EFFECTS OF MACROECONOMIC FACTORS ON FINANCIAL PERFORMANCE OF LISTED MANUFACTURING FIRMS IN KENYA

BY

YUSTIN KARIMI MUGAMBI

UNITED STATES INTERNATIONAL UNIVERSITY-AFRICA

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A Research Project Report Submitted to the School of Business in Partial Fulfillment of the Requirements for the Degree of Masters in Business Administration (MBA)

UNITED STATES INTERNATIONAL UNIVERSITY-AFRICA

SPRING 2020
STUDENT’S DECLARATION

I, undersigned, declare that this is my original work and has not been submitted to any other university or college or institution other than the United States International University-Africa for academic credit.

Signed: ______________________  Date: ______________________
Yustin Mugambi (ID NO: 646676)

This research project has been submitted for examination with my consent as the appointed supervisor.

Signed: ______________________  Date: ______________________
Dr. Elizabeth Kalunda

Signed: ______________________  Date: ______________________
Dean, Chandaria School of Business
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ABSTRACT

The purpose of this study was to investigate the effect of macroeconomic factors on the financial performance of listed manufacturing firms in Kenya. To achieve this objective, the study was guided by the following specific objectives: To examine the effect of inflation rate on financial performance of listed manufacturing firms in Kenya; to investigate the effect of interest rate on the financial performance of listed manufacturing firms in Kenya; and to establish the effect of exchange rate on financial performance of listed manufacturing firms in Kenya.

The study used explanatory research design. The study used explanatory design because it developed a model and applied regression analysis to determine the effects of inflation rates, interest rates and exchange rates on return on equity. The independent variables were inflation rate, interest rate and exchange rate while the dependent variable was the return on equity. The target population of the study was the nine (9) listed manufacturing firms. The study employed census sampling technique. The study used secondary data which was obtained from the KNBS and CBK reports between 2009 and 2018. The return on equity was calculated by obtaining the net income and dividing it by equity from the financial statements of individual firm. The inflation rate was measured using the consumer price index, the interest rate was measured using the lending interest rate and the exchange rate was based on the KES/US Dollar.

The first objective investigated the effect of inflation rate on financial performance of listed manufacturing firms in Kenya. The results revealed that the inflation rates fluctuated over the years. The lowest inflation rate was recorded in 2010 at 4.32% and the highest was recorded in 2011 at 14.02%. The largest percentage increase was recorded between 2010 and 2011 with an increase of 9.7%. The correlation results from the study showed that a negative non-significant relationship exist between inflation rate and financial performance of manufacturing firms (r = -0.176, p=0.104). The R-square was 3.1 percent and the P-value was 0.104. The results from regression indicated that an increase in one unit of inflation rate leads to a decrease in ROE by 12.4 units.
The second objective examined the effect of interest rate on financial performance of listed manufacturing firms in Kenya. The results indicate that the interest rates have slightly remained stable with sight displacements. However, in 2012 the interest rate recorded a high value of 19.65% and a low of 13.67% in 2017. The largest percentage rise was recorded between 2011 and 2012 at 4.6%. The results from the Pearson correlation indicated that there is positive significant relationship between interest rate and return on equity of manufacturing firms (r = 0.229, p=0.008). The R-Square was 5.2 percent and the P-Value was 0.008. The regression results showed that an increase in one unit of interest rate leads to an increase in ROE by 14.1 units.

The third objective investigated the effect of exchange rate on financial performance of listed manufacturing firms in Kenya. The results from the trend analysis showed that the exchange rate between KES against the US Dollar has been rising in most of the years. In 2017 the exchange rate hit the highest value of 103.39KES/USD as compared to its lowest year 2009 when it was 77.3 KES/USD. The largest increase was observed between 2015 and 2016 when the exchange rate rose by 10.62KES/USD. The correlation results show that a negative relationship exist between exchange rate and return on equity however it is non-significant (r = -0.071, p=0.516). The R-Square was 0.5 percent and the P-Value was 0.516. The regression analysis results indicate that an increase in 1 unit in the exchange rate produces a decrease of 0.015 units in the ROE of manufacturing firms.

The study concluded that interest rate had a positive effect on financial performance and statistically significant effect on listed manufacturing firms. Inflation rate and exchange rate had a negative and statistically insignificant effect on the financial performance of listed manufacturing firms. The study recommends that the government should put in place sound monetary policies that can see stable interest rates that are not too high to hurt the manufacturers and not too low to hurt the commercial banks.
ACKNOWLEDGEMENT

First and foremost, I would like to thank God Almighty for without his grace and blessings, the research project would not have become a reality. I extend my special gratitude to my supervisor, Dr. Elizabeth Kalunda for her immense knowledge, constructive criticism and timely feedback navigated me in research and writing of this research project. I could not have imagined having a better advisor and mentor for my research project. I express also warm thanks to my friends and family, especially my parents for always believing in me.
DEDICATION

I dedicate this research project to my parents, thank you for the sacrifices you made so that I could get the best education. Lastly, my siblings for your unconditional support and motivation.
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<tr>
<td>ASEAN</td>
<td>The Association of Southeast Asian Nations</td>
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<tr>
<td>CBK</td>
<td>Central Bank of Kenya</td>
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<td>CPI</td>
<td>Consumer Price Index</td>
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<td>EPZ</td>
<td>Export Processing Zone</td>
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<td>FDI</td>
<td>Foreign Direct Investment</td>
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<td>GDP</td>
<td>Gross Domestic Product</td>
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<td>KNBS</td>
<td>Kenya National Bureau of Statistics</td>
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<td>NSE</td>
<td>Nairobi Securities Exchange</td>
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<tr>
<td>OECD</td>
<td>Organization for Economic Cooperation and Development</td>
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<tr>
<td>ROE</td>
<td>Return on Equity</td>
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<tr>
<td>SPSS</td>
<td>Statistical Package for the Social Sciences</td>
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CHAPTER ONE

1.0 INTRODUCTION

1.1 Background of the Study

The manufacturing sector is one of the major contributors to the economic health of any country both locally and internationally (Matar & Eneizan, 2018). Locally, the manufacturing sector employees a significant number of people and on the international scene, the country is able to sell the manufactured products to other countries (Mutunga, 2018). Khalifa and Shafii (2013) have observed that the 20th century saw different countries distinguishing themselves from the rest by embracing industrialization. As soon as a country becomes industrialized, it breaks the economic vicious circle which is the greatest impediment of economic development (Khalifa & Shafii, 2013). Reinert (2007) has noted that countries have always cared about manufacturing. He states that the two routes towards richness is through manufacturing (selling products not raw materials) and actively participating in international trade. In another statement, (Rodrik, 2013), proves that manufacturing has a high productivity catch-up as compared to other services hence it should be protected always.

In current times, more attention is put on the performance of every social, economic and political activity that is undertaken by humans (Ruhomaun, Saeedi, & Nagavhi, 2019). In the business world, under the umbrella of economic, more stress is put on the term ‘firm performance’. Ruhomaun et al. (2019) defines firm performance as what a firm gets in terms of outputs as compared to what it expected. In most cases, it is used to measure how successful a firm is and also acts as an index for investment purposes, (Sudiyatano, Puspitasari, & Kartika, 2012; Al-Matari, Al-Swidi, & Fadzil, 2014). Financial performance is not only important to investors and firms but also to scholars who want to understand the factors that affect or contribute to the financial performance of the companies. The effectiveness and efficiency of a firm is determined by how it utilizes its resources which has an extended effect on the financial performance and its contribution to the economy of the country (Al-Majali, Al-Amro, & Al-Soub, 2012).

It should be taken into account that firms face conditions both internally and externally in their daily operations Ruhomaun et al. (2019). The economic environment conditions that exist in the market have a considerable effect on the performance of the organization either positively or
negatively. The major macroeconomic factors that affect an organization include Inflation rate exchange rate and interest rate (Witkowski, Cheba, & Kiba-Janiak, 2017).

The United States Congress has always been worried by the country’s manufacturing sector for a period of time (Levinson, 2018). The manufacturing sector has experienced a noticeable decline since the beginning of the 21st century, hence attracting the congressional interest. Various bills have been introduced with the perception that the manufacturing industry in the United States is lagging behind other countries. The U.S perceives importation as bad because they portray off shoring which kills domestic jobs. However there has been an argument that the U.S manufacturing shows three trends since the World War II (Teresa, Pierce, & Schott, 2018). The first observation is that the manufacturing employment has distinctively diverged from the non-manufacturing employment. Secondly, the manufacturing employment fell by 12 percent from 1979-2000 (post war years) and fell by 25 percent (twice) from 2000 to 2012. The third observation is that, regardless of the sharp fall experienced in the manufacturing employment, there is a steady rise in the real value added from manufacturing sector. There have been various perceptions due to these observations as academicians and policymakers have settled on exchange rates, high wages vis a vis education and technology (Langdon & Lehrman, 2012; Ebenstein, Harrison, McMillan, & Phillips, 2014).

In 2010, China became the world manufacturing power house with value added manufacturing exceeding $3 trillion as compared to the United States $2.2 trillion (Levinson, 2018). The value added is calculated in the U.S dollars. Countries like Mexico, China and Mexico had their value added in manufacturing decline in 2016 because their currencies depreciated as compared to the dollar (Levinson, 2018). The report by (OECD, 2018) shows that 45% of the foreign-direct investment going to U.S. goes directly to manufacturing with a major percentage going to pharmaceutical manufacturing (U.S. Bureau of Economic Analysis, 2016). Due to tax reasons, U.S. firms opt to be owned by international subsidiaries which are termed as ‘inversion’. This is a great move as the manufacturer will have his fixed capital classified as foreign-owned. In case the manufacturer moves the headquarters to a foreign country and hence any future investment is termed as foreign direct investment and policies on interest rate, tax and exchange rate may have a different effect (Hanson, Krakower, Mataloni, & Pinard, 2015).
Germany is considered one of the most successful manufacturing countries not only in Europe but in the entire world (Coulter & Hancke, 2013). Most OECD countries can’t measure to Germany’s industrialization. Even though there have been setbacks (currency reforms, migration, world wars, reunification), Germany has been on the forefront among developed countries (Landau & Schneider, 2016). In the beginning of 2007, Germany and U.S occupied the top two positions characterized with a growth rate of 1.3 per cent in terms of manufacturing value. At this moment, many countries were struggling with the financial crisis. Germany has one of the most stable political environments which have also played a role in its success. The inflation rate in Germany averages 2.7 percent since 1960 the lowest as compared to other developed countries; Italy (6.2%), UK (5.3%), Japan (3.2%) and U.S. (3.9%) (Landau et al., 2016). Only inflation rate in Switzerland was lower at 2.6% but the reunification is theorized that it had an effect on the inflation rate.

The German Institute of Economic Research found out that Germany has the second largest engineering and machine tool industry among all the industrialized countries which is a major boost (Coutler et al., 2013). Germany has also focused on developing export relationships with emerging economies due to their exchange rates which has made Germany to acquire a significant large share of the market share (Danninger & Joutz, 2007). Audretsch and Lehmann (2016) highlights four major sources of Germany’s success; investing in workers to have a skill full labor force, strong institutions and policy formulation (De Massis, Audretsch, Uhlaner, & Kammerlander, 2018), the main street entrepreneurship (Mittelstand) and Strategic management of industry location (Dustmann, Fitzenberger, & Oener, 2014). Germany used to perform descending order kind of industrial finance relying bank loans and retained earnings. The Mittelstand have been able to secure loans through a system that is based on local savings banks (Welter, Britta, & Strobol, 2016). Germany formed a Reconstruction Loan Corporation which serves as a bank that extends loans at very low and fixed interest rates for a long period of time, up to over twenty years in some instances.

China has been tremendously growing for the past 40 years with its success being attributed to the manufacturing industry (Zhang, 2014). Lin and Wang (2012) denote that China has transformed rapidly in terms of process and development. In recent times, China has become the world’s largest producer of manufactured goods and exports. The World Bank has acknowledged
that China has lifted 800 million people out of poverty by having fastest and sustained economy expansion (Morrison, 2019). This growth has led to growth of bilateral commercial ties with U.S. The U.S. trade data show that the trade between the two countries has magically increased from $5 billion in 1980 to $660 billion in 2018. U.S. is the largest importer of China's goods and the third largest export market for China making it United States largest merchandise partner. Recent years have seen many U.S. companies actively participate in China taking advantage of lower-cost of labor and the foreign exchange rate to the export-oriented manufacturing. Due to China’s foreign exchange rate and low interest rates, the U.S. companies have remained competitive by operating here. Due to its policy, China has attracted many international funders thus having a huge number of Foreign Direct Investment (FDI). More so venture capital has been on the rise in China due to its macroeconomic drivers (Ning, Yu., & Wang, 2015). The venture capitalists have reduced their activities in the U.S. due to regulations created by the SOX (Atkinson & Duca, 2017). Ning et al. (2015) argue that it is clear that the monetary policy in China has attracted more foreign investments which have spurred the manufacturing sector.

There has been a significant transformation in Latin America in the past few years. Some of the countries had a major social and economic crisis between 2003 and 2008, however the region has had one of the steady and expanding economies since 1970s (Abeles, Pablo, & Fernando, 2013). The high commodity prices and the foreign financing have been credited with stimulating this success (Santarcangelo, Schteingart, & Porta, 2018). The most outstanding feature during this period has been the ever developing manufacturing sector where the industrial policy has been developed on the basis of traditional economic instruments to promote investment.

Argentina ‘woke up’ when there was closure of the export market in 1930 which led to development of Argentina’s light manufacturing industries Santarcangelo et al. (2018). The government didn’t implement any policy until the year 1946-1955 often referred to as Peronism period when systematic programs were implemented (Basualdo & Eduardo, 2006). In 1976, the country experienced a coup and for the next eight years, there was a high exchange rate appreciation. The interest rates also raised leading to a fall of the domestic demand. During this period Argentina borrowed much to finance its imports which severely interfered with the manufacturing sector (Azpiau, Daniel, & Martin, 2010). The years 2002-2007 were marked by high manufacturing and economic growth rates (9% and 8%, respectively) and the energy of
creating new companies increased by a high of 42%. The economic policy achieved this feet by depreciating its taxes, real exchange rate and subsidizing some essential products of manufacturing such as energy. This period saw exchange rates being effective hence favoring the manufacturing sector (Lavarello, Sarabia, & Marianela, 2015). Even though the economic program was not so clear, there was very high positive performance in manufacturing sector (Coatza, Diego, & Bernado, 2015). The Argentina government has prioritized the economic policy precisely influencing the exchange rate, interest rates and controlling inflation all in saving the manufacturing sector (Soltz & Paciarotti, 2015). Most recently, the government created a system that would manage foreign trade through import permits. The Charter of the Central Bank was reformed which ensures that private banks lend the manufacturing sector at 5% of their deposits which is a negative interest rate as compared to its inflation rate.

Brazil introduced industrialization by substitution in 1930s and 1980s Santarcangelo et al. (2018). There was a significant result between 1930 and 1980 with growth of 3% annually making it one of the most growing economies in the world. However, with oil shocks, the government decided to fund its growing current account deficit which led to economy collapse after U.S. raised its interest rates. The country dropped the ISI strategy and replaced it with the Washington consensus doctrine. Fernando Cardoso became the head of finance in 1993 and implemented his Real Plan which reduced the inflation to one digit. When he became president, he aimed at lowering the inflation rate and keeping it as low as possible by opening trade and appreciating the real exchange rate (Brenta, 2002). Other administrations that have come in place in Brazil have advocated for a stable industrial policy that keeps in check the macroeconomic variables such as interest rates, exchange rate and inflation Santarcangelo et al. (2018). Ninomiya (2015) suggest that for the country to have a stable and thriving manufacturing sector, inflation, exchange rate and interest rate have to be controlled by the government. The market should be regulated and intervened.

The African manufacturing sector became active after countries have gained independence. However, there were a series of external shocks that were experienced including commodity price decrease, fluctuating oil prices, real interest rate rise, dwindling public coffers and limited domestic markets in many countries (Signe, 2018). In 1990s, manufacturing sector was restarted by privatizing the state-owned enterprises. However, this success was met with competition from
foreign countries and pressures to devalue their currency (Signe, 2018). The economic growth rates in Africa were high even during the global financial crisis in 2008. Recently, only a few countries are performing well in the manufacturing sector while the rest are lagging behind (ACET, 2014). The manufacturing share for total GDP amounted to a paltry 10 percent (Signe, 2018). Despite the low and poor trends, the overall growth is by 3.5% from 2005 to 2014. This is the best growth worldwide (Signe, 2018). Nigeria and Angola have had an output of over 10 percent annually (Balchin, Gelb, Kennan, & Martin, 2016). The production has increased to $130 billion in 2016 from $75 billion in 2005.

The Kenya’s manufacturing sector has grown with an average of 4 percent each year for the past ten years reflecting a quiet strong sector (Signe, 2018). The sector now provides for over 12 percent of the formal jobs and accounts for 20 percent of economic activity. The quickly growing areas have been chemicals, metal production and dairy which expanded by around 50 percent between 2010 and 2013 (KPMG, 2015). The SEZs have played a great role and manufacturers have little or no electricity interruptions. 20 percent of the manufacturing jobs are in the Export Processing Zones (EPZ). Muthui (2014) has observed that Kenya enjoys a geographical advantage by having access to the port as compared to other landlocked countries in East Africa. The Economic Report Survey has shown that the manufacturing sector has the potential to grow and needs more investment (Mutunga, 2018).

The most notable manufacturing firms in Kenya are; East African Breweries Ltd, British American Tobacco Keya, Bamburi Cement Ltd, Athi River Mining, Sameer Group, Devki Group of companies, Bidco Africa Ltd and Brookside Dairy Ltd among others (Anzetse, 2016). The manufacturing sector faces challenges that hinder its growth. These challenges include; Tax policy where the VAT refunds take too long to be refunded which limits the cash flow of the manufacturing sector. Another challenge that faces the industry is devolution with counties having stringent policies that increase the transaction costs for investment (Anzetse, 2016). The accessibility to finance is a major factor on manufacturing firms. Finances are limited with interest rates going up to around 18 percent with those opting for microfinance even higher than this. In the Kenya Economic update report by (World Bank, 2016) there was speculation that the business environment was not promising enough for investment. The report highlights high financing costs, poor infrastructure and accessibility, high insecurity and the fluctuating
exchange rates that affect exports of final products and importation of raw materials as major challenges in the manufacturing sector.

1.2 Statement of the Problem

Internationally and locally, different studies have been carried out to study the macro and micro environment and its effect on performance of various sectors. Ruhomaun et al. (2019) conducted a study on effects of macro and micro economic variables on firm performance of listed firms in Malaysia. The study showed that the exchange rate has a negative impact on the firm performance, but it is not significant. Interest rate has a negative impact on the firm performance, and it is significant. Enu, Haga and Obeng (2013) carried out study on impact of macroeconomics factors on industrial production in Ghana; they found out that the real exchange rate had a negative effect on industrial production same to petroleum prices adjusted to inflation. On the other hand, in a study in Croatia, Marina and Vizek (2009) found out that the exchange rate did not have the same effect on all the manufacturing firms. The real exchange rate had a positive effect on firms that had low and medium technological intensity and negative effect on medium-high level technological intensity.

Chaudhry Ayyoub and Imran (2013) did a study in Pakistan and found out that inflation significantly had a negative effect on the financial performance of manufacturing firms. Siyakiya (2014) conducted a study in Zimbabwe and found out that hyperinflation reduce the manufacturing sector output negatively which stems from firms having highly monetized and depreciating assets. However, Adaora (2013) found out that there is a significant positive effect of inflation on manufacturing sector in Nigeria in the period 1981 to 2011. Loto (2012) also reported a positive effect.

The spillover effect of interest rates in other sectors have been noted previously which have an effect on the manufacturing firms. Acha and Acha, (2011) investigated the effect of interest rates on investment and savings. The conclusion was that interest rates insignificantly affected the variables. In Kenya, Mnang'at, Namusonge, & Oteki (2016) found that there was a significant relationship between interest rates and the financial performance of small enterprises. In Kenya, studies have been conducted on the internal controls and their effects on manufacturing firms.
More studies have given attention on the innovation and strategic management (Kariithi & Kihara, 2017).

The results for each variable vary and have different effects on the manufacturing firms depending on the country and period that the study was conducted. In Kenya, most studies have not addressed the effects of these factors on manufacturing firms. For instance, the policy on interest caps may have had a significant effect which no study has taken into account. The prioritization of manufacturing sector as one of the major agendas by the president also may have some effect on the performance of the firms. Therefore, this study is assessing all these factors putting into consideration a wide scope of ten years.

1.3 General Objective

The general objective of this study was to investigate the effect of macroeconomic factors on the financial performance of listed manufacturing firms in Kenya.

1.4 Specific Objectives

This study will be guided by the following research objectives:

1.4.1 To determine the effect of inflation on financial performance of listed manufacturing firms in Kenya.
1.4.2 To establish the effect of interest rate on financial performance of listed manufacturing firms in Kenya.
1.4.3 To investigate the effect of exchange rate on financial performance of listed manufacturing firms in Kenya.

1.5 Justification of the Study

The following stakeholders will benefit from this study.

1.5.1 Manufacturing Organizations

Manufacturing organizations will benefit from this study by understanding the extent to which the selected macro-economic factors have affected them. The findings will also be used to predict the future and firms will cushion themselves against any disaster. Organizations also
considering diversifying into manufacturing will also have a glimpse of the whole sector in general and the rules to play along.

1.5.2 Scholars

Scholars will be able to gain additional information on the effects of macro-economic factors on performance of manufacturing firms. The study will also have gaps and from these gaps, other researchers in the field will fill them up hence contributing to the vast academic knowledge. Other academicians will use the findings as literature review in building their cases.

1.5.3 Policy Makers

The policy makers, specifically the government and the central bank are expected to formulate better policies after insights given by this study. Given that the variables being discussed are directly under them, they are expected to control them effectively and efficiently for the development of the economy through manufacturing sector.

1.5.4 Financial Institutions

Financial institutions play a crucial role in the economy. There is strong relationship between manufacturing firms and financial institution due to continuous lending and borrowing. The financial institutions will therefore benefit by knowing the stable firm to lend to and also to predict the future.

1.6 Scope of the Study

This study sought to examine the effect of macroeconomic factors on the financial performance of listed manufacturing firms in Kenya. The specific macroeconomic factors of this study were; inflation, interest rate and foreign exchange and their effects on financial performance of the nine listed manufacturing firms. The study used secondary data because listed firms publish their financial statements and annual reports. Data on interest rate, inflation and exchange rate were extracted from the Central bank of Kenya Annual reports. The study covered years 2009 to 2018. The data was analyzed using both descriptive and inferential statistics by the use of a statistical software (SPSS).
1.7 Definition of Terms

1.7.1 Inflation

Inflation refers to the continuous increase in prices of commodities for a certain period of time. It usually shows how expensive a set of goods and services have become in a given period of time, in most cases a year (Oner, 2012).

1.7.2 Interest Rate

Interest rate is the cost of credit in an economy. Fisher (1930) was the earliest proponent of interest rate and he defined interest rate as the yearly price that the lender charge to a borrower in obtaining a loan and is usually expressed as the percentage of the total amount that is loaned. This is the expense or the price that a borrower has to part with so as to receive resources now (Kwak, 2000).

Exchange Rate

The real exchange rate is the relative national price levels between two countries or two economies that use different currencies with nominal exchange rate being a measure in converting the currency in a way that the two price levels are measured in one currency (Yang, X, & Zeng, 2014). The U.S dollar is the super currency hence its exchange rate with the Kenyan shilling will be considered.

1.7.3 Firm Performance

The top management team is considered efficient and successful if the company is able to perform which also shows the efforts of other employees in the organization. Therefore performance is a measure of how effectively and efficiently human and resources at the disposal of the organization are utilized (Obaid, Zanon, Eneizan, & Wahab, 2016).

1.7.4 Manufacturing Firms

Manufacturing firms are firms that are involved in processing materials to finished products usually at a large-scale industrial operation (Mutunga, 2018).
1.8 Chapter Summary

This chapter presented the background of the study and identified the gaps under the problem statement. The general objective and the specific objectives are presented in this chapter. The chapter also provides the significance of the study and the scope. Chapter two presents the literature review in line with the research objectives. Chapter three highlights the research methodology adopted by the study. Chapter four presents the major findings and the results of the study. Finally, chapter five outlines the discussion, conclusions and recommendations.
CHAPTER TWO

2.0 LITERATURE REVIEW

2.1 Introduction

This chapter gives a review of the literature of the study. The literature review highlights the general effect of selected external factors on the financial performance of manufacturing firms. There are factors in the economy that affect manufacturing firms and this study identifies three of them; inflation rate, interest rate and exchange rate. The first research objective is about inflation rate and how it affects financial performance of manufacturing firms. Under this objective, the study review how inflation rate affects economic growth, commodity prices and productivity and how they relate to financial wellbeing of manufacturing firms. The second objective is about interest rate and its effect on financial performance of manufacturing firms. This objective discusses investments, credit and productivity linking them to the general objective. The third objective is about exchange rate and its effect on financial performance of manufacturing firms. Under this objective, three other subtopics are discussed which include, exchange rate and manufactured exports, investments and firm value.

2.2 Inflation and Financial Performance

Inflation has been defined over a long period depending on the situation. However, various definitions have stood out which are relevant to this study. Inflation is defined as the continuous increase in the general prices of services and goods for a certain period of time basically a year (Modebe & Ezeaku, 2016). Ahlgrim and D'Arcy (2012), defines inflation as the dynamic changes of prices across the economy which inadvertently leads to a drop in the value of the domestic currency. During the periods when inflation is experienced, the price levels often increase, the purchasing power of money reduces and in most cases the real value of the money deteriorates which may lead to a negative effect on the economy if it’s not controlled Modebe et al. (2016). In most economies, the macroeconomic policy is usually based on having stable prices and maintaining a sustainable economic growth (Mwakanemela, 2013). Stability in this case doesn’t necessarily mean having fixed prices since it is difficult to achieve this feat. It means having very minimum fluctuations in prices for a long period of time (Anyanwaokoro, 1999).
In an estimate, the average inflation rate for developed countries in 1981 was 11.9% but as of 2013, it had decreased to 1.4%. Less developed countries had had inflation rate of 12.7% in 1981 and dropped to around 4.6% by 2013 (World Bank, 2014). No matter how good an economy is, a fluctuating inflation rate may disrupt all the economic activities and bring to the knees the whole country (Zermeno, Martinez, & Preciado, 2018).

The word “Performance” has its origins in French which means bring through or to bring something forth. This is a situation where objectives are implemented, achieved and fulfilled which are then measured or compared to the time and resources that are put in to achieve those objectives (Prasad & Ahmed, 2011). Performance in finance refers to achieving these objectives with the minimum financial obligations. It is a threshold that is used to determine the company’s success in terms of profits and its financial position usually measured in return on investment, assets, capital invested and equity. Financial performance refers to the measurement of an organizations’ financial wellbeing for a certain period of time. The financial action that is taken by the organization determines the sales and the profits that the organization is going to make (Ijaz & Naqvi, 2016). Manufacturing sector heavily relies on the performance of the economy, the prices and employment. The impact of inflation on these three basically affects the manufacturing sector which translates to the financial performance of manufacturing firms.

2.2.1 Inflation and Economic Growth

Different economic theories have varied explanations about inflation and its effect on the output growth. The traditional aggregate supply-aggregate demand set up shows that a positive relationship exists between inflation and output growth. That is, when an economy grows, inflation also grows. However, in 1970’s it was revealed that when stagflation occurs, high levels of unemployment and stagnant goods and services are experienced (Gokal & Hanif, 2004). Having a common agreement has since been a mirage as different countries; different approaches and different situations have revealed contradicting results on the relation between inflation and output growth.

A growing economy is usually characterized by reduced unemployment rates and the gross domestic product. Manufacturing firms play a greater role in both situations such that, they create employment and at the same time have end products exported or used domestically. Therefore, a thriving economy shows the health of the manufacturing industry in a given
country. Economists, financial analysts and policymakers always emphasize on the cost of a fluctuating inflation. Recently studies have focused on the non-linear relationship between the two variables. Li (2014) studied the influence of inflation rates on economic growth in perspective of manufacturing firms. The study was done in china adopting a mixed research design. The study found out that higher inflation rates has a significant and negative effect on economic growth however the vice versa is not true in that, low inflation rates aren’t significant and don’t have a positive effect on growth The study emphasized that the growth of an economy is tied on manufacturing firms because of its opportunities to employ hence reducing poverty. Bruno and Easterly (1998) found out that, there are economies that had inflations as high as 20-30% persistently without suffering any shrinking economy or having its manufacturing industry shrinking. He suggested that, 40% is the rate at which inflation affects the economy and the manufacturing firms. Alade (2015) suggest that monetary policies are fundamental in setting the inflation threshold rather than the economy achieving it through market forces. Bawa and Abdullahi (2012), estimated that the threshold inflation rate of 13% using time series data for the period 1981-2009 in Nigeria. They say that inflation rate below 13% doesn’t have a major effect on the manufacturing industry and the economy however above it; it has a negative and significant effect on growth.

Ifionu (2015) did a study on macroeconomic variables and money supply in Nigeria. The study used secondary data from the central bank of the country. The study revealed that inflation rate had and an inverse and significant impact on money supply which affected manufacturing firms in the long run. The study also revealed that a moderate inflation rate is good for the economy such that inflation affects economic growth positively. He suggests that the financial institutions in a country should always intervene efficiently since they can mitigate the impacts of inflation. It’s the role of policymakers to establish a moderate inflation rate.

Pradana and Rathnayaka (2013) conducted a study on the link between inflation and economic growth in three Asian countries. The methodology adopted by the study was cointegration causality test. The study found out that in Sri Lanka, the relationship between inflation and economic growth was significantly negative in the long run. However, the study found out that there was no significant relationship between the two in China and India, but in short run a negative significant relationship could be established in the two countries. In Tanzania,
(Mwakanemela, 2013) investigated the relationship between economic growth and inflation. The study used time-series data in years 1990-2011 and found out that inflation had a negative impact on economic growth. The study revealed that a long run relationship existed between the two variables. In Nigeria, (Umaru & Zubairu, 2012; Bakare, Kareem & Oyelekan, 2015), found out that inflation had a positive impact on manufacturing firms and thus impacting economic growth. Bayo (2013) established that money supply and fiscal deficits significantly influenced inflation hence can be controlled through monetary policy. He established that inflation played a major role in influencing development of manufacturing sector in a country.

2.2.2 Inflation and Commodity Prices

Prices in an economy matters so much. To a manufacturing firm, prices affect them in two parts. First, prices are crucial when acquiring the raw materials and the services that are involved. Secondly, prices are also important when the end products are sold in the market. Therefore, it is important to review the relationship between commodity prices and inflation.

Commodity prices are usually preferred when it comes to showing the levels of inflation in the economy (Miecinskie & Lapinskaite, 2014). This is revealed in two instances whereby, the price responds quickly to any economic shock such as changes in demand. Secondly, commodity prices reflect the idiosyncratic shocks, such that if a drought occurs, it is reflected in the supply of affected agricultural products which is later passed on to prices Miecinskie et al. (2014). The relationship between inflation and commodity prices is not stable given that different types of shocks affect it differently. Additionally, as time progress, the different shocks in the economy may have an effect the stability of the bivariate link between commodity prices and inflation (Furlong & Ingenito, 1996).

In developing countries, commodity prices are the source of income and hence there is a great interest between commodity prices and manufacturers. Ghoshray, Kejriwal and Wohar (2014) found out that there is a positive relation between prices and financial performance of manufacturing firms. Increased prices of finished products in short term led to increased profits. He concluded that the prices should remain stationery given the nature of production, storage and arbitrage. Dudzinski (2010) also analyzed the movements of commodity prices and his conclusion was in sync with that of Ghoshray et al. (2014). In a study that was done a little bit earlier, (Cashin, McDermott, & Scott, Booms and Slumps in World Commodity Prices, 2002)
suggests that commodity prices are usually affected by shocks that cause sharp upward movements and these shocks persist for several years (Cashin, Liang, & McDermott, 1999).

In recent times, commodity prices have emerged as a subject of discussion in the western economies Mieckinskiene et al. (2014). The suggestion is that commodity prices changes may have occurred because of the development in the economy and specifically due to changes happening in the specific commodity market Mieckinskiene et al. (2014). In addition to that, commodity prices may have increased due to the changes in the monetary policies in the advanced economies. Mieckinskiene et al. (2014) suggest that, monetary policies have an effect on inflation especially when it’s about money supply. The moment of announcing a policy, affect manufacturing firms from how they will acquire goods and how they will produce them. Manufactured goods that are in store, whose initial cost was high, and prices are low due to policies, leads to a loss to a company and vice versa Mieckinskiene et al. (2014). Browne and Cronin (2010) note that monetary conditions have a greater impact on the fluctuations of the commodity prices.

Furlong et al. (1996) carried a study on the relationship between commodity prices and inflation in America. The study used time series data. The results showed that a link existed between the two, but it has been changing dynamically over the time. They suggest that in the 1970’s commodity prices indicated inflation but in 1980’s it all changed. In another study, (Awokuse & Yang, 2003) examined the informational role of commodity prices in formulating monetary policy in USA. The study used time series methodology developed by Toda. The study found out that commodity prices show the future of the economy and hence predicts how the manufacturing firms will be in the future. Malliaris (2006) proves that variations in commodity prices and gold prices affect the economy and specifically have positive and negative effect on manufacturing firms depending on the commodities they manufacture. The increase in commodity prices causes inflation which is usually seen in the changes in CPI and the producer Ghoshray et al. (2014). Kyrtsou and Labys (2016) suggest that, manufacturers and processors incur low profits, high rates of unemployment which translates to less consumer spending when commodity prices are high. It is also clear that in an economy that is experiencing inflation, speculators who trade in futures stimulate the rising commodity prices which have an effect on manufacturing firms Krytsou et al. (2016).
Gorton and Rouwenhorst (2016) argue that, consumer price inflation is linked to the index of the commodity futures. This means that, when investment is done in commodities, the real purchasing power is protected. However, in an earlier study, (Verheyen, 2010), didn’t find a positive relation among the two. According to (Ciner, 2011), commodities are major inputs in production and manufacturing processes hence, inflation in the economy leads to changes in the cost which affect the financial performance of manufacturing firms.

2.2.3 Inflation and Productivity

Successful companies in the world today are associated with having quality products with reduced costs (Eryilmaz & Bakar, 2018). In reducing the costs, the productivity concept is brought to life. Countries that have functioning manufacturing companies have efficient productivity hence have improved welfare (Eryilmaz & Eryilmaz, 2015). This is the main reason why this subject has been given more attention with studies linking inflation, productivity and real wages (Strauss & Wohar, 2004; Narayan & Smyth, 2009; Tang, 2014).

Studies carried before show that there is a negative relationship between inflation and productivity (Ram, 1984; Kumar, Webber & Perry, 2012). The reason to this is that, when inflation happens, there is no accumulation of capital which reduces the incentive to work (Jarrett & Selody, 1982; Kumar et al., 2012). Inflation decreases labor productivity by causing an inefficient factor input which has impact on the prices, causing manufacturing firms to make inefficient “safe: stocks and reducing on budget on research and development in long-term hence eroding tax reductions (Narayan et al., 2009; Tsionas, 2008).

In a study conducted in the United States observing inflation and productivity in the year 1953-1984, (Ram, 1984) found out that inflation adversely affected productivity. The conclusion was that inflation reduced the total output while increasing the number of working hours which affected the financial wellbeing of the manufacturing firms in terms of wages paid. In their study on 12 OECD countries, (Freeman & Yerger, 2000) found out that increased inflation reduced labor productivity. Bitros and Epaminondas (2011) carried out a study on Greek manufacturing firms observing the effect of inflation on total factor productivity between years 1964-1980 using time series data. They concluded that total factor productivity reduced due to inflation. Dritsakis (2014) also found out that the cause and effect was from inflation to productivity. Ulusoy, Caker and Ogut (2008) conducted a study on Turkish manufacturing firms and found out that a
significantly negative relationship existed between inflation and productivity. Yildirim (2015) affirmed this study by concluding that inflation and productivity had a negative relationship still using Turkish manufacturing industry. He said that labor productivity is positively influenced by reduced inflation. This observation affects manufacturing firms in terms of costs and profits.

### 2.3 Interest rate and Financial Performance of Manufacturing Firms

Interest rate is the price that a borrower pays for the money that they have borrowed or the fee the borrower pays to the lender for the money borrowed or the use of an asset. According to (Ngugi, 2001), interest rate is the price of money that portrays the future of the market in terms of fluctuations in purchasing power and inflation of money and the economy respectively. Murungi (2014) says that, traditionally, interest rate is the price on allocation of capital over a period of time basically a year. Interest rate is an important tool to monetarists since they use it when analyzing savings. For instance, reduced interest rates forces investors to look for another options of investment in order to generate more returns while increased interest rates encourages more savings (Murungi, 2014).

In Kenya, the manufacturing sector is the third contributor in GDP as of 2017 contributing only 8.4% (Kenya Association of Manufacturers, 2019). The service sector has been noted to be the lead GDP contributor at 45.4% meaning that Kenya is undergoing deindustrialization. Rodrik (2004) states that, when service sector grows faster as compared to industrial manufacturing then deindustrialization is the term to use for this phenomenon. Ghani and O'Connell (2014) have argued that service sector can still grow an economy in contrast with the traditional manufacturing sector. However (Rodrik, 2004) argues that service sector requires skill-intensive labor with little chances of absorbing low-skilled workers which is a characteristic in developing countries like Kenya.

Kenya introduced interest caps in August 2016 with the president signing the Banking (Amendment) Bill 2015 into law (Safavian & Zia, 2018). This law put a cap of no more than 4% on the base rate that is set by the Central Bank of Kenya. This was after the public complained that the banks were lending at high rates at the expense of people. Between 2001 and 2015 the interest rates in Kenya averaged 10.1% (Allen & Safavian, 2016). The government also did this
to attract more manufacturing firms to borrow more funds in order to expand the sector with low repayment rates.

There is evidence that interest caps have failed and worked in different countries (Maimbo & Gallegos, 2014). Over 70 countries in the world have enacted interest caps however the adoption forms and modes of execution vary from one country to another (Ferrari, Masetti, & Ren, 2017). Theoretically interest caps are supposed to reduce the cost of borrowing and attract more people, SMEs and the manufacturing sector Safavian et al. (2018). However, that’s not necessarily what happens. There has been a steady decline in lending since February 2016 by 3.1% and a further 2.7% after the introduction of caps. Ferrari et al. (2017) notes that interest caps may not necessarily be positive and in some instances, they reduce credit availability reduce financial product transparency and increase the costs for small scale borrowers. Manufacturing firms have been listed as being in one of the sectors that has Non-performing loans in Kenya (KAM, 2019). The total gross for NPL increased from 234.6billion in June 2017 to 298.4 billion in June 2018 a 27.2% increase in the total sectors. Commercial banks have been slow in giving out credit to manufacturers Factors such as a shrinking economy and the low rates are the main reason banks have been reluctant. This move obviously has affected development and growth of the manufacturing sector.

2.3.1 Interest rates and Investments

Interest rates show the situation of an economy and affects variables such as price levels, economy expansion, level employment and GDP (Wuhan & Khurshid, 2015). In developed countries, interest rates have real effect on savings and investments. The interest rates in the current period have an effect on investment activities. The interest rates also affect the level of investment in an organization or an individual will have in future by adjusting their savings currently. When interest rates increase the cost of investment automatically rise and this leads to investors withdrawing from areas of investment. In this situation, shareholders and potential shareholders rarely invest in the manufacturing firms which cause financial issues. The reverse is true.

Various scholars get different results in coming up with conclusions on the relationship between interest rate and investment. For instance, (Qinghao, 2010) uses investment as a variable in a monetary utility function model; the outcome is that interest rates are affected by investment
with a notable effect. However, in a study by (Ingersoll, 1992), they use stochastic interest rate and the outcome was that when interest rates fluctuate it had a considerable effect on investment. Alvarez and Koskela (2004) established that changing interest rates have a positive and negative effect on demand for investment which affects the industrial manufacturing firms negatively and positively financially. Luis (2010) established a diffusion model and showed that the unpredictability of interest rates may hinder the best investment and limit development of industrial sector.

There has been a group of scholars that has differed with the usual traditional theory of interest rate concluding that there is a positive correlation between investment and interest rates. The evidence from 21 developing countries has shown that there is a positive relationship between growth of interest rates and financial assets (Lanyi & Saracoglu, 1983). According to (Andrea, 2007), if discount factor represented the variable of investment then a positive correlation is established between interest rate and investment. However, the GMM estimation has to be used and the analysis to be carried in uncertain environment. Andrea (2007) also established that when interest rates are volatile then the correlation becomes more positive between the two variables.

There have been other studies which have shown that interest rates don’t have an effect on investment. Mohammed, Makken and Eastman, (2013) used a VAR model in determining the link between interest rates and investment. They found out that in an economy, the level of demand affects investment and not interest rates. In West Germany (Baillie & McMahon, 1981) established that between the years 1960 to 1978; the country experienced high increasing interest rates which did not affect the investment rates. He established that, interest rate affected investment differently in different periods depending on the policy that is in place at that time. In another study, impulse response was employed to analyze how policies on interest rate affected industrial investors (Mustafa & Ayhan, 2012). They established that in the short term, investors were unable to cope up with the effect of interest rates. The study used interest rates and ISE national 100 indexes from 2002 to 2010.

Hiroaki and Sekine (2006) have proved that interest rate plays a greater role in decision making when it comes to investment. The study used both long-term interest rates and short-term interest rates. There was a weak relationship between the fluctuating interest rates and investment in
Switzerland. Christoph, (2006) found out that the relationship between investment and interest rate followed the interest rate parity theory.

2.3.2 Interest rates and credit

Credit is the fund and non-fund based activities that commercial banks give to people or sectors in an economy which exposes the banks to risk of losing money hence charging a fee or a cost known as interest rate (Modebe & Ezeaku, 2016). This is the rate at which money is borrowed and lent out in the economy hence it determines the availability of credit (Modebe & Ezeaku, 2016). The direction of businesses in an economy depends on the flow of funds which is majorly determined by the interest rate. For instance, (Dunmade, 2012) notes that, whenever interest rates are high, it means that the cost of borrowing is also high hence businesses won’t have money which leads to poor financial performance.

In many economies, the government through the central bank controls the interest rates by formulating fiscal and monetary policies (Ogar, Eja, & Suleiman, 2018). The policy makers ensure that commercial banks finance the sectors in the economy to realize maximum production in order to create employment, sustain incomes and expand the GDP (Ettah, 2004). According to (Akinyomi, 2014), the manufacturing sector becomes the pillar that enables a country to achieve economic growth by utilizing the countries endowments and relying little on imports. The manufacturing sector also enables expansion to other sectors since it is diverse. Toby and Peterside (2014) note that manufacturing sector creates investment capital faster as compared to other sectors and provides links to other sectors. In Kenya, manufacturing sectors face challenges such as inadequate funding, high cost of borrowing and electricity costs. Since the introduction of caps, banks have even become more rigid in lending to the manufacturing sector terming it too risky at a lower rate.

Alexander and Luis (2003) studied the effect of interest rates and credit disbursement to manufacturing firms in Costa Rica. The study revealed that interest rates significantly influenced the amount banks were willing to lend. The study used panel data and it established that larger manufacturing firms heavily relied on the banks for finance while small firms relied on the non-banks financial institutions for credit. It was also established that many starting manufacturing firms had credit as its starter fund. More funds facilitate growth and expansion hence financial
performance. Banks offer loans in an economy that has stable interest rates thus having a healthy manufacturing sector.

Bank credit influences the manufacturing sector (Ogar, Nkamere, & Effiong, 2014). In their study observing data between years 1992 to 2011, Ogar et al. (2014) found out that bank credit had a significant relationship with manufacturing sector in Nigeria. They established that manufacturing firms that received or qualified for credit were comfortable and hence posted good financial results. In another study still in Nigeria, (Ebere & Iorember, 2016) found out that the interest rate didn’t have a significant effect on the manufacturing sector, however loans and money supply affected the output of the manufacturing firms which had an extensive effect on their financial performance.

In another study, (Erinwa, 2016) studied the effect of increasing interest rate on performance of manufacturing firms in West Africa. The study used service data from 1981 to 2015. The study revealed that when interest rates are escalating, the effect is negative, and it affects the manufacturing firms plus the GDP. However other factors such as transportation and supply of power were also credited with affecting manufacturing sector. From the above studies it is clear that interest rates affect the perception that the bank has on advancing credit. In as much as banks may want to have high interest rates, (Oka, Udoka, & Ibor, 2015) advise that they should consider the issue of adverse selection because the risky borrowers tend to accept the high rates and default in the end.

2.3.3 Interest rates and Productivity

Liu, Mian and Sufi (2019) suggest that when the long-term rate decreases, there is an increased concentration in the market. The study reveals that there is a negative correlation between a firm profit against interest rate. The study also shows that there is negative correlation between the firm’s market value in the manufacturing industry and the interest rate. It is clear that when interest rate decreases in the long-term, the market becomes more concentrated with other firms. This reduces the productivity of firms as competition increase hence reduced profits.

Past literature credit Great Recession as the main factor that led to the slowed productivity growth around 2006 going forward. However, (Cette, Fernald, & Mojon, 2016) have shown that beside the Great Recession there is common factor across the world that led to this slowed
growth. They suggest that the continuous low level rates across the globe are a factor. Liu et al. (2019) supports these findings with their study.

Berlingieri, Blanchenay and Criscuolo (2017) analyzed manufacturing firms by separating them into “leaders” and “followers” with leaders being the firms in the 90th percentile of the productivity distribution and followers in the 10th percentile of the same. They used productivity data from firms in the OECD countries. The study shows that the long-term interest rates fell between the years 2000 to 2014. Whilst there was a decrease in interest rates, the gap in labor productivity between leaders and followers widened for both service and manufacturing firms. In another study, (Andrews, Criscuolo, & Gal, 2016) showed that the labor productivity gap between frontier firms and laggard firms had widened similar to the previous study. The study was done on service and manufacturing firms in OECD countries. The study also revealed that in situations where the gap between the leader and the follower was increasing, the aggregate productivity in that sector was decreasing or falling mostly.

2.4 Exchange Rate and Manufacturing Firms

As already discussed, exchange rate is basically the expression of one country’s currency into the price of another country (Tega, 2018). Exchange rate is so important because to a large extend, it determines the prices of foreign goods and domestic goods at the same time. Exchange rate also expresses the strength of a country in participation in the international trade. To many developing countries, exchange rate is an essential part when it comes to growing the economy with most countries adopting trade liberalization as the way forward towards growth (Owolabi & Adegbite, 2017). Manufacturing firm’s face a considerable exchange risk in their operations whether they are selling their products locally or internationally. Due to exchange rate, foreign products maybe cheaper compared to domestic products which affect the performance of the local firms. The vice versa maybe true which may also favor the local firms. In both situations, the financial position of the firm is affected (Chung, Lee, & Isobe, 2010). The more a firm gets involved internationally, the more it faces risks of exchange rate (Lee & Song, 2012). This suggests that all manufacturing firms are exposed to fluctuations occurring from exchange rate (Flota, 2014). It is very clear that the dollar is the “power” currency which all other currencies compare against. For instance, in Europe the McDonalds had increased sales while its profits
reduced. The reason was that the euro was weakening continuously. Given that the company trades internationally also, hedging is important to such a firm Owolabi et al. (2017).

Exchange rate fluctuation produces an effect on a firm’s performance through a number of factors such as cost of imported goods, price of exports as compared to the foreign firms and even the cost of borrowing (Mohammad, Morteza, & Nadia, 2018). Mohammad et al. (2018) suggest that manufacturing firms that are involved in exporting business have high productivity and hence high profitability. An economy that is hinged on a performing export sector is associated with spillovers which move to other sectors in the economy hence leading to economic growth overall. Exchange rate volatility commonly referred to as fluctuation in exchange rate is that time when the domestic currency depreciates or appreciates (Tega, 2018). It has been noted that, developing countries do not consider exchange rate volatility as a threat rather changing foreign reserves (Calvo & Reinhart, 2002). The countries usually use their reserve stock in interfering with the forex market in pursuit of containing the exchange rate volatility.

2.4.1 Exchange Rate and Manufacturing Exports

Exchange rate plays a crucial role when it comes to the value and the quantity of goods that are exported (Hong, Vo, & Zhang, 2019). Different researchers have examined the impact of exchange rates on the exports. Hooy, Siong-Hook and Tze-Haw (2015) studied how Renminbi exchange rate affects the ASEAN exports to China. The study showed that there was a positive relationship between ASEAN exports and the real exchange rate. However, here was a mixed effect when it came to the disaggregated manufacturing exports. The study found out that when the real exchange rate depreciated it created a positive effect on export of medium and high technology finished goods and their components. The exchange rate didn’t have an effect on low-technology goods, primary products and resource-based goods. In Pakistan, (Atif, Haiyun, & Mahmood, 2017) found out that exchange rates had an impact in stimulating agricultural and agricultural based manufactured products.

Theoretically, various ancient scholars came up with their understanding on the relationship between the two variables. First, they believed that there should be a clear mechanism that intervenes in controlling exchange risks, if not; the volume of trade would decrease due to the volatility. According to (Hooper & Kohlhagen, 1978), unstable exchange rate can cause growth
in uncertainties involving transaction costs hence will lead to a reduction in quantity of goods traded. Clark (1973) suggest that if the participants are not aware to which extend the fluctuations will affect the revenue of firms, the volume of trade will be affected. It is also argued that the fluctuations occurring as a result of exchange rate may affect trade volume positively. Sercu (1992) postulates that volatility plays a role in stimulating trade which positively increases the value of the firm. They argue that the unpredictable of exchange rate may be positive in that traders may anticipate better trading prices which cover costs hence be encouraged to indulge in large volumes of trade.

Asteriou, Masatci and Pilbeam (2016) conducted a study in examining the link between the exchange rate volatility and the volume of trade. The study involved four countries trading with the world: Indonesia, Mexico, Turkey and Nigeria. The scholars used the autoregressive distributed lag (ARDL) bound testing method so as to put in use the long-run relation and the Granger causality test to find the short run relationship. The study found out that in Turkey, there was a negative relationship between the exchange rate volatility and the volume of goods traded in the long run. Mexico and Indonesia showed that exchange rate volatility had a significant effect on the volumes of goods traded. In the US, (Hsu & Chiang, 2011) established that exchange rate fluctuations affected manufactured goods exported negatively. The study involved US and its top 13 trading partners. The result study didn’t change even when the sample was increased to 30 countries.

There are studies that have also been carried involving data from the commodity sector. In their study, (Choudhry & Hassan, 2015) note that the exchange rate fluctuation is necessary for the United Kingdom’s imports from China, Brazil and South Africa. The study also involved the global financial crisis as a major player when it comes to imports and volatility. It affected the manufacturing firms either positively or negatively. The study urge policy makers to be swift in making policies as volatility may have a drastic effect on manufacturing firms. In another study, (Bahmani, Mohsen, & Hegerty, 2013) examined the effect of exchange rate fluctuations on the bilateral exports and imports between US and Brazil using data between years 1971 and 2010 involving more than 100 firms. The study revealed various conclusions. The first conclusion was that, a significant number of manufacturing firms were not affected by volatility and positive effects outnumbered negative effects. Secondly, small manufacturing firms were significantly
affected by exchange rate volatility. Finally, it was noted that firms reacted differently to volatility hence no recorded effect on agriculture-based firms and machinery. In a study between Japan and China trade, (Nishimura & Hirayama, 2013) found out that exchange rate volatility did not affect Japan’s exports to China; however it negatively affected China’s export to Japan. Other studies involved countries such as Malaysia and Thailand (Aftab, Syed, & Ismail, 2017), Japan and Malaysia (Aftab, Karim, Ahmad, & Ismail, 2015), China and Malaysia (Soleymani & Chua, 2014), with each study finding different results, negative, positive and in other cases no effect at all. Therefore, each country needs to be assessed individually because each country is unique.

In Kenya, (Rutto & Ondiek, 2014), conducted a study on the effect of exchange rate volatility on the Kenya’s tea exports. The data used was from the central bank of Kenya, Kenya National Bureau of Statistics, Tea Board of Kenya and the International Monetary fund. The study revealed that export rate variations negatively affected the tea exports in the country. The effect leads to small manufacturing firms to close down while the big ones have financial constraints that lead the firms to lay off of workers to remain cost effective.

2.4.2 Exchange rate and Investments

The relationship between exchange rates and investment is an issue in the academic world that has not been settled for quite some time (Panda & Nanda, 2019). The main contention is if exchange rate has an effect on the firm level investment. Panda et al. (2019) says that, theoretically, when exchange rate is highly fluctuating, the investment decreases especially in a risk averse firm. Dixit & Pindyck (1994) note that as uncertainty about exchange rate increase, and then there is a decrease in investments which has an effect on the financial wellbeing of a manufacturing firm.

Byrne & Davis (2003) studied the effect of transitory and permanent parts of exchange rate uncertainty on investment and profitability of manufacturing firms. The conclusion from this study was that trade openness and financial development gives direction on how exchange rate affects long-term investment. In previous studies, (Caballero, 1991) found out that there was appositive relationship between exchange rate volatility and investment. In Thailand, (Jongwanich & Kohpaiboon, 2008) found out that when exchange rates dropped by 1 percent, investment increased by 5 percent. According to (Agenor, 2001), the depreciation of exchange
rate positively impacts the tradable sector since it causes the prices of tradable goods to rise as compared to prices of non-tradable goods.

Vaz and Baer (2014) conducted a study in order to examine how the industrial sector in Latin America was affected by exchange rate volatility. The study used data between years 1995 to 2008. The authors explore four ways in which currency appreciation may affect the performance of the manufacturing sector. The study reveals that richer countries as per capita income were not affected so much by the variation of exchange rate. The study also revealed that, the more open an economy or a country is, the more its domestic manufacturing firms are easily affected by exchange rate. The baseline being that foreign investors come into the country and can easily access foreign funds rather than locally hence not affected by exchange rates. In an earlier study, (Nucci & Pozzolo, 2001) studied the link between exchange rate volatility and investment decisions of manufacturing firms in Italy. The result showed that through prices, whenever exchange rate depreciates, it positively affects investment and it negatively affects investments through the cost of imported manufacturing inputs. They assert that, exchange rate affects investment strongly for firms that portray low degree of monopoly power, small in size and show a high degree of penetration of imports in the local market.

Ekholm, Moxnes, & Ulltveit-Moe (2012) examined the impact of appreciating Norwegian Krone on the investment demand of manufacturing firms in the country. The authors used micro data largely taking into account each firm exports and imports details. The authors established that the appreciation shock had a small impact on capital deepening. In going further, they deflated investment and still obtained the same results. Bahmani & Hajille (2010) examined currency depreciation and how it affects domestic investment. The study used time series data from 50 countries in Europe. The study found out that depreciating currency had a positive significant effect on investment in 43 countries out of 50 even though it’s in the short run. However, the study found out that long run effects are only experienced in 21 countries, almost half of the sample. Among the 21 countries, depreciation of currency leads to increase in investment in 10 countries while the remaining, it is a decrease in investment.
2.4.3 Exchange Rate and Firm Value

There has been a considerable interest in linking exchange rates and performance of a firm. Earlier studies by (Jorion, 1990; Bartov & Bodnar, 1994) showed that there was almost no impact of currency value on the stock prices of firms. In recent times, more studies have been conducted regarding the same topic and have revealed mixed results leading to different conclusions. Dominguez and Tesar (2006) conducted a study on listed firms in eight developed countries. The result was that exchange rate volatility had a small fraction of impact on the firm value. However, this impact leads to firms developing mechanisms on combating it. The risk of firm exposure is affected by time, size, foreign sales, and its status internationally and the assets it owns.

Demir (2013) investigated the impact of exchange rate volatility on productivity of manufacturing firms. The study uses firm-level panel dataset of Turkish firms. The results were that exchange rate fluctuations affect productivity growth negatively. The study also asserted that even if a firm has access to foreign equity or debt, the effect remained the same. It was also found out that exchange rate may favor a firm, hence increasing its productivity. As this happens, the firm becomes more stable and hence its value in the market increases attracting more investors to buy its shares. It was found that productivity positively affects access to credit as more financial institutions have trust in the firm. Therefore, exchange rate has an indirect but significant effect on the value of the firm.

Some studies reveal that the exchange rate exposure increase as the size of the firm grows (He & Ng, 1998). The main reason is that a large firm definitely trades internationally. It is able to hedge against the risk as compared to smaller firms. During periods when exchange rate varies, a grown manufacturing firm may only be affected regionally but not worldwide (Simakova, 2017). Muriuki (2013) conducted a study on foreign exchange exposure among listed firms on Nairobi stock exchange. The study revealed that exchange rate had a considerable effect on the profitability of the firms. The firms that were able to make profits in periods when exchange rate was volatile attracted more investors. In most cases these are big firms. For small manufacturing firms, volatile exchange rates lead to uncertainties hence losses. Continuous losses discourage investors.
2.5 Chapter Summary

In this chapter, the literature review related to the objectives in the study is discussed. The chapter begins with analyzing the effect of inflation rate on financial performance. The major subtopics that appear across the specific objectives include investment, productivity and prices. Others include exports of manufactured goods and firm value. The second objective is about interest rates and the third discuss exchange rate and how it is related to financial performance. The next chapter presents the methodology adopted by the study. Chapter four will provide the analysis and the research findings of the study. While chapter five will provide discussion, conclusions and recommendations of the findings.
CHAPTER THREE

3.0 RESEARCH METHODOLOGY

3.1 Introduction

This chapter presents the procedures and the methodology that the study adopted in collecting and analyzing data. The chapter contains the research design, the population of the study, sampling frame, sampling techniques and the study’s sample size. This chapter also highlights the data collection methods and instruments used so as to obtain the objectives of the study.

3.2 Research Design

According to Babbie (2004), a research design is a plan or a framework that the researcher needs so as to remain specific on what to observe and analyze, why and how. Basically, research design involves coming up with the exact phenomenon to be studied, when, how and for what purpose.

This study adopted explanatory research designs. Explanatory research design is concerned with the factors of change (Trivedi & Shukla, 2017). The explanatory research states the relationship that exists between variable, on top of that it gives the effect of one variable on others hence investigating the causal effect among the variables in a study (McNabb, 2010). The main reason for using an explanatory research design is because it is involved with the “why” factor in a phenomenon. The study established a model that investigated the relationship between financial performance and the three factors that is inflation rate, interest rate and exchange rate. Financial performance was the dependent variable and the three macroeconomic factors formed the independent variables. The study tested the strength of the relationship that exists between the independent variables and the dependent variables.

3.3 Population and Sampling Design

3.3.1 Population

A population is the entire pool that contains all the elements that the researcher wants to draw a sample from (Cooper & Schindler, 2014). An element is the subject from which the inferences and measurements are drawn from. Saunders, Lewis and Thornhill (2016) describe a population as the universe of objects, people, events or things in a place that have to be studied. The target
population of this study was the nine(9) currently listed manufacturing firms on NSE (NSE, 2019).

3.3.2 Sampling Design

Cooper et al. (2014) describes sampling as the process of selecting a number of individuals for a study such that they truly represent the population. The research design highlights the process that is good enough to be followed in order to achieve a good sample and sample size.

3.3.2.1 Sampling Frame

A sampling frame is the source material or device from which a sample is drawn (Sekaran & Bougie, 2013). Oladipo, Ikamuri & Kiplang’at (2015) describe a sampling frame as the presentation of the population in a tabular form with the information on each element. Sampling frame is a list of households, institutions or people that can be sampled (Sarndal, Swensson, & Wretman, 2014). The sample frame in this study was the manufacturing firms listed on NSE as provided in the appendix.

3.3.2.2 Sampling Technique

A sampling technique is a method that is used by a study in obtaining a sample to be studied (Cooper & Schindler, 2011). This study used census sampling technique whereby all the elements in the population are studied. Sarndal et al. (2014) says that when the population is small, then census sampling technique can be used. Therefore, all the nine manufacturing firms were studied.

3.3.2.3 Sample Size

Oladipo et al. (2015) describe a sample size as the number of elements that are to be selected from the population in order to make up a sample. The sample size is determined majorly by the costs and the equipment available to analyze the data Creswell et al. (2014). Listed firms publicly publish their financial reports making it easier to obtain the required data. This enabled the researcher to study all the listed manufacturing firms. The study used data between years 2009 and 2018. The gap of ten years was chosen so as to capture the trend and major activities such as the election periods and the introduction of caps.
3.4 Data Collection Methods

Zikmund (2013) defines data as raw facts collected together to be analyzed in order to give meaningful information. Data collection is the process of collecting information from all the relevant sources to find answers to research questions, evaluate outcomes and test hypothesis (Hancock & Algozzine, 2017). Data is classified into two, secondary data and primary data.

The study used secondary data hence data collection sheet was used in obtaining this information. There are some objectives in certain studies that can use data that was collected previously by other researchers and this data may include official statistics, administrative records, or other relevant information that is stored by the firm or organization under study Oladipo et.al (2015). Secondary data is useful and accurate if the source is valid. Therefore the researcher is supposed to obtain data which is relevant to the study and do an evaluation on the authenticity of the data to ascertain if the data meets the quality requirements of the study being undertaken currently Cooper et al. (2014). The main reason for this study using secondary data it’s because the data was cheap, available and for this topic it was very accurate. Institutions such as CBK and KNBS have all the information that involves inflation rate, exchange rate and interest rate. On the other hand, listed manufacturing firms have their financial information published hence a good source of information.

3.5 Research Procedures

Abbot and McKinney (2013) define research procedure as a description of the steps that are taken by a researcher in conducting a study. The study used secondary data which was already available. This research involved the researcher creating a data sheet to collect the secondary data as provided in the appendix. The supervisor of the project confirmed that the data sheet was okay to be used. The permission to collect data was guaranteed by NACOSTI and the letter of introductory from USIU-A hence the researcher went ahead to start collecting data.

3.6 Data Analysis Methods

Data analysis refers to the procedure of packaging the collected information, arranging its main content in a way that the findings can be communicated and understood easily Cooper et al. (2014). A systematic numbering was used on each variable so as to avoid overlaps. The data was entered into SPSS and both descriptive and inferential statistics were conducted on the data.
The correlation analysis was done to find out the relationship among the variables. The multiple linear regression model was tested where it emerged that the independent variable had insignificant effect on the dependent variable.

The Multiple regression model was presented as

\[ Y = \beta_0 + \beta_1X_1 + \beta_2X_2 + \beta_3X_3 + \varepsilon \]

Where:
- \( Y \): Financial Performance (ROE)
- \( \beta_0 \): Constant Term;
- \( \beta_1, \beta_2, \text{ and } \beta_3 \): Beta coefficients;
- \( X_1 \): Inflation Rate;
- \( X_2 \): Interest Rate;
- \( X_3 \): Exchange Rate;
- \( \varepsilon \): Error term

The study will use a 95% confidence level. A 95% confidence interval reflects a significance level of 0.05 this shows that for an independent variable to have a significant effect on the dependent variable, the p-value should be below the significance level (0.05).

Financial performance will be measured by the ROE. ROE will be found by dividing the net income by average shareholder’s equity. ROE was used as a measure of financial performance in a study to determine the effect of financial leverage on financial performance in Sri Lanka (Rajkumar, 2014).

Inflation will be captured using the Consumer Price Index (CPI). CPI captures the weighted average of prices in a basket of consumer goods and services. CPI is calculated by averaging the prices of each item in the basket (Oner, 2012). CPI was used by (Egbunike & Okerekeoti, 2018) in their study on macroeconomic factors and their effects on financial performance of manufacturing firms in Nigeria.

Interest rate is the price that a borrower pays for using or acquiring money (Modebe et al., 2018). The lending interest rate will be used in this study. Erinwa (2016) studied the effect of increasing interest rate on performance of manufacturing firms in West Africa and used lending interest rate.
Exchange rate is the price for which the currency of a country can be exchanged for the currency of another country Yang et al. (2014). The dollar is considered the super currency hence the exchange rate between the Kenyan shilling and the dollar will be used. Rutto and Ondieki (2014) conducted a study on the effect of exchange rate volatility on the Kenya’s tea exports. They used the dollar to measure the exchange rate.

3.7 Chapter Summary

This chapter describes the methodology that will be adopted by the study. The chapter begins by giving the description of the research design that the study will use. Both explanatory and descriptive research design will be used for the study. The study highlights the population which involves the listed manufacturing firms. The study will use purposive technique in choosing the firms. The chapter explains the data collection method and the research procedures that will be involved. SPSS will be used to analyze the data. Chapter four will provide the analysis and the research findings of the study. While chapter five will provide discussion, conclusions and recommendations of the findings.
CHAPTER FOUR

4.0 RESULTS AND FINDINGS

4.1 Introduction

This chapter presents the results and findings of the study. The findings are based on the research objectives; effects of inflation rate, interest rate and exchange rate on financial performance of listed manufacturing firms. The chapter discusses the general information, the relationship between each variable and the ROE of individual firm, the correlation and the regression analysis.

The major objective of this study was to examine the effects of macroeconomic factors on financial performance of listed manufacturing firms in Kenya. The study focused on determining the effect of inflation rates, interest rates and exchange rates on financial performance of listed manufacturing firms in Kenya. The listed manufacturing firms under study are nine. The dependent variable was represented by the Return on Equity (ROE) which was calculated by dividing net income by the shareholders equity. The independent variables were inflation rate; measured using the CPI, interest rate measured using the lending rates and Exchange rate which was measured using the KES to United States dollar exchange rate.

4.2 Effect of Inflation Rate on Financial Performance

Financial performance was measured using the Return on Equity. The mean returns on equity during the ten years were less than 1. Three years recorded negative ROE that is 2011(-1.1904), 2014(-0.0015) and 2017(-0.7512). 2011 recorded the lowest average return on equity at -1.1904. The highest ROE in a year was in 2015 with a record of 0.6288. The year with the highest standard deviation was 2011 at 3.5 while 2018 recorded the lowest standard deviation at 0.3668.
### Table 4.1: Return on Equity

<table>
<thead>
<tr>
<th>Year</th>
<th>Mean</th>
<th>Standard Deviation</th>
<th>N</th>
</tr>
</thead>
<tbody>
<tr>
<td>2009</td>
<td>0.4536</td>
<td>0.7183</td>
<td>9</td>
</tr>
<tr>
<td>2010</td>
<td>0.2191</td>
<td>0.5676</td>
<td>9</td>
</tr>
<tr>
<td>2011</td>
<td>-1.1904</td>
<td>3.5165</td>
<td>9</td>
</tr>
<tr>
<td>2012</td>
<td>0.5687</td>
<td>0.6593</td>
<td>9</td>
</tr>
<tr>
<td>2013</td>
<td>0.3877</td>
<td>0.3719</td>
<td>9</td>
</tr>
<tr>
<td>2014</td>
<td>-0.0015</td>
<td>0.5821</td>
<td>9</td>
</tr>
<tr>
<td>2015</td>
<td>0.6288</td>
<td>1.5334</td>
<td>9</td>
</tr>
<tr>
<td>2016</td>
<td>0.1862</td>
<td>0.3757</td>
<td>9</td>
</tr>
<tr>
<td>2017</td>
<td>-0.7512</td>
<td>2.9091</td>
<td>9</td>
</tr>
<tr>
<td>2018</td>
<td>0.2819</td>
<td>0.3668</td>
<td>9</td>
</tr>
</tbody>
</table>

![Figure 4.1: Trend Analyses on ROE](image)

The average inflation rates have been unstable over the years however between 2014 and 2016 the inflation rates stabilized at 6 percent with slight variations. The inflation rate was a record low in 2010 at 4.32 percent and shot to a high of 14.02 percent in 2011. Thereafter it fell steadily to 5.72 percent in 2013 and it has been stable thereafter with a drop in 2018. Figure 4.1 indicates this trend.
4.2 Inferential Analysis

Regression analysis was used to find out the relationship between the dependent and independent variables. The assumptions for regression analysis show whether the data is good to be used for regression analysis or not. I first conducted statistical tests which included diagnostic test. The assumptions tested here are normality, linearity, multi-collinearity and homogeneity.

4.2.2 Normality Test

The Normality test was carried out to examine the regression assumption that the data was normally distributed. The values varied slightly from zero lying between -0.5 and +1 for skewness while for kurtosis they lied between -3 and +3 apart from the data on Return on Equity. This shows that the data on independent variable is normally distributed as shown in the table 4.2.

<table>
<thead>
<tr>
<th></th>
<th>Skewness</th>
<th>Kurtosis</th>
</tr>
</thead>
<tbody>
<tr>
<td>Inflation Rate</td>
<td>1.034</td>
<td>0.44</td>
</tr>
<tr>
<td>Interest Rate</td>
<td>0.78</td>
<td>0.046</td>
</tr>
<tr>
<td>Exchange Rate</td>
<td>-0.024</td>
<td>-1.477</td>
</tr>
<tr>
<td>Return on Investment</td>
<td>-0.439</td>
<td>2.045</td>
</tr>
</tbody>
</table>
4.2.3 Multicollinearity Test

The Variance Inflation Factor (VIF) was used to test multicollinearity. Multicollinearity is a situation whereby there is a very high inter-association among the independent variables. When the VIF value is less than 10 it shows that multicollinearity is not significant. All the VIF values were below 10 meaning that multicollinearity was insignificant as required by the regression assumption. The results are shown in table 4.3.

**Table 4.3: Multicollinearity Test**

<table>
<thead>
<tr>
<th>Model</th>
<th>Collinearity</th>
<th>Statistics</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Tolerance</td>
<td>VIF</td>
</tr>
<tr>
<td>(Constant)</td>
<td>0.942</td>
<td>1.062</td>
</tr>
<tr>
<td>Interest Rate</td>
<td>0.894</td>
<td>1.118</td>
</tr>
<tr>
<td>Exchange Rate</td>
<td>0.944</td>
<td>1.059</td>
</tr>
<tr>
<td>Inflation Rate</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

4.2.4 Linearity Test

The linearity test was conducted to examine if a linear relationship exists between Return on Equity and inflation rate, interest rate ad exchange rate. A significant linear relationship is an assumption for the regression analysis. The results as presented in table show that there is a significant linear relationship between the independent and the dependent variables.

**Table 4.4: Linearity Test**

<table>
<thead>
<tr>
<th>Model</th>
<th>Sum of Squares</th>
<th>Df</th>
<th>Mean Square</th>
<th>F</th>
<th>Sig.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Inflation Rate</td>
<td>8.060</td>
<td>1</td>
<td>8.060</td>
<td>2.924</td>
<td>0.003</td>
</tr>
<tr>
<td>Interest Rate</td>
<td>5.578</td>
<td>1</td>
<td>5.578</td>
<td>2.002</td>
<td>0.000</td>
</tr>
<tr>
<td>Exchange Rate</td>
<td>1.209</td>
<td>1</td>
<td>1.209</td>
<td>0.426</td>
<td>0.001</td>
</tr>
</tbody>
</table>

4.2.5 Homogeneity Test

Homogeneity test was conducted to investigate whether the data was homogeneous or not. The Leven statistics was done to test the homogeneity. The results show that homogeneity was not significant hence meeting the assumption for regression analysis as shown in the table 4.5 below.
Table 4.5: Test of Homogeneity of Variances

<table>
<thead>
<tr>
<th>Levene Statistic</th>
<th>df1</th>
<th>df2</th>
<th>Sig.</th>
</tr>
</thead>
<tbody>
<tr>
<td>2.651</td>
<td>9</td>
<td>76</td>
<td>0.071</td>
</tr>
</tbody>
</table>

4.2.6 Regression Analysis on Inflation Rates and Financial Performance

The Pearson correlation result showed that a negative relationship exists between inflation rate and the Return on Equity of the firms (r = -0.176, p=0.104). This shows that inflation rate and ROE are negatively related however this correlation is not significant since the P value is greater than 0.05, (P >0.05). The R value represents the simple correlation which is -0.176 and R Square represents the total variation in the dependent variable (ROE) that is explained by inflation rate which is the independent variable. From this analysis, R Square value was 0.031 which means that 3.1% of the variation in the ROE is caused by the variations in inflation rate as shown in table 4.6 below.

Table 4.6: Model Summary for Inflation Rate and ROE

<table>
<thead>
<tr>
<th>Model</th>
<th>R</th>
<th>R Square</th>
<th>Adjusted Square</th>
<th>R</th>
<th>Std. Error of the Estimate</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>0.176a</td>
<td>0.031</td>
<td>0.020</td>
<td>1.66249</td>
<td></td>
</tr>
</tbody>
</table>

a. Predictors: (Constant), Inflation Rates

Analysis of Variance (ANOVA) in Table 4.7 below measures the extent to which the regression model predicts the outcome variable. At a 95% confidence level, the F critical 2.694 and the P value is 0.104. The P value is 0.104 which is greater than 0.05 indicating (P>0.05) that the model is not statistically significant hence cannot be relied upon on prediction.

Table 4.7: Analysis of Variance (ANOVA) for Inflation Rate

<table>
<thead>
<tr>
<th>Model</th>
<th>Sum of Squares</th>
<th>Df</th>
<th>Mean Square</th>
<th>F</th>
<th>Sig.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Regression</td>
<td>7.447</td>
<td>1</td>
<td>7.447</td>
<td>2.694</td>
<td>.104b</td>
</tr>
<tr>
<td>Residual</td>
<td>232.165</td>
<td>84</td>
<td>2.764</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Total</td>
<td>239.613</td>
<td>85</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

a. Dependent Variable: Return on Equity
b. Predictors: (Constant), Inflation Rate

39
The coefficients table shows the prediction of dependent variable (ROE) from independent variable (Inflation rate). The table also shows that inflation rate is insignificant in the model P=0.104. The “B” column represents the constant figures to regression equation. In Table 4.4, the regression model is $Y_{\text{Return on Equity}} = 0.919 - 10.844X_1$, where $Y$ is the dependent variable (Return on Equity) and $X_1$ is independent variable (Inflation Rate). This means that an increase in one unit in inflation rate leads to a decrease in ROE by 10.844. However, they were not statistically significant since (P>0.05) as shown in Table 4.8.

**Table 4.8: Coefficient Analysis for Inflation Rate**

<table>
<thead>
<tr>
<th>Model</th>
<th>Unstandardized Coefficients</th>
<th>Standardized Coefficients</th>
<th>T</th>
<th>Sig.</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>B</td>
<td>Std. Error</td>
<td>Beta</td>
<td></td>
</tr>
<tr>
<td>1 (Constant)</td>
<td>0.919</td>
<td>0.541</td>
<td>1.699</td>
<td>0.093</td>
</tr>
<tr>
<td>Inflation Rate</td>
<td>-10.844</td>
<td>6.606</td>
<td>-0.176</td>
<td>-1.641</td>
</tr>
</tbody>
</table>

**4.3 Effects of Interest Rate on Financial Performance**

The interest rates remained slightly stable between 2009 and 2015 ranging between 15.0 percent and 14.8 percent. The interest rate shot up to a high of 19.65 percent in 2012 and then it started dropping steadily to 17.31 and then stabilized at 16 percent with insignificant changes and dropping to 13.67 in 2017 and rising to 14.1 percent. Figure 4.2 provides this information.
4.3.1 Regression Analysis on Interest Rates and Financial Performance

The Pearson correlation result showed that a positive relationship exists between interest rate and the Return on Equity of the firms ($r = 0.229$, $p=0.008$). This shows that interest rate and ROE are positively related; this correlation is significant since the P value is smaller than 0.05, ($P >0.05$). From this analysis, R Square value was 0.052 which means that 5.2% of the variation in the ROE is caused by the variations in interest rate as shown in table 4.9.

**Table 4.9: Model Summary for Interest Rate and ROE**

<table>
<thead>
<tr>
<th>Model</th>
<th>R</th>
<th>R Square</th>
<th>Adjusted Square</th>
<th>R</th>
<th>Std. Error of the Estimate</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>0.229&lt;sup&gt;a&lt;/sup&gt;</td>
<td>0.052</td>
<td>0.041</td>
<td>1.66978</td>
<td></td>
</tr>
</tbody>
</table>

<sup>a</sup>: Predictors: (Constant), Interest Rate

Analysis of Variance (ANOVA) in Table 4.10 below measures the extent to which the regression model predicts the outcome variable. The P value is 0.008 which is lesser than 0.05 ($P <0.05$) indicating that the model is statistically significant hence can be relied upon on prediction.
Table 4.10: Analysis of Variance (ANOVA) for Interest Rate

<table>
<thead>
<tr>
<th>Model</th>
<th>Sum of Squares</th>
<th>Df</th>
<th>Mean Square</th>
<th>F</th>
<th>Sig.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Regression</td>
<td>5.407</td>
<td>1</td>
<td>5.407</td>
<td>1.939</td>
<td>.008</td>
</tr>
<tr>
<td>Residual</td>
<td>234.206</td>
<td>84</td>
<td>2.788</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Total</td>
<td>239.613</td>
<td>85</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

a. Dependent Variable: Return on Equity
b. Predictors: (Constant), Interest Rate

In Table 4.11, the regression model is $Y_{\text{Return on Equity}} = -2.250 + 14.733X_2$, where $Y$ is the dependent variable (Return on Equity) and $X_2$ is independent variable (Interest Rate). This means an increase in one unit in interest rate leads to an increase in ROE by 14.733. They are statistically significant since (P<0.05) as shown in Table 4.8.

Table 4.11: Coefficient Analysis for Interest Rate

<table>
<thead>
<tr>
<th>Model</th>
<th>Unstandardized Coefficients</th>
<th>Standardized Coefficients</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>B</td>
<td>Std. Error</td>
</tr>
<tr>
<td>(Constant)</td>
<td>-2.250</td>
<td>1.684</td>
</tr>
<tr>
<td>1 Interest Rate</td>
<td>14.733</td>
<td>10.579</td>
</tr>
</tbody>
</table>

4.4 Effects of Exchange Rate on Financial Performance

The exchange rate has been rising steadily with a small increase between 2011 and 2014. The exchange rate between 2011 and 2012 dropped but since then it has been rising. The lowest exchange rate was 77.03 in 2009 and the highest being 103.39 in 2017. The exchange rate generally has been increasing.
4.4.1 Regression Analysis on Exchange Rates and Financial Performance

The Pearson correlation result showed that a weak negative relationship exists between exchange rate and the Return on Equity of the firms \( (r = -0.071, p=0.516) \). This shows that exchange rate and ROE are negatively related however this correlation is not significant since the P value is greater than 0.05, \( (P > 0.05) \). The R value represents the simple correlation which is 0.071 and R Square represents the total variation in the dependent variable (ROE) that is explained by exchange rate which is the independent variable. From this analysis, R Square value was 0.005 which means that 0.5\% of the variation in the ROE is caused by the variations in exchange rate as shown in table 4.12 below.

**Table 4.12: Model Summary for Exchange Rate and ROE**

<table>
<thead>
<tr>
<th>Model</th>
<th>R</th>
<th>R Square</th>
<th>Adjusted Square</th>
<th>R</th>
<th>Std. Error of the Estimate</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>0.071a</td>
<td>0.005</td>
<td>-0.007</td>
<td>1.68468</td>
<td></td>
</tr>
</tbody>
</table>

Analysis of Variance (ANOVA) in Table 4.13 below measures the extent to which the regression model predicts the outcome variable. At a 95\% confidence level, the F critical 0.426 and the P value is 0.516. The P value is 0.516 which is greater than 0.05 \( (P > 0.05) \) indicating that the model is not statistically significant hence cannot be relied upon on prediction.
Table 4.13: Analysis of Variance (ANOVA) for Exchange Rate

<table>
<thead>
<tr>
<th>Model</th>
<th>Sum of Squares</th>
<th>df</th>
<th>Mean Square</th>
<th>F</th>
<th>Sig.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Regression</td>
<td>1.208</td>
<td>1</td>
<td>1.208</td>
<td>0.426</td>
<td>.516b</td>
</tr>
<tr>
<td>1 Residual</td>
<td>238.404</td>
<td>84</td>
<td>2.838</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Total</td>
<td>239.613</td>
<td>85</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

a. Dependent Variable: Return on Equity
b. Predictors: (Constant), Exchange Rate

The coefficients table shows the statistical significance of dependent variable (ROE) and independent variable (Exchange rate). The table also shows if exchange rate contributes statistically to the model. The “B” column represents the constant figures to regression equation. In Table 4.14, the regression model is $Y_{\text{Return on Equity}} = 1.2749 - 0.01306X_3$, where $Y$ is the dependent variable (Return on Equity) and $X_3$ is independent variable (Exchange Rate). This means that if exchange rates are held constant, the ROE changes by 1.2749, while an increase in one unit in exchange rate leads to a decrease in ROE by 0.01306. However, they were not statistically significant since (P>0.05) as shown in Table 4.12.

Table 4.14: Coefficient Analysis for Exchange Rate

<table>
<thead>
<tr>
<th>Model</th>
<th>Unstandardized Coefficients</th>
<th>Standardized Coefficients</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>B</td>
<td>Std. Error</td>
</tr>
<tr>
<td>(Constant)</td>
<td>1.274932639</td>
<td>1.838277198</td>
</tr>
<tr>
<td>1 Exchange Rate</td>
<td>-0.013069616</td>
<td>0.020030276</td>
</tr>
</tbody>
</table>

a. Dependent Variable: Return on Equity

4.4.2 Multi Linear Regression Analysis on Inflation Rates, Interest Rates, Exchange Rates and Financial Performance

A regression analysis was run to determine the extent to which inflation rate, interest rate and exchange rate affects the ROE of manufacturing firms. The results from the model summary showed that inflation rate, interest rate and exchange rate influence only 6.3 percent of the variations occurring in ROE as indicated in table 4.15.
Table 4.15: Model summary for all Variables

<table>
<thead>
<tr>
<th>Model</th>
<th>R</th>
<th>R Square</th>
<th>Adjusted R Square</th>
<th>Std. Error of the Estimate</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>.251&lt;sup&gt;a&lt;/sup&gt;</td>
<td>0.063</td>
<td>0.029</td>
<td>1.65488</td>
</tr>
</tbody>
</table>

The Analysis of Variance showed that at 95% confidence level the F critical was 1.831 and the P value was 0.018 indicating that the multiple linear regression model \( Y = \beta_0 + \beta_1X_1 + \beta_2X_2 + \beta_3X_3 \) is statistically significant.

Table 4.16: Analysis of Variance (ANOVA) for Inflation Rate, Interest Rate and Exchange Rate

<table>
<thead>
<tr>
<th>Model</th>
<th>Sum of Squares</th>
<th>Df</th>
<th>Mean Square</th>
<th>F</th>
<th>Sig.</th>
</tr>
</thead>
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<tr>
<td>Regression</td>
<td>15.045</td>
<td>3</td>
<td>5.015</td>
<td>1.831</td>
<td>.018&lt;sup&gt;b&lt;/sup&gt;</td>
</tr>
<tr>
<td>Residual</td>
<td>224.567</td>
<td>82</td>
<td>2.739</td>
<td></td>
<td></td>
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<tr>
<td>1 Total</td>
<td>239.613</td>
<td>85</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

a. Dependent Variable: Return on Equity
b. Predictors: (Constant), Exchange Rate, Inflation Rate, Interest Rate

Table 4.17: Coefficient Analysis for Inflation Rate, Interest Rate, and Exchange Rate

<table>
<thead>
<tr>
<th>Model</th>
<th>Unstandardized Coefficients</th>
<th>Standardized Coefficients</th>
</tr>
</thead>
<tbody>
<tr>
<td>(Constant)</td>
<td>B</td>
<td>Std. Error</td>
</tr>
<tr>
<td></td>
<td>0.145</td>
<td>2.933</td>
</tr>
<tr>
<td>Inflation Rate</td>
<td>-12.400</td>
<td>6.725</td>
</tr>
<tr>
<td>Interest Rate</td>
<td>14.103</td>
<td>10.784</td>
</tr>
<tr>
<td>1 Exchange Rate</td>
<td>-0.015</td>
<td>0.021</td>
</tr>
</tbody>
</table>

a. Dependent Variable: Return on Equity

From the equation \( Y = \beta_0 + \beta_1X_1 + \beta_2X_2 + \beta_3X_3 \)

\[ Y = 0.145 - 12.4X_1 + 14.1X_2 - 0.015X_3 \]

Where \( Y \) is the dependent variable (Return on Equity)

\( X_1 = \) Inflation rate

\( X_2 = \) Interest Rate

\( X_3 = \) Exchange Rate
The model shows that an increase in one unit of the inflation rate leads to a decrease in ROE by 12.4 units. This effect is not significant with a p value more than 0.05.

The model indicates that an increase in interest rate by one unit leads to an increase in ROE by 14.1 units. This effect is significant with a p value of less than 0.05.

The model indicates that an increase in exchange rate by one unit leads to a decrease in ROE by 0.015 units. This effect is not significant.

4.5 Chapter Summary

This chapter provided the results and the findings based on the secondary data from the financial statements of listed manufacturing firms, CBK reports and KNBS reports. A ten year period is considered from 2009-2018. The chapter examined; the effect of inflation rate, interest rate and exchange rate on the financial performance (ROE) of listed manufacturing firms. The next chapter will provide the discussion, conclusions and recommendations of the findings.
CHAPTER FIVE
5.0 DISCUSSION, CONCLUSIONS, AND RECOMMENDATIONS

5.1 Introduction

This chapter presents the summary of major findings, discussion and conclusions of the results based on the three research objectives of the study. This chapter also provides the recommendations on the relationship between inflation rate, interest rate and exchange rate on performance of manufacturing firms in Kenya.

5.2 Summary

The purpose of this study was to examine the effect of macroeconomic factors on financial performance of listed manufacturing firms in Kenya. The research objectives were to determine the effect of inflation on financial performance of listed manufacturing firms in Kenya, to establish the effect of interest rate on financial performance of listed manufacturing firms in Kenya and finally to investigate the effect of exchange rate on financial performance of listed manufacturing firms in Kenya. The study used descriptive and explanatory research designs to examine the causal effect and the relationship between the independent variables which were inflation rate, interest rate, exchange rate and the dependent variable which was the financial performance of listed manufacturing firms.

The population of the study consisted of the 9 currently listed manufacturing firms as of 2019. The study employed census as the sampling technique thus using the entire elements in the population and selecting data between years 2009 and 2018. The study used secondary data whereby the inflation rates, the interest rates and the exchange rates were obtained from the CBK and KNBS publications. The financial performance figures were obtained from the yearly published financial statements of the manufacturing firms. Trend analysis and descriptive statistics were done using graphs and tables. Multi linear regression was conducted to establish the relationship between the dependent and independent variables.

The first objective examined the effect of inflation rate on the financial performance of manufacturing firms in Kenya. The findings showed that the annual inflation rates have fluctuated over the years with 2011 recording the highest value at 14.02% and 2010 recording the lowest value at 4.32%. Pearson correlation results indicated that a negative insignificant
relationship existed between inflation rate and return on equity \( (r = -0.176, \ p = 0.104) \). The R-square was 3.1 percent and the P-value was 0.104. The regression analysis showed that an increase in one unit of inflation rate leads to a decrease in financial performance by 12.4 units.

The second objective investigated the effect of interest rate on financial performance of manufacturing firms in Kenya. The results indicate that the interest rates have not been stable across the years. The year 2012 recorded a high interest rate of 19.65% and the year 2017 recorded a low interest rate of 13.67%. The greatest increase was between years 2011 and 2012 with an increase of 4.6%. The correlation results showed that a significant positive relationship exist between interest rate and financial performance \( (r = 0.229, \ p = 0.008) \). The R-Square was 5.2 percent and the P-Value was 0.008. The findings from the regression analysis showed that an increase in interest rate by one unit leads to an increase in financial performance by 14.1 units.

The third objective examined the effect of exchange rate on financial performance of manufacturing firms in Kenya. The findings indicate that the exchange rate have majorly been rising with the highest exchange rate recorded in 2017 at 103.39 Ksh/Dollar and the lowest in 2009 at 77.3 Ksh/Dollar. The largest increase was between 2014 and 2015 with an increase of 10.62 Ksh/Dollar. A correlation test indicated that a negative relationship exists between exchange rate and financial performance of manufacturing firms however this this relationship is not significant \( (r = -0.071, \ p = 0.516) \). The R-Square was 0.5 percent and the P-Value was 0.516. The results from the regression analysis indicated that an increase in exchange rate by one unit will produce a decrease in financial performance by 0.015 units. The findings also indicated that the independent variables affected 6.3% of the financial performance which is ROE.

5.3 Discussion

5.3.1 Effect of Inflation Rate on Financial Performance

The correlation and regression results indicate that results indicated that a negative insignificant relationship exist between inflation rate and return on equity \( (r = -0.176, \ p = 0.104, R^2=3.1\%) \). An increase in one unit of inflation rate leads to a decrease in financial performance by 12.4 units. These results are in line with those of Egbonike and Okerekeoti (2018) who conducted their study on macroeconomic factors on financial performance on quoted manufacturing firms in Nigeria. The study also showed that inflation rate had a negative effect on financial performance.
of manufacturing firms. Others studies have established that there is no relationship between inflation rate and financial performance (Otambo, 2016) same to (Owolabi B. A., 2017) who found out that inflation rate had no significant effect on the financial performance of manufacturing firms in Nigeria. The difference in results is attributed to the measure of financial performance. Some studies adopted return on assets while other firms have adopted the return on equity. The geographical location and the period that was involved in conducting the study may also be a factor with some studies capturing shorter periods while others capturing longer periods. The inconsistency of firms to remain listed is also a factor as some firms stay for a short while, while other firms disappear and are never quoted again.

These results are also supported by Akutey, Deh and Mohammed (2016) who sought to find out the effect of inflation on manufacturing sector productivity in Ghana. The study used time series data for Ghana covering a period of 45 years between 1968 and 2013. The study employed Johansen test, Ordinary Least Squares and Vector Error Correction Model in conducting the regression test. The study indicated that an insignificant short run link between inflation and manufacturing sector performance in the VECM. The OLS results show that; a negative significant relationship exists between inflation rate and manufacturing sector performance. This means that increasing inflation rate leads to a decrease in performance and productivity of the manufacturing sector. Zermeno, Martinez and Torres (2018) studied effects of inflation on financial and industrial sector performance using panel data and found out that a nonlinear and inverse relationship exist between inflation and financial performance in 84 developing and developed countries. The study revealed that the relationship was persistently negative in all regression tests carried. The study independently revealed that for developing countries, inflation rates decreased the level of financial performance among industries and firms especially in the upper quartiles. The study attributed this to the unpredictable nature of inflation rates in developing countries and the unstable macroeconomic environments.

Most of the studies carried out reveal that a negative effect exists between inflation rate and financial performance of manufacturing firms. However, a study by (Abbey, 2012) conducted in Ghana revealed that a positive relationship existed between inflation and financial development even though this was in short term. In the long run the study established that no relationship existed between the variables at all. This study adopted the Cointegration Approach, the Granger Causality testing procedure and the Conditional Least Squares technique.
Although the impacts of inflation are not recognized in nominal financial statements, but such effects will have economic consequences, even during a period in which inflation is relatively low (Konchitchki, 2011). Besides that, inflation affects profits by reacting on sales volume, by influencing the level of costs and by changing the relationship between cost and prices (Grant and Mathews 2007). Benabou and Gertner (1993) introduce a stochastic shock on the costs of producers and examine the effect of inflation uncertainty on price dispersion. In this model, consumers cannot distinguish between aggregate and relative shocks. Consumers can decide to enhance their information with search and must infer from prices whether it is worth the cost to search.

Specifically, unrecognized inflation gains turn into future cash flows from operations over the subsequent years. Investors also do not fully incorporate such information into their investment decisions; significant abnormal returns for inflation-based trading strategies are evidently seen. Further, the direction of the abnormal returns is consistent with investors not fully distinguishing monetary and nonmonetary assets. Robustness tests show that the documented abnormal returns are not attributable to differences in risk characteristics, and that an inflation-based factor is not a priced risk factor. These results are consistent with future abnormal returns being attributable to mispricing from costly information rather than to an omitted risk factor. Overall, the findings suggest that inflation has significant implications for performance and stock prices, even when inflation is relatively low (Watts & Zimmerman, 1980).

The inflation rates at low rates may have an impact on the value of a firm. Ifeanyi and Chukwuma (2016) examined the relationship between inflation and profitability measured by return on assets among Nigerian manufacturing firms. The study employed multiple regressions in analysis of data. The findings indicated that a strong negative relationship existed between inflation rate and the profitability (return on assets). These findings are in line with the findings of (Khan, 2015) who established that inflation negatively affected financial development in Pakistan applying both regression and correlation approaches in analyzing data.
5.3.2 Effect of Interest Rate on Financial Performance

The findings from this research show that a significant positive relationship exist between interest rate and financial performance (r = 0.229, p=0.008, $R^2=5.2\%$). The interest rates are usually a subject of discussion given that they determine the level of borrowing in the economy. Theoretically low interest rates encourage borrowing hence more investments in different sectors including manufacturing. However, high interest rates discourage borrowing affecting the prosperity of the economy and manufacturing sector specifically. The results are in line with those of Owolabi (2017) who found out that a positive and significant relationship exists between interest rate and financial performance of Nigerian manufacturing firms.

Additionally, Mwangi and Wekesa (2017) studied the influence of economic factors on organizational performance of airlines specifically studying Kenya airways. The study found out that a positive but significant relationship exists between interest rate and organizational performance. The losses that occurred in Kenya Airways were attributed to the changes that occurred in the macro-environmental forces in the year 2014/2015. The introduction of interest caps also had an effect on the lending patterns of the commercial banks with most of them choosing to buy government bonds rather than lending to firms. In contradicting findings, RAO 2016 established that negative relationship exists between interest rate and financial performance of organizations.

In a study conducted by (Udu, 2015) in Nigeria on businesses keeping the GDP in context, found out that interest rate had a positive and significant effect on the performance and the real GDP. Still in Nigeria, Ogubinyi and Ihejirika (2014) conducted a study on the deposit money banks measuring the financial performance using the ROA. The study found out that interest rates negatively and significantly affected ROA. Osamwonyi and Michael (2014) found out that interest rate negatively but significantly affected profitability of manufacturing firms. Profitability was measured using the return on equity. In another study, Enyioko (2012) established that interest rates did not have any effect on the performance of commercial banks. M Murungi (2014) studied the effect of macroeconomic factors on insurance firms in Kenya. The study revealed that interest rate had a significant effect on financial performance of these firms. This study contradicts that of (Kiganda, 2014) that specifically studied Equity banks and found out that interest rate has a negative insignificant effect on the profitability of the bank.
Interest rates mostly vary from one bank to another depending on how they evaluate their credit risk. The Central Bank of Kenya is the regulator of the financial institutions providing the limits when it comes to setting interest rates so that predatory individuals and banks won’t take advantage by setting the rates higher. The unprecedented events such as the political instability cause the economy to shrink for a while hence manufacturing firms become dormant for a while. The banks also fear extending loans in such periods because they aren’t sure if they will recover them. Despite the interest rates having an impact on the financial performance of manufacturing firms, there are other factors that may work hand in hand with the interest rates. The different results may be due to the different institutions. For instance, the interest rates may have a different effect on the banking sector, manufacturing sector or even insurance. Performance is measured differently depending on the researcher on whatever they feel can capture well the performance of the organization or the firms that they are studying. Mostly researchers use the return on equity or return on assets. The time period when the study is conducted is also crucial to give different results. For instance, studies that were conducted before 2013 may yield different results as compared to studies that were conducted after. This is due to the introduction of caps which affected the lending patterns in the country. The number of years used may also have a considerable effect with studies considering few years yielding different results as to studies that consider any years such as 20 or above 20.

The findings are in agreement with other studies. Interest rates in Kenya have been on an upward trend after interest rate liberalization (Willem, 1995). Fama and French (1998), test for the effect of debt in the firm’s capital structure on the firm value using a regression analysis. The coefficient on the interest expense variable had a negative sign (Fama & French, 1998). When considering the relationship between interest rates and performance of firms established a positive relationship, this indicates that when there is an increase in interest rates, the default risk increases as a result of decreased profitability of the borrowers.

Interest rates are a major component of the economy. As seen in the results, an increase in interest rates leads to an increase in financial performance of manufacturing firms. The higher the interest rates, the more the banks are willing to give out loans assuming that their risk is well covered. The good use of expansionary and contractionary policies in controlling the interest rates may have an effect on the growth and sustainability of the manufacturing firms.
5.3.3 Effect of Exchange Rate on Financial Performance

The research findings under this objective showed that a negative relationship exist between exchange rate and financial performance of manufacturing firms however this this relationship is not significant ($r = -0.071$, $p=0.516$, $R^2=0.5\%$). Exchange rates affect the financial performance of manufacturing firms since some of the final products are exported. The depreciation of the Kenyan shilling against the dollar produces a negative effect on the financial performance of the manufacturing firms. The findings are in line with the study conducted by Egbunike et al. (2018) on quoted manufacturing firms in Nigeria. The study findings indicated that exchange rate had a non-significant effect on the financial performance of the manufacturing firms.

The results by (Osho & Olusegun, 2019) indicate that a positive but insignificant relationship exist between exchange rate and financial performance of firms in Nigeria. The exchange rate maybe unstable and this affects the operations of many manufacturing firms both doing business domestically and internationally. The manufacturing companies hence are required to develop good measures to manage the foreign exchange risk (Osho et al., 2019). The use of certain currencies which are unstable may not be advisable for manufacturing firms that do business internationally. The use of strategies such as future markets, currency swaps and forward markets may be important on shielding manufacturing firms on fluctuations and unpredictability of the exchange rates. Helhel (2015) investigated the effect of foreign exchange rate on 37 manufacturing firms in Turkey all listed on Istanbul Stock Exchange for period of nine years from 2005 to 2014. The findings indicated that foreign exchange had a significant positive effect on financial performance of the Turkish manufacturing firms.

The fluctuations of the exchange rates and its variability may affect the financial performance of a firm negatively or positively since the firm’s earnings per share, the forecasted costs and revenue and the profit margin. Ayinde (2014) the depreciation in exchange rate leads to an increase in the costs of importing raw materials and capital goods which leads to transmission of the effect into increased production costs thus decreasing the profits of the firm. The manufacturing firm might decide to pass these costs to its consumers which may have adverse effects such as losing the customers to other competitive firms in the industry. The fluctuation of the exchange rate has an effect on the firm’s competitiveness and the value of its funds since many firms borrow money in foreign currency most of the time. The economy plays a great role
such that if it is performing well then firms are probably going to perform well (Dickson, 2015). Agubata and Odubuasi (2018) examined the effects of exchange rate on manufacturing firm’s financial performance in Nigeria assessing food, tobacco and beverage sectors. The findings from this study indicated that exchange rate positively affects financial performance of these firms however it is not significant.

There is interconnectedness between the exchange rates and the inflation rates. The movements in currency are deeply reflected in the producer price, import price and in the consumer price index. The changes in movements of exchange rates can only be reflected in the consumer price index depending on the volume of the share imports that are in the consumption baskets. Mohammad et al. (2018) notes that; manufacturing firms that operate domestically may not be exposed to the fluctuations of currency as compared to firms that operate in international markets. Tega (2018) found out that the gains or losses that emanates from the foreign exchange have a positive and direct effect on the net income of the multinational manufacturing firms as reflected in the equity reserves or the income statement. Okika, Udeh and Okoye (2018) examined the effect of exchange rate fluctuation on firm profitability on quoted conglomerates. The findings from this study indicated that the exchange rate fluctuations didn’t have any significant effect on the return on assets of conglomerates in Nigeria.

Inyiama and Ozouli (2014) found out in their study revealed that exchange rate has a positive effect on net asset value per share however it is not significant. The long term coefficient reveals that there is a negative non-significant relationship between exchange rate and net asset value per share of the firm. The inverse relationship between the exchange rate and net asset value is affected by an increase in the exchange rate which may affect earnings of the factories due to high demand of foreign exchange sector.

5.4 Conclusions

5.4.1 Effect of Inflation Rate on Financial Performance

The results from the research indicate that a negative insignificant relationship existed between inflation rate and return on equity. The study concludes that inflation rates affect financial performance negatively though the effect is insignificant.
5.4.2 Effect of Interest Rate on Financial Performance

The findings of this study show that a positive significant relationship exists between interest rate and financial performance of manufacturing firms. The study concludes that interest rate significantly affects the financial performance of manufacturing firms in Kenya.

5.4.3 Effect of Exchange Rate on Financial Performance

The findings of this study indicate that a negative insignificant relationship exist between exchange rate and financial performance of manufacturing firms. The study concludes that exchange rate does not significantly affect financial performance of manufacturing firms.

5.5 Recommendations

5.5.1 Recommendations for Improvement

5.5.1.1 Effects of Inflation Rate on Financial Performance

The research recommends that the regulatory authorities including the central bank of Kenya should find ways of having stable prices even in moments of crises or economy shocks so as to shield both the consumers and producers effectively. The spill-over effects of inflation rates affecting prices and the whole manufacturing sector may be adverse to the economy. The study also recommends that future studies should relate inflation rate to other measures of financial performance

5.5.1.2 Effect of Interest Rate on Financial Performance

This study recommends that the government should ensure that commercial banks lend at market interest rates. The interest rates should be agreeable on both sides of the divide, the borrower and the bank giving the loan. In a broader sense, the government is supposed to provide an environment that enable local manufacturing firms to survive economically so that they can be able to repay the loans by being economically viable.

5.5.1.3 Effect of Exchange Rate on Financial Performance

The study recommends that the government should ensure that the shilling does not depreciate most of the time even with the slightest shocks in the world. The government should ensure that the shilling keeps on appreciating against the dollar by ensuring that the Kenyan products
become more attractive to the outside world. Additionally, the government should focus on perfecting the supply side policies.

5.5.2 Recommendations for Further Studies

This study focused on the effects of inflation rate, interest rate and exchange rate on financial performance of manufacturing firms in Kenya. The findings indicate that these factors affect only 6.3% of the financial performance. The study recommends that further research to be done on other macro and micro factors to establish the extent to which they affect financial performance.
REFERENCES


Fisher, L. (1930). *The Theory of Interest: As determined by Impatience to spend and Opportunity to invest it*.


# APPENDIX I: DATA COLLECTION SHEET

## B.O.C Kenya LTD

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<thead>
<tr>
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<tbody>
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## B.A.T Kenya LTD

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## Carabacíd Investment LTD

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## East African Breweries

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**Unga group LTD**

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**Eveready Ltd**

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**Kenya Orchards**

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Flame Tree Group Holdings

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Macro-Economic Variables

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### APPENDIX II: LIST OF MANUFACTURING FIRMS

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<td>East African Breweries</td>
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<td>Mumias Sugar Company</td>
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<td>Unga Group Ltd</td>
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<td>Eveready Ltd</td>
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<td>Kenya Orchards</td>
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<td>Flame Tree Group Holdings</td>
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APPENDIX III: NACOSTI PERMIT

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Date of Issue: 03/February/2020

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