

# Perceived Effects of Selected Macroeconomic Indicators on Sustainable Competitive Advantage in Food and Beverage Firms In Kenya

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## Abstract

Kenya's industrialization, like that of most Sub-Saharan Africa countries, has been slow and continues to grow at an equally slow pace. Key among the constraints to growth are poor economic policies geared at promoting processing and value addition. Being largely an agrarian economy, the country will continue to depend on agricultural led industrialization with the food and beverage processing sector being the largest at 21.8 percent of all manufacturing value add sectors in the country by 2011. Among the key determinants of industrialization is a favourable political and social economic stability that provides a stable macroeconomic environment for both local and foreign investors to put their money into ventures that spur economic growth. This study sought to analyze perceived effects of selected macroeconomic indicators of inflation, exchange and interest rates on the food and beverage manufacturing sector in Kenya. Top executives of 95 firms were surveyed on their perception of the effects of the selected macro- indicators on their firms' operating environment and economic performance. From the target firms, 32 responded giving a rate of 33.7 percent. Analysis revealed that effects of macroeconomic factors on sustainable competitive advantage of food and beverage firms in Kenya was not statistically significant ( $p = .142$ ) for inflation, ( $p = .767$ ) for exchange rate and ( $p = .086$ ) for interest rates at 95 percent confidence interval ( $\alpha = 0.05$ ) as perceived by industry top executives. Further analysis revealed that multicollinearity was indicated (tolerance factor  $< 0.1$  and Variance Inflation Factors of  $> 10$ ). The implication of the findings was that macroeconomic factors have not had an adverse effect on performance of food and beverage processing firms in Kenya. This was most probably due to the fact that most of the firms under survey were privately owned family businesses which derived their funding from family resources and were not necessarily involved imports or exports trade that would expose them to adverse interest or exchange rate fluctuations. Most manufactures in Kenya find their market internally with limited exports to the East African region. The fact that Kenya has enjoyed relative peace over the years has further contributed to a stable macroeconomic environment as confirmed by these findings. There is need for the Government to endeavour to maintain and improve on the macros for industrialization to take off. Multi-collinearity could also have introduced distortion of the findings.

**Key words:** Inflation, interest rates, exchange rates, macroeconomic, economic performance, multicollinearity

## INTRODUCTION

Kenya's manufacturing sector contributes about 10 percent of GDP annually and is growing at an average of 3–4 percent (GOK, 2010; 2011; 2012; 2013). The main concern is that the sector has been stagnant for decades mainly due to unfavorable policies. Although the sector has shown signs of recovery and growth, the size continues to be small compared to newly industrialized countries like Singapore, Malaysia and Indonesia (Kenya Economic report, 2009). The structure of Kenya's manufacturing sector shows that processing of food commodities and refining of petroleum products are the main industries in terms of value added. Thus, manufactured exports mainly comprise agro-processed products (Kenya Economic report, 2009).

The manufacture of food, beverages and tobacco recorded a growth of 2.2 percent in 2010. The increase was mainly attributed to growth in dairy and dairy products, grain mills, meat and processing and miscellaneous food sub-sectors. Other manufacturing sub-sectors witnessed a remarkable growth of 9.4 percent compared to 0.9 percent in 2009 (Kenya Economic Survey, 2011). Key areas that require immediate attention in the manufacturing sector include providing incentives to stimulate production of intermediate products, particularly those with export potential; encouraging sub-contracting and other forms of alliances between local firms and multinationals; improving the investment climate; and supporting value addition in agro-processing industries (Kenya Economic report, 2009).

According to Kenya Vision 2030, for agriculture to grow at 7 percent per year and propel the rest of the economy to the envisaged 10 percent annual GDP growth rate, the country has to improve on industry and market development for value-added products and move from trade in primary commodities, both internally and externally, to trade in manufactured goods. This growth will be driven by market pull forces and competitiveness within the industry. Development of agro-processing to higher levels will create employment and an impetus for growth in other sub-sectors.

Although the manufacturing sector contributes only 10 percent to the Kenyan GDP, it is one of the sectors that is expected to take the lead in propelling the country to a newly industrialized, medium-income economy by 2030 as envisaged in the Kenya Vision 2030 (2007). Therefore, the manufacturing sector has to grow at a much higher rate than currently.

### **Food and beverage processing in Kenya**

Competition is the fuel for growth and advancement in any industry, the food and beverage manufacturing one included. Among the major consumers of agricultural raw materials are middle and large industries that engage in value addition. Many of these industries are concentrated among the food and beverage category of processors for both the local and export markets. Due to rapid population growth and accompanying migration into towns and cities with most of the urban population depending on fast foods like juices, bread, snacks and other processed foods, investment in the lucrative sector has increased in recent years leading to significant competition. This has led firms in the food and beverage sub-sector to rethink strategy and devise means of sustaining competition in the industry. Many firms have explicitly embraced strategic planning while others have embarked on various forms of competitive strategies.

### **Macroeconomic situation in Kenya**

The Kenyan economy derives its key strengths on agriculture and related ventures. Over the years, the economy has enjoyed relative calm and stability leading to a favourable investor confidence that has contributed to relatively higher industrialization than other countries in the Eastern Africa Region. However, the country is prone to fluctuations in the macro environment necessitating urgent and decisive corrective monetary and fiscal interventions by the central bank. The most recent occurrence was in 2012 when the exchange rate hit an all time low of Ksh. 107 to the USD. With such fluctuations, investor confidence would easily be eroded. However, the government has been extremely keen to control the macros at acceptable levels.

### **Statement of the Problem**

Firms operate in a dynamic and turbulent environment. Macroeconomic stability is critical to the success of industry especially so for inflation, interest rates and exchange rates which directly impacts on the financial position of a firm. Industry performance depends on the turbulence in the macroeconomic environment, which also determines investor confidence. In establishing effects of the selected macroeconomic factors on industry stability and particularly in the Kenyan food and beverage manufacturing sector in 2013, this study sought to know what were the perceived effects of inflation, interest rates and exchange rates on sustainable competitive advantage as viewed by top executives of firms in the industry?

### **Research Objective**

The objective was to establish the perceived effects of the selected macroeconomic indicators of inflation, interest rates and exchange rates on sustainable competitive advantage in the Food and Beverage industry in Kenya.

### **Research Hypotheses**

Deriving from the objective, the following hypothesis was tested at 95 percent confidence interval ( $\alpha = 0.05$ ) using the *F*-test.

*Hypothesis: There is a relationship between perceived effects of macroeconomic factors and sustainable competitive advantage in the food and beverage industry in Kenya*

## LITERATURE REVIEW

### **Influence of Macroeconomic Factors on Sustainable Competitive Advantage**

Commercial firms operate in an open system where they are impacted by external and internal factors (Johnson & Scholes, 2002). The manufacturing industry faces dynamic operational environment in which it has to contend with changing macro-economic factors like interest rates, exchange rates and inflation. Most manufacturing firms have to import machinery and equipment which are prone to exchange rate fluctuation. Some Kenyan manufacturers export to the Eastern Africa region, Europe and other countries, meaning frequent encounter with interest rate changes.

Dwivedi (2008) argues that persistent inflation is perhaps the second most serious macroeconomic problem confronting the world economy today -second only to hunger and poverty in the 'third world'. Inflation means considerable and persistent rise in the general level of prices over a long period of time. According to Pigou (1947), inflation exists when money is expanding more than in proportion to increase in earning activity. It is a situation of 'too much money chasing too few goods' or too much currency in relation to physical volume of business. A moderate rate of inflation is considered desirable and acceptable and keeps the economic outlook optimistic, promotes economic activity and prevents economic stagnation. Based on past experiences, it is suggested that 1-2 percent inflation in developed and 4-6 percent in less developed countries is desirable and moderate (Dwivedi, 2008).

Increased integration and growing macroeconomic fluctuations require more attention to be paid to the link between the "noise" that these fluctuations represent and the company's own development. Management must weed out the effects of the "noise" so as to obtain a clear picture of the long term sustainable profits and thus a picture of how the company's intrinsic competitiveness is fostered (Oxelheim, 2002). Given the increased financial and economic integration that prevails today, no firm can claim any longer to be unaffected by what is happening on the global economic arena and to the firm's intrinsic competitiveness.

Oxelheim (2002) endeavoured to elucidate the impact of macroeconomic variables on corporate performance by elaborating the extent to which shareholders should be informed of the effects of the macros on their firms' competitiveness. His argument was that the current accounting system does not provide for stakeholder information on the effects of the volatile macroeconomic environment for control decisions on the future prospects of the company. This study, though drawing a lesson on need for shareholder information, was more particular in elaborating the effects of macroeconomic factors on the entire industry for the wider good of all stakeholders.

In Kenya, the rate of inflation in the last five years has fluctuated widely from single digit to over 27 percent and back to single digit with accompanying damaging effects on operational environment of business. Theoretically, the rate of economic growth depends primarily on the rate of capital formation which depends on the rate of savings and investment. Therefore, whether inflation affects economic growth positively or negatively depends on its effects on savings and investment. Inflation tends to redistribute incomes in favour of higher level earners whose incomes consist mostly of profits and non-wage sources. This kind of inflation induced redistribution of incomes increases total savings because upper income classes have higher propensity to save. The increase in savings increases supply of investable funds and lowers the rate of interest which increases investment and production capacity of the economy. This causes increase in total output hence economic growth. High inflation distorts this leading to economic slowdown.

A foreign exchange market is a market in which foreign currencies are traded. Like any market, the foreign exchange market is a system which works through facility provided by key players who are foreign exchange brokers, banks and the central bank. Central banks take the lead role in stabilizing exchange rates by preventing, by direct intervention if necessary, violent fluctuations in the exchange rate (Dwivedi, 2008). This is done by selling foreign exchange when it is overvalued and buying it back when it is undervalued. The Exchange rate, in a free market where no government intervention and no restriction on holding or transacting foreign exchange exists, is determined by forces of supply and demand.

Inflation has been high in the country affecting the cost of borrowing (interest rates) and the level of investment. In the last two years, inflation has risen to over 20 percent and lowered to single digit level. This is also an undesirable situation since it affects planning and investment. Therefore, macro-economic factors are among the most important external factors that affect firms' performance.

In elaborating the impact of firm specific macroeconomic factors on profitability of firms in the food sector in Pakistan, Bhutta and Hasan (2013) explored the profitability of firms listed in food sector of Karachi stock market in presence of food inflation using multivariate regression analysis for a period 2002-2006. The firm specific factors included debt to equity, tangibility, growth and size while macroeconomic factors included food inflation. Findings of the study revealed presence of significant negative relationship between size and profitability. Empirical results provided evidence that the profitability of food sector was shaped by firm specific factors and not macroeconomic variables. A notable limitation of the study was that it used only one macroeconomic indicator of food inflation although it was instrumental in providing significant insight about dynamics of profitability in the food sector firms. The study was similar to the current one in use of inflation although it differed in that the current study used three macroeconomic indicators and the broader sense of inflation (not only food derived) and various indicators of sustainable competitive advantage besides profitability used in the Bhutta and Hasan (2013) study.

### **Conceptual Framework**

The direct effect of individual or collective macroeconomic factors on industry performance would not be easily discernible in a study like this one. Therefore, the study sought to establish perceived effects of the selected macroeconomic indicators on sustainable competitive advantage in the food and beverage industry.

## **METHODOLOGY**

### **Population of the study**

The food and beverage industry is the largest among the manufacturing value add industries in Kenya comprising 21.8 percent of the firms. Most of these industries (71 percent) are located in Nairobi and Mombasa. This study sought to analyze 95 of the 138 food and beverage firms located in the two major cities for their perceived effects of macroeconomic factors on sustainable competitive advantage. The population was therefore 138 food and beverage firms. The sample surveyed was 95.

### **Research Design**

This research entailed a descriptive study design. Descriptive studies are undertaken for purposes of ascertaining and describing the characteristics of the variables of interest in a study and offering the researcher a profile or a description of relevant aspects of the phenomenon of interest from the individual, organization, industry or other perspectives (Sekaran, 2003). Descriptive research design is about what, where and how of a phenomenon (Cooper & Schidler, 2003). Descriptive design uses a set of scientific methods to collect raw data and create data structures that are used to describe the existing characteristics of a defined target population (Frankel & Wallen, 2000).

This study sought to describe the existing characteristics with respect to the selected macros describing the nature of the competition among the food and beverage firms which form a unique group according to Kothari (2006). Descriptive studies are undertaken when the characteristics or the phenomenon to be tapped in a situation are known to exist, and one wants to be able to describe them better by offering a profile of the factors as this study sought to do. Hypothesis testing offers an enhanced understanding of the relationship that exists among the variables (Sekaran, 2003).

**Pilot testing the questionnaire.** The questionnaire was developed and refined on the basis of several sources; field interviews with corporate level executives of two of the target firms, review of previous research content to inform choice of questionnaire items appropriate for the study and discussions of preliminary drafts of the questionnaire with scholars to assess their validity. Pre-testing the questionnaires for clarity and validity before actual administration to the respondents enabled the researcher to polish the instrument and refine it to focus on the items under study. Govindarajan (1988) found that such preliminary treatment of the questionnaire enabled him to get validity, clarity and relevance of results. This was also consistent with the work of Kim and Lim ((1988) who pre-tested their questionnaire with five firms in a target sample of 44 for purposes of improving the study instrument. The pretesting was further consistent with Newbert (2008) who used two academics to identify an appropriate starting point for his study on value, rareness, competitive advantage and performance while consulting with five executives of five different technology firms who assisted him polish his study instrument to make it more relevant. The questionnaire for this study was further polished with input from academics and statisticians to make data amenable to statistical analysis and interpretation.

## Data collection

Data was collected from company executives using a standardized questionnaire. To ensure confidentiality and ease of assistance by skeptical respondents, introductory letters from the researcher and relevant authorities (the Kenya Methodist University (KeMU) and Kenya Association of Manufacturers (KAM) were used together with the researcher's self introduction physically or through emails. Where the Chief Executives/Chairmen accepted to personally participate or give audience to the researcher, the questionnaires were administered in one-on-one sessions which were enriching on company profiles giving wider scope of information of greater depth. Various methods of administering the questionnaires were used including drop and pick, email attachments, and one-on-one sessions to fill in the questionnaires in the survey.

Email attachments as a method of data collection was later found ineffective since the target respondents emailed at the start did not respond necessitating a change of tactics to drop and pick method. It was however not possible to use this method in Mombasa hence email method coupled with aggressive telephone calls were used to get response. In Nairobi, vigorous pursuit of respondents on emails and physical visits coupled with persistent telephone calls enabled the researcher to get responses from otherwise very elusive and busy target respondents.

Returned questionnaires were checked for completeness at the point of collection and where not complete, respondents were guided on how to fill them in by the researcher to make them amenable to analysis. Wherever misunderstanding of questions was the cause of non-response, the researcher assisted in elaborating the contents of the questionnaire to get the most objective responses. It was then entered into excel spreadsheets where numeric symbols for indicative figures on Likert scale responses were assigned. After ensuring the data was free of errors, it was entered into Statistical Package for Social Sciences (SPSS) for analysis.

## Study Variables

The dependent variable was sustainable competitive advantage measured by indications of sustained firm profitability as well as turnover on a 5-point Likert scale according respondent perceptions. Other construct indicators for dependent variable included Return on Investment (ROI), Return on Assets (ROA), Dividend yield, and percentage growth in market share. For an indicator to qualify as a measure of sustainable competitive advantage, it had to be high on the Likert scale and the trend of growth constant or increasing. Such an indicator was assumed to depict superior firm performance over its competitors. Profitability is the best indicator of sustainable competitive advantage or performance although for private and unlisted firms, this is a closely guarded company secret whose data is not normally obtainable. Therefore, this study used respondents' perceived indications on the parameters of sustainable competitive advantage outlined above which was then weighted to constitute the dependent variable. This was consistent with studies by Newbert (2008) in which the content chosen for analysis of micro and nanotechnology sectors contained a high percent of privately owned firms for which secondary data was not available. Furthermore, the data was provided by single respondents who happened to be senior level executives or scientists arguably better positioned than anyone to assess firm's internal operations and performance hence data collected was taken as more accurate. Moreover, use of perceptual performance measures is preferred by respondents since objective measures such as profits or revenues are seen as confidential (Gruber, Heinemann & Bretel, 2010). Use of multi-dimension measures based on perceptual firm performance further facilitates comparison across firms and contexts such as across industries, time horizons and economic conditions (Song, Droge, Hanvanich & Calantone, 2005). Chandler and Hanks (1994) further aver that earlier studies have indicated perceptual performance measures tend to be highly correlated with objective indicators which support their validity.

## Data Analysis

Data was analyzed for both parametric and non-parametric tests. Most of the data collected using the Likert scale was ordinal with assumptions that a score that was more than another implied that people with higher-numbered responses were more in agreement with the positions in question than those with the lower-numbered responses.

The data was tested for central tendency and dispersion after confirmation of normal distribution by appropriate tests of normality; the Kolmogorov-Smirnov and Shapiro-Wilk tests. Since the sample size was 32, regression analysis was carried out and interpretation of results of tests of hypotheses done using the *F*-test at 95 percent confidence interval. The distribution of responses was recorded (percentages that agree, disagree, etc.) in tables for each response category for the various constructs representing the independent variables. Descriptive statistics were generated to describe central tendencies and dispersion of the data. Descriptive statistics such as

the mean, the range, the standard deviation and variance gave a good idea of how the respondents reacted to the items on the questionnaire and how good the items measured were. Poor spread (range) meant little variability and similarly, the mean, standard deviation and variance indicated whether the respondents ranged satisfactorily over the scale.

### Reliability

Reliability which is a measure of the extent to which results are consistent over-time and an accurate representation of the total population under study was established. Reliability also tests if the results can be reproduced under similar methodology indicating that the instrument is reliable (Joppe, 2000), without bias (free of error) and ensures consistent measurements across time and across the various items in the instrument (Sekaran, 2003). Cranbach alpha is used to measure reliability and ranges from 0 to 1. The acceptable value of Cranbach alpha is between 0.7 and 0.9 (Kline, 1999) while alpha coefficient of 0.5 is adequate to conclude internal consistency (Nunnally, 1967). In this study, reliability tests were carried out and indicated an alpha coefficient of 0.660. Although Gliem and Gliem (2003) argue that an alpha of 0.6 is questionable, internal consistency can be assured with an alpha coefficient of 0.5 (Nunnally, 1967) hence confirming the consistency of the constructs.

### Validity

This tests the authenticity of cause-and-effect relationships (internal validity) and the generalization to the external environment (external validity). Validity is concerned with whether the findings are really about what they appear to be about (Balta, 2008). Content validity was tested by discussions with experts during the questionnaire formulation stage to ensure that the measure included an adequate and representative set of items that tapped the content. Adjustments on the questionnaire were made after such consultations, which helped improve the study instrument in terms of content. To further ensure content validity, the questionnaire was pre-tested on a pilot basis on two company chief executives as respondents for comprehension, logic and relevance. The feedback obtained helped in revising the instrument (questionnaire) before administering it to the wider respondents excluding the ones involved in the pre-testing. This is consistent with Dess and Davis (1984) findings that content validity of a questionnaire was enhanced through a review of its items by previous strategy researchers (Bourgeois, 1980) and pre-testing the research instrument in a field with firms not included in the sample which ascertained comprehensiveness and phrasing of the questionnaire items.

Construct validity was assessed by having respondents indicate the importance of some key competitive methods to their firms' overall strategy on a 5-point Likert scale with 1= not at all to 5 = very great extent, consistent with Govindarajan (1988), Porter's (1980) and Dess and Davis's (1984) work. Construct validity was demonstrated by high correlations between the items that comprised the constructs. The higher the inter-correlations, the more the items were found to be relating (converging) to the construct for which they were assumed to describe. Zhou and Li (2012) used confirmatory factor analysis to test for construct validity with all items loading significantly on their expected constructs ( $p < 0.05$ ).

### Test of Hypothesis

Multivariate linear regression analysis preceded hypothesis testing. Hypothesis testing was carried out using the F-test. The hypothesis was tested for significance of its predictor variables on the dependent variable using Ordinary Least Squares linear regression model formulated to describe the relationships as below.

$$Y_i = \beta_0 + \beta_1 X_1 + \beta_2 X_2 + \beta_3 X_3 + u_i$$

Where;

$Y_i$  = sustainable competitive advantage

$\beta_0, \beta_1, \beta_2, \beta_3$  are regression coefficients

$X_1$  = Inflation

$X_2$  = Exchange rate

$X_3$  = Bank interest rates

### Correlation and collinearity tests

It was necessary to confirm relationships between the dependent and predictor variables and between the independent variables themselves. Correlations between independent variables indicating the direction and strength of the relationships were generated. To test for presence of collinearity or multicollinearity, step-wise regression analysis was carried out and collinearity indicators of Tolerance and Variance Inflation Factors (VIFs) were generated. Where tolerance factors were below 0.1 or VIF above five, presence of Multi-collinearity was indicated. The measure adopted however was for tolerance of  $<0.1$  and  $VIF > 10$  for high collinearity (Senaji, 2012) for which cure would be dropping of one or several of the variables in step-wise regression. Collinearity was tested for variables in all models after first round of regression analysis.

### Ethical Considerations

The food and beverage industry is sensitive to the public since it deals with food. It is prudent that the highest level of ethical considerations be exercised in the operations and communication in this industry. Cooper and Schindler, (2003) describe ethics as norms or standards of behavior that guide moral choices about our behavior or relationship with others. As expected, high level of ethical standards was manifested in the response to the questionnaires. The respondents were as frank as possible since it was at their discretion to omit any information they felt sensitive and avail the correct details concerning the study variables as much as their company policies allowed. The researcher was equally keen on observing high moral standards at every stage of data collection, analysis and interpretation. Ethical attributes of any researcher are academic honesty and modesty. To enable the results of the analysis gain wider applicability in the industry, the data gathered was treated with ultimate diligence without exaggeration. The researcher carried out the entire survey on his own.

### RESULTS

The companies under review varied in existence from 1922 to 2010, giving a range of 88 years. For old companies to have survived all the years was a clear indication of their competitiveness in the food and beverage industry despite various forms of turbulence. Company size ranged from 12 to 3000 employees. The majority of firms were in the medium category by definition in this study of between 50 and 500 employees with less than 50 defined as small and over 500 as large. Four firms were ranked as small, 22 as medium and 6 as large. This classification separated the categories better, gave a normal distribution of firms and identified large firms appropriately.

Normality tests confirmed the normal distribution of the model through both Kolmogorov-Smirnov and Shaphiro –Wilks tests (Table 1).

**Table 1. Normality test**

	Kolmogorov-Smirnov			Shaphiro- Wilk		
	Statistic	df	Sig.	Statistic	df	Sig.
Y	0.196	13	0.183	0.915	13	0.215
Inflation	0.256	13	0.02	0.891	13	0.099
Exchange Rate	0.238	13	0.043	0.864	13	0.043
Interest rate	0.172	13	.200	0.894	13	0.109

Results of descriptive statistics are presented on Table 2 showing key parameters like the mean, standard deviation, mode, variance, interquartile range, skewness and Kurtosis.

**Table 2. Descriptive Statistics**

Variable Descriptive Statistic	Inflation Statistic	Std. Error	Exchange Rate Statistic	Std. Error	Interest Rate Statistic	Std. Error
Mean	3.7692	.28088	3.7692	.28088	3.6154	.34970
95 percent Confidence Interval for mean	3.8530 4.4419	3.1572 4.3812		3.1572 4.3812	2.8535 4.3773	
5% trimmed mean	3.7991		3.7991		3.6838	
Median	4.0000		4.0000		4.0000	
Variance	1.026		1.026		1.590	
Std. Deviation	1.01274		1.01274		1.26085	
Minimum	2.00		2.00		1.00	
Maximum	5.00		5.00		5.00	
Range	3.00		3.00		4.00	
Interquartile Range	2.00		2.00		2.00	
Skewness	-.030	.616	-.030	.616	-.602	.616
Kurtosis	-1.209	1.191	-1.209	1.191	-.166	1.191

Correlation between the variables was tested and results represented in Table 3 below.

**Table 3. Correlation Analysis**

Variable	Coefficient	Sustainable Competitive Advantage	Inflation	Exchange Rate	Interest Rate
Sustainable Competitive Advantage	Pearson Correlation	1			
Inflation	Pearson Correlation	.162	1		
Exchange Rate	Pearson Correlation	.008	.559**	1	
Interest Rate	Pearson Correlation	-.237	.402*	.332	1

Notice the high correlations between exchange rate and inflation and that between interest rate and inflation indicative of collinearity which was later confirmed through step-wise regression analysis.

Table 4 shows a summary of indications of respondent perceptions on the three macroeconomic indicators in percentage of responses. There were mixed responses expressed by representatives of various companies depending on whether there was an impact of macroeconomic indicators on their business as shown.

**Table 4. Perceived Effects of Macroeconomic Factors on Sustainable Competitive Advantage**

S/NO.	Macro economic factors	Level of respondent Concurrence (percent)				
		Not at all	Little extent	Moderate extent	Great extent	Very great extent
	Inflation affected economic stability over five years	3.1	3.1	34.4	50	9.4
	Exchange rate fluctuation has negatively affected business	3.1	6.2	28.1	37.5	25
	High bank lending rates have negatively influenced company financial status	12.5	3.1	28.1	25	31.2

Source. Survey data (2013).



The general spread of respondent indications meant divided opinion on effects of the selected macro indicators on sustainable competitive advantage.

### Results of hypothesis testing

There was a low figure of adjusted  $R^2$  of .042 showing an exceptionally weak model with only 4.2 percent of the effects on the dependant variable being explained by predictor variables implying almost no relationship. Results of analysis of variance indicated an F value of 1.437 and a high  $p$  value for model fit of .254 shows that no independent variable was significant as a predictor of the dependent variable. The coefficients of the model indicated none of the independent variables was a good predictor of the dependent variable (Table 5).

Table 5. Coefficients for Perceived Effects of Macroeconomic Factors on Sustainable Competitive Advantage

Model	Unstandardized Coefficients		Standardized	t	Sig.	
	B	Std. Error	coefficient Beta			
1	(Constant)	3.490	.668		5.222	.000
	Inflation	.317	.210	.339	1.514	.142
	Exchange rates	-.051	.171	-.065	-.300	.767
	Interest rates	-.209	.117	-.351	-1.783	.086

a. Dependent Variable: Sustainable Competitive Advantage.

Source. Survey results (2013)

The failure at significance of all the three predictor variables meant that there was no linear relationship between macroeconomic factors and sustainable competitive advantage. This meant that for the food and beverage industry in Kenya, the selected macro-economic indicators had no significant bearing on sustainable competitive advantage. Table 6 gives the summary of the test of hypothesis.

Table 6: Summary of Test of Hypothesis

Objective	Hypothesis	Method of hypothesis testing	Results	Decision	Reason
To establish perceived effects of macroeconomic factors on firms' ability to create SCA	There is a relationship between perceived influence of macroeconomic factors on firm performance and SCA	Multivariate linear regression analysis ( $p$ value)	Inflation $p = 0.142$ not significant Exchange rate $p = 0.767$ not significant Interest rate $p = 0.086$ not significant.	Fail to reject the $H_0$ on account of no significant predictor variable	There is no evidence of a relationship between effects of the selected macroeconomic factors (inflation, exchange rates and interest rates) and SCA.

## Collinearity tests for effects of macroeconomic factors on sustainable competitive advantage

Results from step-wise regression analysis were evaluated for collinearity test. It was found that presence of multicollinearity was indicated due to low tolerance factors (<0.1) and high Variance Inflation Factors (>10). Table 7 shows the results of the collinearity tests.

Table 7. *Collinearity Tests for Model on Perceived Effects of Macroeconomic Factors*

Model	Unstandardized		Standardized			Collinearity Statistics	
	B	Std Error	Beta	t	Sig	Tolerance	VIF
Constant							
Inflation	-.084	.000	-.127	-	-	.010	104.454
Exchange rate	-.173	.000	-.309	-	-	.047	21.118
Interest rate	.009	.000	.020	-	-	.005	189.666

Source. Survey Data (2013)

Note. The high collinearity depicted in the model could explain the failure at significance in the first multivariate linear regression analysis.

Collinearity (or multicollinearity) is the undesirable situation where the correlations among the independent variables are strong. In some cases, multiple regression results may seem paradoxical. For instance, the model may fit the data well (high F-Test), even though none of the independent variables has a statistically significant impact on explaining the dependent variable. This happens when two independent variables are highly correlated; they both convey essentially the same information. When this happens, the independent variables are collinear and the results show multicollinearity. Multicollinearity misleadingly inflates the standard errors making some variables statistically insignificant while they should be otherwise significant. Formally, Variance Inflation Factors (VIF) measures how much the variance of the estimated coefficients is increased over the case of no correlation among the independent variables. If no two independent variables are correlated, then all the VIFs will be 1. If VIF for one of the variables is around or greater than 5, there is collinearity associated with that variable. If there are two or more variables that will have a VIF around or greater than 5, one of these variables must be removed from the regression model to address collinearity.

## CONCLUSION AND RECOMMENDATIONS

The objective was on perceived effects of macroeconomic factors on firms' ability to create Sustainable competitive advantage tested on firms in the food and beverage industry through the top executives. Environmental turbulence is normally expected to adversely affect industry and business hence the decision to test effects of the selected macroeconomic indicators as perceived by industry executives on their businesses. Although there was no significant effect of the selected macroeconomic indicators on firms' ability to create sustainable competitive advantage, the objective was achieved in as much as it sought to confirm if the selected macros had any effect on sustainable competitive advantage. That the effects of the macros were not significant was a desirable outcome as it implied better for the industry. The failure at significance could have been occasioned by multicollinearity as confirmed by high correlation coefficients among the independent variables and by the step wise regression analysis. Although findings of the study indicated that the selected macroeconomic indicators had no significant effects on this industry, there is need for the government to maintain the macros at a stable level to tame inflation and control lending rates for general manufacturing to thrive.

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