

DECLARATION

**THE RELATIONSHIP BETWEEN FOREIGN EXCHANGE RISK
MANAGEMENT STRATEGIES AND PROFITABILITY OF MOBILE
TELECOMMUNICATION COMPANIES IN KENYA**

BY

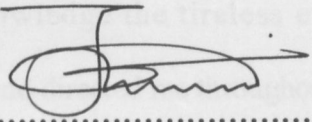
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**A RESEARCH PROJECT SUBMITTED IN PARTIAL FULFILLMENT OF
THE REQUIREMENTS FOR THE AWARD OF THE DEGREE OF
MASTER OF BUSINESS ADMINISTRATION, SCHOOL OF BUSINESS,
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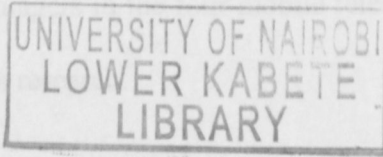
DECLARATION

I, the undersigned, declare that this management research is my original work and has never been presented to any institution or university other than The University of Nairobi for academic credit.

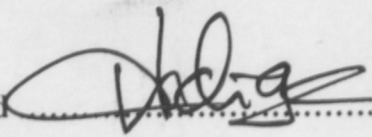
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This management research project has been submitted for examination with my approval as the appointed University supervisor

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Last but not the least, Treasury managers in the four mobile telecommunication companies who availed most of the data used in this research.

DEDICATION

This project is dedicated to my Father David Mulwa, My Mother Josephine Koki and my wife Grace Mwende for all their support and encouragement towards making this research project a success

ABSTRACT

The increased volatility of the financial markets, has given rise to increased financial price risks faced by companies. Companies are now exposed to risks caused by unexpected movements in the exchange rates. With the growing global presence of the mobile telecommunication industry, these companies in these industry are exposed to a wide range of financial risks, in particular foreign exchange risks and interest rate risk. Management of these risks has become key to the success and survival of companies in today's volatile financial markets. This study has taken a keen look at the foreign exchange risk management and its impact of the profitability of mobile telecommunication companies in Kenya

The research design adopted in this study was a census survey. The population consisted of all the four mobile telecommunication companies operating in Kenya licensed by CCK. Primary data collection, through use of a questionnaire was used to gather information from the target population outlining the relevant issues of the study. Analysis was then done using SPSS program. The analysis sought to generate descriptive statistics and relationship. Finally the presentation of the results was done by use of tables.

The results of the study showed that there exist a positive relationship between foreign exchange management strategies and profitability of mobile telecommunication companies. It was also found out that most of the companies had established a risk management function

In light of the above findings, it's imperative that mobile telecommunication companies use foreign exchange management practices in order to put foreign exchange exposure under control

to increase their profitability and survival in the competitive economy. Academicians can do use the findings of this study and compare them to other empirical studies in order to gauge the level of use of foreign exchange management strategies by mobile telecommunication companies in Kenya their impact on profitability.

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ABBREVIATIONS

ALM-Asset Liability Management

CCK- Communication Commission of Kenya

GOK-Government of Kenya

HC-Home Currency

LC-Local Currency

MNC's-Multinational Companies

ROA-Return on Assets

ROE-Return on Equity

PWC-Price Waterhouse Coopers

UK-United Kingdom

US-United States

USD-United States Dollar

SPSS-Statistical Package for Social Sciences

CHAPTER ONE

INTRODUCTION

1.1 Background of the study

Foreign exchange risk management has become increasingly important since the abolishment of the fixed exchange rate system of Bretton Woods in 1976. This system was replaced by a floating rates system in which the price of currencies is determined by supply and demand of money. Given the frequent changes of supply and demand influenced by numerous external factors, this new system is responsible for the currency fluctuations. These fluctuations expose companies to foreign exchange risk. Moreover, economies are getting more and more open with international trading constantly increasing and companies are consequently exposed to foreign exchange rate fluctuation. Foreign exchange risk management is crucial for companies frequently trading in the international market (Popov and Stutsman, 2003). More often, exchange rate risk will affect a company's price competitiveness in a product or service also offered by a competitor whose costs are incurred in a foreign currency. If the competitor's currency weakens, its relative competitive position improves because its costs decline, enabling the competitor to reduce its price and attract a larger share of a market. Foreign exchange risk can significantly reduce a firm's profit margin on a business transaction.

Although foreign exchange risk is one of the of the many business risk faced by multinational companies (MNC'S), its management has become one of the key factors in overall financial management .Whether the objectives of MNC's are to minimize foreign

exchange losses or maximize exchange gains, they need to understand the extent of exposure they face and manage it to an acceptable level. (Marshall, 2000).

LI (2003) observes that in today's digital economy, the financial industry is changing rapidly with an increase in the pace of financial innovation, 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 to changes in preferences.

1.1.1 Foreign Exchange Risk Management

Risk management is defined as a systematic process for the identification and evaluation of pure loss exposure faced by an organization or an individual, and for the selection and implementation of the appropriate techniques for treating such exposure (Radja, 1997) Smith and Stulz (1985) shows hedging can be of worth because of tax structure. Hedging reduces the volatility of pre-tax firm value, which decreases the expected taxes and increases the expected post-tax value of firm. In the insurance field Mayers and Smith (1982) illustrated that insurance can lead to some tax advantages. A large uninsured loss may drive revenue below zero and the company loses its tax savings. Insurance reduces the fluctuations in taxable income.

1.1.2 Profitability Measures

Profitability refers to the potential of a venture to be financially successful (Eljelly 2004). This may be assessed before entering into a business or it may be used to analyze a venture that is currently operating. There are three basic situations that can describe a

business's financial situation. It can be profitable, it can break even, or it can operate at a loss. In most cases, an organization goal is to make profit.

Four useful measures of firm profitability are the rate of return on firm's assets (ROA), the rate of return on firm equity (ROE), operating profit margin and net firm income. The ROA measures the return to all firm assets and is often used as an overall index of profitability, and the higher the value, the more profitable the firm business. ROE measures the rate of return on the owner's equity employed in the firm business. It is useful to consider the ROE in relation to ROA to determine if the firm is making a profitable return on their borrowed money (Zenios et al. 1999)

Profitability measures help a company gauge how efficiently is managing its operations and assets its ability to make profitable sales from its assets.

The main profitability ratios used by mobile telecommunication companies include: Annual turnover Operating profit margin, a profitability ratio calculated as operating income divided by revenue. Net profit margin an indicator of profitability, calculated as net income divided by revenue. Return on Equity, a profitability ratio calculated as net income divided by shareholders' equity. Return on Assets a profitability ratio calculated as net income divided by total assets.

1.1.3 The Relationship Between Foreign Exchange Risk Management Strategies and Financial Performance

There exist a positive relationship between foreign exchange management strategies and financial performance. Levi(1983) asserts that generally, companies are exposed to three types of foreign exchange risks: Transaction (commitment) exposure which occurs where the value of existing obligation are worsened by movement 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 dominated in foreign currencies into the home currency of the reporting entity.

The use of foreign exchange management strategies results in reduced foreign exchange exposure hence minimal losses. According to Carter et al. (2003) changes in exchange rate can influence a firm's current and future expected cash flows and ultimately, stock prices. The direction and magnitude of changes in exchange rate on firm's value are a function of a 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.

Carter et al. (2003) found out that the combined use of operating hedges & 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 currency exposure measure used, exposure is greater for firms that do not use derivatives.

1.1.4 Mobile Telecommunication Companies in Kenya

Telecom is one of the Kenya's more robust industries as the cell phone market expands to include Internet access, mobile banking and retail transactions. These resulted in new markets, new players, and new challenges. Market liberalization efforts have also picked up ensuing the successful partial privatization of Telkom Kenya Ltd (December 2007), divestment of Government of Kenya 25% stake in Safaricom Ltd through a public listing (May 2008), and the launch of fourth mobile operator Econet Wireless Kenya (November 2008). This has resulted into some of the world's best known telecommunication providers – Vodafone, France Telecoms and Essar Communications through their investments in Safaricom Limited, Telkom Kenya Limited and Econet Limited

respectively - being major players in the Kenyan market. Ongoing infrastructural developments by operators have largely been focused on network expansion for increased nationwide coverage (PWC, 2012).

The companies in Telecom industry are involved in international trade which involves trading in foreign currencies which are subject to foreign currency risk which threatens the profitability of the companies in the industry.

1.2 Research Problem

The telecommunications industry in Kenya just like the rest of the world is going through profound changes. In the past decade technological advancement and regulatory restructuring has transformed the industry. Markets that were formally discreet and vertical have coalesced across their old boundaries with massive investment of capital. Telecommunications firms in Kenya import technology equipment and human resources to keep up the change in technology and telecommunication world. This involves foreign currency transactions.

Telecommunication Industry has products and services that link Kenyan economy to the rest of the world. This brings with it myriad of risk, particularly so the foreign exchange risk. Considering the significant role of telecommunication Industry in Kenya, misdirected risk management can lead to dire consequences to the economy. Adoption of appropriate risk management policies and strategies is therefore an essential ingredient of a successful telecommunication system in Kenya.

A study conducted by Makar and Huffman (1997) examines how US MNC's used foreign exchange derivatives in 1990-1994 period. In a survey, Mathur (1982) finds out

that most companies institute a hedging programme to reduce the negative effect of foreign exchange rate changes on their cash flows and reported earnings. He also finds out that a formal foreign exchange management policy is more common among large firms. Bartov: Bodnar and Kaul (1996) find a relationship between exchange rate variability and stock return volatility and attribute this to foreign currency transactions. They also find that MNC's that do not use hedging strategies are more vulnerable to losses due to exchange rate fluctuations. Chio and Prasard (1995) also find a link between exchange rate risk and declines in cash flows and market values. Jalilvand et al.(2000) and Bradley and Moles(2001) have shown a wide spread usage of derivative products among Canadian, US, and European firms in managing their risks, including foreign exchange rate exposures. Okwoku (2010) did a survey of the foreign exchange rate risk management practices in the energy sector of Kenya and found that most of the companies used the hedging to reduce foreign exchange risk. Mumoki (2009), hi her study on strategies used by banks in Kenya to manage foreign exchange risk exposure, found that all the banks hedge selectively against foreign exchange risk exposure and some do not hedge foreign exchange risk at all.

Previous studies had dwelt very much on foreign exchange risk management in general without linking these management practices with firm's profitability. Moreover none of these studies had focused on mobile telecommunication sector which is faced by enormous changes and more susceptible to the risk emanating from the foreign exchange. This ranges from price changes to the fluctuating exchange rates. This study was guided by the following research question: what is the relationship between foreign exchange

risk management strategies and profitability of mobile telecommunication companies in Kenya?

1.3 Objectives of the Study

1. To establish the foreign exchange risk management strategies used by firms in the telecommunication industry in Kenya.
2. To determine the relationship between forex management and profitability of mobile telecommunication companies in Kenya.

1.4 Value of the Study

Policy Makers in the industry:-Decision makers at various levels of management will gain value added information on foreign exchange risk management practices as a key enabler of developing economic perspective .The findings will also help telecom's players to come up with appropriate strategies by analyzing how telecommunications firms hedge against the risk and to assess where they stand in comparisons with other companies.

Government: - The findings of the study will provide an insight to regulatory body CCK on salient aspects of foreign exchange that affect the telecommunications sector; therefore it will be in a better position to make timely and appropriate interventions to mitigate risks. It will also help the government to implement regulations and policy requirements on how telecoms should manage foreign exchange risk and exposure in order to maintain profitability in the sector.

Academicians:-This research will make contributions to academic literature on the techniques used by telecommunication companies to manage foreign exchange risk exposure. The research will also make a contribution to academic literature on the field of foreign exchange risk management in the telecoms sector in Kenya where very little is known due to few studied on the subject.

Business People: - Business persons and entrepreneurs who engage in international business activities can use the findings of this research to aid them in implementing their organizational foreign exchange risk exposure management practices.

CHAPTER TWO

LITERATURE REVIEW

2.1 Introduction

This chapter provides information from publications on topics related to the research problem. It examines what various scholars and authors have said about foreign exchange risk management strategies and their effect of a firm's profitability. The chapter is divided into seven main areas: Theoretical framework, risk management, foreign risk management, classification of foreign exchange risks, sources of foreign exchange risk and factors affecting exchange rates, tools and techniques of foreign exchange risk management

2.2 Theoretical framework

2.2.1 Purchasing Power Parity Theory

Purchasing Power Parity Theory, establishes the fact that exchange rates between currencies are in equilibrium in the event of equality in the purchasing power of each of the countries. This precisely means that the ratio of price level of a fixed amount of goods and services of two countries and exchange rate of those two countries must be equivalent. Purchasing Power Parity is based on the "law of one price". If inflation rate within a country's economy increases then the value of currency needs to depreciate to revive the Purchasing Power Parity. In the absence of transportation and other similar expenses, the competitive market will equalize the price of identical object in two countries when the prices are expressed by the same currency. This law is contingent

upon certain conditions which include; a competitive market must be present in both the countries for the goods and services, the law is only applicable to the goods that can be traded between the countries, Transport expenses and other transaction expenses must be checked since they are considered hindrances to trading. (Economy Watch, 2012)

2.2.2 International Fisher Effect Theory

The domestic Fisher effect is the theory stating that the nominal interest rate in a country is determined by the real interest rate and the expected inflation rate over the term of interest rate. As with Purchasing Power Parity there exists a generalized version of this parity condition. The generalized version of the fisher effect states that real returns are equalized worldwide through arbitrage. If arbitrage is permitted, national capital markets will be integrated worldwide. This means that real interest rates are determined by the global supply and demand of funds. In an integrated capital market is the domestic real interest rate dependent upon events both inside and outside the country. If the real return is higher in one country than the other it would lead to a flow of capital to the country with higher rate of return until expected returns become equalized. The implicit assumption here is that investors view foreign and domestic assets as perfect assets and perfect substitutes (Shapiro 1998)

According to Brealey (2006), risk in investment simply means unpredictability of future returns, it is judged into a portfolio concept. A portfolio in financial terms refers to a collection of investment securities with an aim of diversifying risk. The total risk of securities can be split into two components: systematic and unsystematic risk. Systematic is the type of risk which affects all firms in an industry although some could be more affected by others. The major factors that cause this type of risk include political

instability, inflation, interest changes, government policies, energy crisis among others. On the other hand, unsystematic risk refers to fluctuation from firms, expected earnings due to factors affecting that particular firm. This may be caused by factors such as technological change and employee interest. Unsystematic risk can be eliminated by holding a well-diversified portfolio while systematic risk cannot.

Markowitz (1952) draws attention to the common practice of portfolio returns by choosing stocks that do not move exactly together. A portfolio that gives the highest expected returns for a given standard deviation or a lowest standard deviation for a given expected return is known as efficient portfolio. These ideas form the basis of risk management practice.

Modigliani and Miller (2008), in their study of perfect market world of financing irrelevancy, suggest that there is no need for firms to control foreign exchange risk since the investors can accomplish this task themselves in perfect market by holding a well-diversified portfolio. Dufey (2002), suggest another line of reasoning that foreign exchange risk management does not matter because of certain equilibrium conditions in international markets for both financial and real assets. These conditions include the relationship between prices of goods in different markets, better known as purchasing power parity, and between interest rates and exchange rates, usually referred to as international fisher effect. However, deviations from purchasing power parity and Fisher effect can persist for considerable period of time, especially at the level of the individual firm. The resulting variability of cash flows is of significance as it can be subject a firm to financial distress of

2.3 Risk Management

Radja (1997) defines risk management as a, systematic process for identification and valuation of pure loss exposure faced by an organization or an individual, and for the selection and implementation of most appropriate techniques of treating such exposure. Schimit and Roth (1990) describe risk management as the performance of activities designed to minimize the negative impact (cost) of uncertainty (risk) regarding possible losses.

Every entity exists to provide value to its stakeholders. All entities face uncertainty to accept as it strives to gain stakeholder value. Uncertainty presents both risk and opportunity with the potential to erode or enhance value. Risk management enables management to effectively deal with uncertainty and associated risk and opportunity while enhancing the capacity to maximize value. Value is maximized when management sets strategy and objectives to strike an optimal balance between growth and return goals and related risk, and efficiently deploy resources in pursuit of entity's objectives (Flaherty and Maki 2004).

Risk management is central part of any organization's strategic management. It is the process whereby risks attaching to their activities with the goal of achieving sustained benefits within each activity and across the portfolio of all activities. The focus of good risk management is the identification and treatment of these risks. Its objective is to add maximum sustained value to all activities of the organization. It marshals the understanding of potential upside and downside of all those factors which can affect the organization. It increases the probability of success and reduces both the probability of failure and the uncertainty of achieving the organization's overall objectives. Risk

management. Decision about potential loss and risk provide a forum for discussion of important issues and varying perspectives of stakeholders.

Fetemi and Glaum (2000) in their study on risk management practices by Germany firms found out that 88% of their respondents used derivative instruments where currency forward contracts ranked as most frequently used instrument. Ranking succeedingly lower in their frequency of use are interest rate swaps(Average score=1.57) currency swap(1.25) caps and floors(1.20) interest rate forward contracts(1.30) and over the counter currency options(0.95) more than three quarters of respondents indicated that they never use the other instruments listed: Exchange traded currency options, exchange traded currency future contracts, Exchange traded interest rate future contracts, equity derivatives, commodity derivatives and structured derivatives.

2.4 Foreign Exchange Risk

According to Stern and Chew (1987), foreign exchange risk is the chance that fluctuations in the exchange rate will change the profitability of a transaction from its expected value. This definition lays emphasis on financial risk. Shapiro (2006) defines foreign exchange risk as the variability in the value of a firm as measured by present value of its expected future cash flows. On the other hand Hekman (1983) defines currency risk in terms of the control of firms as possibility that operating and financial results expected might exceed or fall short of budget. A common definition of exchange rate risk relates to the effect of unexpected exchange rate changes on value of the firm by Madura (1989).It implies that risk consist of the direct loss (as a result of an hedged

exposure) and indirect loss in firms cash flow, assets and liabilities, net profit and its stock market value from exchange rate change.

2.5 Classification of Foreign Exchange Risks

Currently there are three main types of foreign exchange risks as given by Shapiro (2006). The first one, the translation exposure also known as accounting exposure, arises from the need, for purpose of reporting and consolidation, to convert the financial statements of foreign operations from the local currencies (LC) involved to home currency (HC). If exchange rates have changed, liabilities, revenues, expenses, gains and losses. It is basically balance sheet exchange rate risk and impacts balance sheet assets and liabilities and income statement items that already exist.

Second type of foreign exchange risk, transaction exposure, also known as commitment exposure, results from transactions that give rise to contractually binding future foreign currency dominated cash flows or outflows. As exchange rates change between now and when these transactions settle, so does the value of their associated foreign currency cash flows, leading to currency gains and losses. It is basically cash flow risk and this exposure deals with changes in cash flows as they result from existing contractual obligations, such as the effect of exchange rate moves on transactional account exposure related to receivables (Export contracts), Payables (Import contracts) or repatriation of dividends.

The third exposure, measures the change in present value of a firm resulting from any change in future cash flows of firm caused by unexpected change in exchange rates. Future cash flows can be divided in to cash flows resulting from contractual

the main instruments used for exposure hedging, translation risk was not considered important and they didn't hedging against it .They found out that transaction exposure was most important. Moles and Bradley(2002).Economic exposure affects the operating profits of a companies in globally competitive industries as well as companies not engaged in international business but face foreign competitors in their domestic market. Belk and Glaum (1990) found that companies were less concerned about the real impact of exchange rate changes on competitive position of the companies. Bradley and Moles (2002) find that there is a significant relationship between firm's exchange rate sensitivity and the degree to which it sells sources and funds itself internationally.

Interest rate exposure has gained importance in the recent years as a result of trend toward increasingly variable interest rates and growing popularity of short-term or variable-rate debt. Interest rates have become as volatile exchange rates over the past two decades. In the 1970s and 1980s, interest rates whether short or long terms have fluctuated by several percentage points on a month to month or even week-to-week basis. In the US short term interest rate levels have ranked from 5 to 18 %and similar movements took place in their major countries however there is little empirical work on interest rate exposure of non-financial multinational companies, with the limited work being about the interest rate exposure of financial corporations, Choi and Eylasaini (1997).Interest rate exposure is the risk that unanticipated changes in the level interest rates will adversely affect a firm's profit or cash flow, theoretically affects the value of non-financial corporations as well due to changes in the cash flows and the value of their financial assets and liabilities. Interest rate exposure can indirectly affect the competitive position of firms Bantram (2002)

The single largest interest rate risk of non-financial firm is debt service, with the second being the holding of interest sensitive securities, Eiteman, Stonehill and Moffett(2000).As multinational corporations operate in different countries, they are likely to possess debt and securities in different current dominations, with different interest rate structures(floating versus fixed) and different maturities.

Interest rate risk management is becoming more and more common in today's corporate world. This is primarily in response to increased competition and availability of tools to manage the risk. Since 1977, a series of financial innovations has been introduced which enable corporations to control the risk of interest rate volatility, these instruments and techniques give treasurers the flexibility in managing their cash flows by allowing them to transfer interest rate risk to those better able or more willing to bear it, Farhi and Thurston(1988).

2.6 Sources of foreign Exchange Risk and Factors Affecting Exchange Rates

There are many potential sources of foreign exchange exposure. Having assets and liabilities with net payment streams dominated in a foreign currency may be the most obvious source of risk. The risk is easy to identify and hedge. Payment streams in major currencies can be converted into domestic currency using swaps, for example or payments cannot be matched by natural hedging. But having assets and liabilities abroad can also decrease firm's foreign exchange exposure. Each company engaged in international trading is exposed to foreign exchange risk since foreign exchanges for example are generally denominated in foreign currency. Revenues and costs incurred in a foreign currency are exposed to exchange rate risk. Often firms have to pay in a foreign

currency for imported raw materials and receive foreign for exported finished goods .This problem gets more complicated if firms revenue exposure and cost exposure are in different currencies. Generally speaking, each investment in a foreign country that generates cash inflows or outflows denominated in a foreign is exposed to foreign exchange risk. Such cash flows can be revenues, dividends, or royalties coming from foreign subsidiaries, expenses paid in foreign country etc. (POPOX and Stutzmann, 2003) financial activities such as foreign currency borrowing or lending, guarantees etc represent another kind of source of foreign exchange risk

Allayannis and Ofek (2003) find that foreign rate exposure is positively related to the level foreign debt that the firm has. At the same time, foreign debt can be another way to hedge foreign currency exposure since it represents a cash flow in foreign currency. It can only be used as a hedge to foreign revenues. By contrast, imports which also represent outflow in foreign currency cannot be hedged through debt Chamberlain et al (1996) in their study a foreign exchange exposure on 30 ISS Bank holding companies found out that the more the foreign debt a bank has, the more it is exposed to foreign exchange risk. The estimated exposure is straggly correlated with the size of the firm. However, size itself cannot be a source of exchange rate exposure. The bigger the firm, the more foreign trade it has, and the smaller the more it is focused to its local market. Hence, bigger firms (most often the multinationals) have a bigger exposure to foreign exchange risks.

Foreign exchange rates are determined by supply and demand for currencies. Supply and demand in turn are influenced by factors in the economy, foreign trade and the activities of international that foreign markets. . A higher currency makes currency makes a

country's exports cheaper and imports more expensive in foreign markets. A lower exchange rate is expected to lower the country's balance of trade while a low exchange rate would raise it (Horcher, 2005). Bergens (2006) shows that there are six principal factors that determine exchange rates between two given countries. These are differentials in inflation between the countries, differentials in interest rates, current account position (balance of payment), public debt, and terms of trade, political stability and economic performance.

2.7 Foreign Exchange Management Strategies and Profitability Measures

Foreign exchange exposure is the risk of a firm's profitability and net cash flow to potentially change due to a change in exchange rates. Managers must limit a firm's exposure to changes in exchange rate because profitability and cash flow are two of the main ways investors judge a firm's value. Managers use forward contracts, options and money market transactions to hedge potential foreign exchange risk. The profits of a corporation that operates in more than one country depend very much on the foreign exchange rates. Foreign exchange rates can fluctuate up and down, and thereby positively and negatively affect the actual profits of a company. It is therefore very important that companies know how to minimize their exchange rate risks so as to maximize their profits and increase their equity. Businesses and financial institutions that operate in foreign countries want to protect the value of their investments against fluctuations in currency exchange rates that can devastate profits. Derivatives are a standard method of hedging (protecting) financial positions. A derivative is a security that depends on an underlying asset or another security for its value. For persons unfamiliar with the world of foreign currency exchange this may be confusing. However, if you think of hedging

with derivatives as buying insurance in case something goes wrong, you'll have the basic idea in a nutshell (ehow 2012)

2.8 Tools and Techniques of Foreign Exchange Risk Management

In the current world of business foreign exchange risk not only influences firms' quarterly earnings but also determine its survival. A variety of financial instruments emerge as financial markets require management of the different growing exposure that firms face. For managing foreign exchange risk, there exist internal hedging techniques such as matching inflows and outflows, intercompany netting of receipt and payments, transfer pricing agreement etc and external hedging tools involve the usage of different kinds of derivatives including forwards futures, debt, options and swaps. Each of these techniques differ to hedge different types of hedging, the risk manager must compare costs, taxes, effects on accounting conventions(important for translation) and regulation(which may limit some transactions).Most corporations do not use only one technique but rather determine which technique is the most suitable for a particular case (Lei and Niannian,2007)

2.8.1 Internal Hedging (Natural Hedging)

(Bartram et al.2009) hedging describes the process of offsetting exposure to business risks. The most important financial risk faced by non-financial corporations are foreign exchange, interest and commodity price risk (Servaes et al 2009)In a world of perfect capital markets, financial hedging at company level would not be necessary, as investors would be able to construct such hedges on their own at no cost. However, under more realistic assumptions of information asymmetries, cost of financial distress, taxes and

other form of market imperfections hedging financial risk can increase company value (Smith and Stulz 1985 Froot et. 1993)

According to Papaioannou (2006), internal hedging includes all techniques that do not require external parties. Before purchasing external hedges, the company should first look for internal hedges since they are relatively low cost. He outlines six internal hedging techniques first one, known as netting involves reduction of the number of transactions that a firm needs to make in order to cover an exposure. It requires the firm to have a centralized organization of its cash management. The centralization means that the companies collect foreign currency cash flows between subsidiaries and group them together so as an inflow and outflow in the same currency.

Another hedging is prepayment. Import commitments can include an option to prepay. This is used if currency is thought to appreciate; then prepaying enables the company pay at a lower rate. If the future rate finally depreciates, then the firm is worse off than if it had done nothing.

The third one, Leading and lagging, involves accelerating or delaying the original payment but within a company's divisions or subsidiaries. If the currency of a subsidiary is sought to appreciate it may accelerate its payment (leading) and realize the payment before the currency appreciates. The reverse is true if a currency is expected to depreciate, then the company will delay its payment (lagging). However, the firm should not only take into account the gain or loss from the currency but also the cost for increasing or decreasing the liquidity.

The fourth technique is Long-term structural changes, which entails restructuring more complex task than hedging a currency a transaction. However, once restructuring is finished, the reduction has a long-term effect. The firm can act on four parameters: change the sales, change the foreign suppliers, change the foreign production factories or change the foreign debt. The idea is to change the relationship between cash inflows and outflows. Restructuring is a very attractive technique and manage economic exposure, but it's quite difficult to apply and cannot be reversed immediately.

The fifth one, price adjustments involves changing prices in different manners. First, when the local currency of a subsidiary is devaluating, the subsidiary can increase the price, so as to cancel the effect of devaluation. This technique is particularly used in countries where devaluation is high and where derivative markets are efficient. However, as a disadvantage of this method, prices cannot be raised without any consideration about competitors because if price increases too much the customer will choose an equivalent cheaper product from a competitor. In the same logic, a firm can increase the export price. But price adjustment is even more complex since the company has to face not only local but international competitors. Second the company can change the currency of billing. Third, the firm can use export currency of billing to transfer profits from one affiliate to another. The purpose is to raise or lower intergroup selling prices by billing rate adjustments that profits appear in hard currency or low-tax companies.

The last technique, Asset Liability Management (ALM), is related to leading/lagging and has the same rationale: for currencies likely to appreciate, increase assets and reduce liabilities. For currencies likely to depreciate do the reverse. For illustration, suppose currency appreciates. A firm will then increase its assets by increasing investment and

reduce its liabilities by reducing the short term debt. The long-term assets/liabilities are more difficult to change. Long-term debt cannot be reduced easily and buildings cannot be sold promptly. This can be used for hedging translation exposure.

2.8.2 External Hedging

When internal hedging is not enough to manage successfully exchange rate risk, companies can get into contact with banks or go to the market and do external hedging. External hedging is more expensive and complicated than internal hedging and not all companies can afford it, but is quite successful and many firms use it. External hedging consists of using foreign exchange derivative contracts such as forwards, futures, options or swaps. These instruments can be grouped into two main categories: the first category contains instruments such as currency forwards and futures and money market contracts. With these instruments the exchange rate is fixed at the moment when risk appears. The main disadvantage with these instruments is that they cannot benefit from a favorable movement of exchange rate. The second category contains instruments such as currency options that protect the company from unfavorable movement in exchange rate and at the same time keep the possibility of benefiting from favorable movement in exchange rates. The following is a brief description of these instruments (Lei and Niannian, 2007)

2.8.2.1 Foreign Exchange Forwards

A foreign Exchange forward contract is an agreement to exchange one currency for another with specific quantity, where the exchange rate is fixed on the day of the contract but actual exchange takes place on predetermined exchange rate is the forward exchange rate. The amount of the transaction, the value date, the payments procedure, and the

exchange rate are all determined in advance. Kyte (2002) defines forwards agreements as contracts settled in cash which enables 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 predetermined 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 swaps are the exchange of two differing forms of interest rate payment obligations between two parties whose value is based on the notional principal amount.

Forward contracts in major currencies can be available daily with maturities of up to 30, 90 and 180-day. Two types of forwards are often used: deliverable forwards (face amount of currency is exchanged on settlement date) and non-deliverable forwards (which are settled on net cash basis). A currency forward contract is normally used to hedge exposures that are short to medium term and whose timing is known for certainty. It is so important for corporations' treasurers to trade in the forward market that they can fix the costs of imports and exports in advance for payables and receivable amounts. Empirical researches such as Belk et al. (1992) and Bodnar et al (1995) indicate that the most frequently used method is forward exchange contract. With forwards, the firm can be fully hedged. However, some risks including settlement risk that exchange rate moves in the opposite direction as either forecast, and counter party risk which the other party is unable to perform on the contract, the high cost of forward contracts will sometimes prevent firms to exercise this tool to fully hedge their exposures.

2.8.2.2 Money Market Contracts

A company can hedge in the same way by using the money market. This is a market where the company and individuals can lend and borrow as short as overnight and as long as twelve months period at an interest. For illustration, assume an exporting company is expecting to receive dollars in three months. The exchange rate for dollars in three months is unknown. The company can borrow dollars now from a bank and convert these to Kenya shilling at the spot rate on that date. Thus the company has a dollar debt, but that doesn't matter because it can repay the debt upon receiving dollars in three months. The company is not concerned with future exchange rate movements. It has an amount in shillings needed and can deposit it in a bank and thus earn the three months interest. This operation permits the firm to dispose immediately with money and not to wait for three months for the dollars. In addition the exchange rate risk is covered. The only problem with this is that it is not easy to borrow money especially for small companies and big amounts. The technique however works well for an importer but not for an importing company (Popov and Stutzman, 2003).

2.8.2.3 Currency Futures

Currency future is an exchange traded contract specifying standard volume of a particular currency to be exchanged on a specified date, Lei (2001). It is similar to forward contract in that they allow a firm to buy or sell certain currency at a fixed price at a future point in time. There are some differences between these two kinds of techniques. One way in which futures differ from forwards is that futures are standardized both for amounts and delivery dates. Another difference is that forwards are traded by phone and telex and are completely independent of location or time while all clearing operations for futures

markets are handled by an exchange clearing house. The biggest difference is the terms of liquidation; that futures contracts are settled by offset of gains and losses for each day while forward contracts are settled by actual delivery whether full delivery of the two currencies or net value only at contract maturity. Both futures and forward market are most important to hedge risk. A study by Belk and Alum (1992) found that none of the companies that were interviewed used currency futures because the standardized features of exchange traded futures most often do not enable the companies to hedge their positions perfectly. Mallin et al (2000) also found that only 9 companies out of 231 responded to their survey used currency futures. The fact that currency futures were not being traded in the UK exchange meant higher transactions costs would be incurred; also general lack of confidence in using futures might have deterred the companies.

2.8.2.4 Currency Options

A foreign exchange option gives the holder of the contract the right to buy or sell a certain amount of a certain currency at a predetermined price (also called strike or exercise price) until or on a specified date but he is not obliged to do so. The seller of a currency option has obligation to perform the contract. The right to buy is a call, the right to sell, a put. There is option premium to pay needed to pay by those who obtain such a right. The holder of a call option can benefit from price increases (profit is the difference between the market price and the strike price plus the premium), while one can choose not to exercise when the price decreases (locked in loss of the option premium). Vice versa is for the holder of a put option. Whenever there is uncertainty in the size of cash flows and the timing of cash flows, currency option contracts would be superior to traditional hedging instruments e.g. forward contracts and future contracts. Grant and

Marshall (1997) examined the extent of derivatives and the reasons for their use by carrying out surveys in 250 large UK companies. They found a wide spread use of both forwards and options (96% and 59% respectively). They pointed out that comparing to the primary reason for the use of forwards were company policy, commercial reasons and risk aversions, a good understating of instrument, and price were prominent. While the primary reason to use options was company management.

2.8.2.5 Currency Swaps

Lei,(2007) outlines that as a relative new financials derivative used to hedge foreign exchange exposure, currency swaps have a rapid development. Since its introduction on a global scale in early 1980's currency swap market has become one of the largest financial derivatives markets in the world.

A currency swap is a foreign exchange agreement between two parties to exchange a given amount of one currency for another, and after a specified period of time gives back the original amount swapped. It can be negotiated for a wide range of maturities of up to 10 years and can be regarded as a series of future contracts. It is commonly used under such situations that a firm operates in one currency but needs to borrow in another currency. Currency swaps are often associated with interest rate swaps, as in common cross currency swaps. The cross currency coupon swap which is to pay floating interest in a currency and receive floating interest in another currency. The advantage of currency swap is to enable each contracting party to borrow in their comparative favorable market, and both parties can benefit from the swap by reduction in borrowing costs.

Dawson et al (1994) defines a swap as an exchange of liabilities dominated in a different currency 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 to predetermined rule to reflect differences in interest rates between the two currencies involved.

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 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 long term risk sharing devices. A big advantage swaps have over other derivatives is that the long time horizon of up to 20 years. Disadvantages include lack of liquidity, default risk, too sophisticated or intimidating for most companies and often require extensive documentation (Kyte (2002) and Madura and McCarty (1989).

2.9 Empirical Evidence

Smith and Stulz (1985) demonstrate that when a risk-averse manager owns a large number of the firm's shares, his expected utility of wealth is significantly affected by the variance of the firm's expected profits. The manager will direct the firm to hedge when he believes that it is less costly for the firm to hedge the share price risk than it is for him to hedge the risk on his own account. Consequently Smith and Stulz further predict a positive relation between managerial wealth invested in the firm and use of derivatives.

They measured the managerial wealth from shares by the log of the market value of common shares beneficially owned (Excluding options) by officers and directors as a group. Smith and Stulz (1985) also showed that exogenous bankruptcy costs create incentives for bond holders to support optimal hedging. By reducing the variance of firm's cash flows (or accounting profits); hedging decreases the probability, and thus the expected costs of financial distress. Breeden and Viswanathan (1996) and DeMarzo and Duffie (1995) developed models in which managerial reputation provides incentives for managers to use derivatives.

DeMarzo and Duffie (1991) argue that equity holders can benefit from hedging when managers have private information about observable risk that affects the firm's payoffs. In their model, hedging gives uninformed equity holders reduced noise in their information set concerning the variability of a firm's payoffs because hedging reduces their variance. As was proved by DeMarzo and Duffie (1991), equity holders will support hedging because they can make better portfolio optimization decisions. Thus, their model suggests that equity holders of firms with greater informational asymmetry will derive greater benefits if the firm hedges.

Gercy et al (1997) showed that foreign- dominated debt can also act as a natural hedge for foreign revenues, thereby decreasing a firm's foreign exchange rate exposure. On the other hand, foreign debt can increase a firm's exposure to foreign exchange-rate risk if debt related cash outflows and net foreign-dominated cash inflows are negatively correlated. However, they were unable to determine a correlation from the publicly available data between foreign debt and derivatives use. In addition, variation in firm's short-term cash flows is related to changes in exchange rates when competitors can affect

market prices, and thus demand for domestic output. Costs also play a role in a firm's decision to use currency derivatives and in its choice among derivatives strategies. Rey et al (1997) considered two major components of these costs: those associated with initiating and maintaining a risk management program and those associated with choosing a particular currency derivative instrument. If the costs are high enough, a firm will not use any derivatives. If the costs are low enough, they can still affect a firm's choice among instruments.

Saunders and Cornett (2008) noted that extreme foreign exchange risk was evident in 1997 when a currency crisis occurred in Asia. This crisis began July 2 when the Thai baht fell nearly 50% in value relative to the USD which led to contagious drop 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 baht's value drop, 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 USD 160 Million Loss in October from foreign currency trading and holdings of foreign currency bonds. The devaluation of Argentinean Peso in 2002 resulted in USD 595 Million loss to citi group. As economic conditions change, exchange rates can change substantially.

2.10 Conclusion

Companies especially those in international trade are now exposed to risks caused by unexpected movements in exchange rate. The management of exchange risk has become essential for the survival of companies in today's volatile financial markets. The focus of

good risk management is the identification and treatment of these risks. Its objective is to add value to all the activities of the organization. It increases the probability of success, and reduces the probability of failure and hence the firms profitability.

Mobile telecommunications companies in Kenya engage in international trade transactions during the importation of Telecommunications equipment and expertise. These importation costs are settled in US dollars, and due to the huge capital requirements, the companies obtain short term financing from banks. The companies can therefore experience losses in situations when on the loan repayment time; the transaction currency has a higher buying power than in the time of concluding the financing contract. This exposes the company to foreign exchange losses which impact negatively on the company's profitability. Other companies like Airtel have other subsidiaries in Africa and Asia. These companies consolidate financial statement of foreign subsidiaries to one common currency; this exposes the company to foreign exchange risk. It is therefore evident that telecommunication companies face significant risk as a result of foreign exchange fluctuations and management of this risk is imperative not only for profitability of these companies, but also for their survival.

Earlier studies on the relationship between foreign exchange management strategies and profitability have focused on finance and energy sectors of the economy. Chira (2009) carried out a study on how foreign companies in the oil companies in Kenya managed their foreign exchange exposure. Omagwa (2005) carried out a study on how foreign owned commercial banks in Kenya managed their foreign exchange risk exposure and its impact on profitability. Considering the role played by mobile telecommunications companies in Kenya's economy and the volume of foreign exchange dominated

transactions they carry out, a knowledge gap existed that sought to narrow down and establish how the companies mitigate foreign exchange risk that arise from such transactions and how this affects their profitability. This research has therefore geared towards ascertaining the relationship between foreign exchange risk management strategies and profitability of mobile telecommunications companies in Kenya

2.1 Data analysis and research method

2.1.1 Research Design

Research design is an arrangement of activities for gathering and analyzing data in a manner that will be consistent with the research objectives. In this study, the research design is descriptive in nature. It is concerned with describing the current state of affairs. The design was chosen to be suitable in studying the objectives of the study which is to determine the strategies and profitability of mobile telecommunications companies in Kenya. The design was chosen to be suitable in studying the objectives of the study which is to determine the strategies and profitability of mobile telecommunications companies in Kenya.

2.1.2 Population and Sample Size

In this study, the target population was all the mobile telecommunications companies in Kenya. The sample size was determined using a statistical formula. The sample size was determined using a statistical formula.

CHAPTER THREE

RESEARCH METHODOLOGY

3.1 Introduction.

This chapter contains; Research design, Population and Sample size, Data collection, Data analysis and research model.

3.2 Research Design

Research design is an arrangement of conditions for collection and analysis of data in a manner that aims to combine relevance to the research purpose with an economic procedure. In fact, the research design is the conceptual structure with which research is conducted. It consist the blue print for collection, measurement and analysis of data (Hancock 1998). A descriptive design was used to collect data for this study. This design was found to be suitable in meeting the objective of the study which is to determine the techniques and strategies used by telecommunication companies in Kenya to mitigate foreign exchange risk exposures. Chira (2009) used the same design in his study of foreign exchange management strategies used by oil companies in Kenya.

3.3 Population and Sample Size

In this study, the target population was all the telecommunication companies operating in Kenya and registered with CCK listed in the appendix 1. Since the number of companies in the industry is only four, this study has focused on all of them.

3.4 Data Collection

In this research primary and secondary data has been collected through administration of questionnaire (appendix 3) which were directed towards Finance management personnel of the telecommunication companies using drop, “and – pick later” techniques. Follow up techniques included telephone calls, emails; walk-ins to evaluate the response rates. This is because these finance personnel’s are best equipped to provide response regarding the objective of this study.

The questionnaire was divided into various sections to encourage the respondent to give information relevant to the objective of this study. It consisted of open ended, structured and unstructured. The structured questions provided a set of answers from which the respondent chooses the answer that best describes the situation in their firm. Unstructured questions provide freedom while responding to the subject matter.

3.5 Data Analysis

To meet the objective of the study, the data collected has be analyzed using statistical measures like tables, determination of frequency percentages. SPSS has been used in performing the calculation and presenting results in a way easy to understand. The results have then been interpreted in order to draw conclusions and the presentations in terms of Cross-Tabulations, various charts, and frequency tables, upon which inferences has been made accordingly for the purpose of the study report writing.

3.5.1 Analytical Model

A multiple regression model has been used to show the relationship between the variables;

$$Y = \beta_0 + \beta_1x_1 + \beta_2x_2 + \beta_3x_3 + \beta_4x_4 + \beta_5x_5 + \beta_6x_6 + \beta_7x_7 + \beta_8x_8 + \beta_9x_9 + \beta_{10}x_{10} + \beta_{11}x_{11} + \beta_{12}x_{12}$$

$$\dots \beta_n x_n + \epsilon_i$$

Where:

Y = Annual Turnover of mobile telecommunication companies which is a profitability measure.

β_0 = Constant variables that affect profitability of telecommunication companies.

$\beta_1 \dots \beta_{12}$ = Parameter which is the coefficient of the independent Variables.

$x_1 \dots x_{12}$ = Independent Variables which in this case are Foreign exchange risk management strategies which include: Internal and external hedging strategies; x_1 =Cash flow matching(Netting), x_2 =Prepayments, x_3 = Leading and Lagging, x_4 =Restructuring, x_5 =Increasing Prices, x_6 =Changing currency of Trading, x_7 =Assets liability Management, x_8 =Forwards, x_9 =Futures, x_{10} =Money Markets Contracts, x_{11} =Options and x_{12} =Swaps ϵ_i = Is the error term and the subscript i indexes a particular observation.). Chi-Square will be used to test the parameter which is the coefficient of the independent variables. This model was informed by the need get a relationship between the independent variable and dependent variable

CHAPTER FOUR

DATA ANALYSIS, FINDINGS AND DISCUSSION

4.1 Introduction

This chapter covers data analysis findings of the research summarized and presented in the form of proportions, regression models and tables. Data was collected from treasury personnel in mobile telecommunication companies in Kenya. Consequently the data collected was analyzed and interpreted in line with the main aim of the study which is to determine the relationship between foreign exchange risk management strategies and profitability of mobile telecommunication companies in Kenya. The data collected was analyzed using SPSS and Excel Microsoft programs. Out of the four questionnaires distributed four were returned giving a response rate of 100% is satisfactory for subsequent analysis. This analysis focused on foreign exchange risk management practices impact on turnover, a profitability measures.

4.2 Measurement of Foreign Exchange Risk Exposure

The respondents were asked whether they measure exchange rate exposure, all the four mobile telecommunication companies answered in the affirmative. However, it was evident that the companies do not give equal attention to the management of foreign exchange rate risk. Of the five financial risk exposures namely; interest rate risk, fluctuation in global prices credit risk, and fraud, only two companies i.e Safaricom Limited and Airtel ranged foreign exchange risk as the most significant and therefore critical to their operations. This is understandable as this as the largest companies in the

mobile telecommunication industry in Kenya with a considerable percentage of their technology, equipment and human resources are sourced from foreign markets. These transactions are normally in Pounds, Euro and sometimes US dollar. Orange Telkom rated foreign exchange rate risk exposure as the second most significant after interest rates fluctuation. On the other hand, Essar Telecom ranked it as one of the least significant exposure for its operations. It is therefore not surprising that the company has not set up a risk management function like its competitors.

4.3 Reasons for Adopting Foreign Exchange Risk Management Practices

All the companies indicated that the main reason for adopting foreign exchange management practices is to minimize foreign exchange losses. Two respondent companies (Airtel and Essar YU) noted reduction of cash flow fluctuation and financing costs as other rationales for foreign exchange risk the management. Foreign exchange management policies are normally approved by the Board of Directors in three companies namely Safaricom Limited, Telkom and Airtel. Though this is not the case for Essar. Having a foreign exchange risk management is a big step towards FX management. Rabb (2003), noted that firms with FX department were better in risk management practices. Thus necessary to ascertain whether the companies had a risk management department. The research found out that three out of the four companies had.

Regular measurement of the success of a firm's exchange risk management is essential ingredient of effective management. Fatemi and Glaum (2003) found out most firms periodically measured success of their FX management policies. Respondents from the

four companies reflected that management in the respective companies had established procedures to measure realized and unrealized foreign exchange gains and losses. These reports on the efficacy of foreign exchange management procedures are normally presented to the companies' Board of Directors for reviews at least once per year.

4.4 Hedging of Foreign Exchange Risk

Although all the four companies indicated that they do measure the foreign exchange rate exposure, only three companies i.e. Safaricom Limited, Airtel and Telkom Orange are actively hedging against this risk to a large extent. Among these three companies the difference arose on the percentage of foreign exchange rate exposure hedged. Safaricom and orange Telkom reported to be hedging between 60-80%, Airtel hedges between 40-60% of the total exposure. On the contrary Essar does not hedge foreign exchange rate risk to a reasonable percentage. It emerged that the companies are using a mixture of both internal and external hedging techniques.

4.5 Regression Model

4.5.1 Table 1: Model Summary (Measure of Fitness)

Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	1.000(a)	1.000	1.000	.00000

Predictors: (Constant), Forwards, Cash flow Matching, Asset liability management, Changing currency of trading

Source: Research findings

The model statistics show that when the independent variables (Forwards, Cash flow Matching, asset liability management and changing currency of trading) and dependent variable Total Revenue interact, the model has a Pearson's correlation coefficient (R) of 1.000 and coefficient of determination (R Square) of 1.000 signifying a strong positive association between the two.

4.5.2 Table 2: Analysis of Variance (ANOVA)

Model	Sum of Squares	Df	Mean Square	F	Sig.
1 Regression	19834.135	4	4958.534	56230611 95517530. 000	.000(a)
Residual	.000	14	.000		
Total	19834.135	18			

a Predictors: (Constant), Forwards, Cash flow Matching, Asset liability management, Changing currency of trading

b Dependent Variable: Total Revenue

Source: Research findings

The Analysis of Variance (ANOVA) was used to test the significance of the regression model as pertains to significance in the differences in the means of the dependent and independent variables. The ANOVA test produced an f-value of 5623061195517530.000 at 0.000 significance level ($p < 0.05$) signifying significant relationship between the independent and dependent variables.

4.5.3 Table 4:Regression Coefficients

Coefficients (a)

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta	B	Std. Error
1	(Constant)	.000	.000		.000	1.000
	Cash flow Matching	1.667	.000	.334	3463386.834	.000
	Changing currency of trading	-1.667	.000	-.352	1222491.389	.000
	Asset liability management	3.333	.000	.674	8070759.429	.000
	Forwards	1.667	.000	.347	1667991.496	.000

a Dependent Variable: Total Revenue

Source: Research findings

From the table the established regression equation is:

$$Y = 1.89961414653883E-12 + 1.667 x1 - 1.667 x6 + 3.333 x7 + 1.667 x8$$

In the model, it can be seen that taking the independents variables' value at zero, the total revenue almost zero (1.89961414653883E-12). A unit increase in Cash flow Matching

would lead to 1.667 increase in total revenue, a unit increase in Changing currency of trading would lead to 1.667 decrease in total revenue, a unit increase in Asset liability management would lead to a 3.333 increase in total revenue and a unit increase in Forwards would lead to a 1.667 increase in total revenue.

4.6 Interpretation of Findings

It is evident from the research findings that most of the companies in the mobile telecommunication companies in Kenya are faced with foreign exchange risk. The major currencies used in the industry included US Dollar GBP and Euro .All the four companies measure foreign exchange risk and hedge against it. This companies use both internal and external foreign exchange risk management strategies, with the most popular ones being; cash flow matching, forwards, Assets Liability management and changing currency of trading. Most of this companies review their foreign exchange risk yearly to ensure that they minimize their foreign exchange losses. The main reason for hedging for the four companies was to minimize foreign exchange risk.

The research shows that , there exist a positive relationship between the use of foreign exchange management strategies and profitability of companies in the mobile telecommunication companies i.e. the more a company has a robust foreign exchange management policy the better the revenues and profitability in general.

CHAPTER FIVE

CONCLUSIONS AND RECOMMENDATIONS

5.1 Introduction

This chapter gives a conclusion of the study, limitations and recommendations for further research.

5.2 Summary

To achieve the research objectives, questionnaires were delivered to all the four mobile telecommunication companies in Kenya. All the four responded and all of them were adequate apart from a few none response to “sensitive” questions. Comparison of the Telecoms responses with literature and empirical evidence led to various inferences. Most of the telecoms used the conventional foreign exchange risk management practices, strategies and techniques.

The study revealed that the strategies used by mobile telecommunication companies in Kenya to manage foreign exchange risk are Forwards, Cash flow Matching, Asset liability management and changing currency of trading with the most preferred one being Forwards contracts.

The study revealed that the major currencies used were US Dollar, British Pound and the a Euro .It emerged that foreign exchange risk management had gained increased attention

as 95% of the companies had risk management departments. Hedging foreign exchange risk has been the number one strategy in mitigating these losses.

The respondents indicated that the most important objectives of risk management were to minimize foreign exchange losses, increase profitability and ensure survival of the firm.

The findings revealed that forward contract was the most frequently used instrument.

The study revealed that the Annual total revenues of the companies increase for the last five years due to prudent foreign exchange management strategies and practices.

5.3 Conclusion

The conclusions of the study was based on the research objectives: To establish the foreign exchange risk management strategies used by firms in the telecommunication industry in Kenya and to determine the relationship between forex management and profitability of mobile telecommunication companies in Kenya.

From the study, it can be concluded that the strategies used by mobile telecommunication companies in Kenya to manage foreign exchange risk are Forwards, Cash flow Matching, Asset liability management and changing currency of trading with the most preferred one being forward contracts.

It can also be concluded from the study that majority of the telecoms hedge to minimize foreign exchange losses.

From the findings we can conclude that use of prudent foreign exchange management strategies leads to an increase in profitability.

5.4 Recommendations for Policy

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 use of foreign exchange management strategies by mobile telecommunication companies in Kenya their impact on profitability.

Companies that are involved transactions that expose them to foreign exchange risk should adopt foreign exchange management strategies which will cushion them against the effects of foreign exchange. The decision on which strategy to adopt will be determined by the nature of business and the risk appetite of the management. The Board of directors of companies which are large in terms of transactions should gear towards establishing a foreign risk management function which will see to it that the company's risk exposure is minimal.

From risk management perspective the governing body for telecommunication industry CCK, has a role to play in ensuring that all the companies have a risk management that will help key function. Also the players in the industry can come up with policies in foreign exchange risk management that will help them cushion their revenues against foreign exchange losses.

5.5 Limitations of the Study

Though this study addresses the relationship between foreign exchange risk management strategies and profitability of mobile telecommunication companies in Kenya, the sample size and the kind of the data considered for the study should be considered in light of the following limitations:

First the study sample size concentrated only on the four mobile telecommunication companies. Secondly, some of the data relied on was provided by the treasury personnel, the data based on their analysis which may lead to inconsistency on some instances. Thirdly, getting the data was a struggle due to confidentiality of the data and competition within the mobile telecommunication industry players. Four, the period for the study was short i.e. five years which does not give the true picture for the small players who have been in operation for less than a decade.

5.6 Suggestions for Further Research

This study has served as a foundation for further research on the effects of foreign exchange risk management on profitability in details on other industries other than mobile telecommunication for example in the oil industry and banking industry. In addition further inquiry can be done on of the effects on partial foreign exchange hedging in the on the profitability of a company. Finally, further research can be done on impact of foreign exchange management strategies on profitability of multinational companies operating in Kenya; this will give a broad view of the use of Foreign exchange management strategies and their impact.

REFERENCES

- Abor.J (2005). Managing foreign Exchange risk among Ghanaian firms. University of Ghana Business School, Legon, Ghana. *The Journal of Risk Finance* Vol.6 No.4, 2005 pp.306-318.
- Allayannis, G. and Ofek, E. (2000), "Exchange Rate Exposure, Hedging and the use of Foreign Currency Derivatives", *Journal of International Money and Finance*, Vol.20, No.2, pp.273-296.
- The Bank of Jamaica (March 1996). Bank of Jamaica Standards of Sound Business Practices, Foreign Exchange Risk Management.
- Bartram, S.M., Brown, G.W., Fehle, F.R. (2003). International Evidence on Derivatives Usage, Economics Working Paper at WUSTL.
- Bergen, J.V. (2006). Things That Move the Currency Market. Retrieved from:
<http://www.investopedia.com/articles/basics/04/050704.asp>.
- Belk, P.A. Glaum (1990). The management of Foreign Exchange Risk in UK Multinationals; An Empirical Investigation. *Accounting and Business Research*, Vol.21 (pp.3-13).
- Bradley, K, and Moles,P (2000). Management Strategic Exchange Rate Exposures: Evidence from UK Firms. University of Edinburgh Management School; Scotland.

- Brealey, R.A., Myers, S.C. and Allen, F. (2006). *Corporate Finance* (8th edn): McGraw-Hill; Irwin.
- Barton, T.L., Shekir, W.G. and Walker, P.L. (2002). *Making Enterprise Risk Management Pay off: How Leading Companies Implement Risk Management*. Brookfield, Connecticut: Fei Research Foundation.
- Bodnar, G.M. and Richard C. (1998). A simple Model of Foreign Exchange Exposure. *Wharton/CIBC Survey of Risk Management by US Non-Financial Firms*, Vol.8 No.3 (pp 15-20).
- Brucaite, V and Yan, V. (2000). *Financial Risk Management-Case Studies with SKF and Elof Hansson*. Unpublished Master's Thesis.
- Cater D.A, Pantzalis, C and Simkins, B.J (2003). *Firm wide Risk Management of Foreign Exchange Exposure by U.S. Multinational Corporations* Version of April 28, 2003.
- Chamberlin, S., Howe, J. and Popper, H., (1996), "The exchange Rate Exposure of US and Japanese Banking Institutions". *Journal of Banking Finance*, vol.6, No.3 (pp.25-31).
- Chira Z. (2009). *A Survey of Foreign Exchange Risk Management Practices By Oil Companies in Kenya*. Unpublished MBA Project, University of Nairobi, Kenya.
- Choi, J.J. and Prasad, A.M., (1995), "Exchange Risk Sensitivity and its Determinants: A Firm and Industry analysis of US Multinationals". *Financial Management*, vol. 24, No.3 (pp. 77-88).

Dawson, Alex J.D and Rodney, William H (1994). The usage of exchange rate hedging techniques by UK property companies. *Journal of property finance*, vol. 5, No. 4 (pp. 56 – 67). MCB University press. doi: 0958 – 868 x.

DeMarzo,P.,and Duffie,D(1995),Corporate incentives for hedging and hedge accounting. *The review of Financial Studies* Vol8, pp.743-771

Giddy, Ian H., and Gunter Dufey. "The management of foreign exchange risk." In Frederick D. S. Choi (ed). *Handbook of International Accounting*. New York: Wiley, 1991

Dufey.G and Giddy .H (1995), *Management of Corporate Foreign Exchange Risk*, *International Accounting and Finance*.

Economy watch: Purchasing Power Parity Theory;Retrived on 14th May,2012 from;

<http://www.economywatch.com/economics-theory/purchasing-power-parity-theory-of-exchange-rate.html>

Ehow (2012) *Foreign Exchange Risk - How To Information*

Retrived on 25th June, 2012 from;

<http://www.ehow.com/foreign-exchange-risk/#ixzz1ym9jd1cq>

Eljelly A M A (2004), Liquidity –Profitability Trade off: An Empirical Investigation in an Emerging market, *International Journal of Commerce and Management*,Vol 14,No2,

Grant K and Marshall, A.P (1997). Large UK companies and Derivatives. *European financial management*, vol. 3, No 2, pp.191 – 203.

- Grezy, C., Menton, B.A. and Schrand, C. (2004). Why firms use currency derivatives. *Journal of Finance*, Vol. 52 No. 4 (pp. 1325-54)
- Fatemi, A and Glaum, M. (2000). Risk Management Practices of German Firms. *International Management*, vol 26, Number 3.
- Hancock, (1998). An Introduction to Qualitative Research. University of Nottingham (pp. 101-158).
- Hekman, C.R., (1983), "Foreign Exchange Exposure: Accounting Measures and Economic Reality". *Journal of Cash Management*, vol. 3 (pp. 34-45).
- Kyte, A. (2002). The Hedging imperative: Making the choices (Balance Sheet 10, 2 2002) (pp 32-40). MCB UP Limited. Doi: 0965-7967.
- Lel, L and Nianian M, (2007). "Foreign Exchange Risk Management in Multinationals; An Empirical Investigation on China, Japan and US, Umea School of Business and Economics". Retrieved from:
<http://people.hofstra.edu/k-a-xiswanathan/research/mnci.pdf>
- Levi, M (1983). *Financial Management and International Economy*. McGraw Hill; New York.
- Li, S. (1995). *Future Trends and Challenges of Financial Risk Management*. Brisbane; Queensland, Australia.
- Madura, J., (1989). *International Financial Management* (2nd edn). West Publishing Company; St. Paul, Minnesota.

- Markar, S.D. and Huffman S.P. (1997). "Foreign Exchange Risk Management Practices in US Multinationals". *Journal of Applied Business Resources*, vol.13 No.2 (pp.73-86).
- Markowitz, H.M, (1952). Portfolio Selection. *Journal of Finance*, vol.7 (pp.77-91).
- Mathur, I. (1982). Managing Foreign Exchange Risk profitably. *Colombia Journal of Word Business*, vol.17, No.4 (pp.23-30).
- Marshall, A.P., (1999). "Foreign Exchange Risk Management in UK, USA and Asia Pacific Multinational Companies". *Journal of Multinational Financial Management*, vol.7 (pp.185-211).
- Mumoki A. (2009) "Foreign Exchange Management: Strategies and Techniques used by Banks to Manage Foreign Exchange Risk Exposure". Unpublished MBA Project, University of Nairobi, Kenya.
- Papaioannou, M.G., (2006), "Exchange Rate Risk Measurement and Management: Issues and Approaches for Firms", *South Eastern Europe Journal of Economics*, vol.2, (pp.129-146).
- Popov V. and Stutzmann Y., (2003). "How is Foreign Exchange Risk Managed? An Empirical study Applied to Swiss Companies". Retrieved from:
http://www.hec.unil.ch/cms_mbf/0314.pdf
- PWC 2012. Telecommunications Industry: Overview of the Sector in Kenya. Retrieved 24 May, 2012 from:

- Radja, G., (1997). Principles of risk Management and Insurance (6th edn). Addison-Wesley
- Shapiro, A.C (1998). Foundations of Multinational Financial Management. Prentice-Hall Inc .London
- Shapiro, A.C. (2003). Multinational Financial Management. Allyn and Bacon; London
- Schmit, J.T. and Roth, K., (1990). Cost Effectiveness and Risk Management Practices. *The Journal of Risk and Insurance*, vol.57, No.3 (pp.455-470).
- Smith, S.W. and Stutz, R.M. (1985). The determinants of Firms Hedging Policies. *Journal of Financial and Quantitative Analysis*, 20(5), 391-405.
- Stern, N. and Chew, S., (1987). New Developments in International Finance. Retrieved from: <http://www.desjardins.com/en/enterprises/solutions/services.pdf>
- Sunders, A and Cornett, M.M (2008). Financial Institutions Management: A Risk Management Approach (6th edn). McGraw Hill; International Edition.
- Okwoku, Z., (2010). "A Survey of the Foreign Exchange Rate Risk Management practices In the Energy sector of Kenya". Unpublished MBA Project, University of Nairobi, Kenya.
- Omagwa, J., (2005), "Foreign Exchange Risk Management Practices by Foreign Owned Commercial Banks in Kenya", Unpublished MBA project, University of Nairobi, Kenya.

Van Horne J.C (1986) Financial Management and policy (7th edn). Prentice Hall, New Jersey: International.

Zenios, C.V., Zenios, S.A., Agathocleous, K., Soterious, A.C. (1999), "Bench Marks of the efficiency of bank branches" Vol.29 No.3,pp.37-51

APPENDICES

Appendix I: Letter to Mobile Telecommunication Companies

Mulwa Jackson Kioko

University of Nairobi

P.O.Box 30197

Nairobi.

Dear Sir/Madam,

RE: RESEARCH INFORMARTION:

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

As a fulfillment to the study information requirements, I intent to collect primary data from your organization. The information requested is needed purely for academics purpose and will be treated with high confidence, and will not be used for any other purpose other than research.

I would be most grateful if you can allow me have 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

Jackson K. Mulwa

Mr. Odingo

Appendix II: List of Mobile Telecommunication Companies in Kenya

Company	Box No.	Town	Code
1. Airtel Networks Kenya Limited	73146	Nairobi	00200
2. Essar Telecom Kenya Limited	45742	Nairobi	00100
3. Safaricom Limited	66827	Nairobi	00800
4. Telkom Kenya Limited	30301	Nairobi	00100

(Source: Communication Commission of Kenya website; www.cck.go.ke)

Appendix III: Questionnaire

This questionnaire seeks to collect information on foreign exchange risk management adopted by telecommunication companies in Kenya.

Please provide information the following information frankly and honestly. All information received will be treated confidentially and used for academic purpose only.

1. Institution information

Please indicate:

- Name of your organization.....
- Location of the main office.....
- When did your organization start operations in Kenya.....

2. Risk Management Function

a) Does your company have risk management function? Yes () No ()

b) If yes, how long has the function been in operational?

- Below five years ()
- Between 5 and 10 years ()
- Over 10 years ()

3. Financial Risk Exposure

Kindly rank the following financial exposures in order of importance to your company, where 1=most significant and 5=least significant.

- Interest rates fluctuation { }
- Foreign Exchange Risk { }
- Fluctuation in global prices { }
- Credit Risk { }
- Fraud { }

4. Foreign Exchange Risk Exposure

a) Kindly indicate the transactions which compel you to trade in foreign currency.

- Transactions for importation of technology and network equipment. { }
- Transactions for roaming services. { }
- Others (specify)

b) Please state the foreign currency to which your company is mostly exposed.

- US Dollar { }
- Euro { }
- Other (Specify)..... { }

c) Does the company have subsidiaries in other countries? Yes { } No { }

d) Kindly rank the three exposures in order of importance to your company, where 1=Most critical and 3=least Critical.

Transaction { } Translation { } Economic { }

5. Measures of Foreign Exchange Risk Exposure

a) Is firm measuring the exchange rate exposure? Yes { } No { }

b) If yes, how often the company measuring them?

Exposure	Often	Sometimes	Never
Translation Exposure(Accounting translation into base Currency)			
Transaction Exposure(Foreign Receivables and Payables Currency)			
Economic Exposure(Future expected cash flow and competitive position)			

6. Measurement of Foreign Exchange Risk Exposure

a) Is the company hedging Exchange rate risk? Yes { } No. { }

b) Please state the main reason for adopting foreign exchange risk management practices in your firm

- Minimize foreign Exchange losses { }
- Reduce cash flow fluctuation { }
- Reducing financing costs { }
- Others (Specify)

c) What kind of internal hedging measures is your company using for hedging?

Instrument/Technique	Often	Some times	Never
Cash flow matching(Netting)			
Prepayments			
Leading and Lagging			
Restructuring			
Increasing Prices			
Changing currency of Trading			
Assets liability Management			
Others (Specify)			

d) What kind of external hedging instruments or techniques is the company using for hedging?

Instrument/Technique	Often	Sometimes	Never
Forwards			
Futures			
Money Markets Contracts			
Options			
Swaps			
Others (Please specify).....			

7. Total Annual Turnover

Kindly indicate the company's annual Total Turnover or the last five years.

- 2007
- 2008
- 2009
- 2010
- 2011

For each of the hedging instruments kindly indicate the amount hedged in KES.

Instrument/Technique	Year:	Year:	Year:	Year:	Year:
	2007	2008	2009	2010	2011
Cash flow matching(Netting)					
Prepayments					
Leading and Lagging					
Restructuring					
Increasing Prices					
Changing currency of Trading					

Assets liability					
Management					
Forwards					
Futures					
Money Markets					
Contracts					
Options					
Swaps					

What percentage of exchange rate exposure is the company hedging?

0-20% { }

40-60% { }

80-100% { }

20-40% { }

60-80% { }

8. Evaluation of risk management policy.

How often do you measure the success of foreign exchange rate risk management policy?

• Yearly { }

• Semiannually { }

• Quarterly { }

• Monthly { }

• Other (Please Specify).....

Does the board review and approve foreign exchange management policies?

YES { } NO { } N/A { }

Are there procedures established by management to measure realized and unrealized foreign exchange gains and losses?

YES { } NO { } N/A { }

Does the management report foreign exchange risk activities to the board at least once a year?

YES { } NO { } N/A { }