EFFECT OF EXCHANGE RATE FLUCTUATIONS ON EXPORT EARNINGS OF KENYA TEA DEVELOPMENT AGENCY FACTORIES

BY

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DECLARATION

This research Project is my original work and has not been presented for a degree award in any other institution.

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DEDICATION

This work is dedicated to my family for their love, patience, support and encouragement throughout the duration of my studies.

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ANOVA - Analysis of Variance

EATTA - East African Tea Trade Association

CBK - Central Bank of Kenya

FDI - Foreign Direct Investment

FOREX - Foreign Exchange

GDP - Gross Domestic Product

GDP - Gross National Product

KTDA - Kenya Tea Development Agency

KNBS - Kenya National Bureau of Statistics

MOA - Ministry of Agriculture

UK - United Kingdom

US - United States of America

USD - United States Dollars

TBK - Tea Board of Kenya

ABSTRACT

The performance of firms involved in international trade is significantly affected by exposure to changes in exchange rates. In addition, these fluctuations influence the ability of local firms to compete with those of other nations. The tea sector in Kenya contributes 10% of GDP and 90%of the tea produced is exported. KTDA accounts for more than 60% of all tea exported from Kenya through the tea auction at Mombasa. Owing to dependence on export markets Kenya's tea exports are exposed to fluctuations in exchange rates on two levels. First at the time the export contracts are entered for sale of tea the rate of exchange rate may change by the time payment is received from the importer. Secondly when the sales proceeds are received in foreign currency the exchange rate is different from the time they are converted into Kenya Shillings. This research sought to establish whether changes in exchange rates affect how much KTDA earns from tea exports. The study used data on earnings at the time the contact was signed between the KTDA and the importer. Descriptive research was used which suited since the research was analyze the relationship between variations in exchange rate, export earnings from tea and prevailing inflation. Data was obtained from KTDA Kenya National Bureau of Statistics and Central Bank of Kenya. Regression analysis was applied to establish the association among the variables. Regression output reveal that there is a correlation between exchange rate and tea export earnings with a correlation factor of 0.221. The results obtained from the regression analysis show the model statistically reliable to predict the dependent variable since the F significance was 0.003. The relationship between export earnings and exchange rates was positive while it is negative with monthly inflation. The results also indicate there could be other variable that were not included in the model since the constant in the derived equation is a negative value. The study recommends that for policy makers in the tea industry to ensure there is stability in earnings by having tools to address the negative consequences of exchange rate volatility. A more stable exchange rate will mean less exposure to export earnings. The players in the tea sector should change employ measures aimed at minimizing the variability in earnings caused by exchange rate fluctuations among them expanding existing markets, increasing consumption and improving quality.

CHAPTER ONE: INTRODUCTION

1.1 Background of the Study

Organizations involved in international trade face exposure to the risk of volatility in exchange rates which significantly influence their performance. Exporters receive their cash in the currency of the importer and convert it to local currency to meet their operational needs (Adetayo, 2013). Exchange rate is an important determinant in the economy because it influences output and consumption of both local and imported products. It has been found out that having exchange rates maintained at their optimum levels plays an important role in: determining earnings from exports, economic growth, spending, wealth distribution, employment and private capital allocation (Bah & Amusa, 2003). The stability or instability of exchange rates significantly determine how competitive a country's goods are in international trade and the other indicators in the economy. Export earnings by a firm are significantly determined by interaction of three main factors namely, inflation, FDI and exchange rate (Bah & Amusa, 2003).

This study was anchored on two theories: Purchasing power Parity and the International Fischer theories which give clear relationship between the fluctuation in interest rate and firm performance. The purchasing power parity (PPP) holds that homogeneous products in for instance Kenya and South Africa cost the same in each country when measured in terms of either Kenya Shillings or the Rand. Individuals in various nations regularly consume distinctive baskets of products (Wei, 1995). In its "supreme" version, the purchasing power of different currencies equalized for a given

basket of products. In the "relative" form, the distinction in how much the costs at home and abroad varies (the distinction in the rates of inflation) is equivalent to the rate of depreciation or appreciation of the exchange rate. The International Fisher theory uses current and the future theoretical rate of return as opposed to inflation. The theory expresses that differences of interest rates at various markets can bring about flow of money from low interest rate business sectors to high interest rates business sectors. Using the hypothesis any gains by an investor who attempts to lend funds obtained in a different currency would be netted-off by variations in rates of lending. Thus the theory has shortcomings in that that there are other variables that influence exchange rate and not inflation alone (Ubindi, 2006).

Agriculture plays a significant role in job creation, growth of economy and generation of hard currency in Kenya (Rutto & Ondiek, 2014). Ten percent (10%) of Kenya's populace depends specifically or indirectly on the Tea industry for their livelihoods. Kenya's tea is sold at Mombasa Tea Auction which is regulated by the East African Tea Trade Association (EATTA) which comprises of middlemen, importers, growers, bulk storage and blenders. The bulk of tea produced in Kenya is traded in the Mombasa Auction where the growers through their appointed broker make offers to the importers. They invite offers in US Dollars per kilogram and thumped to the most astounding bidder, tea purchased from the auction is fundamentally traded. The exchange rate in Kenya shilling against the US Dollar decide the tea trade profit at a given time (Rutto & Ondiek, 2014).

1.1.1 Exchange Rate Fluctuations

Exchange rate has been defined by Nydahl (1999) as the amount of local currency that one is willing to pay to acquire one quantity of foreign currency. Proceeds from exports are converted to home currency of the exporter. The exporter is therefore able to honour his commitments using the home currency (Cherop & Changwony, 2014). When the price to acquire a certain currency with respect to another the currency with higher value is said to have appreciated (Papell, 1998). The US dollar is said to appreciate if the number of units in Kenya Shilling required to buy a single US Dollar increase from the current average of Ksh. 101 to Ksh 105. (Cherop & Changwony, 2014). On the other had in the same example above the Kenya Shilling is said to have depreciated compared to the US Dollar as more of its units are required to buy a single unit of US Dollar. A currency that has depreciated implies that it is worth less when compared to the other currency (Papell, 1998).

Exchange rate regimes are classified as either pegged or floating. In floating rate regime, market forces of supply and demand determine the level of exchange rate. On the other hand, in the fixed or pegged regime the rate of exchange is set by a regulator. Floating exchange rates fluctuates while fixed exchange rates are more stable. The stability of fixed exchange rates protects exporters from transactional costs associated with the risks of fluctuating rates (Masson, Peter, & Hamid, 1996). Currently most of the world exchange rate regimes are floating. Floating exchange rates are associated with uncertainty and this affects international trade. This erratic nature of floating exchange rates is used to determine how international traders are exposed risk (Todani & Munyama, 2005).

1.1.2 Export Earnings

Export earnings refer to the money received by countries or organizations as a result of selling their commodities or services to other countries in international trade (Otieno & Mudaki, 2011). Exports are of great importance to the economies of less developed countries especially in earning foreign currency and reduction of balance of payments. De Rosa and Green (1991) suggest that in order to boost export earnings, exchange rates should be allowed to adjust to more realistic values (Sousa, Martinez-Lopez, & Coelho, 2008). This will lead to significant increases in production and export of such export items as high value horticultural products. Export earnings serves as a catalyst for development through; output and consumer interaction, efficiency due to mass production which arise from extensive foreign markets, improved productivity, embracing of new innovations from international markets, and highly skilled manpower.

Export earnings are measured by the value of total quantity of goods exported or sold to another country less the cost of sales incurred in the producing country (Otieno & Mudaki, 2011). Increased economic development can be stimulated by more export earnings while a reduction in the same results in depressed growth and low investment.

1.1.3 Relationship Between Exchange Rate Fluctuations and Export Earnings

Early theoretical models of examining how volatility in exchange rates affect export earnings indicate that volatility in exchange rates have an unfavorable effect on export earnings particularly when it is not possible to minimize the risk (Clark, 1973). Export

performance is sensitive to volatility in forex rates with forex rate uncertainty overshadowing the financial performance of products that largely depend on export markets. Total export earnings from horticultural crops in Kenya historically tend to have an inverse relationship with movements in the exchange rate, although the trend is obscured by changes in volumes from year to year (Kiptui, 2008). Under the floating exchange rate regime, fluctuations in world prices of horticultural produce strongly affect export earnings. Therefore, a higher demand or a decrease in supply which causes appreciation of foreign currency makes export earnings decline (Akila, 2004).

This premise can be related to the situation of Kenya where the financial markets are less efficient. The trend where export earnings increased in the years between 2002 and 2004 while the value of Kenya Shilling appreciated supports concern that a strong Kenya Shilling by would adversely affect local firms dependent on foreign markets (Kiptui, 2008). Studies have shown that a weak Kenya Shilling relative to the US dollar and Euro will have an impact on the level of exports for small and large scale firms (Cherop & Changwony, 2014). A research by McKenzie (1999) found since forex rate volatility does not affect distinct sectors in a similar manner, further studies ought to be carried out using data from each distinct export market. Different findings have been established from past research where time series or cross sectional data was used. Hooper and Kohlhagen (1978) for instance, used time-series data to establish the effect of exchange rate fluctuations on exports of developed countries and concluded that the data does not support an inverse relation between the variables.

1.1.4 Kenya Tea Development Agency

Kenya Tea Development Agency the company that is the managing agent of over 67 tea factories spread across the Kenya. The company was formed after reforms in the late 1990s where it previously operated as a parastatal under the State Corporations Act (Cap 286). Presently KTDA is a private company incorporated in year 2000 with a mandate to manage all the tea factories owned by small scale tea growers in Kenya. The KTDA is the country's biggest private company with over 15,000 employees and 66 tea factories in 2010 (KTDA, 2012). KTDA tea factories process green leaf tea from tea farmers and packages the tea for local and export markets. Over 90% of tea produced in Kenya is exported through the Mombasa Tea Auction which is operated by East African Tea Trade Association (EATTA). KTDA accounts for over 60% of the export volumes as well as tea sold in the local market. (Tea Directorate, 2016)

The tea crop is a cash crop that is grown and its products are primarily produced for export market. Other export oriented crops in Kenya are coffee and horticulture. Tea accounts for about 20% of Kenya's exports and was the leading export earner in the 1990's until it was overtaken by horticulture. Ove the years the tea sector has been stable with the acreage under the crop increasing as well as output. This has led to growth in both volumes of exports and value of the export earnings (Muthamia & Muturi, 2015). However, production is heavily dependent on the weather patterns and this causes variations in volumes depending on the rainfall distribution and availability. Other factors that influence the performance of tea sector include: cost of

inputs, cost of labour, plant maintenance and cost of fuel (Were, Geda, Karingi, & Ndung'u, 2002).

The Mombasa Auction is among the main avenue where exporters from Kenya, Uganda, Tanzania, Rwanda, Burundi and Democratic Republic of Congo sell their tea. The auction uses automated system to sell tea where prices are denominated in US dollars in accordance with regulations (TBK, 2012). The auction at Mombasa is operated by EATTA and is ranked number two globally after the auction in Colombo, Sri Lanka. The major export destinations of Kenya tea are Pakistan, Afghanistan, United Kingdom, Middle East Countries, Sudan and Russia and slightly over 32% of tea sold worldwide is traded at Mombasa (EATTA, 2012). The tea produced in Kenya is mainly black CTC (Cut, Tear and Curl) teas and is of high superior quality and taste. For this reason, it is mainly used for blending with other teas produced outside Kenya (Tea Research Foundation Kenya, 2009). There is a positive relationship between proceeds from exports of tea, exchange rate, demand and supply, other exports and value added in the supply chain (Mithamia & Muturi, 2015).

KTDA is mandated to process, market tea for tea farmers in Kenya as well as support them with good agronomy practices (KTDA, 2016). In this study the researcher intends to establish how exchange rate volatility affects tea earning of KTDA managed tea factories. Agriculture contributed 27.3 per cent of GDP in 2014 (Economic Review on Agriculture, 2015 edition). Ten percent of Kenya's population depends directly or indirectly on the Tea sector in terms of employment and income. Kenya's tea is sold at Mombasa Tea Auction which is regulated by EATTA whose

composition include middlemen, importers, growers, bulk storage and blenders. (Rutto & Ondiek, 2014). The currency of trade at the auction is USD as per the rules and guidelines regulating the operations (EATTA, 2010).

The acreage of tea crop in Kenya is about 248,374 acres managed by about half a million growers. The tea sector there support a significant number of livelihood directly. In addition, there are other employed directly in the supply chain who work in the processing, distribution, marketing and middlemen (KTDA, 2008). The Kenyan economy depends heavily on primary products like tea, coffee and horticulture for foreign exchange income. Over the years, tea exports have played a significant role as a foreign currency earner (Cherop & Changwony, 2014). Exchange rates and inflation levels have been identified as some of the variables that determine the performance of KTDA factories. This research sought to determine how the change in exchange rates influence how much the factories managed by KTDA earn from exports.

1.2 Research Problem

Exchange rate stability is important for economies involved in international trade to help the various business in budgeting with certainty their production and performance. Exporters of various products and services are interested both good prices to cover their costs which should also be predictable so that they are able to plan with a certain degree of certainty.

An analysis of Kenyan export performance shows that the country has been able to expand its export volume to compensate for losses due to deteriorating terms of trade. Though 26% of export earning still accrue from export of tea, there has been a decline

in the value of domestic tea export from Kenya, since the year 2000, despite aggressive market campaigns by tea firms. This is attributed mainly to the strength of Kenyan shilling against the US Dollar. In other words, the appreciation of the Kenyan shilling will lead to low tea earnings from exports. The level of exports realized from tea is important as the it will cover the costs that goes in the processing the product which essentially determines its quality. Owing to the important role of tea in Kenya, high earnings from tea exports translates to improvement in the economy in terms of job creation, foreign exchange reserves, lowering income inequality as well as government's ability to fulfill its budgetary commitments (Rutto & Ondiek, 2014).

When analyzed over time Kenyan exports have been growing in volumes which has had the effect of offsetting losses occasioned by worsening trade terms. The value of local tea exported has been decreasing despite the fact that a sizeable portion from export earnings is attributable to tea couple with marketing initiatives by tea producers. The major contributor is a strong Kenyan shilling against the United States Dollar which results to lower value proceeds from tea exports (Rutto & Ondiek, 2014). According to a study by Adubi (1999) exchange rate fluctuations has adverse effects on exports earnings from agriculture. Tea export markets are volatile and significantly influenced by many factors, export prices, income of importing countries, and of particular importance the exchange rate volatility (Rutto & Ondiek, 2014). In order for those engaged in export business to make a return the exchange rate must be less volatile (Cherop & Changwony, 2014).

Several studies have been conducted on exchange rate fluctuations and export earnings. Internationally, a study was conducted on how fluctuations in exchange rate impact the growth in export by Mustafa and Nishat (2004). It was found that fluctuations in exchange rates affects negatively the growth of exports with United States and Britain which are the major foreign trading countries. The trend was also established for other trade partners where trade volumes between the countries were more stable. In another study, Genc and Artar (2014) established that there is a long run equilibrium relationship between exchange rates and exports. The study found out there was a correlation among 22% of the nations both long run and short-run measures and were statistically significant.

Locally, Naiguta (2015) studied the impact of fluctuations in foreign exchange rates on earnings from exports using data from flower industry in Kenya and found that volatility in rates of exchange has a major influence on total export earnings. Abuka (2015) researched on the same field but used data on exports of coffee from Kenya and concluded that volatility in exchange rates and FDI expressed as percentage Gross Domestic Product significantly influence export earnings from Kenya coffee. Majok (2015) used evidence from the banking industry in Kenya to determine whether volatility in exchange rates influence performance and established that the strength of association between the fluctuations and the returns was a weak one.

Above reviewed studies concentrated on other agricultural exports other than tea. This study therefore sought to fill the gap in research be seeking to answer one research

question: What are the effects of exchange rate fluctuations on export earnings of Kenya Tea Development Agency Factories?

1.3 Research Objective

The aim of this research was to find out how fluctuations in exchange rates affect export earnings of KTDA managed tea factories.

1.4 Value of the Study

The results of this research will assist KTDA who are the major players in tea sector understand how earnings from tea exports are affected by fluctuations in exchange rate. Further KTDA can develop ways of dealing with variations in cash flows caused by exchange rate fluctuations. By understanding the variable interrelate KTDA will be able to make informed decisions regarding timing and sale of foreign currency denominated assets.

This study will also be of help to the Ministry of Agriculture when setting policies and guidelines on Kenya's tea industry. The ministry of Agriculture which makes policy will be able to device strategies on how to protect tea farmers from exchange rate risks. The study will be of value to Central Bank of Kenya and Treasury who the monetary authorities are regarding stability of exchange rate which is critical for the economy.

The study will help academicians as it will come up with areas of interest that researchers may be interested in. It will increase the knowledge base concerning

effect of foreign exchange rate fluctuations and this will help in carrying out further in this field.

CHAPTER TWO: LITERATURE REVIEW

2.1 Introduction

In the chapter the various theories on exchange rate volatility, factors influencing earnings from export tea are reviewed. The chapter also includes reviews of on past research in similar field a conclusion of literature review.

2.2 Theoretical Literature Review

The theoretical framework of this study was based on two theories including purchasing power parity theory and international Fisher theory.

2.2.1 Purchasing Power Theory

Gustav Cassel is the architect of this theory in its current form (Menon & Viswanathan, 2005). The purchasing power parity (PPP) holds that when compared based on similar currency, the price of homogeneous product is the same regardless of the country they are in. For example, homogenous products in Kenya and South Africa should cost the same in either country when measured in terms of either Kenya Shillings or the Rand. The implication is that when purchasing power in different nations are similar, then their exchange rates are at optimum. According to the theory, exchange rates are at optimum based on the level of prices in different nations in the long-run. However, computation of this exchange rate is not easy owing to the difficulty of having a homogenous class of goods to compare purchasing power in two countries. Applying the economic theory that similar items will have the same price in separate markets when exchange rates are considered, Purchasing Power Parity can be used to arrive at the optimum level of exchange rate over the long run.

Comparing separate nations, consumers generally use combination of comparable items (Wei, 1995). Basically, the purchasing power of different currencies should be equal for a given basket of goods. According to the theory in a relative form, the distinction in how much the costs at home and abroad varies (the distinction in the inflation rates) is equivalent to the rate of depreciation or appreciation of the exchange rate (Rogoff, 1996).

In the long run there is no stationary ratio of price levels in two countries as a result of disequilibrium in the rates of exchange (Engel, 1996). In some cases, there is no trend in the ratio of price levels presupposing that there is general correction of the equilibrium exchange rate. In instances where an equilibrium exchange rate is not achieved over a certain period due to other factors the popular currency appreciates. The less popular currencies are the one that attain higher value over the dominant currency after an extended period of time (Engel, 1996).

There is need for comparison by use of price index, the cost of a collection of products and services. This is not an easy task because of variations in purchasing patterns and even the products available to purchase across countries. Therefore, there is need to make modifications to cater for the variation in the quality of the products (Kim, 1990). Complexities in processing data arise a case of multiple countries since identifying identical baskets of good is not easy. Adjustments for price increases are necessary if Purchasing Power Parity analysis is being carried out for several (Engel, 1996).

2.2.2 International Fisher Theory

This theory was originated from the fisher effect hypothesis by American economist Irving Fisher. Theory is founded on current and the future theoretical rate of return as opposed to inflation. The theory expresses that differences of interest rates at various markets can bring about flow of money from low interest rate business sectors to high interest rates business sectors. Using the hypothesis any gains by an investor who attempts to lend funds obtained in a different currency would be netted-off by variations in rates of lending (Shapiro, 2007). The Fisher hypothesis states that real interest rate is not dependent on fiscal interventions which is nominal interest rates and expected rate of inflation. In other words, the unequal anticipated rates of inflation account for the variation in the interest rates in different countries. Applying the theory, it is therefore expected that an increase in interest rates in a country would cause a depreciation of the currency since the higher interest rates signal a rise in anticipated inflation (Staikouras & Wood, 2004).

An assumption of this theory is that if rates of interest increases, the anticipated inflation will also increase thereby triggering loss of value for currencies in those countries where interest rates rose. that The theory would be proven when it would make no sense to lend funds in a different country that were borrowed from home country because any gain would be netted-off as rates of exchange would adjust to accordingly as to any variances in interest rates. There are other variables and not inflation alone that determine exchange rate and this is the main shortcoming of the International Fisher effect hypothesis (Ubindi, 2006). The translated value would not

account fully net off additional value from higher rates of interest every time. The additional value could be more sometimes and low in other times (Madura, 2007).

Theoretically it has been observed that movements in exchange rates eventually net off any variations in rates in interest. For this research the Fisher Effect is applicable since purchasing power in separate nations, that incorporate inflation, enable a collection of comparable items bought in a certain currency to be the same as that bought in a different currency for optimum exchange rate to be achieved.

The International Fisher Effect is explained in the formula: (Madura, 2007).

$$\% \text{ change in exchange rate} = \frac{(\text{Interest rate of home currency}) - \text{Interest rate of external currency}))*100}{(\text{Interest rate in external market} + 1)}$$

2.3 Determinants of Tea earnings

Muthamia and Muturi (2015) established the various factors determine the how much is earned from tea, some directly and other indirectly. Those factors that directly influence earnings include exchange rates, auction prices, exportation of other products and further processing of agricultural output. The wealth in other key nations that do business with a particular nation indirectly influence the earnings. The association between tea export earnings and rate of inflation locally initially is proportional but over extended period its opposite (Muthamia & Muturi, 2015). This section will explain the determinants of export earnings in detail.

2.3.1. Inflation

Inflation refers to the continued rise in general level of prices of commodities over period of time. Inflation causes a currency to reduce it value over a time in that the quantity of goods and service that can be purchased for the same amount of money (Shapiro, 2007).

Using a longitudinal research time series Muthamia and Muturi (2015) established that the rates of inflation determines how much earnings are made from total tea exported. The relationship is direct up to a certain point but over extended period of time it is in opposite direction. As inflation rate increase over time the wages and inputs become more expensive hence lowering the earnings. The cost of inputs not manufactured locally the additional value from earning are netted off by the additional import costs thus reducing the overall earnings.

Wamukhoma (2014) conducted a study in horticultural industry and found out that the level of earnings from tea is inversely related to the rates of inflation. Inflation causes the exporting currency to have lower purchasing power which eventually reduces the value of earning from the exports.

2.3.2 Foreign Direct Investment

Wamukhoma (2014) established the improvements brought about by FDIs leads to improved efficiency which increase profit margins and therefore FDI is a major determinant in the level of earnings from exports in horticulture sector. Foreign Direct Investments significantly accounts to the change in the make-up of exported goods

and services as observed from practice. It has been demonstrated that a major increase the of exports of more high-tech products by Chinese and Singaporean exporters is as a result of FDI in the two countries since it brought about improvement in scope and innovations. From the initial stages to maturity of foreign trade of a country, FDI supports in promoting industrial transformation and composition of foreign trade. In a nutshell it has been found out that FDI is beneficial as the investments brought about enhance scope and increase efficiency in foreign trade leading to rise in earnings (Fugazza, 2004).

2.3.3 Real exchange rates

Real exchange rate is the ratio of the level of prices outside the country and level of prices locally when the foreign currency is translated into local currency using the prevailing exchange rate. This rate shows the many times additional goods and services can be bought in a foreign country once the local currency is translated. Over the short run an increase in real exchange rate will result in an increase in export earnings. Thus if a currency of the exporting country depreciates against the currency of the importing country value of its exports will increase. The contrary is also true (Muthamia & Muturi, 2015).

Real exchange rate plays a significant role in establishing the value of proceeds received from export of tea. Firms in the export business may make losses due to volatility in exchange rate, and it is therefore important take measures to cushion themselves (Muthamia & Muturi, 2015).

2.3.4 Income of Major Trading Partners

Exports earnings respond in the opposite direction to levels of income of the importing countries at all times. Thus export earnings from tea will rise when the level of income of the importing country declines and vice versa. If for instance there might be a shift in preferences as to areas to utilize funds in a satiation where the income levels went up in importing countries from Europe (Britain) middle East or Asia. The additional income in those countries may be shifted to other pressing needs resulting in a decline of tea exports. Income levels of importing country is therefore crucial element in the achievement of the proceeds from exported teas (Muthamia & Muturi, 2015).

2.4 Empirical Literature Review

The relationship between exchange rate volatility and export earnings has been examined by various researchers. This section will review past studies and highlight either their objectives, methodology used, findings and identify the research gaps.

2.4.1 Global Empirical Studies

Genc and Artar (2014) conducted a study on the relationship between exchange rates and exports. The aim of the study was to investigate how exchange rates influence imports and exports on economies that were not fully developed. The study used secondary data derived from world bank for years between 1985 to 2012 on selected economies The results of the time series concluded that there was cointegration between the variables for the period of the under review.

In another research in Pakistan it was established that exchange rate movements affect growth in exports only in long run (Mustafa & Nishat, 2004). The objective of the research was to find out whether exchange rates influenced growth in exports using a framework related economies. A time series data for the period from third quarter of 1991 to second quarter of 2004 was used in the study. Analysis of the data concluded that the there is a major inverse relationship between exchange rate variations and growth in exports in regard to the main markets (United States and Britain). It was further observed that there was no significant variation in business volumes between Pakistan and two countries in Asia plus Australia. When compared the India, exchange rate movement correlated with growth in exports only in the long run.

According to Fabling & Sanderson (2015) strengthening of the currency of the exporting country compared to that of the importing country influences financial performance of the exporter. An example is a case where the currency of the exporter appreciates, the exporters have to decide whether to charge the same prices in order to retain their customers in domestic market, or raise the prices to maintain same margins but lose a segment of their customers due to the price hike occasioned by change in exchange rate. Therefore, increase (decrease) in value of any currency will result to a fall (rise) in the proceeds from export of goods and Services (Fabling & Sanderson, 2015).

Fabling & Sanderson (2015) cite Dixit (1989) and Campa (2004), for theories of exchange rate hysteresis and conclude that the risk of future returns rises when it is

expected that there will be variations of exchange rates in future. This was the pioneer research to establish the relationship between currency values and exchange rates variability.

In another study conducted in India exchange rate fluctuation were found to have major adverse influence on exports (Srinivasan & Kalaivani, 2012). This research analyzed Indian exchange rate movement and growth of exports over a period of 41 years from the year 1970. Yearly data for the period of the research was analyzed applying bound test approach to cointengration. The findings show that exchange rates variations are correlated with exports, GDP and performance of external economies. The research concluded that wide exchange rate movements decrease Indian exports over the short run and long run (Srinivasan & Kalaivani, 2012).

A research on the influence of exchange rate volatility on exports by examining the firms not in financial sector in India found that Gross Domestic Product and export move in similar direction (Cheung & Sengupta, 2013). Time series data for 10 years from the year 2000 was analyzed. The results show that increase in value of the exporting currency coupled with exchange rate movement has a major indirect relationship with the territorial size of export businesses in India (Cheung & Sengupta, 2013).

In another study it was established that although Gross National Product of foreign country influence, exports and exchange rates shifted in opposite direction (Batten & Belongia, 1984). Evidence from data revealed that exchange rates played a major role in determining the exports as more value of exports went up when the local currency

depreciated (Fabiosa, 2002). Excessive exchange rate volatility was found to put much strain on the quantity demanded in the importing countries over the short run as well as long run eventually leading to a decline in earnings (Arize, Osang, & Slottje, 2000). Research findings on examination of whether exchange rate changes determine Ugandan exports revealed that exports earnings were adversely affected by exchange rate volatility (Cameron, Kihangire, & Potts, 2005). Exchange rate variations were found to have a major negative impact on exports (Vergil, 2002).

2.4.2 Local Empirical Studies

Majok (2015) sought to establish how exchange rate volatility affects performance in Kenyan banking sector. The study examined all licensed commercial banks in Kenya at the close of the previous year. Owing to the small number the entire population was utilized. Statistics from Central bank of Kenya as well as audited annual account of the banks was used. The results shew that there is a correlation between exchange rate volatility and bank's performance in terms the ratio of the profit before tax to total assets. In addition, the correlation factor of -0.201 revealed the weakness of the association between volatility and the ratio of return on assets.

Abuka (2015) conducted a case study to determine how exchange rate volatility affects to earnings from exports of Kenyan coffee. The research used data from Coffee Board of Kenya on exports for nine years up to end of the year 2014. Other variables in the regression equation were the ratio of FDI to Gross Domestic Product and inflation. The results of regression established that there is a high correlation between exchange rates, FDI expressed as a ratio of GDP.

Naiguta (2015) established that there is a direct relationship between exchange volatility and earnings from exports in Kenya's floriculture industry. The research aim was to determine how exchange rate movements influence export earnings in the flower industry. Secondary data for a period of 10 years from 2005 was used. Other variables in the model included inflation and the interest (bank) rate per quarter. The results demonstrated that changes in export earnings from flowers were associated with volatility in exchange rates, inflation and interest rates (all quarterly). The output further revealed that export earnings, exchange rates and inflation per quarter moved in the same direction or are positively related.

Ramos (2013) concluded that volatility in exchange rates does not solely influence the prices that petroleum products are retailed in Kenya. The research carried out an analysis of the prevailing price of petroleum products in the capital city and environs for a period of 2.5 years from beginning of 2011. The other variable in the model was the exchange rate (KES/USD) on a month by month basis. The results that the retail prices of petroleum products and exchange rate have a positive correlation albeit a weak one. This means there are other variables and not exchange rates alone the affect the price of petroleum products.

Kinyanjui (2013) studied the association between exchange rate variations and the loan demand in Kenyan commercial banking sector. All commercial banks operating in Kenya in accordance with the law formed the population of research. The study used secondary yearly data sourced from CBK for thirteen years from 2000. Regression analysis was done to test how the variable relate to each other. The results

demonstrate that there is a strong inverse relationship between exchange rate volatility and demand for loans among Kenyan commercial banks.

Cherop and Changwony (2014) conducted a survey investigating how exchange rate volatility has influenced the incomes of Kenyan smallgrower tea factories and established that changes in exchange rate and the net payment per kilo of unprocessed tea moved in the same direction (positively correlated). Muthamia and Muturi (2015) conducted a study to establish how exchange rates affect tea export earnings. Other variables in the study are rate of inflation and income levels of main export countries. The research used longitudinal research time series and they concluded that foreign income and earnings from tea exports are inversely related while the relationship between tea export earnings, prices of tea, other exports and additional processing of agriculture output is direct.

Kiptui (2008) investigated whether exchange rate volatility harms Kenyan exports and concluded that foreign exchange rate fluctuations have major adverse effects (both in the short run and the long run) on Kenyan tea and horticultural exports. Wamukhoma (2014) analyzed export earnings from horticultural exports with exchange rates for the period January 2009 to December 2013 using multiple regression. This study concluded that the variations in foreign exchange rates significantly influence earnings of Kenyan horticultural exports. Rutto and Ondiek (2014) studied the how exchange rate movement affect performance of Kenyan tea exports by applying annual time series data for a period of 40 years to 2008. The results show that changes in exchange rate adversely affects performance Kenyan tea exports. The study

recommends that movements in exchange rates be regularly monitored and economic policies that ensure exchange rate stability be put in place.

2.5 Conceptual Framework

A conceptual framework can be explained as a figurative representation that show how the variables (independent and dependent) in a study relate to each other. It helps to represent how the independent and independent variables are linked to one another. In this study exchange rate fluctuations is the independent variable while export earnings from tea is the dependent variable is. These are well represented in the figure 2.1 below:

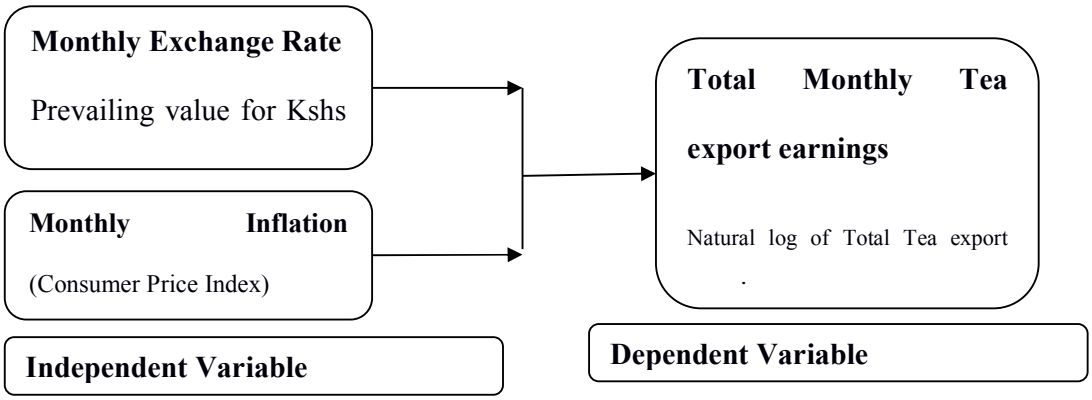

Figure 2.1

The Study will use the official Central Bank of Kenya(CBK) monthly exchange rate while the official Kenya National Bureau of Statistics (KNBS) monthly inflation rate will be used. Data on Total monthly tea export earnings will be derived from KTDA and EATTA.

2.6 Summary of Literature Review

According to Oiro (2015), though various studies has been done in this area, there is still no agreement on how exchange rate variations influence exports. Studies done by different researchers on the subject have produced different conclusions. While some like Muthamia and Muturi (2015) and Cherop and Changwony (2014) have established a positive relationship, others like Ruto and Ondiek (2014) and Kiptui (2008) have established a negative relationship have established there is a negative relationship. Much of the previous research has concentrated on the effect of exchange rate fluctuation with regard to the whole economy or the entire tea industry. No study has been done focusing specifically on exchange rate and tea export earnings of KTDA managed tea factories. This research has explored further on this topic and the findings contributed to the previous research works.

CHAPTER THREE: RESEARCH METHODOLOGY

3.1 Introduction

This chapter explains the research methodology that was followed in completing the research. It includes how the research was designed, population, sample design, how data was collected, validity and reliability, and finally data analysis.

3.2 Research Design

Research design is defined as a master plan for executing the study with ultimate direction of the elements that can hinder the legitimacy of the conclusions (Burns & Grove, 2003). It can be expressed as a plan that details the manner, the timing and which data is to be gathered and interpreted (Parahoo,1997). This study was designed as a quantitative research and a descriptive one to be specific. A descriptive research is devised to show an impression of a setting as it normally occurs. It can be applied to rationalize the prevailing approach and make decisions as well as advancing new hypothesis (Burns & Grove, 2003). This master plan aimed to achieve the broad goals of the research.

3.3 Population and Sampling

The population of the study was KTDA managed tea factories. The unit of analysis was aggregate export earnings and therefore this study was a census. The study collected all the export earnings from tea. Since all tea from KTDA factories is exported through the Mombasa Auction, total monthly earnings for the last five years from 2011 to 2015 was used.

3.4 Data Collection

The study relied on secondary data from KTDA, EATTA, CBK and KNBS. Data on export earnings was collected from records of KTDA and EATTA. Data on monthly foreign exchange rates was obtained from CBK while data on inflation was sourced from KNBS.

3.5 Data Analysis

Raw data on monthly export earnings was received from KTDA. Data on exchange rate and inflation per month was obtained from CBK. Once all the necessary data was obtained analysis conducted to get the relationship between the variables. The study applied regression analysis to establish the relationship between the export earnings (dependent variable), exchange rates (independent variable) and inflation (independent variable). Descriptive statistics was used to quantify and code the data. The researcher applied Statistical package for social sciences to help in analyzing the data. Measures of central tendency were then used in data analysis together with tests of the significance.

3.5.1 Analytical Model

Data was expressed in form of an equation; $Y=\alpha +\beta 1X1 + \beta 2X2 + \varepsilon$

Where: Y= Log of Tea export earnings (monthly)

X1 = Foreign exchange rate, - Kenya shilling/ US Dollar (monthly)

X2 = Inflation rate (monthly)

ε = Error term

3.5.2 Tests of Significance

The research applied Analysis of Variance (ANOVA), coefficient of determination (R2), correlation coefficient (R), and F statistic as tests of significance tools. The purpose was to interpret the various associations between the variables in the model. ANOVA was used to find out if the standard means were the same. Coefficient of determination (R2) was used to test whether the regression equation fitted the data. The R2 value shows the closeness of the data to the regression line. The strength or weakness of the association and whether the variable affect each other in the same or opposite direction is measured by the correlation coefficient (R). To gauge the significance of the regression results the F test statistic was used.

CHAPTER FOUR: DATA ANALYSIS, RESULTS AND DISCUSSION

4.1 Introduction

This section presents analysis, interpretations, discoveries and recommendations of the research. The goal of this study was examine volatility in exchange rates influence export earnings of KTDA tea factories.

4.2 Descriptive Statistics

Table 4. 1: Summary of the Descriptive Statistics

YEAR		Inflation	FX rate	Export Rate
2011	Q1	14.1%	99.7514	.161
	Q2	12.2%	94.3851	.249
	Q3	12.8%	101.5873	.215
	Q4	13.3%	94.2123	.631
2012	Q1	10.3%	95.8292	.441
	Q2	8.9%	94.3121	.362
	Q3	9.2%	95.2561	.451
	Q4	7.1%	95.8789	.461
2013	Q1	3.6%	97.0422	.361
	Q2	3.4%	94.4534	.951
	Q3	4.2%	99.4789	.695
	Q4	4.5%	99.0653	.621
2014	Q1	6.9%	94.2694	.612
	Q2	5.6%	96.3958	.784
	Q3	6.4%	95.7353	.861
	Q4	5.2%	96.2543	.935
2015	Q1	4.6%	96.5222	.945

Q2	6.4%	96.7449	.862
Q3	6.6%	96.2858	.951
Q4	5.9%	97.2858	.944

From Table 4.1, the summary rates of inflation topped in quarter 1 of 2011 at 14.9% when the Forex rate to the US Dollar was at 99.7514. Exports for that quarter were 0.161. On the other hand, quarter 2 of 2013 registered the lowest rate of inflation at 3.4% with forex rate to the US Dollar at 94.4534. The quarterly exports for the period stood at 0.951. The Kenya Shilling registered the lowest value against the US Dollar in quarter 3 of 2011 at 101.5873.

4.3 Inferential statistics

Inferential statistics were applied to make inferences from the data about the entire population based on probability.

4.3.1 Pearson Correlation Analysis

To examine the effect of the independent variables on the dependent variable correlation coefficients were used. The correlations between exchange rates, inflation rates and export earnings were analyzed using Pearson's correlation coefficient which measures the strength of the relationship between the variables.

Table 4.2: Correlations table

		Total Tea export earnings	Monthly Foreign exchange rate	Monthly Inflation
Total Tea export earnings	Pearson Correlation	1	.221*	-.275**
	Sig. (2-tailed)		.001	.012
Monthly Foreign exchange rate fluctuation	Pearson Correlation	.221*	1	-.340**
	Sig. (2-tailed)	.001		.003
Monthly Inflation	Pearson Correlation	-.275**	-.340**	1
	Sig. (2-tailed)	.012	.003	

From the Table, the two independent variables are correlated to the dependent variable. Monthly exchange rate fluctuation had a correlation coefficient of 22.1% while Monthly inflation had a correlation coefficient of -27.5% to Total tea export earnings.

4.3.2 Regression Analysis

The relationship of the independent and dependent variables was measured by use of regression analysis. In order to forecast the statistical significance between the variables, multiple regression analysis was carried out to investigate the effect of the independent variables exchange rate and monthly inflation, on the Total Monthly Export Earnings. The model coefficients are as per summary in Table 4.3

4.3.2.1 Model Summary

Table 4.3: Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	0.844	0.71234	0.697	0.4516

Source: Research data, (2016)

From Table 4.3, the coeffient of determination shown by adjusted R squared was 0.697 implying that 69.7% change in Tea export earnings (dependent variable) is explained by exchange rates and inflation (independent variables). The balance of 30.3% accounts for other factors that were never incorporated in the model. From the results R Square was 0.71 which means a strong relationship and a good fit.

4.3.2.2 ANOVA[a]

Table 4.4: ANOVA[a]

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	16.952	2	8.476	7.514	.003[b]
	Residual	40.608	36	1.128		
	Total	57.56	38			

Source: Research findings (2016)

F critical = 2.79

From Table 4.4, An F test of 7.514 signifies that ability of the model to explain that a change in Y is caused by the variables was strong. The model and output show they reliable statistically to predict the dependent variable since the F significance was 0.003 implying that the model might only be 0.03% incorrect in its prediction. F significance should be below 0.05.

4.3.2.3 Coefficients

Table 4.5: Table of Coefficients

The following table 4.5 gives the coefficients which helps in establishing the regression line

Model	Unstandardized Coefficients		Standardized Coefficients	t	Sig.
	B	Std. Error	Beta		
1 (Constant)	-.421	.129		-3.254	.000
Monthly Foreign exchange rate fluctuation X1	.496	0.096	.394	5.167	.019
monthly inflation X2	-.227	0.056	-.211	-4.045	.014

Source: Research findings (2016)

The regression equation after estimation was

$Y = (- 0.421) + 0.496 X_1 + (- 0.227X_2)$

The study revealed that that a unit change in Monthly Foreign exchange rate fluctuation would positively change total tea export earnings by a factor of 0.496, while a unit increase in monthly inflation will negatively decrease total tea export earnings in Kenya by a factor of -0.227, and vice versa.

4.4 Discussion of the Findings

The study sought to find out how changes in exchange rates influence tea export earnings of KTDA managed tea factories. The regression results show that the variables are statistically significant (P <0.05) at 5% on export earnings. With a constant of -0.421, it implies that in absence of the variable in the model, export earnings will be negative. It therefore means there are other factors that influence tea export earnings that were left out in the equation.

The analysis shows that the correlation between export earnings and exchange rates is positive (correlation factor = 0.221, P value .001). It therefore means an increase in exchange rates would result in a rise in export earnings. The results therefore concur with prior work by authors like Arize et al. (2004), Batten and Belongia (1984) and Cameron et al. (2005) who had similar conclusions that when foreign currency appreciates it leads to an increase in export earnings. This research therefore gives evidence that exchange rate is a key element in determining export earnings.

The results further show that the correlation between export earnings and inflation is negative (correlation factor = -0.275, P value .012) (Beta coefficient value = -0.227). This implies that a rise in inflation rate in the exporting country will result to a decline in export earnings from tea. Inflation being to the persistent rise in general level of prices of commodities over time results in a decline in purchasing power of the exporting currency. Reduced purchasing power eventually leads to a decline returns that firms make leading to lower exports.

Overall the analysis shows that the model is statistically significant since significance values of the coefficients derived were close zero and below 0.05. F significance value of 0.003 means the model might only be 0.03% off in its prediction.

CHAPTER FIVE: SUMMARY, CONCLUSION AND RECOMMENDATIONS

5.1 Introduction

The research summary and conclusions deduced from the output data are outlined in this chapter. In addition, the section includes recommendations, limitations and suggested area for further research.

5.2 Summary of Findings

The research objective was to find out how volatility in exchange rates influence export earnings of KTDA managed tea factories. This descriptive research opted to utilize secondary data derived from KTDA, CBK and KNBS. Regression analysis was used to describe the relationship between the independent variables and the dependent variable. The results reveal a positive correlation exists between tea export earnings and exchange rates meaning that a depreciation in local currency causes a rise in exports and vice versa. There is a negative correlation between tea export earnings and inflation.

Output from the regression analysis shows that when exchange rates shift upwards by a single unit tea export earnings shift in the same direction (rises) by a factor of 0.496. When the rate of inflation shifts upwards by a single unit export earning shifts in the opposite direction (drops) by a factor of 0.227. If in an ideal situation the variables are eliminated by their rates falling to 0% the assigned value of export earnings is -0.421. The implication is that there are other determinants or variables that affect the export earnings that were left out in the model equation.

5.3 Conclusions

The study finding confirm that exchange rates and inflation are statistically significant variables of how much KTDA earns from tea exports. The tea sector is an important player in Kenya's economy. Understanding the interrelationships amongst the many factors that affect its performance is key to be able to address the challenges facing the sector. There has been agitation by small scale tea growers for higher payments for the unprocessed tea they deliver to KTDA factories which is further processed for export. There has been a general feeling among the farmers that KTDA has been underpaying them. Since over 90% of the processed tea by KTDA is exported this study will be useful in explaining why the tea earning very from year to year. There could be other factors like changes in consumer tastes, weather patterns, value addition and branding that influence the earnings. However, since the exports proceeds must be translated using the prevailing exchange rate, it remains a significant factor in determining how much earnings KTDA will realize.

5.4 Recommendations.

Tea industry players should initiate marketing campaigns in newer markets aimed at changing consumers' attitudes to encourage uptake of tea as a beverage. This will spur demand and improve prices and volumes which can compensate against exchange rate fluctuations. The government and tea sector players need to explore new markets for exporting tea instead of relying on the same export destinations. There is need for policy makers to work towards increasing the volume of exports through diversification of market destinations by targeting local, regional and export

markets as opposed to the current practice. This can be realized through regional and export market promotion initiatives as well as consistent compliance with quality standards. Innovative ways of meeting the standards and facilitation of smallholder farmers to meet these standards is required.

The National Treasury, Ministry of Agriculture, The Tea Directorate and KTDA can negotiate and set up a cash reserve to guarantee consistent tea returns. During periods when the earnings are low the cash reserve can be utilised to top up the deficit such that the returns are less uncertain. This will be help farmers and other players in long term planning which reduces risk. Levies can be introduced in the sale of tea and utilised to sustain the reserve.

KTDA can explore widening its scope by opening outlets in overseas markets so that they reach the consumers directly. This will not only expand the market but also increase the margins since there will be fewer middle men in the distribution chain. By being closer to the consumer they will adjust faster to changes in the market which can give them a competitive edge.

The tea industry players should restructure the current operating model in the sector in order to improve efficiency to produce at a lower cost. The entire supply chain should be overhauled by investing in the latest technology for processing, packaging, transportation and warehousing to minimise costs.

There should be continuous training of farmers on the latest agronomy practices to maximise their output and improve quality. Information regarding best practices,

quality affordable inputs and weather patterns should be availed to the farmers to help them manage their farms efficiently. This will improve productivity of their farms and maximise returns.

5.4 Limitations of the Study

Due to the sensitivity of the information obtaining the data was a challenge due to fear by KTDA that the information could leak to outside parties and be used for propaganda and misleading farmers. Thus the data received was very selective and had to be cross checked against other third party sources to ensure accuracy.

The data on exchange rates used was the prevailing exchange rate at the time the contract for sale was entered between the exporter (KTDA) and the importer. However, conversion of the dollars to Kenya Shillings by KTDA is done at a later date. The exchange rate at the time of sale might have changed at the time of translation which creates a timing difference. This therefore could have slightly distorted the analysis.

There could have been adjustments in the data on exports for brokerage and other commissions, levies and charges that distorted the total earnings. Complete information was not available on any of these adjustments. In some cases, there are penalties paid by importers for failing to comply with payment terms and other regulations of the auction. These may have slightly altered the results of the regression analysis.

5.5 Suggestions for Further Research

The researcher recommends additional studies to be carried out on how earnings are affected by factors such as weather patterns, oversupply and instability in the export markets. The results of the regression equation show that there may be determinants that were excluded from the model. Additional research is recommended with inclusion of new variables.

It is necessary to examine the impact of the timing difference between the value of the export contracts and the time the foreign currency is translated and how it influence earnings. The accounting treatment is to charge the variances in the income statement as gain or loss on exchange but more studies should be done using data available.

The relationship between local consumption and exports should be studied in detail. In recent years there have been new entrants in the local market with different approach in terms of marketing, branding and distribution. These new developments may influence exports as the suppliers remain the same. The alterations in local market structure over time may affect quality and volumes available for export and it is an area worth further investigation.

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