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ABSTRACT

The general objective of the study was to establish the factors affecting the flower export earnings in Kenya. The study used secondary data to achieve the stated research objective. The data was collected from HCDA, KNBS, KFC, and CBK. Flower export earnings was analyzed together with the Exchange rates (Kshs Vs Euro), inflation rates, foreign capital flows and volume of flower exports for the period January 2011 to December 2015. The study found out that exchange rate volatility affected the export earnings of flowers. It was identified that the two exchange rate volatility factors notably balance of payments and government debt payment affected the export earnings of flowers. The study established that the inflation rate affected the export earnings of the Kenya flowers. It was noted that the two inflation rate factors notably purchasing power and government securities issue affected the export earnings of the Kenya flowers to a large extent. Findings from the analyzed data showed that foreign capital flows affected the export earnings of the Kenya flowers. The study further identified that export volumes affected the export earnings of the Kenya flowers. Findings showed that export volumes factors notably demand for flowers and production capacity affected the export earnings of the Kenya flowers to a large extent. The study drew conclusions that the major factors affecting the flower export earnings in Kenya included; exchange rate volatility, inflation rate, foreign capital flows and export volumes. However, the it was concluded that inflation rate was the major factor affecting export earning in Kenya flower firms with a coefficient of 0.664, then followed by export volumes with a coefficient of 0.223, then exchange rate volatility with a coefficient of 0.075 and lastly foreign capital flows with a coefficient of 0.029. The study recommended that flower firms should consider exchange rate volatility when looking for exports market, changes in balance of payments and government debt payment trend should be taken into account when exporting flowers to foreign markets. The government through the central bank should employ effective strategies to control inflation and stabilize exchange rate to avoid uncertainty about potential future movements in the exchange rate and flower prices.

Key Words: *Exchange Rate Volatility, Inflation Rate, Foreign Capital, Export Volumes, Export Earnings*

Introduction

The pillar of export success in any country is sound macroeconomic policies and relatively stable export earnings which the government must pursue to keep production and exportation profitable. Although flower exports has been among the top foreign exchange earners to Kenya, earnings from it have not been steady and this has had negative effects on the farmers and the economy as a whole. Since 1990, the volume and value of flower production has been increasing over time even though the earnings have not been stable. The average growth of the flower production in Kenya has been 5%. In 2014 Kenya exported 136,601 metric tonnes of flowers and earned Kshs 55 billion while in 2015, Kenya exported 122,800 and earned Kshs 62 billion. This shows an increase of earnings against a backdrop of the volume exported which exposes the firms to financial crises. Therefore there is need for stability of these export earnings. Various studies have been done on the factors affecting export earnings and how they affect it but they have been focusing on the aggregate trade flows of a country whilst ignoring the different effects that may be found at a further disaggregated point of analysis which is from a sector specific point of view.

Therefore, the disaggregated analysis is appealing since the determinants of the export earnings may affect the export goods differently. Hence export earnings maybe more sensitive to the different factors and have a different effect across commodities when disaggregated data is utilized (Muthamia and Muturi, 2015).

Previous studies give mixed results on the behavior of the export earnings to the different factors especially those done in developing countries. In Kenya despite the critical importance that flower exports do play in the economic development and also concerns raised by the exporters and policy makers, there have been few studies on the volatility of the export earnings and they mainly majored on the horticultural sector as a whole. Studies on aggregate horticultural exports have been done by Were et al., (2002), Kiptui (2008), Gertz (2008), and Maana et al., (2010). Conversely, these studies gave differing evidence on the effect of various factors on export earnings as Kiptui (2008) and Were et al., (2002) show negative effects while Gertz (2008) and Maana et al., (2010) indicate positive or no effects. Also, earlier studies on the flower industry focused on the US dollar as the main exchange rate whereas most of the cut flowers are exported to Europe which trades using the Euro as the currency. Therefore there is a gap in literature which the study seeks to fill which is to establish the factors affecting export earnings of Kenya's flowers to its major trading partners in the European Union market.

Specific objectives

- To determine the effect of exchange rate volatility on the export earnings of flowers
- To establish the effect of inflation rate on the export earnings of the Kenya flowers.
- To determine the effect of foreign capital flows on the export earnings of the Kenya flowers.
- To determine the effect of export volumes on the export earnings of the Kenya flowers.

Empirical Review

A number of studies have been carried out on the determinants of various factors on the export earnings and also on export performance. These studies include:

In a study done by Shane et al. (2008) on the macroeconomic determinants of the US agricultural exports. In its findings, study found that growth in demand for US agricultural exports is influenced by growth in real income of the trading partner. The study also shows that devaluation of the US dollar results to an increase

in US agricultural exports. This study is in agreement with a study by Schuh (1974) which argues that a major part of the farm problem of the 1950s could be attributed to an overvalued dollar, which depressed agricultural prices and exports. However the study left room for further research in other countries and regions since US and other areas could have different economic conditions.

Chit et al. (2010) did a study on the real exports of five emerging East Asian economies among themselves, as well as to thirteen industrialized countries. The study gives strong evidence that exchange rate variations have had a statistically significant negative impact on the export earnings of those emerging East Asian economies. The study examined the impact of foreign exchange rate fluctuations on third world countries to establish whether a rise in exchange rate fluctuations between the importing country and other exporting countries encouraged bilateral exports between two trading partners. The study found that not only absolute fluctuations but also relative fluctuations are important for bilateral export flows and earnings of emerging East Asian economies. It concludes that exchange rate fluctuations in East Asian economies have a significant negative impact on export flows and earnings to the world market.

Cameron et al. (2005) did a study for the period of 1995 to 2004 to investigate the effects of exchange rate volatility on Uganda's tropical freshwater fish exports. The study used a fixed effects panel data estimator and the empirical evidence showed that Uganda's fish export earnings were negatively and significantly correlated with exchange rate fluctuations. The study concluded that fluctuations in exchange rate lead to a negative change in the income that exporters earn on their exports.

Bristy (2013) examined the impact of exchange rate volatility on export of Bangladesh for a period of twelve years. The study sought to investigate how depreciate of the exchange rates and its fluctuations affect the exports of Bangladesh. The study used time series data and its findings were that exchange rate depreciation has a positive effect on the Bangladesh export earnings. However, the study also found that trade balance of Bangladesh was deteriorating despite the positive relationship between the export earnings and the exchange rate depreciation. The study attributes this to too much fluctuation in the exchange rate that offsets the exports growth created by depreciation. He states that trade may not respond immediately with the change in the exchange rate policy since international trade depends on interpersonal relationship between the various countries which maybe long run. This therefore means that the previous year's exchange rate plays a significant role in augmenting exports. The study concludes that, an improved understanding of economic and business environment of trading partners policies are required to improve export earnings of Bangladesh.

Locally, Ndung'u et al., (2001) did a study for a period of 1996 to 2000 to examine Kenya's exchange rate movements in a liberalized environment. Using an error correction formulation, the study found out that widening of the interest rate differential, improvements in the current account balance and increases in the external inflows are strongly linked to the appreciation of exchange rates. A rise in the price differential is also associated with real exchange rate appreciation. The study concluded that exchange rate fluctuations have negative effects on Kenya's export earnings.

Mwanza (2007) did a study on the effect of the strong Kenya shilling on Kenya's exports for the period 1996 to 2006. He notes that Kenya has been experiencing exchange rate fluctuations which has an effect on the export earnings and

gives an example of 2003 where the country experienced losses due to adverse effects of a strong Kenya shilling on the export earnings. The study used a time series data on the exchange rate fluctuations against the exports and it concluded that a strong shilling gives mixed fortunes and is good for importers.

Were et al., (2002) did a study on Kenya's export performance which sought to examine the factors that influence trends in Kenya's Agricultural exports. These factors were categorized into price and production factors. The production or non-price factors largely included government intervention, labor costs and costs of inputs. They used fixed effects panel data estimator and the study concluded that the exchange rate has a significant effect on Kenya's Agricultural export performance and the potential for export supply response is evident. They stated that, while maintaining a stable exchange rate is a key strategy that leads to a relatively overvalued exchange rate, it could also be a disincentive to export performance. Therefore flexibility in the exchange rate movements, in line with the fundamentals of the economy would be beneficial to Agricultural export performance.

Kiptui (2008) did a study on whether exchange rate volatility harms Kenyan exports. He examined the role of the real exchange rate in influencing the demand for Kenya's exports in an export demand framework which also includes economic activity for specific export categories: tea, coffee, horticulture and manufactured goods. Bounds testing and ARDL approaches to the analysis of long-run relationships and error correction modeling are applied and he concluded that foreign exchange rate fluctuations have significant negative short and long run effects on Kenya's real exports of tea and horticulture.

Otieno and Mudaki (2011) did a study on factors influencing real exchange rate and export sector performance in Kenya from 1999 to 2010. They found out that the real exchange rate has positive effects in the short-run but these effects are found to be statistically insignificant. Therefore the effects of the real exchange rate are more likely to be long term in nature rather than short term. Concerns over short run effects of real exchange rate appreciation are therefore unwarranted. The positive relationship between export performance and depreciation of the shilling in real terms in Kenya has raised questions over underlying determinants of demand for the country's exports. While it has been argued by some that the exchange rate is a factor, others point to favorable economic growth prospects in export destination countries.

Mwangi et al., (2014) investigated the effects of exchange rate volatility on French beans exports in Kenya. In this study, the values of exchange rate volatility of the Kenya shilling against the US dollar were computed using a generalized autoregressive conditional heteroscedasticity model. The study showed that there is a long run equilibrium relationship between French beans exports and exchange rate volatility. The exchange rate volatility variable had negative long run effects on French beans exports. The responsiveness of French beans export demand in the EU market to exchange rate volatility was negative and elastic.

This showed that an increase in the shilling exchange rate volatility leads to a more than proportionate decrease in demand for French beans exports from Kenya in the EU market. The results of this study showed that exchange rate volatility is one of the variables that influence performance of French beans exports from Kenya to the European Union market with a negative and elastic short run and long run relationship. The study also concluded that there is interdependence between exchange rate stability, institutional reforms, macroeconomic stability

and export performance.

Abuka (2014) investigated the effects of exchange rate volatility on the coffee export earnings for a period of ten years from 2005-2014. The variables used were the inflation indices, exchange rate and foreign direct investment as a percentage of the GDP. The study found that fluctuations in exchange rates and foreign direct investment as a percentage of the GDP significantly affected the coffee export earnings in Kenya.

Muthamia and Muturi (2015) did a study on the determinants of earnings from tea export in Kenya using OLS. The study used time series data starting from 1980 to 2011. The study found out that real exchange rate, price of tea, foreign income, agriculture value addition and export of goods and services significantly influence tea earnings in Kenya. The study further found that inflation insignificantly affects tea earnings in Kenya.

Methodology

The study used the flower export earnings data from the 102 licensed firms that do export flowers. The study analyzed the flower export earnings fluctuations resulting from exchange rate volatility, foreign capital flows, inflation effects and export volume using quarterly data from 2011 to 2015. This study relied on secondary data which was collected from KNBS, KFC and CBK for the period of five years (2011 - 2015). Data on fluctuations in the exchange rate was obtained from CBK while the one on inflation was collected from KNBS. Data on the flower export earnings for the period under study was obtained from statistical export data from KFC and the 102 firms by HCDA.

Research findings

The general objective of this research study was to establish the factors affecting the flower export earnings in Kenya. This section discusses descriptive statistics data analysis on exchange rate volatility, inflation rate, foreign capital flows, export volumes and export earnings in many flower firms in Kenya. Results were scored using mean, standard deviation and variance results.

Exchange Rate Volatility

The study aimed to determine the effect of exchange rate volatility on the export earnings of flowers. The study analyzed data received from the 82 flower firms that and rated it using a scale of 1-5 to determine the extent to which exchange rate volatility factors affected the flower export earnings in Kenya (where was 1 not at all, 2-to a small extent, 3- to an average extent, 4- to large extent and 5 to a very large extent). The study set data rating categories depending on the two value of the two exchange rate volatility factors notably balance of payments and government debt payment. From the findings in table 1, balance of payments had a mean score of 4.4756, government debt payment had a mean score of 4.3780.

On average the two exchange rate volatility factors had mean score of 4.4268, standard deviation of 0.82864 and a variance of 0.6895. Standard deviation is a measure of variation for interval-ratio variables and describe how much variation or diversity there is in a distribution (Saunders, 2009). Standard deviation increase or decrease based on how closely the scores cluster around the mean. Standard deviation provides an indication of how far the individual responses to a question vary or deviate from the mean.

The standard deviation results implies that data collected on exchange rate volatility factors was close to the mean and thus the two exchange rate volatility factors notably balance of payments and government debt payment to a large extent affected the flower export earnings in Kenya. These findings are in agreement with findings by Walker (2010) that exchange rate volatility factors notably change in balance of payments change and

government debt payment affect horticultural export earning in many horticultural firms in Kenya.

Table 1: Exchange Volatility Mean Standard Deviation Results

Factors	N	Mean	Std. Deviation	Variance
Balance of payments	82	4.4756	0.77341	0.598
Government debt payment	82	4.3780	0.88388	0.781
Average	82	4.4268	0.82864	0.6895

Inflation Rate

The study aimed to establish the effect of inflation rate on the export earnings of the Kenya flowers. The study analyzed data received from the 82 flower firms that and rated it using a scale of 1-5 to establish the extent to which inflation rate factors affected the flower export earnings in Kenya (where was 1 not at all, 2-to a small extent, 3- to an average extent, 4- to large extent and 5 to a very large extent). The study set data rating categories depending on the value of the two inflation rate factors notably purchasing power and government securities issue. From the findings in table 2, purchasing power had a mean score of 4.3537 and the government securities issue had a mean score of 4.3780. On average the two exchange rate volatility factors had mean score of 4.3415. Both inflation rate factors had an average standard deviation of 0.7963 and a variance of 0.636. These findings implies that inflation rate factors notably purchasing power and government securities issue to a large extent affected export earnings of the Kenya flowers. These findings are in agreement with findings by Williams (2009) that purchasing power and government securities issues are some of the key inflation rate related factors that affect horticultural export earning in many horticultural firms in Kenya.

Table 2: Inflation Rate Mean Standard Deviation Results

Factors	N	Mean	Std. Deviation	Variance
Purchasing power	82	4.3537	0.7432	0.552
Government security issue	82	4.3415	0.8493	0.721
Average	82	4.3476	0.7963	0.636

Foreign Capital Flows

The objective was to determine the effect of foreign capital flows on the export earnings of the Kenya flowers. The study analyzed data received from the 82 flower firms that and rated it using a scale of 1-5 to establish the extent to foreign capital flows factors affected the flower export earnings in Kenya (where was 1 not at all, 2-to a small extent,3- to an average extent, 4- to large extent and 5 to a very large extent). The study set data rating categories depending on the two foreign capital flow factors notably income of the foreign countries and labour costs. From the findings in table 3, Income of the foreign countries had a mean score of 4.1585 and labour costs had a mean score of 4.2195 .On average the two foreign capital flows factors had mean score of 4.189, standard deviation of 0.8641 and a variance of 0.7465.

These findings imply that foreign capital flows factors notably income of the foreign countries and labour costs to a large extent affected export earnings of the Kenya flowers. These findings concur with findings from a study by Fugazza (2008) that change in income of the foreign countries and labour costs affect horticultural export earning in many horticultural firms in Africa since foreign

capital flows significantly contribute to the composition of exports. FDI is likely to affect export earnings positively.

Table 3: Foreign Capital Flows Mean Standard Deviation Results

Factors	N	Mean	Std. Deviation	Variance
Income of the Foreign Countries	82	4.1585	0.86737	0.752
Labor Costs	82	4.2195	0.86101	0.741
Average	82	4.189	0.86419	0.7465

Export Volumes

The objective of the study was to determine the effect of export volumes on the export earnings of the Kenya flowers. The study analyzed data received from the 82 flower firms that and rated it using a scale of 1-5 to establish the extent to which export volumes affected the flower export earnings in Kenya (where was 1 not at all, 2-to a small extent, 3- to an average extent, 4- to large extent and 5 to a very large extent). The study set data rating categories depending on the two value of the two export volumes factors notably demand for flowers and production capacity .From the findings in table 4, demand for flowers had a mean score of 4.0244 and production capacity had a mean score of 4.1707 .On average the two export volumes factors had mean score of 4.0975, standard deviation of 0.9671 and a variance of 0.935.

These findings implied that export volumes factors notably demand for flowers and production capacity to a large extent affects export earnings of the Kenya flowers. The standard deviation and variance results implies that data collected on export volumes factors was close to the mean and thus the two export volumes factors notably demand for flowers and production capacity to a large extent affected the flower export earnings in Kenya. These findings are in agreement with findings from a study by Fugazza (2008) that demand for flowers and production capacity affects horticultural export earning in horticultural firms.

Table 4: Export Volume Mean Standard Deviation Results

Factors	N	Mean	Std. Deviation	Variance
Demand for flowers Countries	82	4.0244	0.95550	0.913
Production capacity	82	4.1707	0.97885	0.958
Average	82	4.0975	0.9671	0.935

Export Earnings

The study aimed to establish the factors that determine export earnings of the Kenya flowers. From the findings in table 5, bilateral agreements had a mean score of 4.3780 and economic growth rate had a mean score of 4.3171 .On average the two export earning factors had mean score of 4.3475, standard deviation of 0.7630 and a variance of 0.586. These findings indicate that bilateral agreements and economic growth rate are the major factors that determine export earnings in of flowers firms in Kenya. These findings are in agreement with findings from a study by Bristy (2013) that bilateral agreements and economic growth rate determines the rate of export earning in many horticultural firms in developing nations.

Table 5: Export Earnings Mean Standard Deviation Results

Factors	N	Mean	Std. Deviation	Variance
Bilateral agreements	82	4.3780	0.69638	0.485
Economic growth rate	82	4.3171	0.82967	0.688
Average	82	4.34755	0.763025	0.5865

Correlation Analysis

The study conducted correlation analysis which gives a correlation coefficient that measures the linear association between two variables (Crossman, 2013).

Table 6: Correlation Analysis

		Export earning	Exchange rate volatility	Inflation rate	Foreign capital flows	Export volumes
Export earnings	Pearson Correlation	1	0.696	0.807	0.500	0.575
	Sig. (2-tailed)	.	0.000	0.000	0.000	0.000
	N	82	82	82	82	82
Exchange rate volatility	Pearson Correlation	0.696	1	0.795	0.460	0.333
	Sig. (2-tailed)	0.000	.	0.000	0.000	0.002
	N	82	82	82	82	82
Inflation rate	Pearson Correlation	0.807	0.795	1	0.415	0.356
	Sig. (2-tailed)	0.000	0.000	.	0.000	0.001
	N	82	82	82	82	82
Foreign capital flows	Pearson Correlation	0.500	0.460	0.415	1	0.507
	Sig. (2-tailed)	0.000	0.000	0.000	.	0.000
	N	82	82	82	82	82
Export volumes	Pearson Correlation	0.575	0.333	0.356	0.507	1
	Sig. (2-tailed)	0.000	0.002	0.001	0.000	.
	N	82	82	82	82	82

** Correlation is significant at the 0.01 level (2-tailed).

Values of the correlation coefficient range between- 1 and +1. A correlation coefficient of +1 indicates

that two variables are perfectly related in a positive linear. A correlation of -1 indicates that two variables are negatively linearly related and a correlation coefficient of 0 indicates that there is no linear relationship between two variables (Sekeran, 2010).

The Pearson Correlation Coefficient of exchange rate volatility was 0.696 and the P value was 0.00 which was less than 0.05 this implied that exchange rate volatility significantly affect export earnings of the Kenya flowers firms. The Pearson Correlation Coefficient of inflation rate was 0.807 and the P value was 0.00 which was less than 0.05 this implies that inflation rate significantly affect export earnings of the Kenya flowers firms. The Pearson Correlation Coefficient foreign capital flows was 0.500 and the P value was 0.00 which was less than 0.05 this implied that foreign capital flows significantly affect export earnings of the Kenya flowers firms. The Pearson Correlation Coefficient export volumes was 0.575 and the P value was 0.00 which was less than 0.05 this implied that export volumes significantly affected export earnings of the Kenya flowers firms.

Regression Analysis

The study applied regression analysis to establish the statistical significance relationship between the independent variables and the dependent variable. The independent variables included; (X_1) exchange rate volatility, (X_2) inflation rate, (X_3) foreign capital flows and (X_4) export volumes and the dependent variable (Y) was export earnings of the Kenya flowers. The regression analysis results were presented using regression model summary table, Analysis of Variance (ANOVA) table and beta coefficients table. The model used for the regression analysis was expressed in the general form as given below:

$Y = aB + B_{1*}X_1 + B_{2*}X_2 + B_{3*}X_3 + B_{4*}X_{4+}e$

The relationships between the dependent variable and independent variables, and the results of testing significance of the model were respectively interpreted. In interpreting the results of multiple regression analysis, the three major elements considered were: the coefficient of multiple determinations, the standard error of estimate and the regression coefficients. R squared was used to check how well the model fitted the data. R squared is the proportion of variation in the dependent variable explained by the regression model. These elements and the results of multiple regression analysis were presented and interpreted in table 7, table 8 and table 9.

From the findings in table 7 of the study showed that the regression model coefficient of determination (R2) was 0.719 and R was 0.848 at 0.05 significance level. This was an indication that the four independent variables notably; (X_1) exchange rate volatility, (X_2) inflation rate, (X_3) foreign capital flows and (X_4) export volumes significantly affected the dependent variables (Y) which was export earnings of the Kenya flowers firms. The coefficient of determination (R2, 0.719) indicates that 71.9% of the variation on export earnings of the Kenya flowers firms was determined by exchange rate volatility, inflation rate, foreign capital flows and export volumes. The remaining 28.1% of the variation on export earnings was determined by other variables not included in the study model. This showed that the model had a good fit since the value was above 70%. These concurred with Graham (2002) that (R2) was always between 0 and 100%: 0% indicated that the model explained none of the variability of the response data around its mean and100% indicated that the model explains all the variability of the response data around its mean. In general, the higher the (R2) the better the model fits the data.

Table 7: Regression Model Summary

		Model Summary		
Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	0.848(a)	0.719	0.690	0.29639

a. Predictors: (Constant), x1, X2, X3, X4

The study further used one way Analysis of Variance (ANOVA) in order to test the significance of the overall regression model. Green & Salkind (2012) posits that one way Analysis of Variance helps in determining the significant relationship between the research variables. Table 7 indicated that the high value of F (24.918) with significant level of p-value 0.00 which was less than 5% level of significance was enough to conclude that all the independent variables significantly affected export earnings in Kenya flower firms. This implied goodness of fit of the model and thus the variables can be carried on for further analysis to determine with significance the level of influence of each variable. It is therefore inferred that 71.9% of the variability in export earnings was caused by the response variables which includes exchange rate volatility, inflation rate, foreign capital flows and export volumes.

Table 8: Analysis of Variance (ANOVA).

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	8.756	4	2.189	24.918	0.000(a)
	Residual	3.426	77	0.088		
	Total	12.182	82			

Table 8 further presents the results of the test of beta coefficients which shows the extent to which each independent variable affected export earnings in Kenya flower firms. As presented in table 8, (X_1) exchange rate volatility coefficient of 0.075 was found to be positive at significant level of 0.061 and this indicated that exchange rate volatility positively affected export earnings in Kenya flower firms. Inflation rate (X_2) coefficient of 0.644 was found to be positive at significant level of 0.000 and this indicates that inflation rate positively affected export earnings in Kenya flower firms. Foreign capital flows (X_3) coefficient of 0.029 was found to be positive at significant level of 0.000 and this indicates that foreign capital flows positively affected export earnings in Kenya flower firms. Export volumes (X_4) coefficient of 0.223 was found to be positive at significant level of 0.000 and this indicates that export volumes positively affected export earnings in Kenya flower firms. This clearly demonstrates that all the independent variables significantly affected export earnings in Kenya flower firms and thus the complete regression equation was;

$Y=0.083 + 0.075X_1 + 0.644X_2 + 0.029X_3 + 0.223X_4 +_e$

Table 9: Beta Coefficients

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	0.083	0.266		0.313	0.756

a)	Exchange rate volatility	0.075	0.147	0.073	0.509	0.061
b)	Inflation rate	0.644	0.145	0.616	4.444	0.000
c)	Foreign capital flows	0.029	0.081	0.038	0.362	0.071
d)	Export volumes.	0.223	0.076	0.291	2.949	0.005

a. Dependent Variable: Y

The beta coefficients in table 9 were used to determine the most significant variable, the beta coefficients thus implies that inflation rate was the most significant variable affecting export earning in Kenya flower firms with a coefficient of 0.664, then followed by export volumes with a coefficient of 0.223, then exchange rate volatility with a coefficient of 0.075 and lastly foreign capital flows with a coefficient of 0.029. The regression model above has also established that taking all the independent variables into account notably; exchange rate volatility, inflation rate, foreign capital flows and export volumes at Zero constant affects export earning in Kenya flower firms (0.083). The results presented also shows that taking all other independent variables at constant zero, a unit increase in exchange rate volatility leads to a 0.075 increase in export earnings; an increase in inflation rate leads to 0.644 leads to a unit increase in export earnings; a unit increase in foreign capital flows leads to 0.029 increase in export earnings and a unit increase in export volumes leads to 0.223 increase in export earnings in Kenya flower firms. These findings concurs with finding by Edward (2012) where he identified tha3t changes in inflation rate, foreign capital flows and export volumes affects export earnings in many flower firms in developing nations.

Summary of the Findings

The general objective of this research study was to establish the factors affecting the flower export earnings in Kenya. The study found out that exchange rate volatility, inflation rate, foreign capital flows and export volumes affects export earnings in many flower firms in Kenya.

The study found out that exchange rate volatility affected the export earnings of flowers. It was identified that the two exchange rate volatility factors notably balance of payment and government debt payment affected the export earnings of flowers. The study findings showed that change of balance of payments and government debt payment determined the state of exchange rate volatility and this affected export earnings in flower firms in Kenya. It was also identified that in the absence of two exchange rate volatility factors notably balance of payment and government debt payment it was difficult to predict the rate of export earnings of flowers in flower firms in Kenya. These findings indicated that the two exchange rate volatility factors notably balance of payments and government debt payment to a large extent affected the flower export earnings in Kenya.

The study established that inflation rate affected the export earnings of the Kenya flowers. It was noted that the two inflation rate factors notably purchasing power and government securities issue affected the export earnings of the Kenya flowers to a large extent. Findings showed that changes in purchasing power and government securities issue determined how inflation rate affected export earnings of the Kenya flower firms. The study further established that existence of accurate data on inflation rate factors notably purchasing power and government debt payment it was difficult to predict the rate of export earnings of flowers in flower firms in Kenya. These findings implies that

purchasing power and government securities issues are some of the key inflation rate related factors that affect horticultural export earning in many horticultural firms in Kenya.

Findings from the analyzed data showed that foreign capital flows affected the export earnings of the Kenya flowers. The study noted that income from foreign countries and labour costs are the major foreign capital flow factors affecting the export earnings of the Kenya flowers. Findings from the analyzed data showed that Income from the foreign countries had had major effect on foreign capital flows than labour costs and thus higher income from foreign countries increased the export earnings in Kenya flower firms. These findings indicates that change in income of the foreign countries and labour costs affect horticultural export earning in many horticultural firms in Africa since foreign capital flows significantly contribute to the composition of exports. FDI is likely to affect export earnings positively.

The study further identified that export volumes affected the export earnings of the Kenya flowers. Findings showed that export volumes factors notably demand for flowers and production capacity affected the export earnings of the Kenya flowers to a large extent. The analyzed data showed that higher demand for flowers in the foreign markets led to higher prices which increased export earnings. Further it was identified that flower firms production capacity determined export volumes since even in cases of higher flower demands, lack of production capacity limited export volumes and this lowered the export rate earnings. These findings thus infer that demand for flowers and production capacity affect horticultural export earning in horticultural firms.

The study finally established that the major factors that determines export earnings of the Kenya flowers in Kenya includes bilateral agreements and economic growth rate. Results from the analyzed data showed that bilateral agreements and economic growth rate determined that value of export earning in Kenya flower firms. It was also noted that changes or lack of bilateral agreements in trading countries lowered or increased export earnings of lower exports. Finally, an increase in economic growth rate determined the rate of export earning in many horticultural firms in developing nations.

Conclusions

Based on the summary of findings, the study drew conclusions that the major factors affecting the flower export earnings in Kenya includes; exchange rate volatility, inflation rate, foreign capital flows and export volumes. However, it was concluded that inflation rate is the major factor affecting export earning in Kenya flower firms, followed by export volumes, then exchange rate volatility and lastly foreign capital flows. Exchange rate plays an essential role in world trade in the sense that it determines the price of a nation's product and also the local price of goods that have been imported from abroad. The study concluded that exchange rate volatility affected the export earnings of flowers and the two exchange rate volatility factors notably balance of payments and government debt payment affected the export earnings of flowers.

The study then concluded that inflation rate affected the export earnings of the Kenya flowers and the two inflation rate factors notably purchasing power and government securities issue affected the export earnings of the Kenya flowers to a large extent. The study also concluded that foreign capital flows affected the export earnings of the Kenya flowers and foreign countries and labour costs are the major foreign capital flow factors affecting the export earnings of the Kenya flowers. The study further concluded export volumes factors notably demand for flowers and production capacity affected the export earnings of the Kenya flowers firms. The study finally concluded that the majors factor that determines export earnings of

the Kenya flowers in Kenya includes bilateral agreements and economic growth rate.

Recommendations

The role of exchange rate in an open economy frame work is critical and cannot be ignored. Flower firms should consider exchange rate volatility when looking for exports market, changes in balance of payments and government debt payment trend should be taken into account when exporting flowers to foreign markets.

The government through the central bank should employ effective strategies to control inflation and stabilize exchange rate to avoid uncertainty about potential future movements in the exchange rate and flower prices. Flower firms should consider purchasing power and government securities when searching for the export market.

Foreign capital flows contribute to the technological upgrading and structural evolution of the export sector, the structure of the sector is a key contributor of export performance both at the early stage of the development of the sector and also at the later stage**.** The study recommended that the government should enact and implement policies that lead to increase in foreign capital flows. The government should encourage firms that lead to increase in income from foreign countries and provide incentives to reduce labor costs and this will help to increase export earnings of the Kenya flowers.

The study further concluded that export volumes affects the export earnings of the Kenya flowers and export volumes factors notably demand for flowers and production capacity affected the export earnings of the Kenya flowers to a large extent. Flower firms should seek market in different countries and also improve on the quality and variety of the flowers in order to increase demand, the government should increase the bilateral agreements and this will lead to increased demand from the importing countries.

Since flowers market does contribute a huge portion of the agricultural exports hence policy makers and the government should take concerted efforts to ensure it contributes to the economic growth.

Suggestion for Further Studies

The study established the factors affecting the flower export earnings in Kenya. The study therefore suggests further studies to be done in other horticultural and other economic sectors in order to determine the factors affecting those sectors and assist in making policy decisions.

References

Arize, A. C., Osang, T. and Slottje, D. J. (2004). Exchange-rate volatility and foreign trade: Evidence from thirteen LDCs. *Journal of Business and Economic Statistics*, 18 (1), 10-17.

Bah, I. & Amusa, H.A. (2003). Real exchange rate volatility and foreign trade: evidence from South Africa's exports to the United States. *The African Finance Journal,* 5 (2), 1-20.

Basu, A., Calamitsis, E. A. & Ghura, D. (2000). Promoting growth in sub-Saharan Africa: learning what works. *Economic Issues No.23, Washington, DC: IMF.*

Bhattarai, K. R. & Armah, M. K. (2005). The effects of exchange rate on the trade balance in Ghana: Evidence from Cointegration Analysis. *Research Memorandum,* Centre for Economic Policy Business School, University of Hull.

Cameron, S., Kihangire, D. & Potts, D. (2005). Has exchange rate volatility reduced Ugandan Coffee Export Earnings? *Bradford Centre for International Development (BCID),* University of Bradford, Bradford, BD7-1DP, U.K.

Chit, M., Rizov, M. & Willenbockel, D. (2010). Exchange rate volatility and exports: New empirical evidence from the emerging East Asian Economies, *World Economy*, 33: 239- 263.

Coric, B. & Pugh, G. (2010). The effects of exchange rate variability on International Trade. A Meta regression Analysis. *Journal of International Economics, 8, 4, 483-511.*

Engel, C. (1996). Long-run PPP may not hold after all". *National Bureau of economic research; working paper series 5646.*

Ezeala, H. (2009). *Theory and policy of international competitiveness, Praeger Publisher.*

Fugazza, M. (2004). Export performance and its determinants: supply and demand constraints,*United Nations Publications.*

Hendry, H. (2006). Small farmer participation in export production: The case in Kenya, Kenya Institute of Public Policy Research and Analysis. Trade Flows. *Journal of Economic Survey*s, 13, 1, 71–106.

Kiptui, M. (2007). Does the exchange rate matter for Kenya's exports*?* Presented at the African Econometric Society 2007 Conference, Cape Town.

Kiptui, M. (2008). *Does exchange rate volatility harm exports? Empirical evidence from Kenya's tea and horticulture exports*, CSAE Conference Oxford, 2008.

Limao, N. & Venables, A. J. (2001). Infrastructure, Geographical Disadvantage, Transport Costs and Trade. *World Bank Economic Review,* 15(3), 451-479.

Maana, I., Mwita, P., & Odhiambo, R. (2010). Modelling the volatility of exchange rates in the Kenyan market. *Afri, J. Bus. Manage., 4(7):1401-1408.*

Minot, N. and Ngigi, M. (2004). Are horticultural exports a replicable success story? Evidence from Kenya and Cote d'Ivoire. Environment and Production Technology Division and Markets, Trade and Institutions Division, International Food Policy Research Institue. 2033 k Street, NW Washington, DC 20006 U.S.A

Mwangi, S. M., Mbatia, O. and Nzuma, J. (2014). *Effects of exchange rate on French Beans exports in Kenya,* Department of Agricultural Economics, University of Nairobi.

Mwanza, J. (2007). The Impact of exchange rate volatility on international trade flows. *Journal of Economic Surveys*, 13, 1, 71–106.

Ncube, M. & Ndou, E. (2011). *A Framework for estimating equilibrium exchange rates",*

Mimeograph.

Nordhaus, W. D. (2010). *Evaluating exponential GARCH models.* SSE/EFI working paper series in Economics and Finance.

Otieno, B. and Mudaki, K. (2011). *Factors influencing real exchange rate and export sector performance in Kenya,* School of business and economics, department of economics, Moi University

Pugel, T. (2007). *International economics.* 13th Edition, McGraw-Hill International.

Muthamia, A.K. and Muturi, W. (2015). *Determinants of Earnings from Tea Export in Kenya*. World Economic Research, 15-22.

Sekaran, U., & Bougie, R. (2010). *Research methods for business, A skill-building approach* (5th ed.). Haddington John Wiley & Sons.

Saunders, Thornhill and Lewis (2009) *Research Methods for Business Students*, 5th Edition, Prentice. Hall, p.130. Page 2.

Orodho, J. A. (2009). *Elements of Education and Social Science Research Methods*, Second Edition.

Joppe, P. (2000). Research Methodology, 3rd Edition.

Shane, M., Roe, T and Somwaru, A. (2008). Exchange Rates, Foreign Income, and U.S. Agricultural Exports.