures

Abor (2005) and Kyte (2002) state that futures contract is a special type of contract with standardized delivery dates and sizes that would allow trading on an exchange, making it easier to find suitable counterparties increasing the liquidity of this market. A deposit (margin requirement) is used to protect both parties against default and the contract is marked to market, with amounts deducted from the notional amount accordingly. Mark to market performance measurement is an effective method of safeguarding against unnecessary loss. Instead of the parties realizing the profit or loss at the expiry date, futures are evaluated every day and margin payments are made across the lifetime of the

contract; at the end of the everyday, the change in value of the contract or “settlement price”, is added or subtracted from the margin (deposit) account.

Dawson et al (1994) and Kyte (2002) observe that futures contracts allow participants to buy or sell on a public exchange where they are traded with detailed knowledge of the characteristics of the contract and the clearing house monitors the credit worthiness of counterparties decreasing the risk of default. They mirror the behaviour of the spot prices but are executed at the margin. This means only a small proportion of the cost has to be paid in advance and subsequent movement in prices can gear up profits or losses. Flexibility means contracts can be re- sold at any time until the delivery date; a buyer and seller of a contract independently take offsetting positions to close out a contract. The seller cancels out a contract by buying another contract, while the buyer cancels a contract by selling another contract. Only a set number of maturities are available. (Van Horne, 2001 and Kyte, 2002). Giddy & Dufey (1995) note that the normal currency futures delivery dates are March, June, September and December.

2.5.2.15.3 Options

Dawson et al (1994) asserts that the buyer of an option contract has the *right* but not the *obligation* to buy (or sell) a currency at a specified exchange rate on a given future date in exchange for the payment of a premium. Options are sold either on the trading markets at set prices and standard sizes, with definite dates of purchase and sale or over the counter where dates, sizes and prices are determined by negotiation between the parties. Options are considered an appropriate hedging instrument owing to the flexibility of their terms and the avoidance of loss, should the exchange rate fluctuate to the disadvantage of the buyer. Unlike futures, where there is exposure to upside and downside movement as the value is off-set by the loss on the contract, options need only be a one-sided bet and offer limited risk. They are available from financial institutions in return for payment of a risk premium to reflect the level of risk involved. Kyte, (2002) states that options are particularly excellent for hedging on balance sheet risks that are option based such as prepayment risk. Futures and forwards are better and more cost effective for hedging linear risks. The main disadvantage with options is the premium associated with it.

Options offer the huge advantage of being able to gain even if rates decline. Glaum (2000) observes that a currency option provides the firm with protection against foreign exchange losses while leaving open the possibility to participate in favorable exchange rate changes.

Cowdell, (1993) states that while American options can be exercised in whole or in part at any time up to expiration, European options can be exercised only at expiration.

Options can be used to hedge against exchange rate fluctuations arising from foreign investments or funding in any currency. Options offer a very high degree of gearing or leverage, which makes them attractive for speculative purposes too. Van Horne (2001) states that since currency options are traded on a number of exchanges throughout the world, one is able to trade with relative ease. The value of the option, and hence the premium paid, depends importantly on exchange-rate volatility. Madura and Fox (2007) asserts that a firm must assess whether the advantages of a currency option hedge are worth the price (premium) paid for it. Currency call options are used to hedge payables and contingent exposure while currency put options can be used to hedge future receivables. Several alternative currency options are normally available with different exercise prices.

2.5.2.15.4 Swaps

Crabb (2003) defines a currency swap as a financial contract where a borrower swaps their debt obligations in one currency for the obligations of another borrower in a different currency. Currency swaps immediately remove currency risk since the institution's assets and liabilities are as a result denominated in the same currency while Dawson et al, (1994) defines a swap as an exchange of liabilities denominated in different currencies involving two parties who agree to exchange specific amounts of two different currencies at the outset, in their home currency. The two parties make periodic payments over time in accordance with a pre-determined rule to reflect differences in interest rates between the two currencies involved. Swaps can also be used to exchange variable-rate loans into fixed rates to match the firm's cash flow profile. Evans and Malhotra, (1994) state that currency swaps require the party receiving the currency with a

higher interest rate in that country's currency to pay the interest to the counter party at a rate that represents the interest rate differential between the two countries. Currency swaps provide an opportunity for customers to balance currency resources in situations where there are excess funds in one currency and shortage of funds in another.

Van Horne (2001) observes that currency swaps are usually arranged through an intermediary. Many different arrangements are possible; a swap involving more than two currencies, a swap with option features and a currency swap combined with an interest-rate swap where the obligation to pay interest on long-term debt is swapped for that to pay interest on short-term, floating rate, or some other type of debt. Currency swaps are widely used and serve as longer-term risk sharing devices. A big advantage swaps have over other derivatives is the long-time horizon of up to 20 years. Disadvantages include lack of liquidity, default risk, too sophisticated or intimidating to most companies and often require extensive documentation (Kyte (2002) and Madura and McCarty (1989).

CHAPTER THREE

RESEARCH METHODOLOGY

3.1 Introduction

As alluded to earlier, the overall purpose of this study was to ascertain the strategies and techniques used by banks in Kenya to manage foreign exchange risk. This chapter presents the research methodology used for this study, it discusses the research design, and why it was preferred over other research designs. It also provides information on the population of the study. It also provides information on the data collection method and data collection instrument used in the survey. The chapter also looks at the research procedure including the pre-testing and administration of the questionnaire and finally presents the data analysis method.

3.2 Research Design

A census survey study was carried out on Commercial banks in Kenya. A census survey was chosen since foreign exchange risk management being fairly new in the developing markets, different banks would adopt different strategies and techniques to manage foreign exchange risk, and hence a census study was more comprehensive.

3.3 Population

The population of the study consisted of 42 commercial banks licensed to operate in Kenya as listed by the Central Bank of Kenya. (See Appendix 1 List of Licensed Commercial Banks in Kenya.)

3.4 Data collection

The study exploited primary source of information which was collected through detailed self-administered Questionnaires comprising open-ended, closed –ended and Likert type questions (as shown in Appendix 2). The open-ended questions sought to encourage respondents to share as much information as possible in an unconstrained manner. The closed-ended questions involved “questions” that were answered by simply checking a

box from a set provided by the researcher. This allowed for easier analysis of the data due to the standardized questions. The Likert-type questions aimed at determining the extent to which the firms employ the foreign exchange risk management practices, hedging techniques and strategies.

The Questionnaires were administered to the Heads of the Treasury departments of the commercial banks using a drop-and-pick-later technique. Follow-up activities included telephone calls, emails and walk-ins to enhance the response rate. The questionnaire was pre-tested to determine the clarity of the questions.

3.5 Data analysis

On receiving the Questionnaires, the data collected was labeled, coded and keyed into Microsoft Excel for analysis using descriptive statistics techniques. The data gathered was analyzed and interpreted using the simple arithmetic mean, mode, percentages and tables of frequencies. Weighted average response was calculated on the ranking type questions. This was calculated as the sum of the products of the number of respondents and their weight and each corresponding rank divided by the total number of respondents in each category.

The results were then summarized using tables, bar graphs and pie charts for comparison purposes and to help draw conclusions. Descriptive statistics was basically used in the presentation and analysis of empirical results.

CHAPTER 4

RESULTS AND FINDINGS

4.1 INTRODUCTION

42 commercial banks were selected for study but only 23 responded positively representing a response rate of 55%. 2 banks indicated that they did not deal with foreign currencies hence they did not have a foreign exchange department. They used other banks to carry out their foreign exchange activities and transactions. Such a response is high for this kind of study considering the confidentiality attached to banking practices especially on foreign exchange risk management. Due to this fact 10 banks did not participate in the research as their policies did not allow them to participate in any form of business research. This could probably be a measure to safeguard vital information that could leak to competitors. The names of responding banks are withheld in this document because of confidentiality of information given. This research endeavored to ascertain the foreign risk management strategies and techniques employed by commercial banks in Kenya to mitigate foreign exchange risk.

4.2 GENERAL INFORMATION

General information was solicited in order to establish key features of the banks' foreign exchange risk management systems.

4.2.1 Functional Currency of Most Banks

Table 1: Functional Currency of Most Banks

Currency	Frequency	Percentage %
KES (Kenya Shilling)	21	75.00
USD (US Dollar)	3	10.71
GBP (The Pound)	2	7.14
EURO (The Euro)	2	7.14
Total	28	100

Source: Survey Data, 2009

75% of the banks use Kenya shilling (KES) as their functional (base) currency. This could largely be due to the fact that most local transactions are denominated in the local

currency, the Kenya shilling. US Dollar (USD) is used by 10.71% of the banks as their functional currency. The British Pound (GBP) and The Euro also, on a small scale form part of the functional currency of some banks.

4.2.2 Other Currencies that Banks deal with

Table 2: Other Currencies that Banks deal with

Currency	Frequency	Percentage %
Kenya Shilling (KES)	21	11.05
US Dollar (USD)	21	11.05
The British Pound (GBP)	21	11.05
Japanese Yen (JPY)	18	9.47
The Euro (EUR)	21	11.05
Tanzania shilling (TZS)	12	6.32
Ugandan shilling (UGX)	13	6.84
Canadian Dollar (CAD)	14	7.37
Swiss Franc (CHF)	14	7.37
Australian Dollar (AUD)	7	3.68
Indian Rupee (INR)	8	4.21
South African Rand (ZAR)	6	3.16
Swedish Kronnor (SEK)	5	2.63
(NOK)	3	1.58
(DKK)	4	2.11
Dirham	1	0.53
MUR	1	0.53
Total	190	100

Source: Survey Data, 2009

The most commonly used currencies are KES, USD, GBP, and EUR. Other currencies used also include JPY, CHF, CAD, UGX and TZS. AUD, INR, SEK, ZAR, DKK, NOK,MUR and Dirham are used on a very small scale.

4.2.3 Currencies contributing to foreign exchange risk.

Table 3: Currencies contributing to foreign exchange risk.

Currency	Frequency (f)	Percentage %
USD	19	86.36
KES	1	4.55
GBP	1	4.55
EURO	1	4.55
TOTAL	22	100

Source: Survey Data, 2009

The banks were also requested to indicate which particular currency had the greatest contribution to their foreign exchange risk. 86.36 % indicated that the US Dollar impacted the most to their foreign exchange risk exposure. Since most foreign transactions of banks in Kenya are denominated in the US Dollar, most of the responding banks were bound to indicate that the US Dollar was the most critical to that effect. The Kenya Shilling, The British Pound and the Euro contribute equally to foreign exchange risk at 4.55 %.

4.2.4 Banks with Foreign Exchange Risk Departments

Table 4: Banks with Foreign Exchange Risk Departments

Risk Management Department	Frequency	Percentage %
YES	21	100
NO	0	0
Total	21	100

Source: Survey Data, 2009

Having a risk management department is a positive step towards effective financial risk management. Crabb (2003) noted that firms with risk management departments were better risk management practitioners. Thus it was necessary to ascertain whether the banks had a risk management department. The findings stand at 100% for banks with a risk management department.

4.2.5 Internal training programmes and workshops on Risk Management

Table 5: Banks offering internal training programmes and workshops on Risk Management

Internal training programmes and workshops on Risk Management	Frequency	Percentage %
YES	19	95
NO	1	5
TOTAL	20	100

Source: Survey Data, 2009

It is recommended that firms should have training programmes and workshops on foreign exchange risk management in order to enhance effective management of the risk. 95% of the banks offer internal training programmes and workshops on Foreign Exchange Risk Management. This implies that risk management is of vital importance to the bank.

4.2.6 Transactions and principal that activities expose banks to foreign exchange risk

Table 6: Transactions and principal that activities expose banks to foreign exchange risk

Transactions and principal activities	Frequency(f)	Percentage %
Investing in foreign markets	11	15.7
Providing credit in foreign markets	9	12.9
Borrowing credit in foreign markets	11	15.7
Foreign currency trading	20	28.6
Foreign financial asset portfolios	10	14.3
Foreign financial liability portfolios	9	12.8
Total	70	100

Source: Survey Data, 2009

Brucaite and Yan (2000) indicate that foreign exposure comes from international trade, foreign loans, guarantees among others. The banks were asked to indicate transactions and principal activities that exposed them to foreign exchange risk. Foreign currency trading at 28.6% exposes banks the most to foreign exchange risk. Investing in foreign markets and Borrowing credit in foreign markets at 15.7% are the second major causes of exposure to foreign exchange risk. The other transactions i.e. foreign financial asset portfolios, providing credit in foreign markets and foreign financial liability portfolios also contribute to foreign exchange risk.

4.2.7 Reasons compelling banks to borrow funds from abroad

Table 7: Reasons compelling banks to borrow funds from abroad

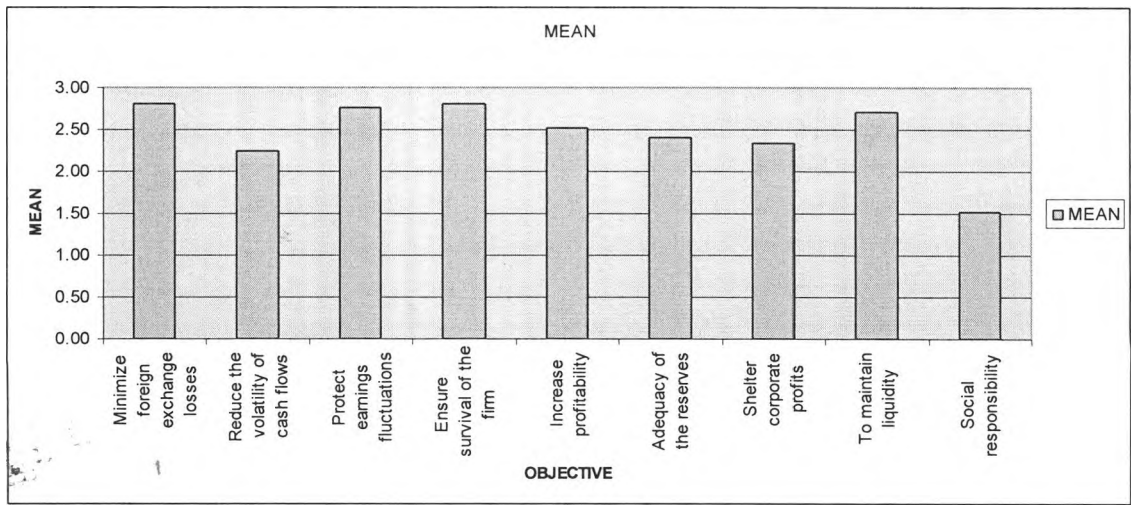
Reasons	Frequency	Percentage %
To match gaps in providing credit in foreign currencies	2	10
Lack of liquidity in the local market	1	5
Fund and maintain liquidity /balances in nostro accounts	2	10
Capital injection	1	5
Hedge foreign currency open position	2	10
Investment	2	10
Fund Expansion	2	10
Better pricing	3	15
Availability	1	5
Don't borrow	4	20
Total	20	100

Source: Survey Data, 2009

Banks are compelled to borrow funds from abroad mostly because the funds are better priced. To match gaps in providing credit in foreign currencies, fund and maintain liquidity /balances in nostro accounts, Hedge foreign currency open position, Investment and Fund Expansion are major reasons for borrowing from abroad by banks. Other reasons are due to Lack of liquidity in the local market, for Capital injection and also due to the availability of funds abroad. It is interesting to note that 20% of the responding banks don't borrow funds from abroad.

4.2.8 Objectives of Risk Management.

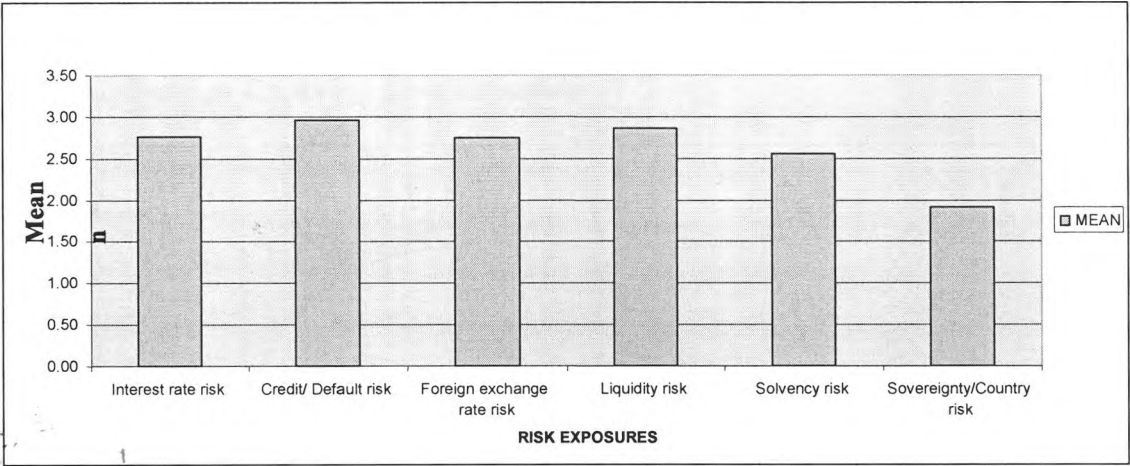
Figure 1: Objectives of Risk Management.



The banks indicated that the most important objectives of risk management are to minimize foreign exchange losses (mean of 2.81), to ensure survival of the firm (mean of 2.81), to protect earning fluctuations (mean of 2.76),to maintain liquidity (mean of 2.71) and to increase profitability (mean of 2.52).The objectives of adequacy of reserves (mean of 2.40), to shelter corporate profits (mean of 2.33) and to reduce the volatility of cash flows (mean of 2.25) were considered important by the banks. The objective of social responsibility with a mean of 1.52 was considered not important.

4.2.9 Risk Exposures

Figure 2: Risk Exposures



Banks were also requested to rank risk exposures in order of importance to them. Credit/Default risk emerged as the most important risk with a mean of 2.95 out of 3.0. Liquidity risk was the second most important risk (mean of 2.86) while interest rate risk was ranked third most important risk at a mean of 2.76. Foreign exchange risk was the fourth most important risk at a mean of 2.75. Solvency risk emerged as an important risk (2.55) while Country/Sovereignty risk emerged as not important.

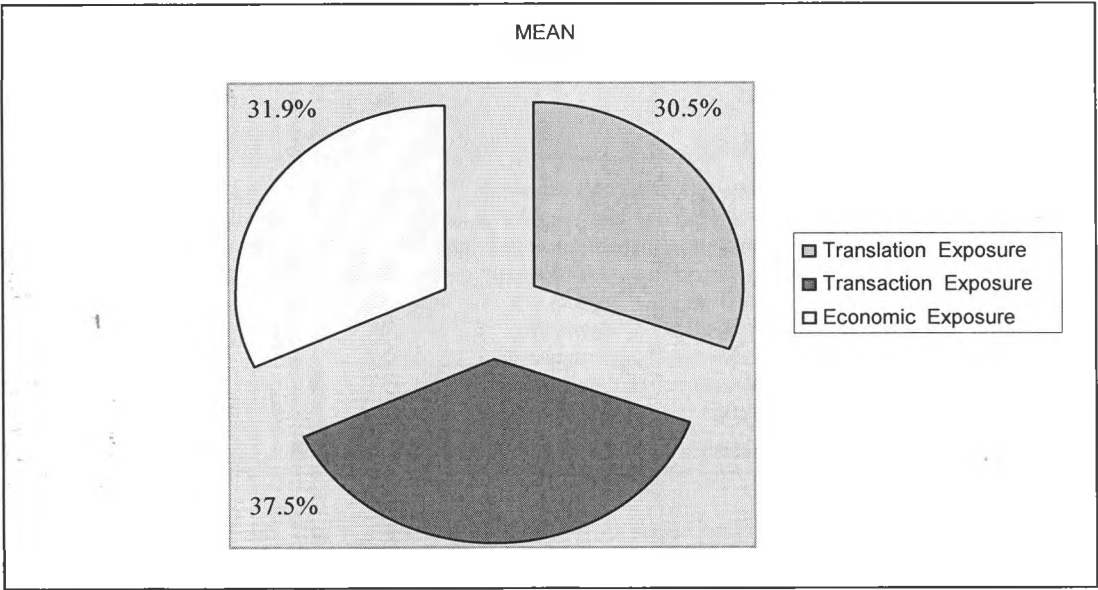
Empirical results have, however, shown that foreign exchange risk is one of the financial risks where increased volatility has been reflected to the greatest extent (Brucaite and Yan, 2000). Were et al, (2004) state that exchange rate risk has been considered to be the most critical among financial risk exposures due to the fact that exchange rate changes are significantly influenced by a number of intermittent changes in the economy.

This contradiction can be explained as due to the fact that since Kenya is still an emerging economy, default on credit extended to the banks clients is still a major issue to the banks. Defaults on the loans extended can easily lead a bank to liquidity risk. This explains the fact that liquidity risk is rated second to credit risk. A number of banks in Kenya suffered liquidity problems in the 1990s causing banks today to be very cautious

about their liquidity levels. Interest rate risk is very important to banks due to the instability of interest rates of the Kenyan economy.

4.2.10 Foreign Exchange Risk Exposures

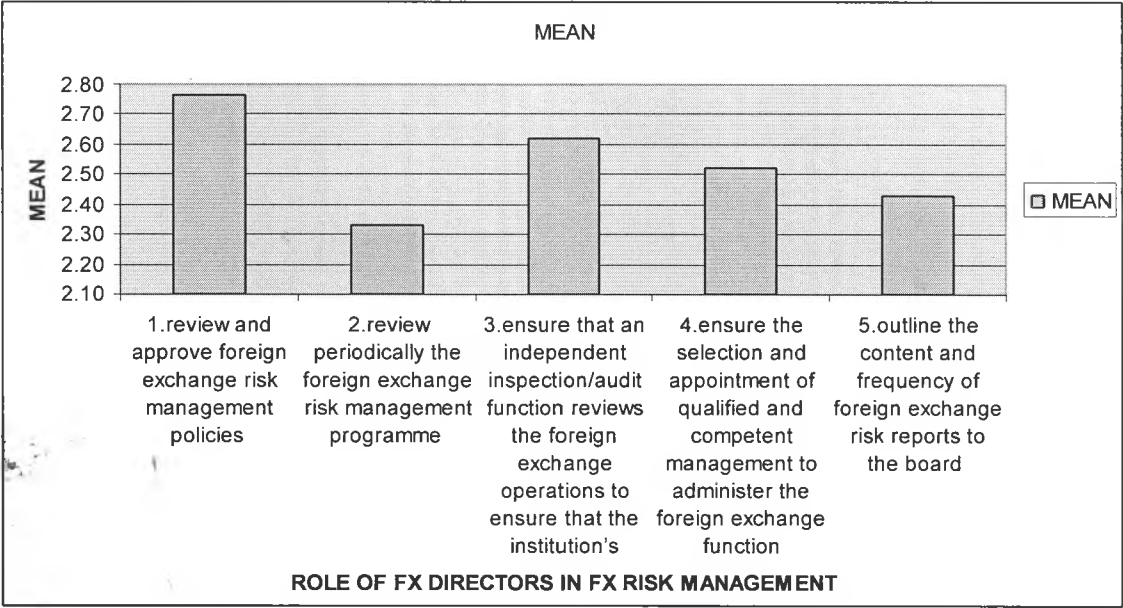
Figure 3: Foreign Exchange Risk Exposures



The banks were asked to indicate and rank how important translation, transaction and economic exposures are to them. It emerged that transaction exposure was the most important to the banks. Economic exposure was second important while transaction exposure though the least important, the difference in percentages with economic exposure was very small. This finding is similar to empirical results and academic literature whereby transaction exposure is the most critical to firms while translation exposure is of least importance.

4.2.11 Role of Directors in Foreign Exchange Risk Management

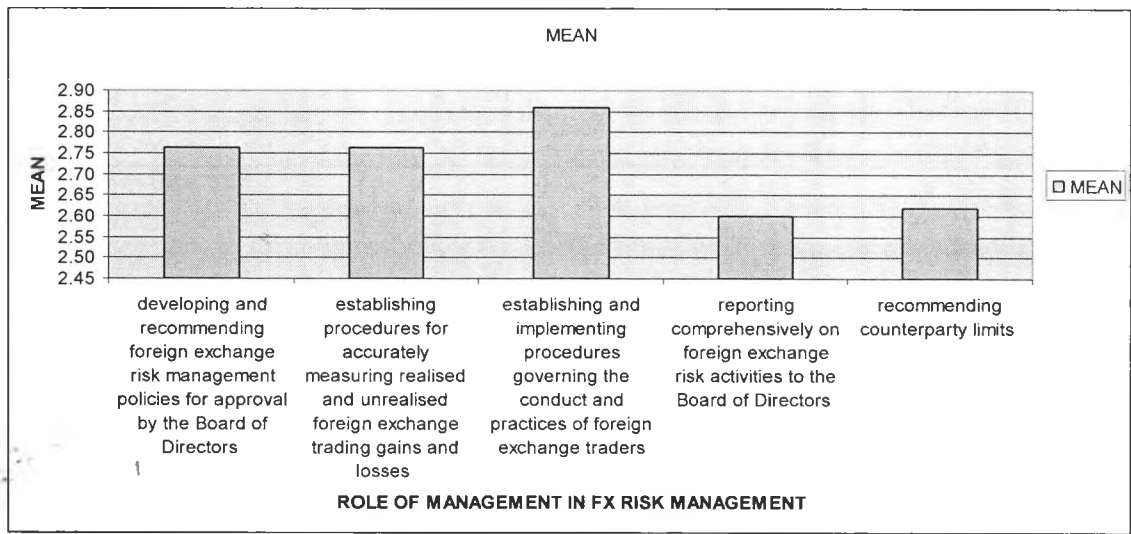
Figure 4: Roles of Directors in Foreign Exchange Risk Management



It was necessary to ask the banks to indicate what role the Board of Directors play in foreign exchange risk management. This is because of the fact that for foreign exchange risk management to be a very important aspect of an organization, the Board of Directors will play a major role. It was clear that the most important role of the directors in foreign exchange risk management was to review and approve foreign exchange risk management policies. Ensuring that an independent inspection/audit function reviews the foreign exchange operations to ensure that the institution’s foreign exchange risk management policies and procedures are appropriate and are being adhered to was also a very important role of the Board of Directors. Reviewing periodically the foreign exchange risk management programme was not an important role of the directors.

4.2.12 Role of Management in Foreign Exchange Risk Management

Figure 5: Role of Management in Foreign Exchange Risk Management



The banks were asked to indicate the roles played by management in foreign exchange risk management. It emerged that the most important role of the management on average, was to establish and implement procedures governing the conduct and practices of foreign exchange traders. Other important roles were to develop and recommend foreign exchange risk management policies for approval by the Board of Directors and to establish procedures for accurately measuring realized and unrealized foreign exchange trading gains and losses. The least important roles were recommending counterparty limits and reporting comprehensively on foreign exchange risk activities to the Board of Directors.

4.2.13 Limits imposed on foreign currency trading

Table 8: Limits imposed on foreign currency trading

Limits imposed on foreign currency trading	Frequency	Percentage %
Yes	20	95.24
No	1	4.76
TOTAL	21	100

Source: Survey Data, 2009

It was important to establish whether banks had limits on foreign currency trading as this is an integral part of mitigating on exposures due to foreign currency trading, a daily duty and responsibility of the foreign currency traders and dealers who make huge profits for the banks, and if not monitored and controlled, can cause huge losses too, as they can get carried away.. It emerged that 95.24% of banks have limits imposed on foreign currency trading, implying the importance of limiting the exposure from foreign currency trading which was indicated as being the greatest activity contributing to foreign exchange exposure, while only 4.76% did not have limits.

4.2.14 Purpose of having limits on foreign currency trading

Table 9: Purpose of having limits on foreign currency trading

Reasons	Frequency	Percentage %
Limit overall exposure/Exposure mitigation	11	40.74
Counterparty limits	5	18.52
Avoid overtrading in one currency	2	7.41
Limits foreign exchange trader from over-exposing the bank	2	7.41
Prudent management of foreign related risks	3	11.11
Prevent money laundering	2	7.41
Monitoring	1	3.70
Adhere to CBK regulations	1	3.70
TOTAL	27	100.00

Source: Survey Data, 2009

It was necessary to establish the bank’s reasons for imposing limits on foreign currency trading. The finding was that limits on foreign currency trading were imposed especially to limit overall exposure. Limiting counterparty limits was also a major reason and so was for prudent management of foreign related risks. Other minor reasons were to avoid overtrading in one currency, limits foreign exchange trader from over-exposing the bank,

prevent money laundering, monitoring and to adhere to Central Bank of Kenya regulations.

4.2.15 Action taken should one surpass their limits

Table 10: Action taken should one surpass their limits

The banks were also requested to indicate the actions they take should one surpass their limits on foreign currency trading.

Action taken should one surpass their limits	Frequency	Percentage %
Seek board approvals	11	50.00
Disciplinary action	5	22.73
Quickly regularize the position	2	9.09
Ratification	1	4.55
Left to the discretion of management	1	4.55
Provide documentary evidence	1	4.55
Positions re-aligned the next day.	1	4.55
TOTAL	22	100.00

Source: Survey Data, 2009

It emerged that board approvals had to be sought especially in 50% of the cases. Disciplinary action is also taken in 22.73 % of the cases. Other actions taken include quickly regularizing the position, ratification, left to the discretion of management, provision of documentary evidence and re-alignment of positions the following day.

4.2.16 Measurement of the success of Exchange rate risk management policy

Table 11: Frequency of measurement of the success of its exchange rate risk management policy

Frequency	Frequency	Percentage %
Daily	6	35.29
Quarterly	3	17.65
Monthly	6	35.29
Semi-annually	2	11.76
TOTAL	17	100.00

Source: Survey Data, 2009

Regular measurement of the success of a firm’s exchange risk management is an essential ingredient of effective risk management. Fatemi and Glaum (2003) found out that most

firms periodically measured the success of the foreign risk management policy. The findings of this study indicate that 35.29% of the banks measure the success of their foreign exchange risk management system daily and 35.29% measure the success every month.17.56% measure the success quarterly while a meager 11.76% do so semi-annually. It can be noted that no firm measures the success of its foreign exchange risk management system yearly. This shows that banks take their foreign exchange risk management very seriously.

4.2.17 Foreign Exchange Risk management reports

Table 12: Foreign Exchange Risk management reports

Risk management reports	Frequency	Percentage
YES	21	100
NO	0	0
TOTAL	21	100

Source: Survey Data, 2009

Banks were asked to indicate whether they have foreign exchange risk management reports. The findings indicate that 100% of the banks have risk management reports.

4.2.18 Frequency of risk management reports generation.

Table 13: Frequency of risk management reports generation.

Frequency of reports	Frequency	Percentage%
Daily	8	32
Weekly	2	8
Monthly	10	40
Quarterly	3	12
Semi-annually	1	4
Yearly	1	4
TOTAL	25	100

Banks were asked to indicate how often they generated their risk management reports. It emerged that 40% of the banks generated their reports monthly while 32% generated the reports daily. 12% of the banks generated the reports quarterly, while 4% did so on both a biannually and annually. This finding also shows that banks take their risk management aspect of their organization seriously.

4.2.19 Purpose of Risk Management Reports

Table 14: Purpose of Risk Management Reports

Purpose	Frequency	Percentage
Monitor the efficacy of all policies and procedures, and exposure limits.	2	7.69
Report on the profitability of the different strategies	1	3.85
Mitigate risk	5	19.23
Identification of new risks	1	3.85
Measuring risk	2	7.69
Monitoring risk	7	26.92
Risk assessment	1	3.85
Reporting risk	1	3.85
Alert management on breaches to the limits set	1	3.85
Effective spread management	1	3.85
Control risk	1	3.85
Monitor profit and loss on trading	1	3.85
Providing information	1	3.85
Record purposes	1	3.85
TOTAL	26	100.00

Source: Survey Data, 2009

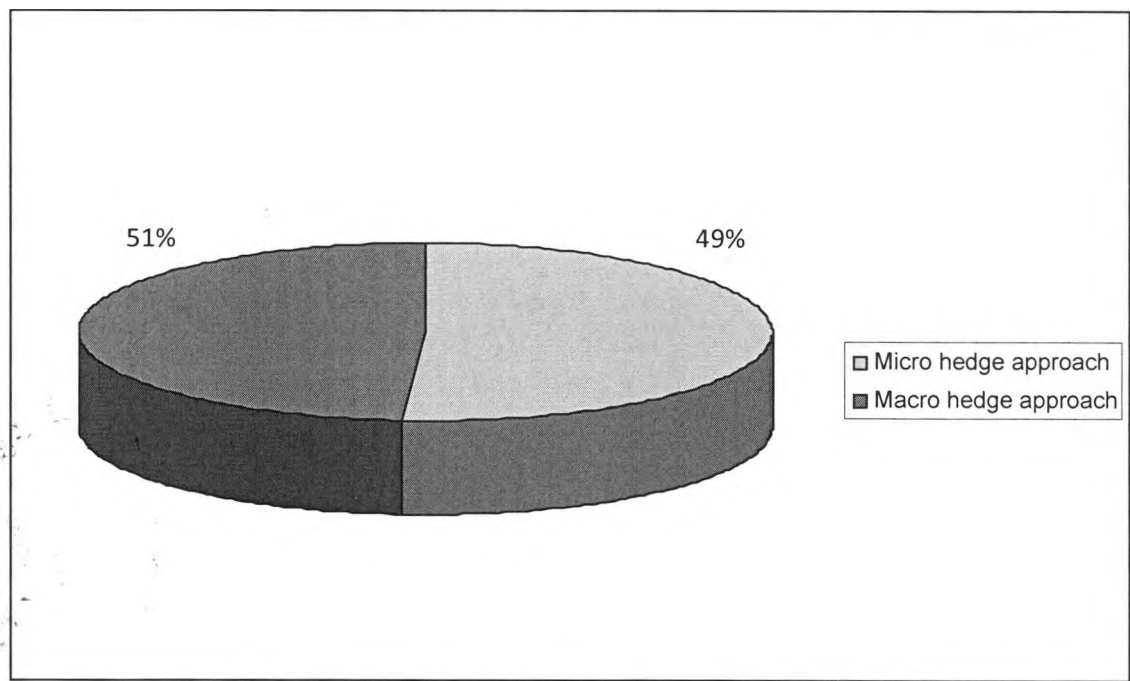
Banks were asked to give the uses of their risk management reports. It emerged that the most common use of the reports was to monitor and mitigate risk. Other major uses were to monitor the efficacy of all policies and procedures, and exposure limits and also to measure risk. Other minor uses were to aid in reporting on the profitability of the different strategies, identification of new risks, risk assessment, reporting risk, alert management on breaches to the limits set, effective spread management, control risk, monitor profit and loss on trading and for record purposes.

4.3 FOREIGN EXCHANGE RISK MANAGEMENT STRATEGIES AND TECHNIQUES.

There are a number of foreign exchange risk management instruments and strategies that have been recommended by academicians whose suggestions have been motivated by empirical findings. The banks were asked a number of questions in an attempt to ascertain various facets of their foreign exchange risk management systems. This sub-section gives a detailed analysis of the responses generated from the responding banks.

4.3.1 Hedging Approaches Employed

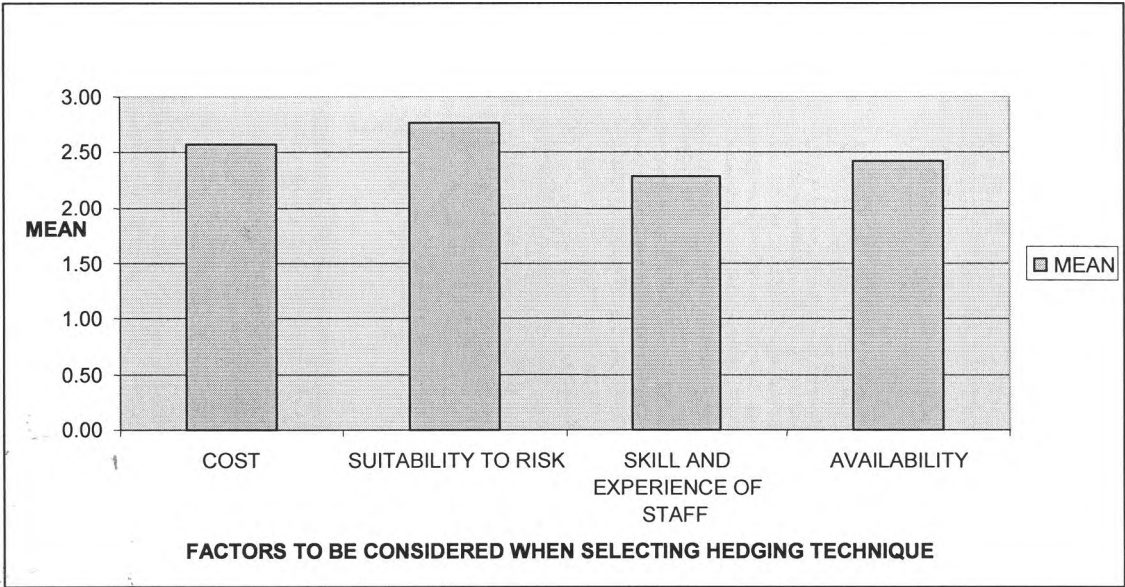
Figure 6 Hedging Approaches Employed



There was need to elicit other approaches employed by the banks in hedging against foreign exchange exposures. Although firms have the discretion to employ whichever approach they consider appropriate, empirical findings have shown that both the micro and macro hedge approaches were used equally (Fatemi and Glaum, 2000). From the findings of this study, it can also be concluded that the micro and macro hedge approaches were used equally.

4.3.2 Factors Considered when selecting the Hedging Technique to be used.

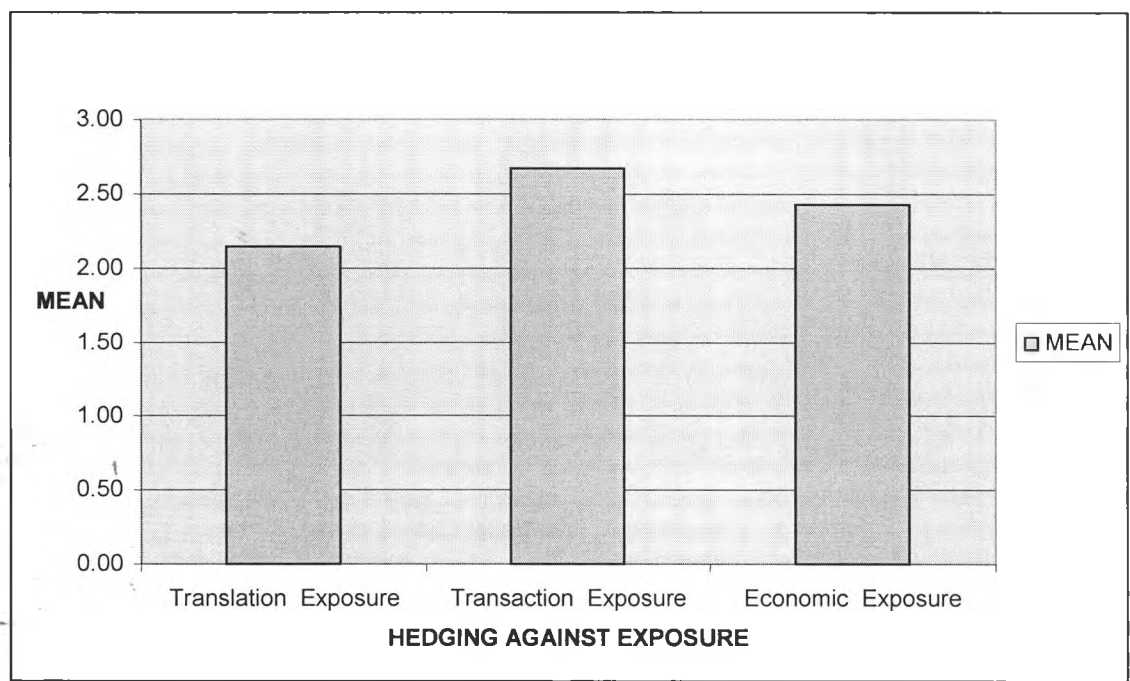
Figure 7: Factors to be considered when selecting the Hedging Technique to be used.



It was very necessary to ask the banks to indicate the factors that they considered when selecting the hedging technique to be used. This is because in order to establish the strategies and techniques banks employ, it would be of value to understand what makes them use some techniques and not others. The findings indicate that the most critical factor considered by banks is the techniques suitability to risk, with a mean of 2.76 out of 3. The cost of employing the technique was the second most important factor to be considered. This makes sense because of the cost-benefit analysis, if the cost exceeds the benefit of the technique to be employed, then there is no need of using the particular technique. Availability of the technique is a critical factor while the skill and experience of staff is the least considered factor. This could be due to the fact that the staff will be given sufficient training on how to use the techniques should they be uncomfortable with its workings. Also, firms would consider the skill and experience of the staff before employing them. Other factors indicated by the banks as being very critical when considering the technique to be used are the flexibility of the instrument to accommodate various facets of the risks and exposures involved and the effectiveness of the technique in hedging the positions is considered very critical.

4.3.3 Hedging Against Exposures

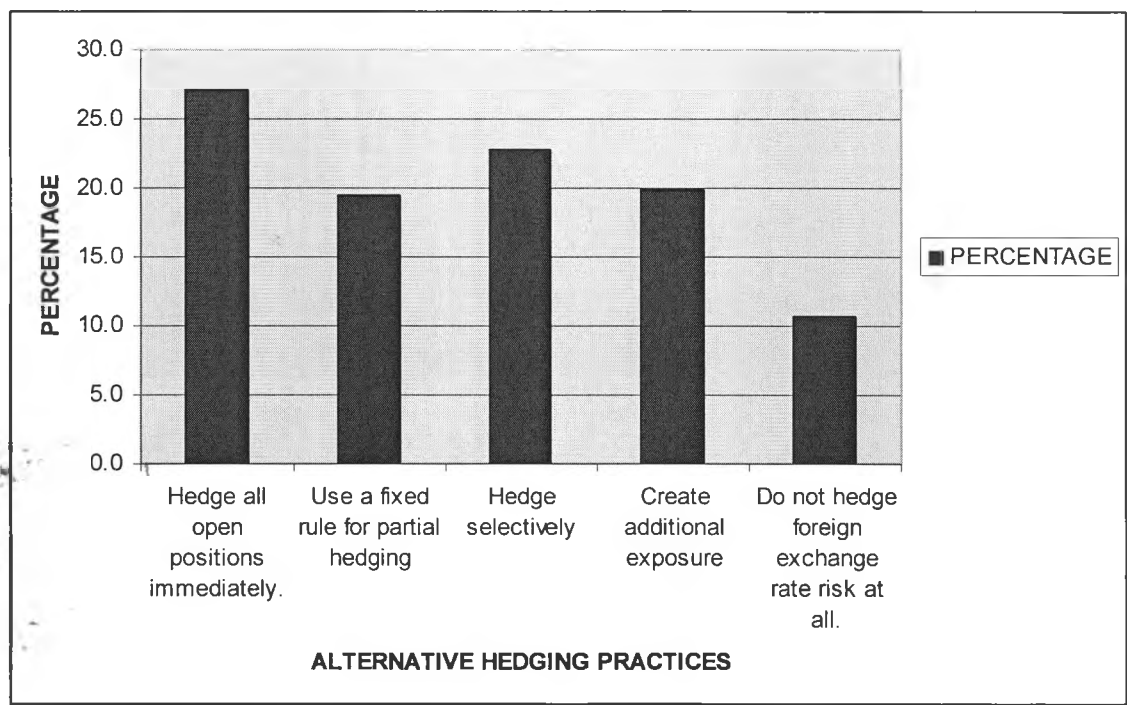
Figure 8: Hedging Against Exposures



The banks were asked whether they hedged against translation, transaction or economic exposures. Empirical studies have shown that transaction exposure is of most concern than translation and economic exposure. Brucaite and Yan (2000) found out that transaction exposure was the most important for responding firms and so did Fatemi and Glaum (2000).Glaum (2000) recommends that management of transaction exposure is the centerpiece of corporate exchange risk management ;he found out that risk management of German firms focused on the management of transaction exposure. Similarly, the results of the current study reveal that most banks considered transaction exposure the most critical. Economic exposure is considered critical. Academic literature stresses that accounting exposure is of no consequence; Glaum (2000) concurs that accounting concept of exchange exposure is not an appropriate concept to be used in foreign risk management. Despite this, the findings indicate that even if translation exposure is considered the least it still is critical with a mean of 2.14.

4.3.4 Alternative Hedging Strategies

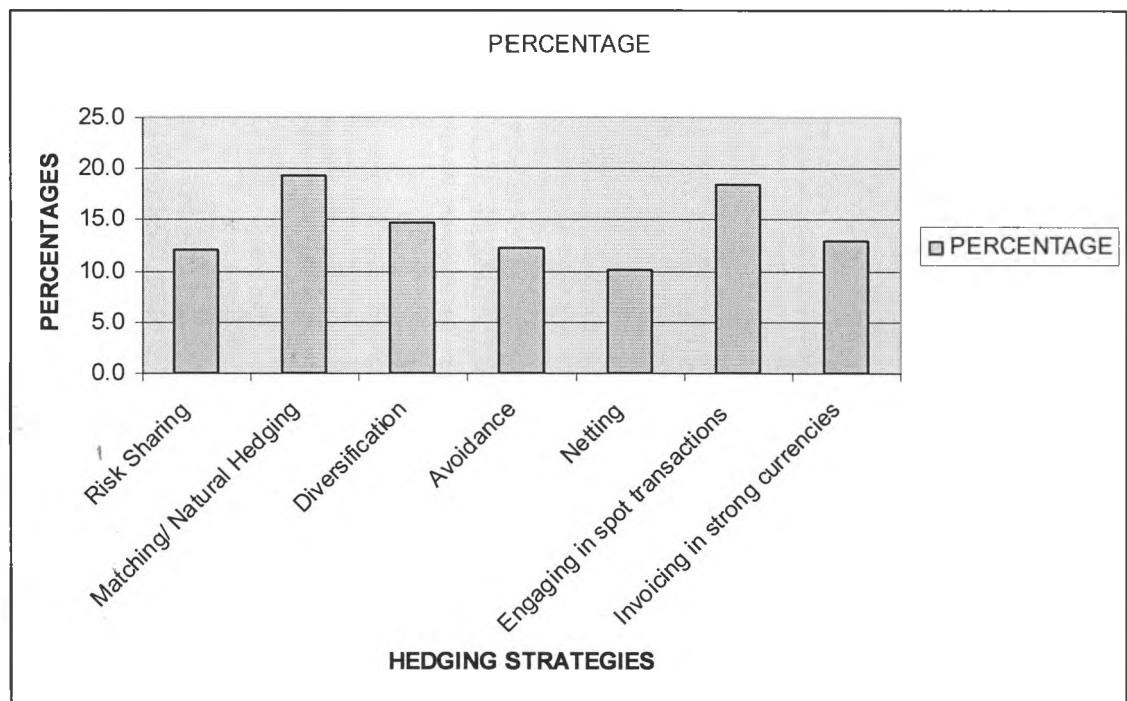
Figure 9: Alternative Hedging Strategies



Glaum (2000) found that most banks did not believe in the validity of the currency market efficiency hypothesis. He recommends that firms that aim to reduce or eliminate exchange risk can hedge individual foreign currency positions. Glaum (2000) found out that 54% of the firms used selective hedging strategy which is based on the manager’s ability to forecast rates over the planning horizon. The findings of this study indicate that 27.1 % banks hedge all positions immediately, 22.8% hedge selectively i.e. they hedge only those positions for which they expect a currency loss while leaving open positions for which they expect a currency gain. It is interesting to note that contrary to empirical findings, 19.9% of the banks create additional exposure ,beyond that arising from its business activities) to profit from exchange rate changes.19.5% of banks use a fixed rule for partial hedging, whereby they hedge a certain portion of their exposure with forward and/or option contracts , while leaving the remainder exposed. 10.7% do not hedge foreign exchange rate risk at all.

4.3.5 Hedging Strategies

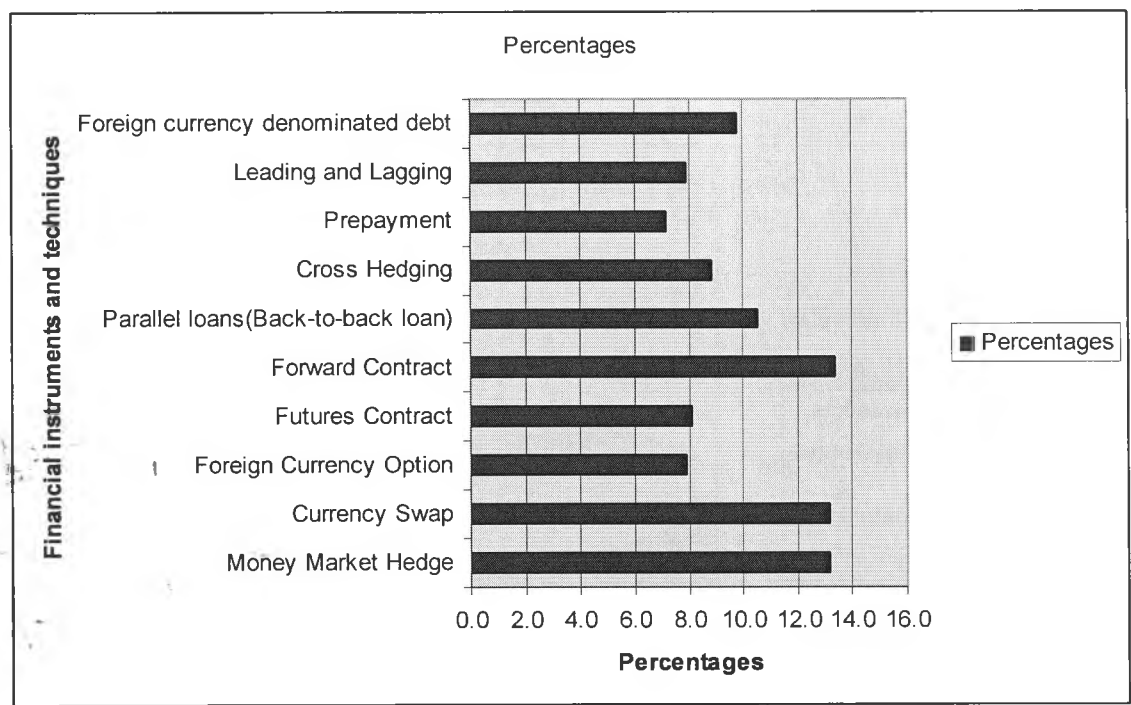
Figure 10: Hedging Strategies



Glaum (2000) indicates that the most important part of a firm’s exchange risk management practices is its hedging strategy. The banks were requested to indicate which strategies they extensively used in mitigating risk. Matching/ Natural hedging was the most utilized strategy at 19.3%, followed by engaging in spot transactions at 18.5%.Diversification whereby banks financed in different currencies and or in different markets, was employed by 14.7 %. Crabb (2003) found out that most small firms did not finance their operations in different currencies. Avoidance strategy was employed by 12.2% of the banks. Risk sharing and netting were minimally employed by the banks explaining that these two methods were mostly used by manufacturing companies.

4.3.6 Financial instruments and techniques

Figure 11: Financial instruments and techniques

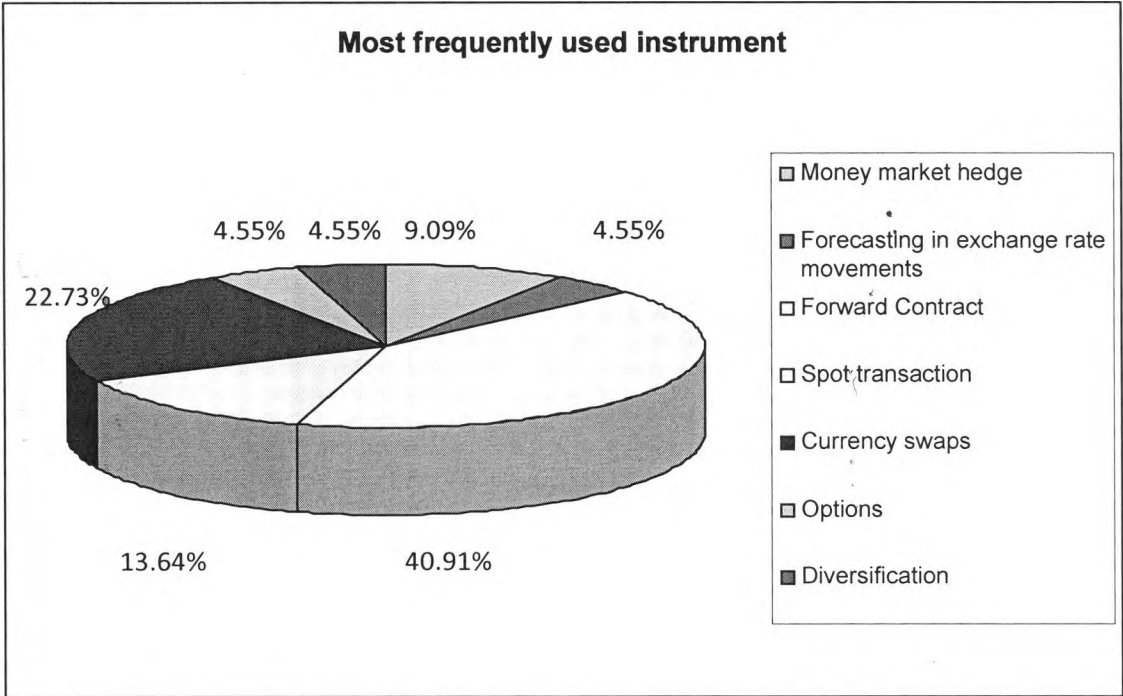


Banks were also requested to indicate which risk management techniques and instruments they used in hedging against foreign exchange risk. The above results varied from bank to bank. The variation in practice is basically due to the fact that there are no formal corporate approved risk management practices that must be adopted by firms. Responses indicate what the banks consider best practices in their own circumstances. Glaum (2000) observed that after a firm had identified and measured the risk it faces, it then decides how its exchange risk management should be organized, with strategies, technique and instruments to adopt and use. Li (2003) contends that risk management in developing countries has a long way to go in terms of availability and utilization of risk management products, foreign exchange risk mitigation by banks in Kenya is developing rapidly as the banks are already utilizing the financial instruments. The findings show that Forward Contract is the most frequently used instrument at 13.4%, followed by Money Market Hedge and the Currency Swap at 13.2% each. Parallel loans(Back-to-back loan), Foreign currency denominated debt and Cross Hedging are moderately used.

Futures Contract, Foreign Currency Option and Leading and Lagging are occasionally used. Prepayment at 7.2% is the least used technique.

4.3.7 Most frequently used instrument

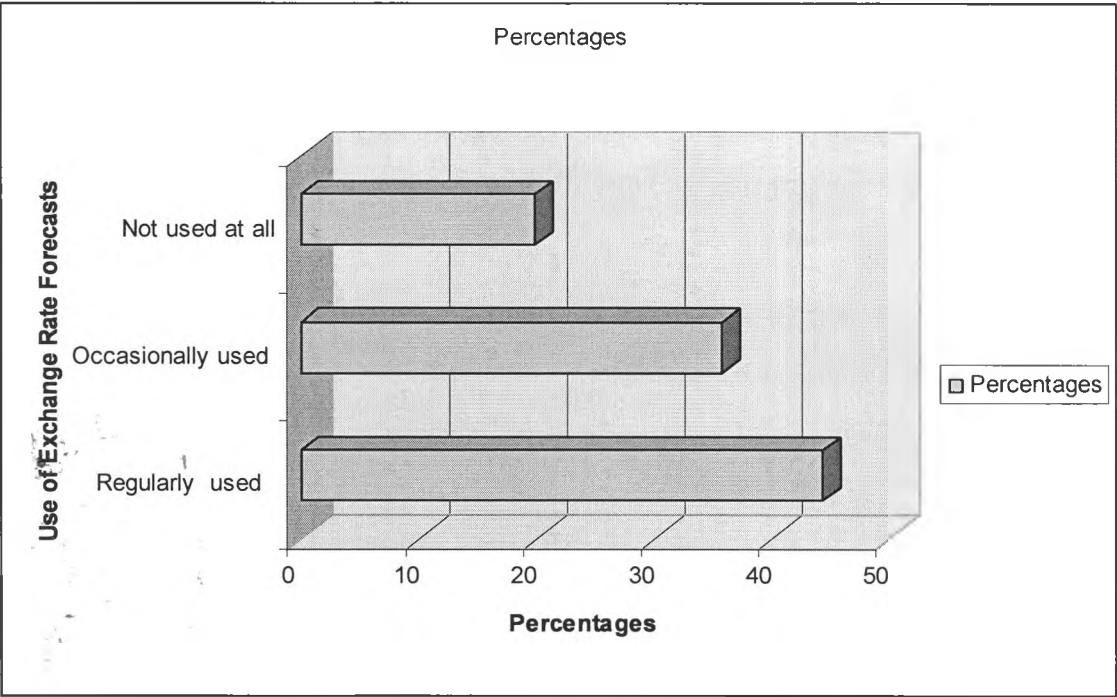
Figure 12: Most frequently used instrument



It was also necessary to ascertain which of the instruments banks used most frequently. Empirical results have shown that some hedging instruments are more utilized than others. Li (2003) supports this fact by contending certain types of derivatives are traded actively in public markets. Brucaite and Yan (2000) found out that forwards were the main instruments used by most firms. Fatemi and Glaum (2000) found out that currency forward contracts was the most used instrument. The findings of the current study are similar to previous study in that forward contract is the most used instrument at 40.91%. Currency swaps are the next most frequently used instrument at 22.73% while spot transactions are at 13.64%. Money market hedge technique is also frequently used at 9.09%. The least used instruments are options, diversification and forecasting in exchange rate movements.

4.3.8 Use of Exchange Rate Forecasts

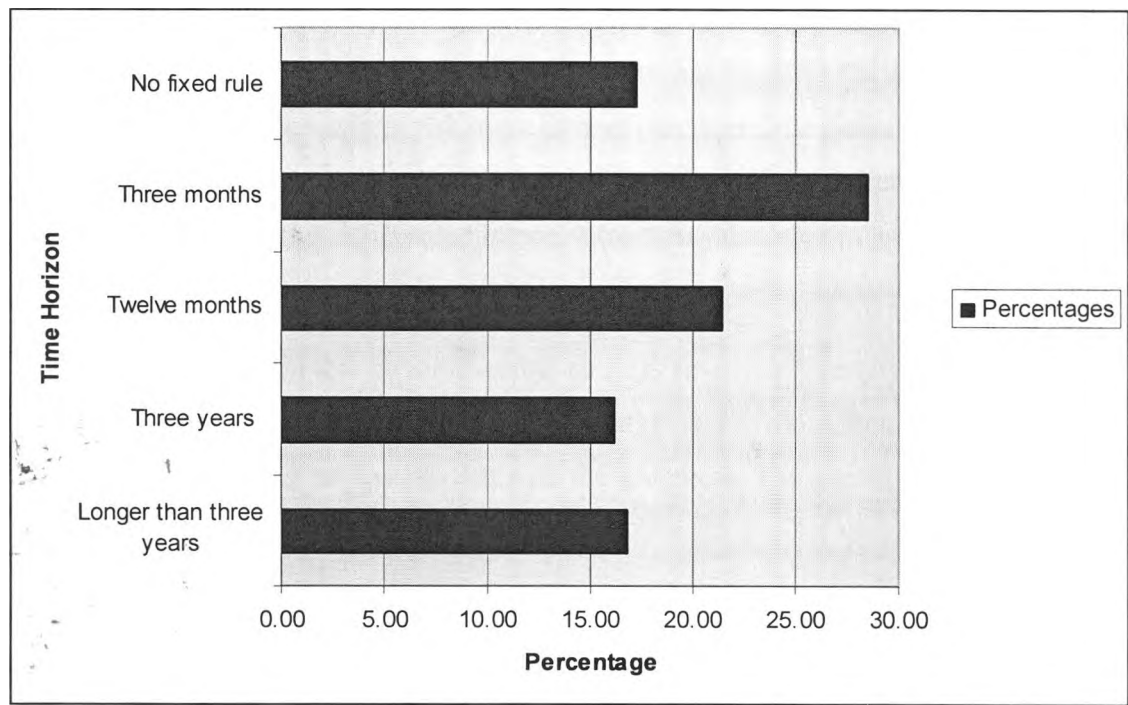
Figure 13: Use of Exchange Rate Forecasts



Since Kenya is an emerging economy, the high volatility of prices of financial products is bound to create arbitrage opportunities so financial managers can thus easily beat the market with forecasts. Fatemi and Glaum (2000) support this notion by indicating that forecasts are based on the managers’ personal views and forecasts based on technical analysis of the markets. They found out that most firms used exchange rate forecasts to decide on hedging. These are a contradiction of efficient market hypothesis, indicating that the currency market is not information efficient. The findings of this study are similar to previous studies findings i.e. 44% of banks regularly use exchange rate forecasts in their hedging decisions. 36% of banks occasionally use forecasts while only 20% don’t use exchange rate forecasts in their hedging decisions.

4.3.9 Time Horizon of Hedging Activities

Figure 14: Time Horizon of Hedging Activities



The participants were also asked about the time horizon of their firms' hedging activities. As is shown graphically in Figure 13, 17.9% of the firms do not have a fixed rule concerning the time horizon of their hedging activities. 28.47% of the firms regularly hedge open positions over a horizon of three months; this is equal to the usual terms of payments in many industries. 21.39% of the firms hedge over a horizon of 12 months; this time frame corresponds with the budget period of most firms. 16.83% of firms regularly hedged over periods longer than 3 years. 16.13% of firms regularly hedged over period of 3 years.

4.4 Further Arguments and Hypotheses on Foreign Exchange Risk Management

The banks were also requested to indicate the extent to which statements relating to empirical evidence and academic literature on foreign exchange risk management were applicable to them. The essence of these statements was to gauge the extent to which the banks employed various salient risk management practices. The banks rated the extent of the applicability of the statements to their practices on a scale of 5 (Very large extent) to 1 (Not at all). The weighted average means were then calculated to gauge the responses of most firms.

The first statement held that Diversification strategy involves diversifying operations by making use of funds in more than one capital market and in more than one country. Most respondents agreed that to some extent with the statement. The average score on the scale 1-5 is 3.30.

From a theoretical perspective, Natural hedging (matching strategy) is a way of decreasing currency exposure by covering cash out flows by inflows in the same currency. Most respondents agreed with this statement to a large extent with a score of 4.05 out of 5.

The respondents were asked if the main reason for practicing foreign exchange management is to achieve business objectives. Most respondents agreed to this to a very large extent with a score of 4.70.

The managers were confronted with the notion that Currency markets are information efficient: organizations cannot make speculative gains through predicting future exchange rates. The respondents agreed to this statement to some extent indicating that they did not believe in the information efficiency of the currency market. This is in agreement with the previous finding that most managers regularly use exchange rate forecasts in their hedging decisions. The statement had a score of 3.00.

The statement that during “good times” (i.e., in periods with relatively high profits), firms protect themselves less intensively against unexpected exchange rate changes than they usually do. The respondents agreed to some extent with a score of 3.45. This is because since most firms would like to adopt the value maximization approach, they would protect themselves intensively even during periods of high profits.

The contention that the (perceived) risk management practices of the firms' most important competitors exert an influence on the firms' own hedging decisions was agreed to some extent, with a score of 3.60. Glaum (2003) found out that most firms did not agree that competitor's influenced their risk management practices.

CHAPTER FIVE

SUMMARY AND CONCLUSIONS, LIMITATIONS, RECOMMENDATIONS AND SUGGESTIONS FOR FURTHER RESEARCH.

5.1 SUMMARY AND CONCLUSIONS

5.1.1 SUMMARY

To achieve the research objective, questionnaires were delivered to the 42 commercial banks in Kenya. 23 responded. Most responses were adequate apart from a few non-responses to some “sensitive” questions. Comparison of the bank’s responses with academic literature and empirical evidence led to various inferences. Most banks used conventional foreign risk management practices, strategies and techniques. Empirical evidence and literature were extensively used in order to link theory and corporate practice.

The study revealed that the base currency for majority of banks in Kenya was the Kenya Shilling, which is the local currency of the country. The other currencies majorly in use at the banks included the US Dollar, the British Pound and the Euro.

It emerged that foreign exchange risk management had gained increased attention as 100% of the banks had risk management departments and 95% had internal training programmes and workshops for their staff.

The study revealed that foreign currency trading was the principal activity that contributed the most to foreign exchange exposures of banks. It also emerged that banks were compelled to borrow funds from abroad mostly because the funds were better priced. It was interesting to note that 20% of the responding banks did not borrow funds from abroad.

The banks indicated that the most important objectives of risk management were to minimize foreign exchange losses, to ensure survival of the firm, to protect earning fluctuations, to maintain liquidity and to increase profitability. The finding was that limits on foreign currency trading were imposed especially to limit overall exposure. It also

emerged that most banks practiced foreign exchange risk management in order to achieve business objectives.

Credit/Default risk emerged as the most important risk with liquidity risk as the second most important risk, interest rate risk ranked third while foreign exchange risk was the fourth most important risk. The study also revealed that transaction exposure was the most important to the banks. Similarly, the results of the current study revealed that most banks considered transaction exposure to be the most critical. The study revealed that even if translation exposure was considered the least it still was critical to banks in Kenya.

It can also be concluded that the micro and macro hedge approaches were used equally.

The findings indicated that the most critical factor considered by banks was the techniques' suitability to risk. Other critical factors included the cost of employing the technique, availability of the technique, flexibility of the instrument and the effectiveness of the technique in hedging while the skill and experience of staff was not critical.

The findings revealed that forward contract was the most frequently used instrument. The money market hedge and the currency swap were also frequently used. Parallel loans (Back-to-back loan), foreign currency denominated debt and cross hedging were moderately used. Futures contract, foreign currency option and leading and lagging were occasionally used. Prepayment was the least used technique.

The study revealed that most firms regularly hedged open positions over a horizon of three months which is equal to the usual terms of payments in many industries while another majority of the firms hedged over a horizon of 12 months; this time frame corresponds with the budget period of most firms. Some firms did not have a fixed rule concerning the time horizon of their hedging activities. Minority of the banks regularly hedged over period of 3 years while very few banks regularly hedged over periods longer than 3 years.

It emerged that most banks considered the Kenyan currency market to be information inefficient thus were able to take individual positions to achieve speculative gains by predicting future exchange rates thus most banks regularly use exchange rate forecasts in their hedging decisions.

Matching/ Natural hedging was the most utilized strategy. Engaging in spot transactions was also widely used. Diversification whereby banks financed in different currencies and or in different markets, was employed by a few banks. Some banks engaged in risk sharing strategy, invoiced in strong currencies. Avoidance was also employed to some extent. Netting was the least used strategy.

The study revealed that majority of the banks hedged all positions immediately while others hedged selectively i.e. they hedged only those positions for which they expected a currency loss while leaving open positions for which they expected a currency gain. It was interesting to note that contrary to empirical findings, some of the banks created additional exposure beyond that arising from its business activities, to profit from exchange rate changes. Minority of banks used a fixed rule for partial hedging, whereby they hedged a certain portion of their exposure with forward and/or option contracts, while leaving the remainder exposed. Some banks did not hedge against foreign exchange rate risk at all.

5.1.2 CONCLUSIONS

The conclusions of the study were based on the research objective: To ascertain the strategies and techniques used by banks in Kenya to manage foreign exchange risk.

From the study, it can be concluded that the strategies and techniques used by banks in Kenya to manage foreign exchange risk are matching/ natural hedging, engaging in spot transactions, diversification, risk sharing, invoicing in strong currencies, avoidance, netting, money market hedge, parallel loans(back-to-back loan), foreign currency denominated debt and cross hedging, forward contract, futures contract, foreign currency option and leading and lagging and prepayment.

From the findings we can conclude that the most frequently used instrument is the Forward Contract. The Money Market Hedge and the Currency Swap are also frequently used. Parallel loans (Back-to-back loan), Foreign currency denominated debt and Cross Hedging are moderately used techniques. Futures Contract, Foreign Currency Option and Leading and Lagging are occasionally used. Prepayment is the least used technique.

From the study it can be concluded that Matching/ Natural hedging is the most utilized strategy. Engaging in spot transactions is also a widely used strategy. Diversification is employed by a few banks. Some banks engaged in Risk sharing strategy and invoicing in strong currencies. Avoidance is also employed to some extent. Netting is the least used strategy.

It can also be concluded from the study that majority of the banks in Kenya hedge all positions immediately. Others hedge selectively i.e. they hedge only those positions for which they expect a currency loss while leaving open positions for which they expect a currency gain. It has been revealed that some of the banks create additional exposure beyond that arising from its business activities in order to profit from exchange rate changes, meaning that the currency market in Kenya is not information efficient. Minority of banks use a fixed rule for partial hedging, whereby they hedge a certain portion of their exposure with forward and/or option contracts, while leaving the remainder exposed. It can also be concluded that some banks do not hedge foreign exchange rate risk at all.

5.2 LIMITATIONS

Considering that Kenya is an emerging economy, some foreign exchange risk management strategies, techniques and terminologies are not applicable or are fairly new in the country's banking industry. Clarification on some questions was therefore necessary.

Considering the high level of confidentiality and sensitivity attached to foreign exchange risk management, it was impossible to acquire secondary data in form of foreign

exchange policies, management reports and staff training materials on foreign exchange management

5.3 RECOMMENDATIONS

Academicians will benefit from the findings of this study. They should critique the findings and compare them to other empirical studies in order to gauge the level of the use of strategies and techniques of foreign exchange risk management by Kenyan banks. They will be able to give further recommendations on other techniques and strategies that were not adequately analyzed by this study.

It emerged that most banks based their foreign exchange hedging decisions on speculations and forecasts of currency market fundamentals. This implies that most banks do not consider the Kenyan currency market to be information efficient. Since most of the foreign risk management crises of the 1990s and 2000s were mainly as a result of speculations in the currency markets, the regulatory body (Central Bank of Kenya) should intervene and manipulate market fundamentals to eliminate such inefficiencies. The findings of the study could provide such insights.

As a census survey, the findings of the study will provide useful comparisons of the various strategies and techniques. A detailed analysis of the findings is documented which links theory to corporate practice. Commercial banks in Kenya can get such insights on exchange risk management best practice by other banks by assessing the findings of this study hence they will be able to appraise the strategies and techniques that they employ.

5.4 SUGGESTIONS FOR FURTHER RESEARCH

Further research can be carried out on each strategy or technique used in foreign exchange risk management. This will provide in-depth analysis and understanding of the strategy or technique used to mitigate foreign exchange risk management.

Interviews with the Head of Treasury in addition to the questionnaires and secondary data will provide better responses since senior managers can easily provide “sensitive” information than their junior counterparts.

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APPENDIX

Appendix 1

LIST OF LICENSED COMMERCIAL BANKS IN KENYA

1. African Banking Corporation Ltd.
2. Bank of Africa Kenya Ltd.
3. Bank of Baroda (K) Ltd.
4. Bank of India.
5. Barclays Bank of Kenya Ltd.
6. CFC Stanbic Bank Ltd.
7. Charterhouse Bank Ltd
8. Chase Bank (K) Ltd.
9. Citibank N.A Kenya
10. City Finance Bank Ltd.
11. Commercial Bank of Africa Ltd.
12. Consolidated Bank of Kenya Ltd.
13. Co-operative Bank of Kenya Ltd.
14. Credit Bank Ltd.
15. Development Bank of Kenya Ltd.
16. Diamond Trust Bank (K) Ltd.
17. Dubai Bank Kenya Ltd.
18. Ecobank Kenya Ltd
19. Equatorial Commercial Bank Ltd.
20. Equity Bank Ltd.
21. Family Bank Ltd.
22. Fidelity Commercial Bank Ltd.
23. Fina Bank Ltd.
24. First community Bank Limited.
25. Giro Commercial Bank Ltd.
26. Guardian Bank Ltd.
27. Gulf African Bank Limited.
28. Habib Bank A.G Zurich.
29. Habib Bank Ltd.
30. Imperial Bank Ltd.
31. Investment & Mortgages Bank Ltd.
32. Kenya Commercial Bank Ltd.
33. K-Rep Bank Ltd.
34. Middle East Bank (K) Ltd.
35. National Bank of Kenya Ltd.
36. Oriental Commercial Bank Ltd.
37. Paramount Universal Bank Ltd.
38. Prime Bank Ltd.
39. Southern Credit Banking Corporation Ltd.
40. Standard Chartered Bank (K) Ltd.
41. Trans-National Bank Ltd.
42. Victoria Commercial Bank Ltd.

Source www.centralbank.go.ke

RESEARCH QUESTIONNAIRE

RESEARCH QUESTIONNAIRE

SECTION A: GENERAL INFORMATION

1. Which transactions and principal activities expose your bank to foreign exchange risk? (tick as appropriate)

Investing in foreign markets	
Providing credit in foreign markets	
Borrowing credit in foreign markets	
Foreign currency trading	
Foreign financial asset portfolios	
Foreign financial liability portfolios	
Other (kindly specify)	

2. What compels your bank to borrow funds from overseas?.....

3. What is your functional (base) currency? (tick as appropriate)

Kenya Shilling (KES)	
US Dollar (USD)	
Pound (GBP)	
Other (Please specify)	

4. What other currencies does your bank deal with? (tick as appropriate)

Kenya Shilling (KES)	
US Dollar (USD)	
Pound (GBP)	
Japanese Yen (JPY)	
The Euro (EUR)	
Tanzania shilling (TZS)	
Ugandan shilling (UGX)	
Canadian dollar (CAD)	
Swiss francs (CHF)	
Other (please specify)	

5. Which particular currency has the greatest contribution to your bank's foreign exchange risk?.....

6. Does your bank have a Risk Management department? Yes [] No [].

7.Does your bank have internal training programmes and workshops on risk management?
Yes[] No[] .

8.What are your bank’s objectives of risk management? Kindly rank the importance on a scale of 3-1.

STATEMENTS	Very Important (3)	Important (2)	Not important (1)
Minimize foreign exchange losses			
Reduce the volatility of cash flows			
Protect earnings fluctuations			
Ensure survival of the firm			
Increase profitability			
Adequacy of the reserves			
Shelter corporate profits			
To maintain liquidity			
Social responsibility			
Other (please specify)			

9.Rank the following exposures in order of importance to your bank on a scale of 3-1.

Statements:	very important(3)	Important(2)	not important (1)
Interest rate risk			
Credit/ Default risk			
Foreign exchange rate risk			
Liquidity risk			
Solvency risk			
Sovereignty/Country risk			
Others(please specify)			

10.Which foreign exchange risk exposures does your bank face? Kindly rank the importance on a scale of 3-1.

Statements:	Most Critical(3)	Critical (2)	Not Critical (1)
Translation Exposure (arises from the need to translate accounts in foreign currencies to the local currency of the reporting entity)			
Transaction Exposure (arises where the value of existing obligations are affected by adverse movements in foreign exchange rates)			
Economic Exposure (relates to adverse impact on equity/income on domestic and foreign operations due to sharp, unexpected change in exchange rates			

11. Kindly rank the role of Board of Directors in foreign exchange risk management on a scale of 3-1.

STATEMENTS	Very Important (3)	Important (2)	Not important (1)
review and approve foreign exchange risk management policies			
review periodically the foreign exchange risk management programme			
ensure that an independent inspection/audit function reviews the foreign exchange operations to ensure that the institution's foreign exchange risk management policies and procedures are appropriate and are being adhered to			
ensure the selection and appointment of qualified and competent management to administer the foreign exchange function			
outline the content and frequency of foreign exchange risk reports to the board			
Other (please specify)			

12. Kindly rank the role of Management in foreign exchange risk management on a scale of 3-1.

STATEMENTS	Very Important (3)	Important (2)	Not important (1)
developing and recommending foreign exchange risk management policies for approval by the Board of Directors			
establishing procedures for accurately measuring realised and unrealised foreign exchange trading gains and losses			
establishing and implementing procedures governing the conduct and practices of foreign exchange traders			
reporting comprehensively on foreign exchange risk activities to the Board of Directors			
recommending counterparty limits			
Other (please specify)			

13.(a) Are there limits imposed on foreign currency trading?YES[] NO[].

(b)If yes, what purpose do they serve.....

(c)What action is taken should one surpass their limits?.....

14.How often does your bank measure the success of its exchange rate risk management policy...

15.(a)Does your bank have risk management reports? YES[] NO[].

(b)If yes, how frequently are they generated.....

(c)What purpose do they serve?.....

SECTION B: RISK MANAGEMENT STRATEGIES AND TECHNIQUES

1. Kindly rank the hedging approach that your bank employs on a scale of 3-1.

STATEMENTS	Very Large Extent (3)	Some Extent (2)	Not at all (1)
Micro hedge approach(hedging individual open currency positions with individual hedge transactions)			
Macro hedge approach (considering the net exposure i.e. cash outflow less cash inflows, for total currencies involved, of the same time horizon)			

2. What factors does your bank consider when selecting the hedging technique to be used? Kindly rank the extent to which they affect your bank on a scale of 3-1.

FACTORS	Most Critical(3)	Critical (2)	Not Critical (1)
COST			
SUITABILITY TO RISK			
SKILL AND EXPERIENCE OF STAFF			
AVAILABILITY			
OTHER (please specify)			

3. Please indicate whether your bank hedges against the following exposures. Kindly rank the extent to which they affect your bank on a scale of 3-1.

Statements:	Most Critical(3)	Critical (2)	Not Critical (1)
Translation Exposure (arises from the need to translate accounts in foreign currencies to the local currency of the reporting entity)			
Transaction Exposure (arises where the value of existing obligations are affected by adverse movements in foreign exchange rates)			
Economic Exposure(relates to adverse impact on equity/income on domestic and foreign operations due to sharp, unexpected change in exchange rates			

4. The following are alternative hedging strategies. Kindly indicate the extent to which each of them best describes the rules and procedures of your firm's foreign exchange risk management.

Statements:	Very Large Extent (5)	Large Extent (4)	Some Extent (3)	Small Extent (2)	Not at all (1)
Hedge all open positions immediately.					
Use a fixed rule for partial hedging (hedge a certain portion of their exposure with forward and/or option contracts, while leaving the remainder exposed)					
Hedge selectively (hedge only those positions for which they expect a currency loss while leaving open positions for which they expect a currency gain)					
Create additional exposure(beyond that arising from its business activities) to profit from exchange rate changes					
Do not hedge foreign exchange rate risk at all.					

5. Which hedging strategy does your bank employ? Please rank the extent to which you use them on the scale of 4-1.

Statements:	Most Frequently Used (4)	Moderately Used (3)	Occasionally Used (2)	Not Used at all (1)
Risk Sharing(agreement between two parties to share currency risk)				
Matching/ Natural Hedging (covering cash outflows with cash inflows in the same currency at the same time)				
Diversification (financing in different currencies and/or in different markets)				
Avoidance				
Netting (based on a re-invoice centre establishment, where each separate subsidiary deals only with its own currency, leaving all the transaction exposure to re-invoicing centre)				
Engaging in spot transactions				
Invoicing in strong currencies				
Others (Please Specify)				

6. Kindly indicate the extent to which the following financial instruments and techniques are used by your bank to hedge against foreign exchange risk. Kindly rank on a scale of 4-1.

Statements	Most Frequently Used (4)	Moderately Used (3)	Occasionally Used (2)	Not Used at all (1)
Money Market Hedge				
Currency Swap				
Foreign Currency Option				
Futures Contract				
Forward Contract				
Parallel loans(Back-to-back loan)				
Cross Hedging				
Prepayment				
Leading and Lagging				
Foreign currency denominated debt				
Others(Please specify)				

7. Which is the most frequently used instrument to hedge against foreign exchange risk?.....
8. Forecasting in exchange rate movements is a strategy of risk management. Kindly indicate to what extent your bank uses exchange forecasts in connection with hedging techniques. Kindly rank on a scale of 3-1.

STATEMENTS	Very Large Extent (3)	Some Extent (2)	Not at all (1)
Regularly used			
Occasionally used			
Not used at all			

9. Kindly indicate the extent to which the following time horizon relate to the duration of the hedging activities of your bank. Kindly rank on a scale of 3-1.

STATEMENTS	Very Large Extent (3)	Some Extent (2)	Not at all (1)
Longer than three years			
Three years			
Twelve months			
Three months			
No fixed rule			

10. Below are statements relating to empirical evidence and academic literature on foreign exchange risk management. Kindly indicate on a scale of 5-1 (by ticking) the extent to which the statements apply to your bank.

Statements:	Very Large Extent (5)	Large Extent (4)	Some Extent (3)	Small Extent (2)	Not at all (1)
Diversification strategy involves diversifying operations by making use of funds in more than one capital market and in more than one country.					
Natural hedging (matching strategy) is a way of decreasing currency exposure by covering cash out flows by inflows in the same currency.					
The main reason for practicing foreign exchange management is to achieve business objectives.					
Currency markets are information efficient: organizations cannot make speculative gains through predicting future exchange rates.					
During “good times” (i.e., in periods with relatively high profits), firms protect themselves less intensively against unexpected exchange rate changes than they usually do					
The contention that the (perceived) risk management practices of the firms' most important competitors exert an influence on the firms' own hedging decisions					
Exchange rate risk matters only in so far as it contributes to the firm's overall risk. In the case of less than perfect positive correlation between different categories of risk, there are diversification effects; and if exchange risk happens to be negatively correlated to the firm's other risk factors, the hedging of exchange risk could actually increase the overall volatility of the firm's cash flows.					

Thank You for your assistance in filling in the Questionnaire.

Appendix 3.

Angela .N. Mumoki

University of Nairobi

P/O Box 30197

Nairobi.

Dear Sir/ Madam.

RE: RESEARCH INFORMATION

I am a postgraduate student in the School of Business, University of Nairobi. As part of MBA (Finance) course requirement, I am undertaking a research project that seeks to establish the Strategies and Techniques used by banks to manage foreign exchange risk.

To fulfill the information requirements for the study, I intend to collect primary data from your institution. The information requested is needed purely for academic purposes and will be treated in strict confidence, and will not be used for any other purpose other than for research.

I would be most grateful if you can allow me to access to all the relevant information pertinent for this research. Any additional information you might consider necessary for this study is most welcome.

I appreciate your assistance.

Thank you.

Yours sincerely

Supervisor

Angela Mumoki.

Luther Otieno.

Appendix 4.

LIST OF ABBREVIATIONS

1. KES	Kenya Shilling
2. USD	US Dollar
3. GBP	The British Pound
4. EUR	The Euro
5. CHF	Swiss Franc
6. DKK	Danish Kronnor
7. INR	Indian Rupee
8. JPY	Japanese Yen
9. MUR	Mauritius Rupee
10. NOK	Norwegian Kronnor
11. SEK	Swedish Kronnor
12. TZS	Tanzanian Shilling
13. UGX	Ugandan Shilling
14. ZAR	South African Rand
15. CAD	Canadian Dollar
16. AUD	Australian Dollar