THE RELATIONSHIP BETWEEN REAL EXCHANGE RATES AND INTERNATIONAL TRADE IN KENYA

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DECLARATION

This is my original work and has not been presented for a degree in any other university.

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This project has been submitted for this examination with my approval as University Supervisor.

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LIST OF ABBREVIATIONS/ACRONYMS

BOP   BALANCE OF PAYMENTS

EAC   EAST AFRICAN COMMUNITTY

GDP   GROSS DOMESTIC PRODUCT

IPI   IMPORT PRICE INDEX

ISI   IMPORT SUBSTITUTION INDUSTRIALIZATION

NGO   NON-GOVERNMENTAL ORGANIZATIONS

OMO   OPEN MARKET OPERATIONS

RER   REAL EXCHANGE RATE

SPSS   STATISTICAL PACKAGE FOR SOCIAL STUDIES

UNCTAD UNITED NATIONS CONEFERENCE ON TRADE AND DEVELOPMENT

WTO   WORLD TRADE ORGANIZATION

ABSTRACT

Since time in memorial, many countries including Kenya, have been seeking ways of strengthening international trade and its benefits and this has attracted researchers in both academia and policy-making. The relationship between the real exchange rate and international trade has generated much interest, and thus an overview of the theoretical and empirical literature in various countries however does provide us with a definitive answer one can pin down between the relationship of the real exchange rate and international trade especially after the breakdown of the Bretton Woods system of fixed exchange rates. This study therefore examined the significant relationship between the real exchange rate and international trade in Kenya. This paper provides an extensive survey of the literature on the real exchange rate and trade, examining both the theory that underlies the work in this area and the results of empirical studies published.

In the methodology the study utilized secondary data on an annual basis for the period 1993 to 2007. The paper utilized both descriptive analysis and inferential statistics to examine the relationship between the real exchange rates and international trade. The Pearson's product moment method of con-elation was used to estimate the parameters and the ordinary least squares method was used for further analysis, in order to determine the significance of the contribution of the specific variables to the export and import volumes.

By examining exports and imports in Kenya for the period 1993-2007, the study found that the relationship of the real exchange rate and international trade had been exaggerated. It was concluded that although there was a relationship between the RER, exports and imports in Kenya, the relationship was insignificant. The shilling's recent volatility did not appear to have significantly influenced Kenya's exports and imports. However like studies of similar nature, this study acknowledged that other factors like GDP play a vital role in influencing exports and imports. These results arguably point out several issues of policy concern and call for a rethinking of the strategies practiced in a number of countries of manipulating RER in an effort to enhance International trade. The study suggests that the government should concentrate on improving GDP which is a much more important indicator when compared to RER in the determination of international trade.

CHAPTER ONE

1.0   INTRODUCTION

1.1 Background of the study

International trade which is the exchange of goods and services, is an important engine of economic growth, and is the backbone of our modern commercial world. It also represents a significant share of GDP in most countries. There are several benefits of international trade. Imports for example enable firms to acquire resources that are not available at home by allowing manufacturers and distributors to seek out products and services produced in foreign countries leading to cost advantages, thus reducing dependence on existing markets and a stabilization of seasonal market fluctuations. Exports on the other hand lead to increased generation of revenue and profits, improved quality of production, extended sales potential of the existing products, discovery of new product ideas, and strengthened partnerships that are beneficial to increased trade. In addition to this, open markets lead to knowledge sharing on advanced and efficient production methods that help reduce cost of production, lower prices, and in turn induce more consumption thus producing increased profits (Were et al., 2002).

While international trade has been present throughout much of history, its economic, social, and political importance has been on the rise in recent centuries, mainly because of industrialization, advanced transportation, globalization, multinational corporations, and outsourcing (Cushman, 1988). Over the years, much interest has been generated in seeking ways of strengthening international trade and its benefits and this has attracted researchers in both academia and policy-making. This interest stems from the close theoretical linkage between trade and exchange rate performances in any given economy. As a result, several studies (Warner, 1983; Sowa and Acquaye, 1999; Cushman, 1988) have been conducted to determine the major factors that influence international trade and a number of factors have been identified.

The factors that have been found to determine exports include the exchange rate regime that spells out the import tariffs, quotas and exchange rates, presence of an entrepreneurial class, efficiency enhancing government policy as well as a secure access to transport and marketing services. A Study of the nature, composition and determinants of Kenya's export revealed that the income of trading partners and real exchange rate were significant determinants of real exports of goods and services (Were et al., 2002).

A study by Lutz (2002) underlines the importance of high per capita incomes, import prices and the exchange rate in determining import levels. He further asserts that for developing countries, government restrictions on imports and the availability of foreign exchange are influential factors. Fidan (2006) on the other hand, argues that another important variable affecting imports and exports is the gross domestic product. Increasing the domestic gross product grows import demand. Hence, the relationship between import, export, exchange rate, relative price and gross product is important for foreign trade

It is evident then, that various factors influence international trade (exports and imports), the real exchange rate being one of them. The real exchange rate, which is the price of one country's money in terms of another's, has been found to be among the most important prices in an open economy, as it influences the flow of goods, services, and capital in a country, and exerts strong pressure on the balance of payments, inflation and other macroeconomic variables (Yagci, 2001). The chief demand for foreign exchange within a country comes from importers of foreign goods, purchasers of foreign securities, government agencies purchasing goods and services abroad, and travelers.

The real exchange rate has long been recognized as an important policy instrument to make domestic entrepreneurs internationally competitive and provide profit incentives for them to invest in non-traditional export sectors. Agosin and Tussie (1993) emphasize that "The historical record shows that all countries that have succeeded in generating a sustained growth of their exports, leading to high rates of growth of output over the long term, have also been able to maintain exchange rates that are attractive to exporters over long periods

of time. The exchange rate in such countries has also tended to be fairly stable, enabling producers of tradeables to make long-term investment plans." UNCTAD (2007).

In an effort to enhance the efficiency of economies around the world, the IMF supported the structural adjustment programs (SAPs) that proposed a liberalization of the exchange rate. Comia and Lipumba (1999) found that before liberalization, foreign exchange markets were characterized by fixed exchange rates, high inflation rates relative to trading partners and deteriorating terms of trade. As a result most countries had an appreciation of the real exchange rate which discouraged exports. In view of this weak export performance, low saving rates and inefficient allocation of investment, liberalization of the foreign exchange market was necessary and has been a key component of the Structural Adjustment Programs implemented in Africa.

The liberalization process of the foreign exchange market in many developing countries, including those in Africa, shifted gradually from a fixed to a flexible exchange rate regime. Although ideally, liberalization should be gradual and progressive, in Kenya it was done hastily. While it was found necessary, better results would have been realized in an environment where the government policy was credible and had no risk of reversal. When there is a risk of reversal, as in Kenya's case, a big bang was usually the best way to reform policies. (Were, et a!., 2002)

Since the breakdown of the Bretton Woods system of fixed exchange rates, a substantial body of theoretical and empirical literature has investigated the relationship between the real exchange rate and international trade flows. However, neither theoretical models nor empirical studies provide a definitive answer (Baum and Caglayan, 2006). Considering the differences evident in the economies worldwide, as a result of imperfect markets and institutional difficulties, the relationship between the real exchange rate and international trade has been a subject of continued research and controversies.

Warner and Kreinin (1983) studied the exchange rate and international trade of many countries. They concluded that the exchange rate for half of the countries did not have any influence on the imports, but did influence the exports of most of the countries. On the other hand, a study by WTO (1995) in Mauritius showed a positive relationship on export growth in the last 15 years. Wang and Ji (2006) concluded that the Chinese Yuan did not have any influence on the imports or exports of China during the period 1986-2003. Dell' Aricca, (1999) argued that the exchange rates had a negative effect on trade and investment.

1.2 Statement of the problem

Imports and exports have long been recognized as engines of economic growth. In an effort to spur development, Kenya like many growing economies, has implemented various programs to enhance macroeconomic efficiency and stability. Research evidence from various studies around the world; however do not indicate a consensus on the relationship between exchange rates and international trade. The studies did however yield results that are conflicting, inconsistent and inconclusive. While some studies (Oyejide, 1986; WTO 1995; Ndungu and Ngugi, 1999) report positive effects other studies report a negative effect (Comia and Lipumba, 1999; Arize, 2004).

This study therefore sought to investigate the relationship between exchange rates and imports and exports in Kenya, with a view to making recommendations on the usefulness of exchange rates on improved trade balances. This study therefore sought to answer the following question; does the real exchange rate have a significant relationship with exports and imports in Kenya?

1.3 Objective of the study

The objective of the study was to examine the relationship between the real exchange rate and exports and imports.

1.4 Importance of the study

The findings of this study will provide useful information to the regulatory authorities e.g. CBK and Export processing zone, that are charged with the responsibility of influencing the real exchange rates as their actions will have far reaching effects on the export import markets. This information will also provide the basis for suggesting policy changes necessary for the Kenyan foreign exchange market, export and import market.

The findings will also provide information to the international development institutions e.g. World Bank, NGO's, that are prepare key documentation on economic indicators used to build knowledge and provide a basis of policy making for various countries.

This study will benefit participants in the foreign exchange market, export and import market by advising them on whether or not they can take advantage of the relationship between the real exchange rates exports and imports.

This study will benefit academicians who may want to conduct studies relating to real exchange rates, exports and imports, as the determination of the existence of a relationship will provide empirical evidence they can use for further investigations.

CHAPTER TWO

2.0   LITERATURE REVIEW

2.1 Introduction

This chapter begins with a brief summary of the relationship between Kenya's exports and imports before the exchange rates were liberalized. It then proceeds with a summary on the exchange rate evolution, and then presents a review of literature on the relationship between the real exchange rate and international trade. A number of studies have been undertaken in Kenya and other parts of the world that focus on the imports and exports and their determinants. In this chapter an attempt is made to discuss the findings of some of these studies so as to provide the general background and rationale for the present study.

2.2 Export/Import market in Kenya before Liberalization

During the colonial era the export/import market was characterized with trade policies which were British government initiated and thus protected the manufacturing sector in Kenya. As a means of promoting industrialization immediately after independence, Kenya pursued an import substitution strategy whose were rapid growth of industry, easing balance of payments pressure, increased domestic control of the economy and generation of employment. To achieve these objectives, the government relied on a variety of policy instruments including an overvalued exchange rate, high tariff barriers, import licensing, foreign exchange controls and quantitative restrictions to protect local producers against foreign competition. (Were, et al., 2002).

Since the incentive structure was biased towards import substitution, a large proportion of the industrial output was geared towards the domestic captive market, which was more profitable than the export market. This discouraged a strong drive towards export promotion and partly accounted for the poor export performance of Kenya's manufacturing sector and orientation towards consumer goods. ISI like in most African countries failed to achieve the intended objectives despite the considerable protection and government patronage the industries enjoyed. (Were, et al., 2002)

According to Gerrishon et al (2000), Foreign exchange measures were extensively used during this phase to protect local manufacturers. The Foreign Exchange Allocation Committees were established to administer foreign exchange quotas for imports for which a limited quota had been established to protect domestic producers. Foreign exchange controls were used to discriminate against certain imports, promote foreign exchange earning industries and to conserve foreign exchange which was a major constraint in the economy.

With a series of external shocks in the 1970s, the inefficiency and inadequacy of the import-substitution policy became evident. The first oil crisis of 1973 that led to severe problems in balance of payments (BOP), and the collapse of the EAC in 1977, adversely affected the performance of import-substitution enterprises. The latter removed the disguised competitiveness of Kenya's manufactured exports (Wagacha, 2000). The resultant high import costs and limited market led to excess capacity and inefficiencies (SIMASG, 1989). The indiscriminate and open-ended protection distorted resource allocation, constricted foreign competition and restricted technology inflows from abroad (Lall and Pietrobelli, 2002). By the end of the 1970s, the government started recognizing the need for an export-oriented industrial strategy as indicated in National Development Plans of 1974-1978 and 1979-83. Nonetheless, adherence to import-substitution still lingered.

Export orientation in the 1980s remained weak largely due to very high effective rates of protection accorded to domestic industries, exchange rate bias against exports, high cost of imported inputs, foreign exchange controls and administrative delays and the high transaction costs that militated against the profitability of exports, among others. In addition, the export incentive schemes remained unattractive and less successful due to weaknesses in implementation and poor coordination. (Were, et al., 2002). In the early 1980s, partly due to the increasing pressure for structural adjustment reforms, the government began to demonstrate commitment to a liberalization policy, a major component of which was a shift from import-substitution to export-promotion strategy.

2.3 Evolution of the exchange rate

Kenya from 1981 has had its local currency the (Kenya shilling) pegged to the SDR. Consequently in 1992, the Central Bank depreciated the Kenya shilling by 22 percent against the dollar. Kenya has since seen the exchange regime change to a dual system in that there was an official exchange rate and a "market' rate. Since there was an 'official' exchange rate and a 'market' rate, the latter operated on the basis of the Foreign Exchange Bearer Certificates, which would be purchased at the official exchange rate from the Central Bank in foreign exchange, without having to declare the source of the foreign exchange, and then marketed as any other paper asset (Ndung'u and Ngugi 1999). This facility was a major relief in the foreign exchange market as it entitled the bearer to some amount of foreign exchange without going through the tedious and time-consuming foreign exchange licensing process.

In January 1993 the certificates were suspended and the exporters were allowed to retain specified proportions of their foreign exchange earnings, while importers were required to purchase their foreign exchange from commercial banks (Ndung'u 2000). With foreign exchange retention accounts in commercial banks there was a gradual relaxation of controls in foreign exchange transactions. The outcome in the short run was to raise the rate of inflation and inflationary expectations. (Ndung'u and Ngugi 1999).

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By March 1993, however, speculation in the foreign exchange market was prevalent. Kenya was in great danger of capital flight. The market was also characterized by uncertainty, especially in regard to future exchange rate transactions such as importation on trade credit. In an attempt to avert the ensuing crisis, the official exchange rate was devalued three times in the first half of the year. (Were, et al., 2001)

In April 1993, both import and foreign exchange licensing were eliminated and 100% retention accounts introduced. However, the supply and demand for foreign exchange in the trade account did not immediately respond to market forces as would have been expected. Initially, the exchange rate depreciated faster than the gradual devaluation on the official rate, partly because of the backlog of demand and expectations of backtracking on the policy (Ndung'u 2000).

By November 1993, the government had abolished the official exchange rate and allowed the public to hold foreign exchange. In response to the widening interest differential, exchange rate expectations and the general stability, holders of foreign exchange abroad took advantage of the liberalized regime by bringing funds back. (Were, et al., 2001)

By 1994, the policy focus was to keep reserve money on the targeted path while at the same time intervening in the foreign exchange market to minimize the appreciation of the exchange rate. However, interventions in the foreign exchange market led to increased money supply. This in return called for sterilization through the sale of Treasury bills in open market operations (OMO). In order to make the commercial paper attractive, the rate of interest was raised relative to other financial assets. (Ndung'u 2000).

In brief, Kenya has experimented with virtually all types of exchange rate regimes: from fixed to crawling peg to flexible or floating rates. The exchange rates are now a "managed floating" system, a condition of past IMF loans. This designation allows the monetary authority to intervene to control the exchange rate, but no specific level is set as a target rate (unlike crawling peg and fixed systems).

2.4 Theoretical Framework

The real exchange rate which is one of the key relative prices in an economy, defines the rate of exchange between domestic goods and their foreign counterparts. As a result, changes in the exchange rate have significant economy-wide implications that are communicated largely through international trade. (Yue, 2001). Basically, the real exchange rate can be defined as the nominal exchange rate that takes the inflation differentials among the countries into account. Its importance stems from the fact that it can be used as an indicator of competitiveness in the foreign trade of a country. (Kipici and Kesriyeli 1997) The various definitions and theories of the real exchange rate are presented below.

2.4.1 Purchasing Power Parity

According to this definition by Stonecash (2005), this theory is the simplest and is the most widely accepted theory explaining the variation of currency exchange rates. According to this theory, a currency must have the same purchasing power in all countries and the exchange rates move to ensure that. If the purchasing power of the dollar is always the same at home and abroad, then the exchange rate cannot change. The nominal exchange rate between the currencies of two countries must reflect the different price levels in those countries. Here a unit of any given currency should be able to buy the same quantity of goods in all countries. This theory is based on a principle called the law of one price. According to the law of one price, a good must sell for the same price in all locations if the law of one price were not true, unexploited profit opportunities would exist.

2.4.2. The Definition on the Basis of the Tradable and Non-tradable Goods

This definition according to Kipici and Kesriyeli (1997) takes the relative price of the tradables and non-tradables in ones country as an indicator of the country's competitiveness level in the foreign trade. The rationale behind this is that the cost differentials between the countries are closely related with the relative price structures in

these economies. Under the assumption that the prices of the tradables will be equal all around the world, the real exchange rate defined on the basis of tradable and non-tradable goods distinction can be mathematically represented as:

$$r_r = pt / p_n = ep * t/p_n$$

In this definition, Pt and Pt* stands for the domestic and international prices of the tradables respectively, while the prices of the non-tradables are denoted by Pn. In this definition, the decline of r_r indicates the real appreciation of the domestic currency.

2.4.3 Real effective exchange rate

In this definition by Kipici and Kesriyeli (1997), the real exchange rate corresponding to the trading partners of a country are used by some weighting criteria. The share of the foreign countries in a country's total foreign trade volume or the share of the currencies used in the foreign trade transactions can be given as examples of these weighting criteria. For example, the International Monetary Fund determines the country weights by using the foreign trade data of the commodities in the agriculture and manufacturing sector. These weights are used in the calculation of the nominal exchange rate of a given country. Then, in order to render comparison possible between many countries, real effective exchange rates are calculated after correcting the nominal rate with the consumer price indices of each country.

2.4.4 Elasticity approach theory

The elasticity approach theory focuses on the relative price effects on the current account balance. The elasticity model of the balance of trade (Krueger, 1983) has shown the existence of a theoretical relationship between exchange rate and the trade balance. Generally, the nominal depreciation (appreciation) of exchange rate is assumed to change the real exchange rate and thus have a direct effect on trade balance. Devaluation or depreciation increases exports by making exports relatively cheaper, and discourage imports by making imports relatively more expensive, thus improving trade balance.

2.4.5 Marshall - Lerner condition

According Marrewijk (2005), this theory states that the sum of the price elasticity of export and import demand must exceed unity and a depreciation of the domestic currency will improve the current account balance. Empirical estimates show that the Marshall - Lemer condition is fulfilled for most countries, but only after a sufficiently long period of time has elapsed to ensure that the export and import quantities can adjust to the change in relative prices.

2.5 Empirical Studies

Various studies carried out to estimate the relationship between real exchange rates and trade, this body of research has experienced tremendous growth, especially in the post-Bretton Woods era in which foreign exchange rate has been highly volatile after the inception of the floating exchange rate regime. Empirical studies explaining the relation of the exchange rate in the floating period are still scant in Kenya. Furthermore, the existing studies on Kenya have concentrated on the application of the traditional theoretical models based on the interest rate and purchasing power parities.

The various studies carried out to estimate the relationship between real exchange rates and trade, have reported mixed results. Ozbay (1999), states that due to the high degree of volatility of exchange rate movements since the beginning of the generalized floating exchange rate regime policymakers and researchers have been led to investigate the nature and extent of such movements on trade flows. Njuguna (2001) found in his study of the foreign exchange market in Kenya during the 1990s, showed that the exchange rate had been volatile.

Some traditional models examining the relationship of exchange rates and international trade in view of the recent exchange rate volatility based on the producer theory of the firm under uncertainty, where firm profitability is related to exchange rate fluctuations point to a positive relationship. Baum (2006) in his study of the effects of exchange rate volatility on the volume and volatility of bilateral exports shows how an increase in exchange rate volatility may not necessarily lead to an adverse effect on the level of trade when hedging opportunities exist. One the other hand theoretical studies by Cushman (1988) on the effects of real exchange rate on international trade showed that an increase in exchange rate volatility had an adverse effect on the volume of international trade.

De Grauwe, (1987) in the study of exchange rate variability and the slowdown in the growth of international trade showed an increase in exchange rate volatility may be beneficial for trade. The most obvious case is that in which exporters are risk-lovers. He shows that, when exporters are sufficiently risk-averse, a positive relationship may still arise, very risk-averse firms will worry about the worst possible scenario. When risk increases, the way to avoid a drastic decline in export revenues is by increasing the export volume. On the other hand Pozo (1992), in the study of conditional exchange-rate volatility and the volume of International trade, using aggregated data suggests that exchange rate volatility has lead to small reductions in its relationship with trade volumes

Oyejide (1986) in his study of the effects of trade and exchange rate policies on agriculture in Nigeria found a marked increase in volume of agricultural exports over the years. However, the volatility, frequency and instability of the exchange rate movements since the

beginning of the floating exchange rate were raising concern. Contrary to this findings Arize, et al (2004) investigating the impact of real exchange rate volatility on the export flows of eight Latin American countries over the quarterly period 1973-1997, found that increases in the volatility of the real effective exchange rate exerted a significant negative effect upon export demand in both the short-run and long-run. Hooper and Kohlhagen (1978) found negative association between exchange rate instability and volume of trade but found positive association with export prices when exporters bear the exchange risk and negative impact when importers bear the risk.

Sowa and Acquaye (1999) in conducting there study on the liberalization of the financial and foreign markets in Ghana, acknowledged that the quantity of exports of any country depends positively on the real exchange rate as well as the gross national product of its trading partners. They concluded in there empirical analysis that the exchange rate had a weak impact on exports. On imports, contrary to accepted wisdom, the results indicated that even in the face of devaluation or depreciation Ghanaians tended to import more.

Comia and Lipumba (1999) indicate in there study on the impact of the liberalization of the exchange rate and financial markets in Sub-Saharan Africa, that it should lead to positive but low real interest rates, low spreads, greater savings mobilization and credit allocation to projects with high rates of return, greater investment, faster export growth and more rational allocation of foreign exchange. Despite considerable efforts of liberalization of the foreign exchange markets and large real devaluations in developing nations neither traditional nor non-traditional exports have increased significantly.

Kemal and Qadir (2005) in their study of the real exchange rate, exports, and imports movements: A trivariate analysis in Pakistan showed that the exchange rate exerted a strong influence on a country's trade. This was depicted from the high correlation between the real exchange rate and exports (0.90) and that between the real exchange rate and imports (0.88). In their study, they concluded that imports had a very significant association with exports as shown by the correlation between exports and imports (0.97). In there analysis of the long-run relationship and the short-run dynamics among the three variables,

they concluded that there existed a long-run relationship between real exchange rate, exports, and imports; and that the real exchange rate was negatively associated with the exports and positively associated with the imports. In the short-run, imports and exports adjusted towards their equilibrium when there was disequilibrium. But the adjustment in the imports was greater than that of the exports.

Ndungu and Ngugi (1999) in their study of adjustments and liberalization of the foreign and financial markets concluded in there empirical analysis that real imports growth was positively related to real exchange rate movements in the short run. This runs counter to theory but is somewhat plausible in the floating exchange rate period and especially the short-run reactions after years of controls on foreign exchange transactions and imports. They acknowledged that the immediate impact has been a flooding of imports. They concluded in there empirical findings that the error correction term, which was normalized with the real exchange rate showed that any disequilibrium in the real exchange rate would discourage imports, and GDP growth spurs imports and hence is positively related to imports. Finally, price of imports is negatively related with quantity imported which is consistent with expectations.

2.6 Summary

In general the studies that have been carried out within and outside Kenya have not provided conclusive evidence as to the relationship between the real exchange rate and international trade. While a number of other factors have been identified as playing a key role in the volume of international trade including GDP, the real exchange rate seems to be emerging in many studies as being a significant determinant and this too is not conclusive. It was therefore very clear that there was a need for a study first to examine the nature of the relationship of real exchange rate on the international market and also to examine the significance of the role played by the real exchange rate in determining international trade volume.

CHAPTER THREE

3.0   RESEARCH METHODOLOGY

3.1 Introduction

This chapter focused on the overall design of the study in terms of the structure and strategies that were used to obtain the information needed to answer the research question and to test the hypotheses that were outlined.

3.2 Population of the study

A census was done on all the commercial banks in Kenya. This was because the number was not only manageable but more importantly the banks were well organized and they filed their returns to the Central Bank of Kenya regularly. The study drew its information from all 42 commercial banks that were operational in 2007. In addition commercial banks were found to control a significant proportion of the entire foreign exchange market and formed the basis upon which the central bank of Kenya (CBK) computed both daily and monthly indicative exchange rates. The investigation was carried out with aggregate annual data over the period between January 1993 and December 2007. The year 2007 was selected because it was the year with fully available data, thus the results of the study were timely.

3.3 Data collection

The study utilized secondary data on an annual basis from the period 1993 to 2007. The data was obtained from the Central Bureau of Statistics as published in their leading economic publications, World Bank tables and Central Bank of Kenya reports. To test for the reliability and validity of the data considering that the data used was from secondary sources a comparison was done on all the data collected from the central bureau of statistics

with other sources like the world bank, CBK reports and WTO statistics. The sources of the data were also scrutinized and verified.

3.4 Data analysis

In order to investigate the relationship of the real exchange rate with exports and imports The Pearson's product moment method of correlation was used to estimate the parameters. This statistical tool was chosen because all the variables in the interval scale were normally distributed and displayed a linear relationship. For further analysis, the ordinary least squares method was used to determine the significance of the contribution of the specific variables to the export and import volumes. For this purpose the SPSS computer software was used.

Hypothesis

The following are the hypothesis of the study.

1. H_0: Real Exchange Rate (RER) is not significantly related to exports
   Hi;Real Exchange Rate (RER) is significantly related to exports

2. H_0: Real Exchange Rate (RER) is not significantly related to imports
   Hi Real Exchange Rate (RER) is significantly related to imports

3.5 Variables

The independent variable of the study was the real exchange rate
Hie real exchange rate was computed through a weighting process, weights being dependent on the importance of the export destination country. The importance of using a trade weighted real exchange rate is that it is a measure or a reflection of international competitiveness.

The dependent variables were the volumes of exports and imports and GDP

The gross domestic product (GDP) is a very important economic indicator. It represents abroad measure of economic activity and signals the direction of overall aggregate economic activity. Exports bring money into the country, which increases the exporting nation's GDP. When a country imports goods it decreases the importing nation's GDP. Larger than expected GDP growth will tend to appreciate the exchange rate.

CHAPTER FOUR

4.0   DATA ANALYSIS AND INTERPRETATION

4.1 Introduction

This chapter presents the findings of the study and is divided into two sections. The first section deals with the descriptive analysis of the data, while the second section focuses on inferential statistics for hypothesis testing as well as a discussion of the results. Data processing was done using the Statistical Package for Social Sciences (SPSS). Data for all variables was entered and cleaned to minimize any errors, after which measures of central tendency were calculated to describe the data before hypothesis testing was done.

4.2 Results of descriptive analysis

Measures of central tendency were calculated in order to describe the data and the results are presented in table 4.1

Table 4.1: **Measures of central tendency for imports, exports and RER**

| Scope of study	Variable	Mean (in millions Ksh)	N	Standard deviation	Coefficient of variation
Study variables	*Export Volumes*	*158406497.32*	*15*	*64,767,098.48*	*40.88*
	Import Volumes	*239,409,400.43*	*15*	*159,033,528.75*	*53.53*
	Real exchange rate	*67.54*	*15*	*10.13*	*14.99*

Source: Own computations

It is evident from the table that the mean import volumes were higher than those of exports, and that although the variability of both import and export volumes was moderate, there was greater variability in the import market. In addition to this, there were fluctuations in

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the RER though they seem not to have been very high, as the exchange rate ranged from 60-78 for most of the years. Considering the data is post liberalization this means that the market forces were fairly stable.

Data was also plotted on a time series graph, presented in Figure 4.1, to show the trend of the imports and exports.

**Figure 4.1: Export and import trends 1993 -2007**
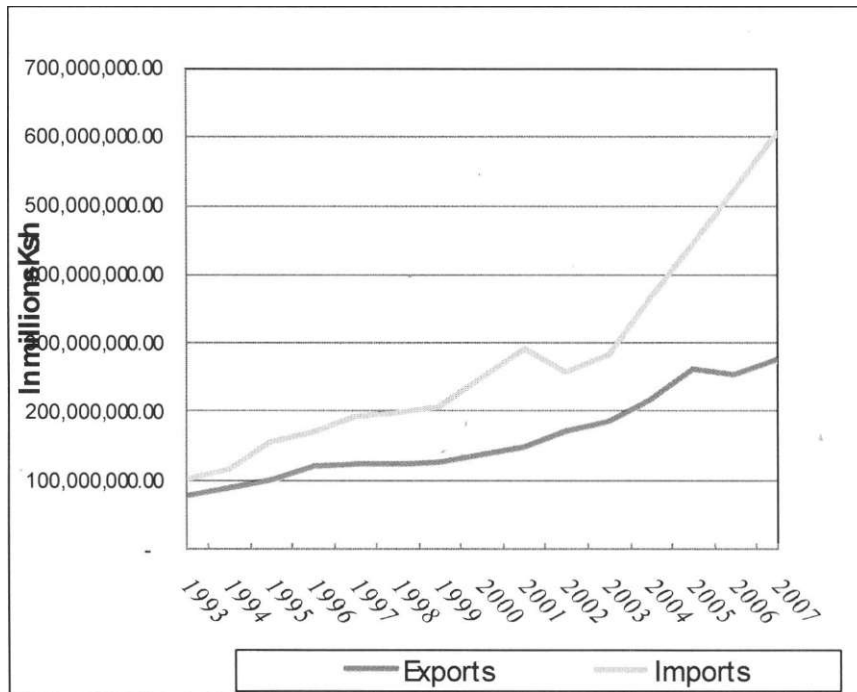
Source: Central bureau of statistics

Figure 4.1, shows that both imports and exports increased over the period 1993 - 2007. A possible reason for the increase in export earnings is the increase in world prices of major exports like tea and coffee. The demand for these commodities is fairly price inelastic in that the international customers will still purchase the commodities regardless of the price.

It is also clear, that imports increased at a faster rate compared to exports. A possible explanation for this is the sharp and continued increase in petroleum prices which raises the overall value of imports compared to increase in export earnings. This means that when the prices of imported oil go up Kenyans continue to import the same quantities of oil at the

increased prices. Other possible explanations include the growth in national income, increased population, reduction in trade barriers and improved competitiveness of foreign goods etc. The implication of this is that Kenya is spending more in imports than is being earned through exports leading to trade deficits. This situation has led to reduced debt service computed as a percentage of exports of goods and services, from 26% in 1990 to 6% in 2006 (UNICEF 2008). The study by Kiptui (2008) supports this by stating that Kenya's external current account deficit has widened, reflecting strong import volumes as well as rising import prices, particularly for oil, but external debt as a percent of GDP has declined steadily.

In order to demonstrate the changes in RER, a time series graph was drawn, and it is presented in Figure 4.2.

Figure 4.2: Real exchange rate trend 1993-2007
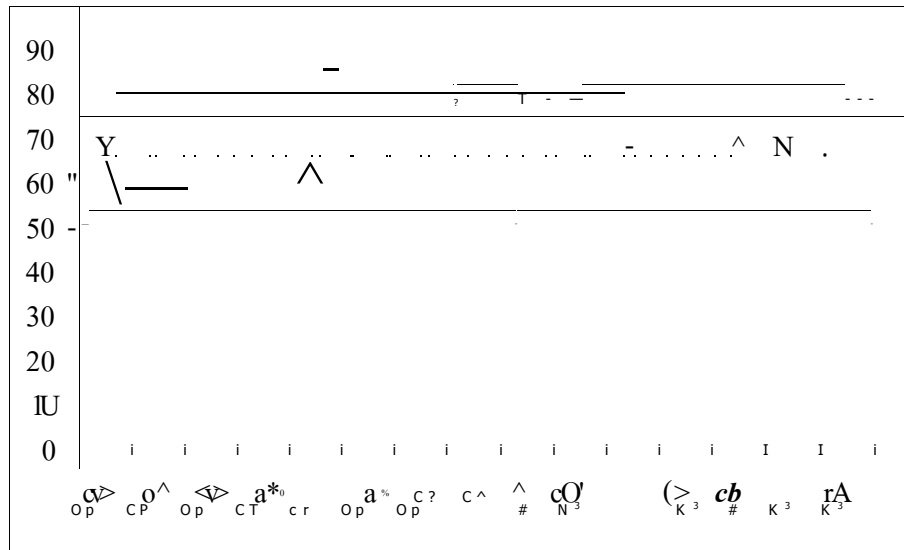
Source: Central bureau of statistics

Figure 4.2 shows that RER generally increased over the 15 year period, with fluctuations noted throughout the period. Fluctuations were highest during the period January 1995 to October 2000 and lowest in the period from October 2000 to November 2004. These findings are in line with a study by UNCTAD (2007) that reported movements in the

exchange rates of a number of developing countries since the early 1990s, which was attributed to the effects of liberalization. The report further asserts that the movements were often characterized by prolonged periods of exchange-rate appreciation followed by abrupt and sharp devaluations, often associated with a sizeable slowdown in economic activity, which is also notable from Figure **4**.2 that shows a gradual decline from the year 2004. In addition to colloborating these findings, the study by Kiptui (2008), pointed out that the strengthening shilling eroded its competitiveness. Another possible reason for the appreciation of the Kenyan shilling since 1995 is the high commodity prices of our leading exports i.e. tea and coffee which could be raising the export revenues thus strengthening the nominal exchange rate relative to domestic prices, hence supporting an appreciated exchange rate.

4.3 Results of inferential analysis

Pearson's product moment correlation coefficients (r) were calculated to provide a measure of relationship between the variables. This statistical tool was chosen because all the variables are in the interval scale, are normally distributed and display a linear relationship. Once the correlation coefficients were calculated, they were tested for significance and the proportion of variance in one variable accounted for in the other, the coefficient of determination (R^2) was also computed. For further analysis, the ordinary least squares method was used to determine the significance of the contribution of specific variables to the export and import volumes.

4.3.1 The relationship between RER and exports

H_0: Real Exchange Rate (RER) is not significantly related to exports

H_1: Real Exchange Rate (RER) is significantly related to exports

Table 4.2 Relationship between RER and exports

Variable	Statistic	Export	Real exchange rate
Export	Pearson Correlation	1.0	0.393
	Sig-(2-tailed)	0	0.147
	N	15	15
Real exchange rate	Pearson Correlation	0.393	1.0
	Sig- (2-tailed)	0.147	0
	N	15	15

Source: Own computations

The result (r_a=0.05=0.393) shows a low positive relationship between RER and exports, which was found not to be significant, leading to the acceptance of the null hypothesis. This seems to suggest that although RER rises as exports rise, these movements are not significant. In an effort to estimate the variability of exports due to variability in RER, the coefficient of determination (R^2) was computed and found to be 15%, meaning that only 15% of the variations in export volumes were as a result of variations in RER. The implication of this is that RER may not be the only factor that comes into play in interpreting changes in exports. This is inline with a study by Oscar (2009) that showed that the exports of any country are affected by other factors, gross domestic product and RER. Further investigation that compared R^2 of GDP and RER can be seen in the Table 4.3

Table 4.3 Comparison of GDP and RER

Coefficients	GDP	RER
R	0.987	0.393
R^2	0.97 = 97%	0.15 = 15%

Source: Own computations

The findings in Table 4.3 show that GDP accounts for greater variability in exports compared to RER. To confirm these findings using the OLS method, on GDP and RER as dependent variables, using the equation:

$$E = \alpha i + P\ GDP + \beta_2\ RER$$

Where:

E   = Exports

GDP = Gross domestic product

RER= Real exchange rate

The following formula was obtained: E = 47000000 + 1.004 GDP - 0.041 RER

A comparison of the RER and GDP coefficients clearly show that GDP plays a more significant role in the determination of exports compared to RER. The implication of this is that countries that seek an increase in exports must put in place measures to increase their GDP. Although the scope of the study did not go beyond GDP and RER other studies (Oscar, 2009) that computed multiple regression equation for production volume of industrial countries, world export price as a proxy for international inflation, export price, GDP and RER also supported the findings of this study as regard to the role played by GDP as compared to RER.

4.3.2 The relationship between RER and imports

H_0: Real Exchange Rate (RER) is not significantly related to imports

Hi:Real Exchange Rate (RER) is significantly related to imports

Table 4.4 Relationship between RER and imports

Variables	Statistics	Import	Real exchange rate
Import	Pearson Correlation	1.0	0.335
	Sig-(2-tailed)	0	0.222
	N	15	15
Real exchange rate	Pearson Correlation	0.335	1.0
	Sig- (2-tailed)	0.222	0
	N	15	15

Source: Own computations

The results show that there is a moderately low ($r_{a=0}.05_{=0.3}35$) relationship between RER and imports though it is not significant, leading to an acceptance of the null hypothesis, meaning that there is no significant relationship between RER and imports. This finding agrees with that of (Oscar 2009) who after analyzing his data concludes that the exchange rate elasticity of the import volume is not statistically different from zero. This seems to suggest again that RER may not be the only factor that comes into play in interpreting changes in imports. This is in line with a study by Ndungu and Ngugi (1999) that showed that the imports of any country are affected by other factors like the gross domestic product and the prices of imports. In an effort to estimate the variability in imports due to variability in RER the coefficient of determination (R^2) was computed and found to be 11%, meaning that only 11% of the variations in exports could be accounted for by variations in RER. Further investigation compared the R^2 of RER, GDP and IPI and the results are presented in Table 4.5

Table 4.5 Comparison of GDP, IPI and RER

Coefficients	GDP	RER	IPI
r	0.980	0.335	0.974
R^2	0.96 = 96%	0.112= 11%	0.949 =95%

Source: Own computations

To confirm these findings using the OLS method on GDP, IPI and RER as dependent variables and the following formula,

$$I = a, + \beta \; GDP + p_2 \; RER + p_3 \; IPI$$

Where:

I   = Imports

GDP = Gross domestic product

RER= Real exchange rate

IPI   = Import price index

The following model was obtained

$$I =9272841.2 +0.610 \; GDP - 0.113 \; RER + 0.433 \; IPI$$

A comparison of the RER, IPI and GDP coefficients clearly showed that GDP plays a more significant role in the determination of imports compared to the two. An increase in GDP leads to an increase in imports. Although the scope of the study did not go beyond GDP, IPI and RER other studies (Oscar, 2009) that computed multiple regression equation for production volume of industrial countries, consumer price index, import price, GDP and RER also supported the findings of this study as regard to the role played by GDP as compared to RER.

4.4 Summary

The findings of the study show that although there was a relationship between the RER, exports and imports the relationship was insignificant. This calls for a rethinking of the strategies practiced in a number of countries of manipulating RER in an effort to enhance International trade. The study suggests that GDP is a much more an important indicator in the determination of international trade.

CHAPTER FIVE

5.0 SUMMARY OF FINDINGS, CONCLUSIONS AND RECOMMENDATIONS

5.1 Introduction

The purpose of this chapter is to discuss the conclusions of the study and to suggest recommendations. This chapter has three sections: The first section presents the conclusions of the major findings of the study. In the second section the limitations of these study is discussed. The third section presents recommendations based on the findings of the study.

5.2 Summary of findings and conclusions

This study addressed the question of whether the real exchange rate has any significant relationship with international trade since the beginning of the floating regime. While the elasticity model of the balance of trade (Krueger, 1983) has shown the existence of a theoretical relationship between exchange rate and the trade balance, the empirical results on this relationship have been minimal. By examining exports and imports in Kenya for the period 1993-2007, this study found that the relationship of the real exchange rate and international trade has been exaggerated. The shilling's recent appreciation does not appear to have significantly influenced Kenya's export competitiveness so far as the strong import demand in Africa has helped Kenyan exports expand. The major findings of this study were:

1. There is no significant relationship between exports and the real exchange rate.
2. There is no significant relationship between imports and the real exchange rate.

Though it is evident that the real exchange rate does influence international trade in Kenya, other factors seem to influence international trade more, such as GDP. From the analysis of this study it is evident that GDP seems to have a more significant relationship

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with imports when compared to other variables. It is thus proper to recommend from the findings of this study that Kenya should concentrate on improving its GDP. In agreement with this, Hussein (2002) in his study of ASEAN countries stresses that the exchange rate alone should not used in managing the external balances of these ASEAN countries as exports in Kenya have been found to relate more strongly with GDP.

5.3 Limitations of the study

The study concentrated on the relationship of real exchange rates, exports and imports in Kenya. It relied on secondary data which was extracted from the CBK statistics which was prepared by the management of the regulatory authorities who are prone to errors, and may be subject to manipulation in order to show favorable statistics of the economic indicators. This may lead to large errors which may prevent us from accurately identifying any changes in export and import volume due to the RER. Another limitation was the volatility in the export and import volumes which made it difficult for econometric estimates to fully capture the effect of the exchange rate.

5.4 Suggestions for further research

This research was conducted to determine whether there exists a relationship between the real exchange rate and international trade. The results concluded that there was no significant relationship. There is need for further investigation into the relationship between both exports and imports and other variables including inflation and interest rates.

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APPENDICES

APPENDIX A

List of Commercial banks

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

40. Transnational Bank
41. United Bank for Africa
42. Victoria Commercial Bank