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Dedication

I dedicate this research to my lovely wife Neophilia, two daughters Tadanasishe and Tamiranashe and my son Success Jr.
Declaration
I, Success Mhlanga do hereby declare that this dissertation is a result of my own work investigation and research, except to the extent indicated in the acknowledgements, references and comments included in the body of the report, and that it has not been submitted in part or in full for any other degree to any other university.

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Student Signature Date

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Supervisor Signature Date
Acknowledgement

I wish to express my sincere gratitude and appreciation to my supervisor, Dr N Kaseke for his unwavering guidance and encouragement throughout the research. I also acknowledge my colleagues whom I studied with at the University of Zimbabwe from 2013, and I say thank you for walking through this journey with me.

I would also like to express my gratitude to the lecturers at the Graduate School of Management who were always available and willing to provide the necessary assistance during this journey. Lastly, I would like to thank my lovely wife Neo and my three kids Tadanaise, Tamiranase and Success Jr who had to endure my absence as I undertook my studies.
Abstract
The aim of this study was to investigate the effects of the appreciation of the US dollar against the South African Rand on the manufacturing firms in Harare, South Africa being the main trading partner for Zimbabwe. The research study sought to examine the impact of the appreciation of US dollar against the Rand on the performance of the manufacturing firms, its effects on commodity pricing regimes, its impact on firm’s competitiveness and the strategies adopted by firm’s in the wake of the continued depreciation of the South African Rand. A positivist approach was adopted in the study. The population in the study were all the manufacturing firms based in Harare and the researcher used stratified random sampling to select the firms from each sub sector on the CZI register of manufacturing firms based in Harare. Purposive random sampling was then employed to select the sample elements. Self-administered questionnaires were used to collect data. The study shows that the continued appreciation of the US dollar against the South African Rand has greatly reduced the competitiveness of exporting firms, caused job losses, reduced the profitability of manufacturing firms. Firms adopted multiple survival strategies in the wake of the continued depreciation of the South African Rand and these include reducing production costs, product diversification, sourcing cheaper raw materials mainly from South Africa and China, increasing domestic market, cost containment strategies, aggressive marketing and investing in infrastructure development. The study concludes that the continued appreciation of the US dollar against the South African Rand places exporting firms at a competitive disadvantage and increases competition for local firms from imports as they continue to be cheaper. The study recommended the banning of cheap substandard imports, putting in place measures that improves capacity utilisation such as import substitution.
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List of abbreviations

1. LOP : Law of One Price
2. GOZ : Government of Zimbabwe
3. PPP : Purchasing Power Parity
4. IRP : Interest Rate Parity
5. CZI : Confederations of Zimbabwe Industries
6. GDP : Gross Domestic Product
Chapter One

1.0 Introduction

This dissertation investigates the effects of the appreciation of the US dollar against other currencies with particular attention on the South African Rand, focussing on manufacturing firms in Zimbabwe. Local products are failing to compete with imports from South Africa and local producers cannot export to South Africa on the basis of price. It is for this reason that this study seeks to examine the impact of the strengthening of the US dollar against the Rand, specifically looking at manufacturing firms.

Zimbabwe officially adopted the multi-currency regime in March 2009, after going through an unprecedented hyperinflation (Mid-Year Monetary Policy Statement, 2009). The US dollar became the main currency in which the country was to conduct all its transactions and the South African Rand being the second most used currency (Noko, 2011). Noko (2011) points out that the introduction of the multi-currency regime in Zimbabwe managed to arrest the runaway inflation, eliminate commodity price distortions, breathed a new lease of life in the financial sector services and ushered in business confidence.

An analysis of the Retail Sector from 2010 to 2015 shows that most of the products sold in the local stores were imports as the local manufacturing firms battled with a plethora of wide ranging challenges. For example, David Blake, chairman of OK Zimbabwe explained that the group continued to rely on imports mainly from South Africa due to the inability of local corporations and SMEs to meet the basic requirements of quality merchandise and competitive prices (The Financial Gazzette, 2014). According to Mr Cecil Gombera, the Managing Director of African Distillers, Afdis was slowing its exports to Malawi because prices were going against the US dollar as the dollar continued to appreciate.

This chapter introduces the study on the effects of a strengthening US dollar against the South African Rand on manufacturing firms in Harare. The chapter discusses the introduction, background to the study, statement of the problem, research objectives, and research questions, significance of the study and the outline of the dissertation.
1.1 Background of the study

Zimbabwe is grappling with deindustrialisation and informalisation of the economy. The National Budget Statement Government Of Zimbabwe, 2015:215 reports that for the period between 2011 and 2014 a total of 4,610 firms closed down and 55,443 employees were affected. The same National Budget further reveals that, the manufacturing sector had 458 firms that shut down resulting in a loss of close to 10,000 jobs. The current challenges facing the economy are so intertwined that sometimes it is not easy to separate the causes from the effects. The CZI(2015) reports that the economic challenges facing Zimbabwe include but not limited to the following:

- Tight liquidity conditions;
- Devaluation of the South African Rand (largest trading partner) and Zambian Kwacha is affecting local competitiveness;
- Attractiveness of US dollar environment to other regional players as a hedge against unstable currencies (Zambia and South Africa in particular);
- Decline in global commodity prices for Zimbabwe’s main mineral exports such as gold, platinum, and diamonds;
- Zimbabwe’s high country risk premium;
- Power cuts and shortages;
- Low business confidence by investors and high level of disinvestments in the country; and
- Water shortages

1.1.1 Overview of the Zimbabwean Economy

The official adoption of the multi-currency regime in March 2009 managed to arrest the runaway inflation, bringing the inflation rate to single digits between 2010 and 2015: (3.1%, 3.5%, and 3.7%, 2.5%, -0.8 %, -2.5% respectively) (Zimstats, 2014). It also managed to stabilise commodity prices, brought back business confidence and reduced speculative attacks on the Zimbabwean economy(Sikwila, 2013). On the other hand, the introduction of the multi-currency regime meant that the government of Zimbabwe lost control over monetary and exchange rate policies and seigniorage. Seigniorage is basically the interest income a central bank earns by issuing non-interest bearing money to buy interest-bearing assets.

The balance of payments deficit remains over 20% of GDP, hampered by softening minerals prices and the impact of uneven rains on agricultural output. The Gross Domestic Product growth continued to decline from 2011 to 2015: 11.9%, 10.6%, 4.5%, 3.2%, 1.5% (Zimstats, 2014).
The exchange rate was R6.9239 in Jan 2011, rising by 15.58% at the end Jan 2012 to reach R8.0025. The South African Rand continued to weaken against the USDollar, by Jan 2015, one US dollar was equivalent to 11.5527 South African Rands. The South African Rand continued to depreciate at a stronger magnitude in 2015, by Sept 2015 one US dollar was pegged at above 13 South African Rands, with the exchange rate as at 2pm on the 8th of November 2015 locked at 14.1586. Table 1.1 clearly shows the US Dollar to South African Rand Exchange Rate historical data and trends.

Table 1.1: US Dollar to South African Rand Exchange Rate 2010-2015

<table>
<thead>
<tr>
<th>Rank</th>
<th>Period</th>
<th>USD/ZAR Exchange Rate</th>
</tr>
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<tbody>
<tr>
<td>1</td>
<td>January 2010</td>
<td>7.4631</td>
</tr>
<tr>
<td>2</td>
<td>January 2011</td>
<td>6.9239</td>
</tr>
<tr>
<td>3</td>
<td>January 2012</td>
<td>8.0025</td>
</tr>
<tr>
<td>4</td>
<td>January 2013</td>
<td>8.7978</td>
</tr>
<tr>
<td>5</td>
<td>January 2014</td>
<td>10.8872</td>
</tr>
<tr>
<td>6</td>
<td>January 2015</td>
<td>11.5527</td>
</tr>
<tr>
<td>7</td>
<td>8 November 2015</td>
<td>14.1586</td>
</tr>
</tbody>
</table>

Source: Federal Reserve Bank (2015)

The World Bank (2015) suggests that the Zimbabwe manufacturing sector is expected to remain sluggish at 1.4% in 2015, reflecting competitiveness pressures, subdued investment and further tightening of credit conditions. The RBZ Merchandise Report (2015) confirms that South Africa remains the country’s major trading partner, accounting for 61% of total exports and 38% of imports. The Zimstats (2013) Trade Report for the period 2009 and 2013 shows that over the five year period under review, the import bill rose from about USD 6.2 billion in 2009 to USD 7.7 billion in 2013. This was an effective growth of about 124.1%. The trend shows a peak in 2011 (USD 8.6 billion). The Total exports rose from USD 2.2 billion in 2009 to USD 3.5 billion in 2013. The trade balance, for all the years from 2009 to 2013, was negative as imports exceeded total exports.
The table 1.2 below shows the exports and imports for the period 2009 to 2014.

**Table 1.2: Exports and Imports 2009 - 2013**

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<tbody>
<tr>
<td>Exports</td>
<td>2,249,744,640</td>
<td>3,245,441,506</td>
<td>3,557,374,988</td>
<td>3,882,290,718</td>
<td>3,507,296,016</td>
<td>2,420,549,729</td>
</tr>
<tr>
<td>Trade Balance</td>
<td>(3,957,604,528)</td>
<td>(2,619,205,129)</td>
<td>(5,038,819,766)</td>
<td>(3,580,694,290)</td>
<td>(4,196,889,934)</td>
<td>(2,875,318,542)</td>
</tr>
</tbody>
</table>

Source: Zimstats(2015)

Table 1.2 shows declining Zimbabwean exports to South Africa from a peak in 2012 of USD$3,882,290,718 to USD$2,420,549,729 in 2014. South Africa has experienced a healthy bilateral trade surplus with Zimbabwe over the past decade.

Table 1.3 shows that imported commodities from South Africa have been on an upward trend from 2009 to 2015.

**Table 1.3: Trade between South Africa and Zimbabwe**

<table>
<thead>
<tr>
<th></th>
<th>2009 (Rands)</th>
<th>2010 (Rands)</th>
<th>2011 (Rands)</th>
<th>2012 (Rands)</th>
<th>2013 (Rands)</th>
<th>2014 (Jan – Oct)</th>
</tr>
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<tbody>
<tr>
<td>Exports</td>
<td>13,305,918,706</td>
<td>15,541,941,703</td>
<td>17,635,888,139</td>
<td>19,849,872,563</td>
<td>23,143,275,269</td>
<td>24,788,933,827</td>
</tr>
<tr>
<td>Imports</td>
<td>1,602,459,606</td>
<td>1,396,392,447</td>
<td>3,141,800,910</td>
<td>3,113,409,099</td>
<td>3,303,986,773</td>
<td>2,008,082,304</td>
</tr>
<tr>
<td>Trade Balance</td>
<td>-11,703,459,100</td>
<td>-14,145,549,256</td>
<td>-14,494,087,229</td>
<td>-16,736,463,464</td>
<td>-19,839,288,496</td>
<td>-22,780,851,523</td>
</tr>
</tbody>
</table>

Source: Department of Trade and Industry Republic of South Africa (2015)
1.1.2 Background to Manufacturing Sector in Zimbabwe

The manufacturing sector is key to Zimbabwe's economy. The sector's contribution to the Gross Domestic Product (GDP) for the period 2009 to 2013 was fluctuating at just above 10%. At its peak, the manufacturing sector used to contribute about 42% to export earnings, but as of 2010, the sector's contribution to GDP and exports was 13% and 27% respectively (Zimstats, 2013).

The Zimstats (2010) points out that there are 10 categories within the manufacturing sector which are: foodstuffs; beverages and tobacco; textiles; clothing and footwear; wood and furniture; paper printing and publishing; chemicals and petroleum products; metals; non-metallic minerals; transport and transport equipment. The manufacturing firms in Harare include but not limited to Dairibord Holdings Limited, National Foods Holdings Limited, Delta Corporation Limited, Colcom Holdings Limited, Star Africa Corporation, Radar, National Tyre Services, Pro Plastics, Medtech Holdings Limited, Cafca, Zeco, Lafarge Cement Zimbabwe, Zimplow Holdings, Olivine Industries and other small players.

The manufacturing sector was estimated to have grown by 2.7% in 2010 and projected to register a higher growth of 13.8% in 2011 (Reserve Bank of Zimbabwe (RBZ) Monetary Policy (2011)). Figure 1.1 shows that the manufacturing sector growth rate has been on the decline from 2011, hitting negative figures in 2013 and in 2014 the growth rate was estimated at -4.9%. Once a dominant contributor to the GDP at 22% the manufacturing sector now contributes 17% to GDP.

**Figure 1.1: Manufacturing output growth rates (%)**

![Graph showing manufacturing output growth rates from 2009 to 2016](image-url)
It is estimated that more than 50% of manufacturing output is used as inputs in agriculture (Zimstats, 2010). Capacity utilisation is defined as the percentage of the firm’s total possible production capacity that is actually being used. Thus, it refers to the relationship between actual output that is actually produced with the installed equipment, and the potential output which 'could' be produced if capacity was fully used.

Table 1.5: Capacity Utilisation

<table>
<thead>
<tr>
<th>Rank</th>
<th>Year</th>
<th>Average/Weighted Capacity Utilisation (%)</th>
</tr>
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<tr>
<td>1</td>
<td>2009</td>
<td>32.3</td>
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<td>1</td>
<td>2010</td>
<td>43.7</td>
</tr>
<tr>
<td>2</td>
<td>2011</td>
<td>57.2</td>
</tr>
<tr>
<td>3</td>
<td>2012</td>
<td>44.2</td>
</tr>
<tr>
<td>4</td>
<td>2013</td>
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</tr>
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<td>5</td>
<td>2014</td>
<td>36.5</td>
</tr>
<tr>
<td>6</td>
<td>2015</td>
<td>34.3</td>
</tr>
</tbody>
</table>

Source: CZI

According to the CZI (2010), average capacity utilization had continued to improve, albeit, at a much slower rate than expected. Average capacity utilisation as at the end of the first half of 2010, stood at 43.7%. The CZI (2012) report shows that the manufacturing sector was now in a crisis. Capacity utilization in the manufacturing sector significantly declined from 57.2% to 44.2%. In 2014, average capacity utilisation continued to decline, shedding 3.3 percentage points to 36.3%. In 2015, CZI introduced a new measure of capacity utilisation the weighted capacity utilisation which takes into account the contribution of each manufacturing subsector to GDP. The weighted capacity utilisation was 34.3%, after shedding 2.2 percentage points from the 2014 weighted capacity utilisation of 36.5%.

The CZI (2015) indicates that the major capacity constraints remain unchanged since 2010. Table 1.6 gives an account of the major constraints facing manufacturing firms.
Table I.6 Capacity Constraints

<table>
<thead>
<tr>
<th>Capacity Constraints as a %</th>
<th>2013</th>
<th>2014</th>
<th>2015</th>
</tr>
</thead>
<tbody>
<tr>
<td>Low local demand</td>
<td>17.2</td>
<td>28.8</td>
<td>28.4</td>
</tr>
<tr>
<td>Capital Constraints</td>
<td>40.2</td>
<td>26.5</td>
<td>18.6</td>
</tr>
<tr>
<td>Antiquated machinery and machine breakdown</td>
<td>9.8</td>
<td>7.3</td>
<td>12.3</td>
</tr>
<tr>
<td>Competition from Imports</td>
<td>12.5</td>
<td>14.2</td>
<td>10.5</td>
</tr>
<tr>
<td>High cost of doing business</td>
<td>5.2</td>
<td>6.2</td>
<td>8.3</td>
</tr>
<tr>
<td>Cost/shortage of raw materials</td>
<td>5.9</td>
<td>6.2</td>
<td>6.9</td>
</tr>
<tr>
<td>Power and water shortages</td>
<td>8.8</td>
<td>3.8</td>
<td>6.4</td>
</tr>
<tr>
<td>Drawbacks from current economic environment</td>
<td>-</td>
<td>7.0</td>
<td>2.0</td>
</tr>
<tr>
<td>Other</td>
<td>-</td>
<td>-</td>
<td>6.9</td>
</tr>
</tbody>
</table>

Source: CZI(2015)

Bloch(2009) concurs with the CZI Manufacturing Survey Reports, pointing out that the manufacturing sector was bedevilled by so many constraints including the following: demands by labour for wage increases, massive under capitalisation, very erratic and costly services such as power and water and the excessive importation of cheap goods and commodities mainly from South Africa and China.

1.2 Research problem

This study seeks to establish the impact of US dollar currency appreciation against the South African Rand on the performance and competitiveness of manufacturing firms in Harare. Commodity prices have been on the decline largely due to the movement linked to Rand/US Dollar exchange rate fluctuation since South Africa remains the major source of imported products and second major Zimbabwe export destination, and possibly a weak domestic demand arising from the erosion of disposable income from the local consumers.

1.3 Research Objectives

The main objective of the research is to investigate the impact of the US dollar currency appreciation on the manufacturing firms and the strategies these firms are adopting as counter measures. Specifically the study objectives are:
1) To establish the effect of the strengthening US dollar against the South African Rand on pricing of commodities by manufacturing firms in Zimbabwe.

2) To assess the impact of the continued appreciation of the US dollar currency against the South African Rand on the performance of the manufacturing firms in Zimbabwe.

3) To find out the strategies that Zimbabwean manufacturing companies have adopted in the face of the strengthening US dollar currency

4) To establish the levels of competitiveness of manufacturing firms given the continued US dollar currency appreciation against the South African Rand.

1.4 Research Questions

The main research question is informed by the literature gap and is as follows:

1) What is the impact of the US dollar currency appreciation against the South African Rand on manufacturing firm’s performance?

2) What is the effect of the US dollar currency appreciation against the South African Rand on pricing mechanisms employed by manufacturing firms in Zimbabwe?

3) What strategies have Zimbabwean manufacturing firms adopted in the face of the strengthening US dollar currency against the South African Rand?

4) What is the effect of the US dollar currency appreciation against the South African Rand on the competitiveness of locally manufactured products?

1.5 Justification of the Study

There is a lot of literature on the impact of exchange rate fluctuations on manufacturing plants in the developed world (Ekholm et al., 2011; Baggs et al., 2007; Weller and O’Neill, 2012).

There has been a limited number of studies on exchange rate volatility and manufacturing firms in developing countries and in particular in the Zimbabwean context, a country which abandoned its own currency and adopted a multi-currency regime in March 2009. For example Mwamba and Dube (2014) examine the impact of exchange rate volatility on international trade between South Africa, China and US focussing on the manufacturing sector. Znami and Ben-Salha (2015) investigates the effects of exchange rates on employment over the period 1997–2002 in Tunisia; Davison and Nhavira (2015) investigate the impact of dollarization on tourism and poverty; Kaseke and Gumbe, (2011) examine the survival options by manufacturing firms during the hyperinflationary period in 2005 - 2008; Kaseke (2014) evaluates turnaround strategies employed by firms in the construction materials manufacturing sector in Zimbabwe the post multicurrency era.
This study seeks to address the gap in literature on the impact of US dollar fluctuation against the South African Rand on the Zimbabwean manufacturing firms based in Harare.

This study seeks to provide a platform for future studies that the academics and managers could use. The manufacturing sector and the Zimbabwean economy will benefit from the conclusions and recommendations of this study, given that Zimbabwe is agro-based and therefore requires a robust manufacturing base to add value to the primary agricultural industry to improve the country’s GDP.

The trend where some manufacturing companies such as PowerSpeed Electrical are now shelving manufacturing processes and focusing on retail arguing that manufacturing is contributing less than 10% on the profits really justifies the need to assess the impact of the currency volatility on the survival and performance of manufacturing firms(Newsday, 2015).

1.6 Scope of Research
The research will be limited to manufacturing firms which are based in Harare. The period under study is 2010 to 2014.

1.7 Dissertation Outline
The dissertation outline will be as follows:

Chapter 1 provided the introduction, background to the study, statement of the problem, research objectives, and research questions and significance of the study.

Chapter 2: This chapter reviews literature on the effects of fluctuations of exchange rates on manufacturing firms. This chapter discusses theoretical propositions and empirical research findings most relevant to the research topic under study.

Chapter 3: This chapter outlines and justifies the research methodology used in the study, the research instruments used.

Chapter 4: This chapter provides a presentation and analysis of the findings of the research.

Chapter 5: This chapter focuses on the conclusions and recommendations arising from the study.
1.8 Chapter Summary
This chapter gave a brief background to the study. The chapter outlines the statement of the problem, research objectives, research questions, justification and the scope of the study.
Chapter Two

Literature review

2.0 Introduction
The purpose of this chapter is to review literature on the effects of fluctuations of exchange rates on manufacturing firms. The impact of exchange rate volatility on the performance of the manufacturing sector, remains topical among policy makers and economic researchers. Just like any other key macroeconomic variables such as inflation and interest rates, exchange rates are faced with changes over time. The uncertainty brought about by these variables continue to pose headaches, moreso for developing countries as they seek to maintain a stable macroeconomic environment.

2.1 Overview of Exchange Rates
The breakdown of the Bretton Woods system of fixed exchange rates in 1973, heralded the adoption of the floating exchange rate regime, which came in with the risk of exchange rates volatility. In an open economy, the exchange rate is a key economy-wide relative price that helps to maintain equilibrium across both the financial and real sides of the economy. The exchange rate along with other variables such as interest rates, output and prices adjusts to simultaneously equate demand and supply in the foreign exchange market, other financial markets, and goods and services markets. The exchange rate is generally defined as the price of one currency in relation to another currency (Ellis, 2001). It influences the flow of goods, services, and capital in a country, and exerts strong pressure on the balance of payments, inflation and other macroeconomic variables.

The decline of manufacturing has traditionally been explained by firm level competitiveness such as labour costs and plant location. Weller and O’Neill (2012) argue that the decline in Australian manufacturing firms post the global financial crisis has been as a result of the currency appreciation arising from the Australia’s resources boom (dutch disease) and also possibly as a result of the attractiveness of the Australian dollar.

Fung (2008) examines the influence of large real exchange rate movements on firm dynamics and production scale and their combined contribution on productivity growth, the study
shows that real currency appreciations trigger surviving plants to expand their operations which results increased levels of productivity. The results from the study further shows that a real appreciation of the domestic currency leads to an increase in the total sales of surviving firms which is at variance with what Baggs et al.(2007) observes in that the real appreciation of the Canadian dollar reduce output or real sales, while real depreciations have the opposite effect.

The study by Ekholm et al.(2011) examines the effects of the positive shocks on the Norwegian Krone in the early 2000s on Norwegian manufacturing firms which have a diverse trade orientation. The theory suggests that real exchange rate affects a firm through three different channels namely the export channel, import channel and the import competition faced in the domestic market. The results from the study by Ekholm et al. (2011) reveal that both net exporters and import-competing firms were are sensitive to the currency appreciation.

Evidence has emerged that firms' exposure to trade varies significantly even within export industries (Bernard et al., 2007). This then suggests that firms within the same industry may suffer or react differently to a real exchange rate shock given that a real appreciation tends to make these inputs cheaper, the real exchange rate shock may have an ambiguous effect on profitability and firm performance (Ekholm et al., 2011).

2.2 Exchange Rate Regimes

The OIC Outlook report (2012) contends that the choice of exchange rate regime has considerable impact on trade in goods and services, capital flows, inflation, balance of payments and other macroeconomic variables.

Amaghionyeodiwe and Osinubi (2015) define exchange rate regimes as basically different systems of managing the exchange rate of a nation's currency in terms of other currencies. Various researchers argue that exchange rate regimes can be classified into three categories: fixed (pegged), flexible (floating) and intermediate regimes (Latter, 1996),Yagci, 2001). The floating and hybrid regimes gained prominence after the collapse of the exchange rate regime known as the Bretton-Woods system in the 1970s (Yagci, 2001).
2.2.1 Floating Exchange Rate Regimes

In this regime, the determinants of exchange rate are the market forces i.e demand and supply and the monetary authority does not intervene in the foreign exchange market (Yagci, 2001). Advocates for this regime argue that it is not prone to currency shocks and it is able to absorb or counter shocks in the economy. The critics for the floating regime cite issues such as high short-term volatility, high possibility of misalignment and discretion in monetary policy possibly creating inflationary bias as some of main downside effects of the floating regime. Independent floats and lightly managed floats are main types under this regime. Floating regimes are said to be suitable for adoption by countries that are generally highly industrialized and those some emerging market economies that are relatively closed to international trade.

2.2.2 Intermediate Exchange Rate Regimes

There are generally two types under this hybrid regime namely managed float and crawling broad band. Managed floats involve the intervention of the monetary authority in the exchange rate market such as making changes to the interest rates. The critics of this regime argue that there is a lack of transparency in managed float, and broad band regimes are not immediately identifiable and the need for high international reserves. Yagci (2001) and Fisher (2001) suggest that these exchange rate regimes may suit emerging market economies and possibly some other developing countries with relatively stronger financial sector and track record for disciplined macroeconomic policy.

2.2.3 Soft Peg Exchange rate Regimes

Soft peg regimes are argued to maintain stability and competitiveness in the economy, lower interest rates and at same time allow high inflation countries to reduce inflation by moderating inflationary expectations. Soft pegs are apt for developing countries with limited links to global financial markets, less diversified production and export structure, shallow financial markets, and lacking monetary discipline and credibility (Yagci, 2001)

On the other hand soft pegs are very much susceptible to currency crisis more so for countries that are open to international capital markets, they tend to encourage foreign debt and they offer very little shock absorptive capacity (Yagci, 2001).
2.2.4 Hard peg Exchange Rate Regimes

Under this regime, the exchange rate is pegged in a manner that makes a change in parity or an exit from the regime extremely difficult and costly and these include dollarization, monetary union and currency boards (OIC Outlook Report, 2012). Under dollarisation, foreign currency is used as a legal tender, even though in some cases domestic coins may be used, monetary policy is delegated to the anchor country and seigniorage accrues to the issuing country. Zimbabwe is an example of a developing country whose economy is dollarised. In the case of a monetary union, a group of countries uses a common currency issued by a common regional central bank with seignorage accruing to the region.

Some of the main merits of adopting a hard pegged exchange regime are that it may provide maximum credibility for the economic policy regime, can arrest hyperinflationary pressures, not prone to currency crisis, lowers transaction costs and it not only lowers but it also stabilises interest rates. The main shortfalls of this exchange rate regime include the loss of the Central bank’s role as lender of last resort and low seigniorage under currency board, no seigniorage in the case of dollarization (Yagci, 2001).

2.3 Exchange Rate Forecasting Models

According to Mačerinskienė and Balčiūnas (2014) they have been various attempts to predict the future exchange rate in the academic fraternity. Generally, there has not been consensus on the classification of the models used for predicting or determination of the exchange rates.

Moreover, the researchers do not agree on which fundamental models are the most suitable for predicting the future exchange rate. Hsing (2010a) in his study on the determination of USD/AUD exchange rate concludes, that uncovered interest rate parity model reflects exchange rate movements the best, followed by purchasing power parity, flexible price monetary and Mundell Fleming models. Rasekhi and Rostamzadeh (2011) made a genetic algorithm based on various fundamental models for predicting EUR/USD exchange rate and observes, that the largest part of the algorithm was taken by portfolio balance model, which means that this model is better for determining the exchange rate fluctuations than the other models, while relative purchasing power parity model comprises the smallest part of the algorithm.
2.3.1 Efficient Market Hypothesis Models

The underlying assumption is that currency market efficiency is strong and that the exchange rate varies unpredictably and thus the random walk hypothesis is applied. The logic is that given that if the foreign exchange market is fully efficient, all the information is already shown in current exchange rate. The exchange rate will change only when some new information will be announced. Since the availability of new information and the kind of information that will become known is unknown beforehand, therefore the exchange rate will change unpredictably. The future changes of the exchange rate are independent from the fluctuations of the past and it is impossible to predict them for the future (Mačerinskienė & Balčiūnas, 2014).
2.3.2 Technical Models
These models employ the changes of the past exchange rate in the forecasting of future exchange rate. The prediction of the future exchange rate is based on the past performance of the same variable, which means that the main underpinning assumption is that the past will repeat itself, which is not always the case.

2.3.3 Alternative Models
Moosa and Bhatti (2010) proposes an alternative class of the models. These models came about as a reaction to the unsatisfactory and unsuccessful performance of the mainstream fundamental models. The models include notably the following: Microstructure model of exchange rates, Behavioral finance, Post-Keynesian, Theory of chaos. There is no clear opinion on which position should alternative models take in the general classification of the exchange rate forecasting models. The researcher will consider these models later on in this chapter on section 2.3.4.4.

2.3.4 Fundamental Models
These models became popular mainly after the collapse of Bretton Woods system. The proposition of these models is that particular macroeconomic variables affect the exchange rate. Therefore, the models are generally referred to as macroeconomic models.

2.3.4.1 Theory of Purchasing Power Parity (PPP)
Rogoff (1996) contends that the origins of the purchasing power parity is hugely linked to the debate on how to restore the world financial system after its demise and ultimate collapse during the First World War. The articles by Cassel (1921, 1922), a well renowned Swedish economist are regarded as the foundation and the cornerstone of the Purchasing Power Parity as an empirically testable theory.

Isard (1978) defines the PPP theory as a hypothesis about the equilibrium relationship between an exchange rate and some designated ratio of price indexes. Yong and Ling (2000) suggest that the Purchasing Power Parity is a theory of exchange rate determination, which asserts that the exchange rate between two currencies over any period of time is determined by the change in the two countries price levels. As this theory singles out changes in price
levels as the overriding determinant in the determination exchange rate, it is also generally referred to as the inflation theory of exchange rates.

The PPP theory states that, in the long run, similar goods and services in different countries should cost the same in those countries. According to Isard (1978) what underpins this theory is the notion that any divergence of the exchange rate from the designated ratio of price indexes will set in motion corrective forces acting to restore equilibrium. Given that these corrective forces may take time to restore equilibrium, therefore, the validity of PPP depends on the time horizon under consideration. There are two variants of the PPP theory namely the absolute and the relative version. The basic underlying tenet of any version of the PPP theory is the Law of One price (LOP). Rogoff (1996) defines LOP as a concept that states that once prices are converted to a common currency the same good should sell for the same price in different countries.

2.3.4.1.2 Absolute Purchasing Power Parity (APPP)

The APPP hypothesis states that the exchange rate between the currencies of any pair of countries should equal the ratio of the general price levels in the two countries. The validity of the APPP hypothesis largely fails to hold because of the existence of transportation costs, imperfect information and the distorting effects of tariffs and protections which may be imposed by a given country.

The equation below defines this theory

\[ E_{a,b} = \frac{P_a}{P_b} \]  \hspace{1cm} 2.1

*Where;*

\(E_{a,b}\) – is the exchange rate between country a and country b;

\(P_a\) the price of goods and services in country a; and

\(P_b\) – the price of the goods and services in country b.
2.3.4.1.3 Relative Purchasing Power Parity (RPPP)

Isard (1978) argues that the RPPP hypothesis states that the exchange rate between any given pair of countries should be a constant multiple of the ratio of general price indexes of the two countries, or, equivalently, that percentage changes in the exchange rate should equal percentage changes in the ratio of price indexes.

The equation below represents the RPPP theory;

\[ E_{a,b} = P_a - P_b \]  

Where;

- \( E_{a,b} \) - is the exchange rate between country a and country b; it means that when \( E \) is increasing, the value of the home country currency is decreasing;  
- \( P_a \) - the price of goods and services in country a; and  
- \( P_b \) - the price of the goods and services in country b.

Taylor and Taylor (2004) argue that if the APPP holds, the RPPP will hold as well, because the changes of the nominal exchange rate may occur in different levels of the purchasing power.

2.3.4.1.4 Criticism of the Purchasing Power Parity Theory

Empirical studies provide different results on whether purchasing power parity holds in the financial markets. While some scientists provide empirical evidence that the purchasing power parity holds in general (see for example Yong and Ling (2000), Bakare and Olubokun (2011)), Other researchers conclude that purchasing power parity exists in different time periods, but it holds only in the long period (Mačerinskienė & Balčiūnas, 2014). Although there are disparities on the validity of PPP as a short-run hypothesis, there seems to be a general agreement that PPP will hold in the long-run. Yong and Ling (2000) argue using regression analysis, that the natural logarithms of the nominal exchange rate and the price level indices should move together over the long-run. Haidar (2011) contends that the PPP theory may not hold because of the following:

1) The baskets (indexes) of consumer goods and services can be different in the compared countries;
2) Protectionist policy rules might be applied, for example, various taxes, which prevent the free trade of goods between the countries;
3) The economies cannot be comparable in general as developing and developed economies may not produce comparable results;
   a) The level of income in developed and developing economy is different, which is related to different level of labour productivity;
   b) Prices in the services sector might be different; and
   c) The elasticity of the prices of the same goods can be different in a developed economy compared to a developing one

2.3.4.2 Theory of Interest Rate Parity

The main assumption on the IRP theory is that the return on assets of different countries should be equal when calculated using the same currency (Mačerinskienė & Balčiūnas, 2014). In simple terms, if the interest rate paid for foreign assets in foreign country is higher than the interest rate paid in home country for home country assets, the price of the foreign currency should drop compared to the price of the home country currency (Mačerinskienė & Balčiūnas, 2014). The main conclusion of the interest rate parity is that high yielding currencies should get cheaper and low yielding currencies should get more expensive.

According to Isard (1978) this theory recognizes that asset holders have a choice between holding domestic-currency assets, which yield the own rate of interest, or assets denominated in foreign currency, which yield the own rate of interest. There are two main conditions, which apply to interest rate parity which are free flow of capital and risk neutrality by investors. There are generally two forms of interest rate parity namely the covered interest rate parity and the uncovered interest rate parity.

The theory of covered interest rate parity states that when making an investment, the difference between the price of home currency compared to the price of foreign currency and the yield of interest rate is compensated by the change in the future exchange rate (which is measured by the price of a future contract):

\[ 1 + i_t^b = (1 + i_t^a) \frac{F_t}{S_t} \]

Where;

\( i_t^b \) is the interest rate in foreign country \( a \) at time \( t \),
\( i_t^b \) is the interest rate in home country \( b \),

\( F_t \) is the price of the future contract at time \( t \).

Uncovered interest rate parity holds most of the time. In the case of uncovered interest rate parity a possible future exchange rate is used.

\[
1 + i_t^b = (1 + i_t^a) \frac{S_{t+1}}{S_t} 2.4
\]

Where;

\( i_t^b \) is the interest rate in foreign country at time \( t \),

\( i_t^a \) is the home country interest rate,

\( S_{t+1} \) is the possible exchange rate for time \( t+1 \).

According to (Mačerinskienė & Balčiūnas, 2014) there are four reasons which may cause the interest rate parity not to hold:

- Deviations can be caused by irrational behaviour of investors;
- The data is inappropriate for the calculations;
- Changes in regimes. This reason can be expanded to: slow adaptation of the investors; heterogeneous beliefs of the investors; composition of bubbles, during which exchange rates deviate from the fundamental background (the use of carry trade strategy by some of the market participants; and
- Risk premium. Deviation from uncovered interest rate parity serves as an additional compensation for the risk acquired.

Chinn and Liang (2009) cited in (Mačerinskienė & Balčiūnas, 2014) proved that uncovered interest rate parity is appropriate for calculations based on longer time interest rate than shorter. Uncovered interest rate parity is used in some fundamental exchange rate models as a condition.

2.3.4.3 Macroeconomic Models

2.3.4.3.1 Mundell Fleming Keynesian model.

This model was propounded by R Mundell M. Fleming in the 1960’s. It makes the following assumptions;

- the model is suitable for an economy with fixed or floating exchange rate,
• the economy under review is small and open, and
• there are no restrictions to capital movement.

Mačerinskienė and Balčiūnas (2014) suggests that the model can be defined follows;

\[ Y = C(Y) + I(i) + G + NX(Y,S) \]

\[ L(Y,i) = \frac{M}{P} \]

\[ BoP = CA + KA \]

Where;

\( Y \) is real income, \( C \) stands for household expenses (which depends on the real income), \( I \) is investments (negatively correlated to interest rate of the country), \( G \) is government expenses, \( NX \) is net export (which depends on real income and is negatively correlated to the exchange rate \( S \)).

This model allows forecasting the exchange rate based on fiscal, monetary policies and changes in balance of payments. The model is rather complex, given all the independent variables have to be forecasted before determining the future exchange rate (Burkšaidienė, 2009).

2.3.4.3.2 Flexible price monetary model

Monetary models are also referred to as asset models. Moosa and Bhatti (2010) observe that these models were introduced after the Keynesian models failed in the hyperinflationary environment. Mačerinskienė and Balčiūnas (2014) argue that the monetary approach states that the exchange rate is basically a ratio of the prices of currencies of two different countries, which is computed by using relative demand and supply of each of the currencies. The assumption is made that uncovered interest rate parity and purchasing power parity hold.

2.3.4.3.3 Sticky price monetary model

This model states that in the short term the exchange rate overshoots its long term equilibrium rate if tools of expansionary monetary policy are applied. The main assumption is that prices of goods and services are “sticky”, i.e. the prices do not fully react to the changes in macroeconomic variables in short term. Empirical research proves that this model cannot determine exchange rates appropriately for example Tu (2009) cited in Mačerinskienė and Balčiūnas (2014) states that undershooting might occur or there might be no reaction of the
exchange rate at all. According to Rogoff (2002), the model shows only the main changes in exchange rates while it does not determine all other fluctuations of the exchange rate.

2.3.4.3.4 Portfolio balance model
This model suggests, that investors of one country distribute their wealth between home and foreign country bonds and money. The Portfolio balance approach proposes that money supply and bonds of a country impact its exchange rate. The study by Khan and Abbas (2015) reveal that long term relationship is found among money supply, bonds and exchange rate. It shows that money supply of US and Pakistan and bonds for US have an impact on the exchange rate of these countries.

2.3.4.4 Alternative Models
There are a number of alternative models, which have been suggested in literature. Lyons (2001) offers a new approach to exchange rate determination in the microstructure model. It states that the exchange rate is affected by micro factors (i.e. order flows of the market participants) which carry information about macroeconomic fundamentals and other variables, which affect the exchange rate. Microstructure approach puts emphasis on dealers’ (market makers’) role in the currency market, because these participants, have additional information about their clients positions and can use the information as an additional indicator of price.

The theory of chaos models state that exchange rates are related to their determinant variables in non-linear associations. There is no clear opinion whether the theory of chaos exists in the currency market. Mačerinskienė and Balčiūnas (2014) agrees that there is no unanimous opinion whether the chaotic behavior of exchange rates exits.

2.3.4.5 Summary on models of exchange rate determination

From the review of the models of exchange rate it can be observed that each model has its own advantages and drawbacks. It can be said that generally most of the models have performed poorly in the forecasting of exchange rates. There are generally some challenges, which relate to all of the models when predicting the exchange rate:
• Appropriateness of the data. If the period, from which the data is collected, is wrong, the model can provide false results;

• For all macroeconomic models the independent variables have to be forecasted before forecasting the exchange rate.; and

• Most of the models (except for sticky price model and microstructure model) state that the exchange rate adapts at the same moment when the macroeconomic variables change, although it does not happen in the reality

Mačerinskienė and Balčiūnas (2014) suggests that the microstructure approach has the least amount of drawbacks and the predictions of this model are the most promising

2.4 Effects of Exchange Rate volatility

According to the study by Mourad and Ousama (2015) fluctuations in exchange rates affect firm performance, international trade, economic growth, and investments.

Muûls (2008) posits the following regarding exchange rates;

• The effect of a domestic currency appreciation (depreciation) with respect to a given country is that existing exporters to that destination will respond with a decrease (increase) in their volume of exports.

• The second effect of an exchange rate appreciation is that the least productive exporters to that country cannot export profitably anymore and are thus forced out of the market.

2.4.1 Exchange rate volatility and Trade

Bakhromov (2011) examines the effects of exchange rate volatility on international trade in Uzbekistan, an economy in transition, during the 1999-2009 period. The findings show that the real exchange rate volatility has a significant impact on the exports and imports of the country. The results shows that increases in the volatility of the real exchange rate have statistically significant negative effects on equations of exports and imports in the long-run dynamics, it also observes that declines in the real exchange rate, positively affect exports.

Odili (2015) examines the long run and short-run impacts of real exchange rate volatility and the level of economic growth on international trade in Nigeria using a vector error correction model on time series annual data from 1971 to 2012. The results reveal that exchange rate
volatility depressed exports and imports in the long run. The result from pair wise Granger causality test revealed unidirectional causality running from export to exchange rate volatility and from exchange rate volatility to import. This is an indication of poor performance of the export sector and the over dependence of the country on imported goods. These results from Nigeria, an emerging market economy, are in line with findings from Uzbekistan, an economy in transition Bakhromov (2011).

Mwamba and Dube (2014) examines the effect of exchange rate volatility on international trade, focussing on manufacturing trade between South Africa with the United States and China. The study finds out that effect of the exchange rate volatility is not the same across the South African industries, sectors, and sub sectors. Sekantksi (2008) and Gudmundsson (2003) cited in Mwamba and Dube (2014) argue that majority of developing countries, including South Africa, that have adopted floating exchange rate regimes, have experienced a significant amount of exchange rate volatility.

Campa et al. (2005) examine the nexus between exchange rate volatility and import prices, across countries and product categories, in the Euro area over a period of fifteen years. The study results reveal that the transmission of exchange rate fluctuations to import prices in the short run is high, although incomplete, and that it varies across industries and countries.

Ndambendia and Alhayky (2011) investigate the long-run relationship between effective real exchange rate volatility and economic growth in 15 Sub-Saharan African (SSA) countries. The empirical results show that real exchange rate volatility negatively affected economic growth only when the ratio of domestic credit to GDP is below the threshold value of 57%. The study further reveals that the less financially developed an economy is, the more susceptible it is to the fluctuations of the effective real exchange rate.

Yarmukhamedov (2007) investigates the trade effects of exchange rate fluctuations in Sweden focussing on exports and imports. The study uses data from January 1993 to December 2006, where export and import volumes are considered and measured through EGARCH model. The findings reveal that short run dynamics of volatility are negatively associated with both export and import.
There seems to be no consensus from the many empirical studies conducted on the subject, the nexus of exchange rate volatility to international trade remains ambiguous and ambivalent. Several theoretical studies on the impact of exchange rate fluctuations shows a negative association of exchange rate volatility on the levels of international trade. Calderon (2004) cited in Bakhromov (2011) finds evidence to support the claim that real exchange rate volatility has less impact in those countries that have open trade policies. Isitua and Igue (2006) observe that exchange rate volatility had a negative and significant effect on Nigeria’s goods exported to the US. Bah and Amusa (2003) examines the effect of real exchange rate volatility on South African exports to the US for the period 1990-2000 using ARCH and GARCH models and the results show that the South African Rand’s real exchange rate volatility exerted a significant and negative impact on exports both in the short and long-run.

On the other hand, Wang and Barrett (2002) finds an insignificant relationship between expected exchange rate volatility and trade volumes. Kandil (2008) examines the interactions between exchange rate fluctuations and the macro economy in a sample of developing and developed countries. The study asserts that, trade balance generally improves as currency depreciation boosts export competitiveness in many developing countries.

De Vita and Abbott (2004) use the autoregressive distributed lag (ARDL) econometrics technique to investigate the impact of exchange rate volatility on UK exports to the European Union (EU). The study estimates an export demand equation using disaggregated monthly data for the period 1993 to 2001. The study shows that UK export to the EU are largely unaffected by exchange rate volatility.

It is worth noting that, the extent to which exchange rate volatility affect international trade depends critically on underlying model assumptions such as the type of market structure in which firms operate, the firms attitude and appetite towards risk, currencies in which prices of exports and imports are denominated and the existence of hedging facilities to cover exchange rate risk.

The various studies carried out seem to suggest that there is no clear relationship between exchange rates fluctuations and exports. This could possibly be because of use of data that is aggregated which does not allow for the revealing of differences which may exist in the different sectors. Wang and Barrett (2010) conclude that transactions on agricultural products
between the United States and Taiwan are affected by exchange rate fluctuations, which is not the case for other sectors in the same countries. Evidence from developing countries seem to suggest that there is a significant and negative association between trade and exchange rate fluctuations.

Bernard et al. (2007) contend that if trade policy barriers fall or transportation costs decline, high-productivity exporting firms survive and grow, while lower-productivity non-exporting firms are more likely to close down and this realignment of economic activity across firms tends to raise aggregate productivity.

Oude (2013) uses regression to examine the effect of exchange rate fluctuations on Gross Domestic Product in Kenya from 2008 to 2012. The study decomposes GDP as a function of exchange rate, inflation, exports, imports and government expenditure. The results show that exchange rate fluctuations have significant adverse effects on GDP, contracting the growth of real output and the demand for investment and exports, while raising inflation.

Fung and Liu (2009) empirically examines the effects of exchange rate changes on the performance of firms listed on the Taiwan Stock exchange. The study results show that a negative shock on the NT dollar leads to an increase in exports, domestic sales, total sales and productivity.

2.4.2 Influence of exchange rate volatility on manufacturing plant survival

Baldwin and Yan (2010) argue that manufacturing plants may respond to exchange rate volatility by expanding or contracting existing operations enter or exit domestic or foreign markets, relocate their production facilities, or consolidate operations through mergers and/or acquisitions. Plant closures or exits are said to be key in resource reallocation and industrial renewal, because the “creative destruction” associated with plant turnover may be a catalyst of innovation and efficiency and improve productivity by replacing the least productive with more productive plants (Baldwin & Yan, 2010).

Karamollaoglu and Yazgan (2014) examine the effects of currency appreciation on Turkish manufacturing firms during the period between 2002 and 2009. The results show that currency appreciation decreases the chances for firm survival. The study further finds out that
high productivity firms stand a higher chance of survival compared to low productivity firms. According to the study by Baggs et al., (2007) which examines the effects of currency appreciation on firm survival and sales on Canadian firms from 1986 to 1997. The results reveal that firm survival and sales are negatively associated with appreciations of the Canadian dollar. Baldwin and Yan (2010) examine the simultaneous effects of real-exchange-rate movements and of tariff reductions on plant death in Canadian manufacturing industries between 1979 and 1996. The study shows the following results:

- Real currency appreciation increases the probability of plant death while currency depreciations tends to increase the probability of firm survival.
- The less efficient plants are more likely to shut down when the Canadian dollar appreciates;
- The probability of plant death is increased by a decline of tariffs,
- Firms which are foreign owned and are involved in the export market tend to have lower likelihoods of failure,
- The failure rates are much higher for domestic-controlled plants compared to foreign owned firms possibly because being less productive, smaller, or younger, and
- The researchers further find that the combined effect of exchange-rate movements and tariff reductions on plant exit are heterogeneous across manufacturing plants with the most devastating effect being on the least efficient plants.

### 2.4.3 Exchange rate volatility and investment

The need to create shareholder value and to grow businesses by taking advantage of profitable opportunities often triggers firms to invest. However, investment can be irreversible because the capital can be firm specific or sector specific as such critical analysis must be done before firms can make investment decisions.

Some of the germinal studies on the interaction between exchange rates and investment were carried out by researchers such as Goldberg (1993) and Julia et al.(1999). The germinal study by Goldberg (1993) on the effects of exchange volatility on the investment activity US industry, reveal three main findings. Firstly, it shows that the relationship between aggregate investment and exchange rates is that tests using aggregate
measures of investment conceal the distributional impact of exchange-rate movements. The study further shows that in the 1980s currency depreciations had a negative effect on investment and on the other hand, currency appreciations tended to stimulate investment in the non-durables manufacturing sector.

Goldberg (1993) contends that there at least three factors influencing domestic investment that are triggered by exchange-rate movements, and these are sectoral profitability, location effects and portfolio and wealth effects. The argument of location effects on investment of exchange rates volatility refers to the entry and exit of firms from a market. Currency depreciations may then serve as an investment stimuli as they tend to lower the costs of production in the local economy (Goldberg, 1993). The same study argues that a currency appreciation is expected to cause investment contractions as a result of the loss of international competitiveness.

Julia et al, (1999) study the effects of exchange rates volatility on investment in European countries, using the Dixit- Pindyck model. The study shows that it is not entirely possible, from theory, to say that suppressing exchange rate volatility will automatically increase investment and that results strongly suggest that exchange rate volatility can have a significant negative impact on investment.

Kandilov and Leblebicioglu (2008) investigate the impact of exchange rate volatility on investment using a GARCH model on plant data from the Colombian manufacturing firms. The study reveals that there is a strong negative and statistically significant impact of real exchange rate volatility on plant investment. The findings of the research by Fuentes (2006) carried out on the manufacturing plants in Chile concur with the results found by Kandilov and Leblebicioglu (2008).

Diallo (2009) examines the link between the real exchange rate volatility and domestic investment in a small open economy. The study findings show that the effects of exchange rate volatility on investment are nonlinear and that exchange rate volatility has a strong negative impact on investment. Soleymani and Akbari (2011) examines the relationship between exchange rate uncertainty and domestic investment on selected fifteen countries of the Sub-Saharan African countries and used the GARCH approach. The results of the study
reveal that there is nonlinear and negative relationship between exchange rate uncertainty and
domestic investment.

The study carried out by Lee (2008) looks into the effects of exchange rate fluctuations on
evidence to support that appreciation of domestic currency reduces firm investment through
the exports channel and that appreciation of the domestic currency increases firm investment
through the imported input channel and that the converse is true for currency depreciation.
Lee (2008) shows that firms with a low markup, low cash flow and those that are small in
size are more sensitive in terms of investment responses to exchange rate volatility.

The empirical results from studies carried out both in developing and developing countries
appear to converge to say that there is nonlinear and negative relationship between exchange
rate uncertainty and domestic investment.

2.4.4 Influence of exchange rate volatility on Employment

Literature suggests that, the exchange rate dynamics might affect employment through
different transmission channels. Ngandu (2008) posits that, the depreciation of the domestic
currency improves the competitiveness of exports, which increases the production and
employment, especially in sectors with greater export orientation. The depreciation of a local
currency raises the cost of the imported foreign capital. The study by Goldberg and Tracy
(1999) argues that the depreciation may affect employment through its effects on wages,
profitability and investment.

Kaseke (2014) evaluates turnaround strategies employed by firms in the construction
materials manufacturing sector in Zimbabwe the post multicurrency era. The results show
that most of the firms were downsizing or retrenching their work force as they grapple with a
plethora of challenges. The study by Weller and O’Neill (2012) on the Australian
manufacturing industry shows that there is a continued decline in employment and output.
The study reveals that there has been a steady decline in manufacturing employment from
2000, characterised by multiple plant closures, as the Australian dollar continued to
appreciate.
Zmami and Ben-Salha (2015) examine the effects of exchange rates on employment over the period 1997–2002 in Tunisia, a developing country. The researchers use the GMM technique and observe that employment positively responds to the depreciation of effective exchange rates and bilateral exchange rates the Euro and the US dollar. The study further notes that, the different elasticities of employment to exchange rates vary according to specific characteristics of firms such as the ownership structure, the international exposure, the size and the industries to which they belong and this finding is in harmony with the study by Baldwin and Yan (2010). The study confirms that that the exchange rate volatility significantly lowers the employment level in all categories of firms.

The study by Nucci and Pozzolo (2009) finds a negative impact of exchange rate appreciation on employment. The study further shows that the degree of foreign exposure is an important factor that affects the magnitude of the impact of the exchange rate variability on employment. Demir (2010) studies a panel of 691 manufacturing firms in Turkey during the period 1983–2005 and the empirical results are consistent to the findings of Nucci and Pozzolo (2009) as they suggest that the real exchange rate appreciation exerts a negative and statistically significant effect on employment growth. Using a sample of Chinese manufacturing firms, Daiy and Xuz (2013) obtain results that are in line with Demir (2010)

Nikpour et al. (2013) investigate the effect of real exchange rate (RER) fluctuation and FDI on employment in Iran during 1974–2009. To achieve this goal, long-term and short-term effects of this fluctuation were investigated through time-series analysis using Autoregressive Distributed Lag (ARDL) model and error correction model. The results indicate that an increase in RER has a negative and significant effect on employment, so that a 1% increase in RER index causes an average decrease of 0.049% in employment and an increase in FDI has a positive and significant effect on it. The results are also indicative of asymmetric effects of RER fluctuation on employment in Iran.

Kovács (2011) uses firm level data for manufacturing firms in Hungary to estimate the response of firm level labour productivity after a marked trend shift in the real exchange rate around 2000. The study results show, that real appreciation decreased labour productivity growth among Hungarian manufacturing firms: value added growth decreased more than employment.
2.4.5 Effects of exchange rate volatility on Deindustrialization

Deindustrialisation is generally viewed as a shift in a nation’s sectoral configuration away from the manufacturing (Weller & O’Neill, 2012). Different researchers view deindustrialisation as a result of: changes in technology, falling demand for locally produced manufactures as competition from imported products intensifies (Singh, 1987). Evidence from Netherlands and United Kingdom after the discovery of oil in North Seasuggests the emergence of a new form deindustrialisation, which is referred to as the “Dutch disease”, in which the growth of sales through to the exports channel in one sector, tends to push up exchange rates, crowds out factor markets and stifles out domestic manufacturing (Weller & O’Neill, 2012).

Palma (2005) concurs to say that deindustrialisation occurring where there is discovery of new resources triggers a reallocation of capital and labour within industry sectors. Weller and O’Neill (2012) contend that deindustrialisation is said to become a headache when it involves not only a decline in both output and employment but also when manufacturing job losses are not offset by employment growth in other sectors.

2.4.6 The influence of exchange rate volatility on Competitiveness

Mtonga (2006) examines the extent to which fluctuations in the rand’s real exchange rate have impacted on the competitiveness of South African trade flows. The study used data from 1972 to 2003. The study shows that in 2003 when the rand strongly appreciated, South Africa’s exports remained at a competitive disadvantage.

A study by Dogruel and Dogruel (2010) investigates the effects of changes in exchange rates on the production costs and on the competitiveness of the manufacturing sector in Turkey. The study reveals the importance of import dependency in the competitiveness of the industry. The study argues that given the real appreciation of the local currency, high import dependency ratio works as a cushion against the cost of imported inputs in total production measured in domestic currency. The favourable impact on production costs increases the competitiveness margins for the exporters in international markets. The study also showed that sectors which have a much higher ratio of import dependency enjoyed a higher export growth rate. The sectors in which the ratio of imported inputs is smaller, the real appreciation of the local currency put a stronger pressure on the level of competitiveness.
Using a large firm-level panel dataset covering about 360,000 Japanese firms from the mid-1990s to 2013, Hanagaki and Hori (2015) examine the effects of exchange rate changes on the performance of Japanese firms. The findings suggest that yen depreciation generally has a positive effect on the performance of Japanese firms (via the sales channel) and that, as expected, it is export-oriented large and medium-sized firms that benefit the most.

Kiyotaka et al (2013) examine the effects of exchange rate appreciation and export price competitiveness focusing on Japan, Korea and China. The study reveals that there is a large difference in the level of real effective exchange rate between the countries and also across the countries. It further shows that a significant decline in domestic producer prices enhanced Korean firms’ export competitiveness compared to Japanese firms, during the time that Won experienced positive currency shocks.

2.4.7 The impact of exchange rate volatility on firm’s product mix

The study by Moxnes and Ulltveit-Moe (2010) uses firm-level data set for the Norwegian manufacturing sector to investigate the impact of a change in international competitive pressure after a real exchange shock on multi-product firms’ product mix. The findings reveal weak evidence for the core competencies hypothesis, according to which, the exposed firms will be expected to reduce their product portfolio in response to the shock. It finds out firms exposed to the real exchange rate shock significantly reduced their rate of product churning, compared to the control group of non-exposed firms. The study further notes that there is a strong positive link between product churning in the range of imported and exported products, suggesting that the product mix of imported inputs may be an important, but less understood, margin of adjustment.

2.4.8 Survival strategies employed manufacturing firms under exchange rate uncertainty

Bamiatzi and Kirchmaier (2014) investigate the strategies adopted by small and medium-sized firms as they seek to remain profitable. Findings from the study reveal that firms adopt a multiple-strategy approach and at the same pursue innovative product differentiation and product or service-customisation strategy. The study finds out that the firms adopted tighter cost reduction measures, focussed on high-margin products and adopted non-aggressive pricing policy regimes.
The study by Nyanga et al. (2013) on the survival strategies employed by firms in Masvingo during the economic turmoil of 2000-2009 in Zimbabwe, reveal that the death of the firms was largely influenced by the extent of agility in terms of diversifying their services, products and markets and the structure and efficiency the of the staff. Kaseke (2014) examines the turnaround strategies adopted by firms in the construction sector in Zimbabwe. The findings of the study reveal that retrenchment and asset reduction were the most popular turnaround strategies adopted by firms.

2.5 Research Gap

There has been a limited number of studies on currency appreciation and manufacturing firms in developing countries and in particular in the Zimbabwean context, a country which abandoned its own currency and adopted a multi-currency regime in March 2009. For example, Mwamba and Dube (2014) examine the impact of exchange rate volatility on international trade between South Africa, China and US focusing on the manufacturing sector; Zmami and Ben-Salha (2015) investigate the effects of exchange rates on employment over the period 1997–2002 in Tunisia; Davison and Nhavira (2015) investigate the impact of dollarization on tourism and poverty; Kaseke and Gumbe (2011) examine the survival options by manufacturing firms during the hyperinflationary period in 2005-2008; Kaseke (2014) evaluates turnaround strategies employed by firms in the construction materials manufacturing sector in Zimbabwe the post multicurrency era.

No work has been carried out to establish the impact of US dollar appreciation against the South African Rand on the Zimbabwean manufacturing firms, thus the main thrust for this research.
2.6 The Conceptual Framework and hypotheses development

A conceptual framework represents the researcher’s synthesis of literature on how to explain a phenomenon. In other words, the conceptual framework is the researcher’s understanding of how the variables in the study connect with each other. It is the researcher’s “map” in pursuing the investigation.

![Diagram of Conceptual Framework]

- Independent Variable: Exchange Rate Volatility
- Dependent Variables:
  - Trade
  - Firm Survival
  - Sales
  - Investment
  - Competitiveness
  - Commodity Prices
  - Employment
  - Profitability

Additional variables:
- Ownership structure
- Firm size
- International Exposure
- Industry/Sector Type
- Trade policies
Control Variables

The study seeks to examine the impact of exchange rate volatility on sales, trade, investment, competitiveness, labour employment, profitability, and commodity pricing.

H1: The appreciation of the US Dollar against the South African Rand leads to a decline in competitiveness in the local manufacturing firms in Zimbabwe.
H2: The appreciation of the US Dollar against the South African Rand leads to a decline of the firm’s profitability in the manufacturing sector in Zimbabwe.
H3: The appreciation of the US Dollar against the South African Rand leads to job losses in the manufacturing sector in Zimbabwe.
H4: The appreciation of the US Dollar against the South African Rand leads to a decline in revenue sales in manufacturing firms in Zimbabwe.
H5: The strengthening of the US Dollar against the South African Rand leads to a reduction of commodity prices by local manufacturing firms in Zimbabwe.
H6: There is a significant negative association between the appreciation of the US Dollar against the South African Rand and plant survival in the manufacturing sector in Zimbabwe.
H7: The appreciation of the US Dollar against the South African Rand leads to a decline in investment by manufacturing firms in Zimbabwe.

2.7 Chapter Summary
In this chapter we have reviewed the literature that relates to the effects of exchange rates volatility on manufacturing firms. The review of literature has exposed the dearth of literature on exchange rate fluctuations in the developing countries, and in particular the Zimbabwean context. The main purpose was to direct the researcher on the important aspects and to concentrate on correspondence to the given research domain. It also presented previous research models presented by other researchers.
Chapter Three

Research Methodology

3.0 Introduction

This chapter presents the research methodology and methods employed in this study. The chapter reviews the research design, research philosophy, the research approaches, research strategy, and the data collection procedure. It also considers issues to do with the validity and reliability of the data collection instrument, limitations and the ethical considerations in the investigation of the impact of exchange rate volatility on manufacturing firms are also explored. The chapter summary section concludes this chapter.

3.1 Research Design

Cresswell (2009) argues that research designs are basically general plans and procedures employed in a research, and it seeks to cover the decisions from broad assumptions to detailed methods of data collection and analysis. The determinants in the choice of a research design include the nature of the research problem, the inquirer’s personal experiences, and the targeted audience for the study (Cresswell, 2009). Yin (2009) describes a research design as a plan or blueprint in a research which essentially deals with at least four issues: what questions to study, what data is relevant to the study, what data to collect in the research, and how to carry out the data analysis. The main types of research designs are exploratory, descriptive, and explanatory study (Saunders et al., 2009). An exploratory study seeks to find out what is happening, it seeks new insights to a problem. A descriptive study seeks to profile or describe the characteristics of a particular individual, or of a group, whereas studies that seek to test the hypotheses of causal relationships between variables are known as explanatory research. This study adopted both the descriptive and explanatory research designs.
3.2 Research Philosophy

Guba and Lincoln (1994) define a research paradigm as the basic belief system or worldview that guides the researcher. Saunders et al. (2009) point out that the adopted or chosen research philosophy contains critical assumptions about how the researcher views the world. These assumptions made by the researcher will drive the research strategy.

The philosophy of positivism, by its adoption of the deductive approach, implies working with observable social reality, developing hypothesis from existing theory, which can then be tested for validity (Saunders et al., 2009). The study adopted the positivist research paradigm therefore, it is located within the quantitative research approach. This paradigm has been chosen because the main constructs in the study are measurable and the study focuses on causality between the variables. Under this philosophy the research is carried out in a value-free way, such that the researcher is independent of the data.

The philosophy of realism assumes a scientific approach to the development of knowledge. It is objective, exists independently of human thoughts and beliefs or knowledge of their existence. An important component of realism is that the researcher is biased by world views, cultural experiences and possibly their background. Interpretivism places importance on understanding the differences which exist amongst the human race. This philosophical stance argues that social world of business is far too complex to simply theorise and generalise as advocated in positivism. This philosophy has multiple views of nature’s reality. It can use both observable phenomena and subjective meanings.

3.3 Research Approaches

There are two basic approaches to research, and these are, quantitative/deductive approach and the qualitative/inductive approach. There are certain studies in which a mixed method approach can be used. Kothari (2004) argues that the quantitative approach involves the generation of data in quantitative form which can be subjected to rigorous quantitative analysis in a formal and rigid fashion. The essence in this approach is to develop theory and hypothesis and then design a research strategy to test the validity of the hypothesis. The deductive approach is more dominant in natural sciences or scientific research.
Kothari (2004) posits that qualitative approaches to research are concerned with the subjective assessment of attitudes, opinions and behaviour. Saunders et al (2009) argue that the inductive approach involves data collection and analysis to develop or build a theory. The inductive approach places a lot of importance on the research context and is a more flexible structure.

In the study, the deductive approach was used as the researcher had to explain the casual relationships between the independent and dependant variables. The study fits in the category of scientific research which calls for a highly structured approach and emphasizes the need to collect samples of sufficient size in order to generalise the conclusions.

3.4 Research Strategy

Yin (2009) argues that each research strategy can be used for exploratory, descriptive and explanatory research. The choice of the research strategy is determined to a greater extent by the philosophical underpinnings, research questions and the research objectives. Saunders et al (2009) identify the following as the main research strategies namely; experiments, survey, case study, action research, grounded theory and ethnography. This research study adopted the survey as the research strategy.

3.4.1 Surveys

Saunders et al. (2009) posit that the survey strategy is mostly used in explanatory or descriptive studies. Surveys seek to find answers to who, what, where, how much and how many research questions (Saunders et al., 2009). This strategy allows the researcher to collect mostly quantitative data that can then analysed using descriptive and inferential statistics. Kothari (2004) and Saunders et al. (2009) point out that questionnaires, structured observation and structured interviews are the data collection instruments that are mostly associated with the survey strategy. Kelley et al. (2003) contend that in a survey strategy data is collected in a standardised form. Pinsonneault and Kraemer (1993) argue that survey research is most suitable under the following circumstances;

- The research questions seek to answer the about how, how many, how many;
- The control of the independent and dependant variables is not possible; and
- The phenomena of interest must be studied in their natural setting.
The merits of adopting a survey research include the following: they allow for the collection of large amounts of data in a very economical manner, the research produces data based on real world observations. Surveys use questionnaires or structured interviews for data collection and seek to generalize from a sample to a population. Kelley et al. (2003) argue that there are also demerits associated with use of a survey research. The demerits of a survey research include the fact that the collected data may not have sufficient depth on the research study being examined and that surveys are susceptible to very low response rates especially if done through the postal means or through an online questionnaire.

3.5 Target Population and Sampling Methods

3.5.1 Population

Polit and Hungler (1999) refer to the population as an aggregate or totality of all the objects, or members that conform to a set of specifications. Saunders et al. (2009) define population as the full set of cases from which a sample can be drawn from. For most studies, it is impossible to collect data on the entire population because of budget and time constraints. Therefore, the researcher has to draw a representative sample from the sampling frame. The population for this study was the set of all manufacturing firms operating in Harare.

3.5.2 Sampling

Sampling may be defined as taking a representative selection of the population which is known as the sample and using the data collected as research information. Cochran (1953) cited in Latham (2007) argues that use of the correct sampling methods enables researchers to reduce research costs, conduct research more efficiently, have greater flexibility, and provides for greater accuracy. Kothari (2004) posits that sampling is made necessary when the population under study is infinite and as such the need to save resources such as time and money becomes imperative. Sampling is necessary in studies which involve the destruction of the items under study. Saunders et al. (2009) points out that sampling becomes a viable option in cases where it is not possible to survey the entire population and in cases where study results are needed as soon as possible. A sampling frame may be defined as a complete list of all the elements in the population from which a sample can be drawn. In this study the set of all manufacturing firms located in Harare constitute the sampling frame.
3.6.2 Sample Size
The sample size is basically the number of sampling units which are to be included in the sample. The sampling error becomes lesser as the size of the sample increases (Saunders et al., 2009). The choice of the sample size depends on size of the total population, the standard of accuracy and the required levels of confidence, the type of data analysis to be carried out and the nature of the study whether its exploratory or explanatory. Equation 3.1 defines the sample size formula.

\[
 n = \frac{N}{1 + N(e^2)}
\]

where;
\( N \) = population size
\( n \) = sample size
\( e \) = sampling error

3.5.3 Sampling Methods
Saunders et al.(2009)and Kothari(2004) concur to say that there are two standard sampling technique types; probability sampling and non-probability sampling.

3.5.3.1 Probability Sampling
The underpinning principle in all the definitions of probability sampling is that each unit in the population has an equal chance of being selected from the sampling frame. According to Latham(2007) there are four types of probability sampling and these are simple random sampling, systematic sampling, stratified sampling and cluster sampling. Table 3.1 shows the types of probability sampling methods and the corresponding selection strategy.
Table 3.1: Probability Sampling

<table>
<thead>
<tr>
<th>Type Of Sampling</th>
<th>Selection Strategy</th>
</tr>
</thead>
<tbody>
<tr>
<td>1 Simple random sampling</td>
<td>Each element of the study population has an equal chance of being chosen</td>
</tr>
<tr>
<td>2 Systematic sampling</td>
<td>Each element in the population is listed, a random starting point is chosen and then the elements of population at equal intervals</td>
</tr>
<tr>
<td>3 Stratified sampling</td>
<td>Each element is allocated to a stratum and then a simple random sample is chosen from each group or stratum.</td>
</tr>
<tr>
<td>4 Cluster</td>
<td>Each element in the study population is allocated to a cluster, then clusters are selected at random and all elements of a chosen cluster are included in the sample.</td>
</tr>
</tbody>
</table>

Source: Adapted from Latham (2007)

3.5.3.1.1 Stratified random Sampling

This type of sampling entails assigning the elements of the study population to a stratum based on a some specific set of attribute(s). The elements of the sample are then drawn from each stratum using simple random sampling (Saunders et al., 2009). There are basically two types of stratified random sampling which are proportionate and disproportionate stratified random sampling. The main difference is that proportionate stratified uses the same ratio for each stratum and on the other hand disproportionate uses different ratios for each subgroup.

3.5.3.2 Non Probability Sampling

Non probability sampling is a sampling method in which the items for the sample are chosen deliberately by the researcher. Saunders et al. (2009) identifies the following types of non
random sampling namely quota sampling, purposive sampling, snowball, self-selection and convenience sampling.

### 3.5.3.2.1 Purposive Sampling

It allows the researcher to select the sample units that will possibly best answer and fully address the research questions and objectives. Various definitions of purposive sampling converge to say that the nature of the research objectives and the personal knowledge of the population determines the selection of the sample. That is the samples drawn through this method cannot be regarded to be representative of the study population.

This study adopted stratified random sampling to select the firms from each sub sector (stratum) from the CZI register of manufacturing firms based in Harare. Purposive random sampling was then used to select the sample elements and the intention was to target senior managers in the manufacturing sector who have the necessary experience and exposure in the manufacturing industry. Table 3.2 shows sample sizes for each the sub sector. The researcher used method of proportional stratified allocation such that sizes of the samples from each different strata are kept proportional to the sizes of the strata. Assuming that required sample size of the firms, n=34, then sample sizes for each stratum can be calculated as shown below.

For the food and beverages stratum, its sample size is given by \((18/75)*34\) which approximates to 9.

<table>
<thead>
<tr>
<th>Name of Sub Sector</th>
<th>Population Size</th>
<th>Sample Size</th>
</tr>
</thead>
<tbody>
<tr>
<td>Food, Dairy and beverages</td>
<td>18</td>
<td>9</td>
</tr>
<tr>
<td>Clothing and Textiles</td>
<td>6</td>
<td>3</td>
</tr>
<tr>
<td>Chemicals</td>
<td>14</td>
<td>7</td>
</tr>
<tr>
<td>Timber and Furniture</td>
<td>7</td>
<td>2</td>
</tr>
<tr>
<td>Metals and Minerals</td>
<td>18</td>
<td>8</td>
</tr>
<tr>
<td>Pharmaceuticals</td>
<td>7</td>
<td>3</td>
</tr>
<tr>
<td>Oil Processing and Mining</td>
<td>5</td>
<td>2</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>75</strong></td>
<td><strong>34</strong></td>
</tr>
</tbody>
</table>
3.6 Sources of Data
There are generally two types of data namely primary and secondary data. Primary data is generally understood as data gathered for the specific research problem at hand and which has not undergone any processing or analysis.

3.6.1 Secondary Data
Cresswell (2009) defines secondary data as information, which has typically been collected by researchers not involved in the current study and has undergone at least one layer of analysis prior to inclusion in the current study. Secondary data includes published research, internet materials, media reports, and any data which has been collected, analysed for a purpose other than the current study. Saunders, et al. (2009) contend that secondary data offers merits such as it may require fewer resource requirements, it is suitable for longitudinal studies and it can provide comparative and contextual data. On the hand, Saunders et al. (2009) point out that use of secondary data is associated with disadvantages such as challenges in accessing the data, the collected data may not entirely suit the needs of the study and there is no control over the quality of the data.

3.6.2 Primary Data
Primary data is collected directly from the affected population by the research team through field work. Kothari (2004) identifies following as the main methods of collecting primary data, observation method, interview method and questionnaires. This research collected primary data through questionnaires that were self-administered to a sample of companies derived from the CZI register of manufacturing firms in Harare. No use of secondary data was made in this study.

3.7 Data Collection Procedure
There are many different methods of data collection that social scientists can use. Data collection seeks to gather the data which is required to answer the research questions. The data collection method chosen is informed by the research methodology and the theoretical
assumptions used in the research. The most common data collection tools under the survey strategy are structured interviews and questionnaires.

3.7.1 Questionnaires
Saunders et al. (2009) define a questionnaire as a general term to include all techniques of data collection in which the respondents are asked the same set of questions in a predetermined order. Questionnaires are generally used in descriptive or explanatory studies. Saunders et al. (2009) categorises questionnaires as either self administered or interviewer administered. The difference lies in the fact in the former respondents complete the questionnaires on their own whereas on the latter, the interviewer records the respondents answers. Figure 3.1 shows the categories or types of questionnaires.

![Figure 3.1: Types of administering questionnaires](chart)

Source: Saunders et al., (2009)

This study uses self administered questionnaires given that this study is an explanatory research. The study used self administered questionnaires to eliminate interviewer bias in the
study which can be caused by the traits of the interviewer. Zohrabi (2013) and Kothari (2004) point out the following merits of using questionnaires:

- There is low cost even when the universe is large and is widely spread geographically;
- It is free from the bias of the interviewer;
- The inquirer can fairly easily gather data in field sites;
- Questionnaires administered to a large sample tend to produce data that is more identical, correct and possibly standard;
- The data gathered can be easily analysed; and
- The absence of an interviewer provides greater anonymity for the respondent which can increase the reliability of responses in sensitive questions.

There are also disadvantages associated with questionnaires, Kothari (2004) single out the following demerits:

- There is a generally low and poor response rate, it may not be possible to determine those that did not participate in the research and its very slow;
- It does not offer further probing or clarifications should they be any misunderstandings on any question;
- It can only produce credible responses when participants are educated and fully cooperating;
- It may not be possible control the questionnaire once is sent out in the field;
- There is inflexibility once they are sent out in the field; and
- There is also the chance of vague or omission of responses to certain questions.

To ensure that the response rate was good enough, the researcher identified people who possibly had an interest in the study and made sure that reminders were sent to them by way of emails. The questionnaire was piloted such that all ambiguity, double barrelled questions were eliminated from the instrument. The researcher also adopted and adapted questions used in other questionnaires. The instrument used both open and closed questions. An open question requires the respondent to formulate his own answer, whereas a closed question restricts the participant to limited choices.

3.8 Data Processing and Analysis
The data collected from the chosen research strategies, has to be processed and analysed to allow for the generation of useful information to answer the research questions and
objectives. Kothari (2004) opines that processing implies editing, coding, classification and tabulation of the collected data and data analysis refers to the calculation of descriptive and inferential statistics with the intention of searching for patterns of relationship that exist among variables. This study used the Statistical Package for Social Sciences (SPSS) version 21 to analyse the data which was largely quantitative. The study looked at the mean, frequencies and standard deviation of demographic traits such as age, gender. Chi-square tests were used to test association between the variables, correlation analysis was done to assess the strength of relationship between variables and regression coefficient’s were computed to assess the strength of the cause and effect relationship between dependent and one or more independent variables.

3.9 Validity and Reliability
Joppe (2000) cited in Golafshani (2003) defines reliability as the extent to which results are consistent over time and an accurate representation of the total population under study. If the data collection instrument can produce the same and consistent results under different conditions such as say a different sample within the same methodology then it can be said to be reliable. The Cronbach alpha measure was used to determine the reliability of the data collection instrument.

Validity refers to the ability of the data collection instrument to measure that which it was intended to measure. There are three forms of validity as referred to by Saunders et al. (2009) which are content validity, criterion –related validity and construct validity. To ensure content validity, the researcher in this study sought the help of experts to assess the measurement questions in the questionnaire. Criterion-related validity refers to the ability of questions in the questionnaire to make accurate predictions. Construct validity refers to the extent to which the research instrument actually measures the presence of those constructs that were intended to be measured, and this was achieved by pilot testing the questionnaire with three companies.

3.10 Ethical Considerations
Saunders et al. (2009) contend that research ethics relates to issues from the formulation of the research topic, research design, data collection, data analysis right up to writing the research findings, which must be carried out in morally acceptable and responsible manner.
The respondents were informed of their right to withdraw, right to remain anonymous and their right to confidentiality. The researcher made it clear to the respondents that the collected data was solely for academic purposes.

3.11 Limitations
This study used only one data collection instrument, the questionnaire. The researcher felt that in depth interviews should have been carried out to buttress the questionnaire and to solicit more views on some of the issues that came up in the study.

3.12 Chapter Summary
This chapter shows how the research was carried out, from the research design, sampling, and the data collection procedures and data processing and analysis procedure the researcher employed in the study. The research adopted a quantitative research methodology. It used the deductive approach and a questionnaire was used as the data collection instrument. The researcher observed the research ethics in carrying out this study.
Chapter Four

Research Findings and Discussions

4.0 Introduction

This chapter details the presentation and analysis of the findings of the study. The chapter opens its account by looking at the overall response rate of the research study. The chapter then presents the descriptive analysis, normality tests, reliability tests and correlation. Hypothesis testing and the comparison mapping of the findings in relation to the literature will also be discussed. The chapter concludes with chapter summary.

4.1 Response Rate

From the 180 questionnaires, which were sent to the targeted respondents, 65 were successfully completed and returned giving a response rate of 36%, which is very low.

Table 4.1: Response Rate

<table>
<thead>
<tr>
<th>Distribution Mode</th>
<th>Questionnaires/Invitations Sent</th>
<th>Total Responses</th>
<th>Usable Questionnaires</th>
</tr>
</thead>
<tbody>
<tr>
<td>Delivery and collection Questionnaire</td>
<td>80</td>
<td>60</td>
<td>41</td>
</tr>
<tr>
<td>Web based Questionnaire</td>
<td>100</td>
<td>31</td>
<td>24</td>
</tr>
<tr>
<td>Total</td>
<td>180</td>
<td>81</td>
<td>65</td>
</tr>
</tbody>
</table>

4.3 Validity and Reliability Tests

Validity refers to the ability of the data collection instrument to measure that which it was intended to measure and pilot testing the questionnaire with three companies achieved this.
The Cronbach Alpha value was used to evaluate the reliability of the data collection instrument. Table 4.2 shows the Cronbach Alpha value from SPSS, which is 0.957 and well above 0.7, which then indicates that the research instrument is highly reliable. As such, similar studies can make use of this data collection instrument.

**Table 4.2: Reliability Tests**

<table>
<thead>
<tr>
<th>Cronbach's Alpha</th>
<th>N of Items</th>
</tr>
</thead>
<tbody>
<tr>
<td>.957</td>
<td>9</td>
</tr>
</tbody>
</table>

### 4.4 Descriptive Analysis

#### 4.4.1 Gender

The ratio of males and females in the study is shown in the table below.

![Gender distribution](image)

**Figure 4.1 Gender**

Figure 4.1 shows that about 70% of the respondents are males and female respondents account for 30%. This implies that manufacturing firms employ more male managers as compared to female managers.

#### 4.4.2 Level of Education

The level of education of the survey participants is presented in Figure 4.2.
Figure 4.2: Level of Education

Figure 4.2 shows that 50% of the respondents indicated that they are holders of first degrees, 20% educated up to masters level, 16.7% are educated up to diploma level and a meagre 13.3% are holders of certificates. This shows that the respondents in this study had enough education to give fair and balanced responses on the effects of the continued appreciation of the US dollar against regional currencies, more specifically the South African Rand.
4.4.3 Work Experience

The work experience of the survey participants is presented in Figure 4.3 below.

![Figure 4.3: Work Experience](image)

Figure 4.3 shows that 23.3% of the respondents had below 5 years working experience in their respective manufacturing organisations, 43.3% had between 5 and 10 working years’ experience, 10% between 16-20 years and 23.3% between 11-15 years. This implies that respondents in this study had sufficient exposure in the manufacturing sector to give credible responses on the exchange rate volatility.

4.4.4. Category in the manufacturing sector

The research investigated the categories in the manufacturing sector that the survey company participants are in and the findings are shown below.
Figure 4.4: Category in the manufacturing sector

Figure 4.4 shows that 37% of the survey participants indicated they are in the food, dairy and beverages manufacturing sub sector, 18.5% metals and minerals, 18.5% other manufacturing sub sectors, 11.1% chemicals, 7.4% timber and furniture, 3.7% pharmaceuticals, and 3.7% in the clothing and textiles manufacturing sub sector. This shows that the majority of the firms in this study are in the food, dairy and beverages.
4.4.5 Age of company in years

The age of the companies that participated in the survey are presented in Figure 4.5.

![Age of company in years diagram]

**Figure 4.5: Age of company in years**

Figure 4.5 shows that 56.7% companies in the manufacturing sector are at least 40 years old, 13.3% companies have been operating for a period of 10-20 years and 21-30 years respectively, 6.7% for a period of 31-40 years and below 10 years respectively. The findings imply that most manufacturing companies that took part in the survey had operated for at least 10 years. This gives the respondents enough capacity to give responses over the time horizon i.e. 2010-2015 under review.
4.4.6 Number of employees (Firm Size)

The number of employees in the company was used as a measure of firm size.

Figure 4.6: Number of employees

Figure 4.6 shows that 33.3% of the respondents indicated that their organisations have between 501-1000 workers, 30% between 101 and 500, 26.7 above 1000, and 10% below 100 employees. The findings show that the manufacturing sector employees a significant number of employees.
4.4.6 Exchange rate volatility and performance

Table 4.3: Exchange rate volatility

<table>
<thead>
<tr>
<th>In your view has the performance of your company over the past 5 years been affected by the exchange rate volatility?</th>
<th>Frequency</th>
<th>Percent</th>
<th>Valid Percent</th>
<th>Cumulative Percent</th>
</tr>
</thead>
<tbody>
<tr>
<td>Valid</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Strongly Agree</td>
<td>34</td>
<td>52</td>
<td>52</td>
<td>52</td>
</tr>
<tr>
<td>Agree</td>
<td>17</td>
<td>26</td>
<td>26</td>
<td>78</td>
</tr>
<tr>
<td>Neutral</td>
<td>8</td>
<td>12</td>
<td>12</td>
<td>90</td>
</tr>
<tr>
<td>Disagree</td>
<td>6</td>
<td>10</td>
<td>10</td>
<td>100</td>
</tr>
<tr>
<td>Strongly disagree</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>100.0</td>
</tr>
<tr>
<td>Total</td>
<td>65</td>
<td>100.0</td>
<td>100.0</td>
<td></td>
</tr>
</tbody>
</table>

Table 4.2 shows that 52% of the respondents strongly agree, 26% agree, 12% not sure and 10% disagree on the impact of exchange rate on firm performance. The results imply that exchange rate volatility between the USD and the South African Rand is affecting the performance of most manufacturing firms.

Table 4.4: To what extent, does each impact identified in question 20 affect your firm’s performance?

<table>
<thead>
<tr>
<th>Impact of exchange rate volatility on company performance</th>
<th>Strongly Disagree</th>
<th>Disagree</th>
<th>Neutral</th>
<th>Agree</th>
<th>Strongly Agree</th>
</tr>
</thead>
<tbody>
<tr>
<td>Increased Costs</td>
<td>20</td>
<td>25</td>
<td>10</td>
<td>5</td>
<td>0</td>
</tr>
<tr>
<td>Reduced Costs</td>
<td>4</td>
<td>12</td>
<td>15</td>
<td>19</td>
<td>15</td>
</tr>
<tr>
<td>Improved Product Price Competitiveness</td>
<td>40</td>
<td>19</td>
<td>6</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Reduced Product Price Competitiveness</td>
<td>2</td>
<td>3</td>
<td>12</td>
<td>23</td>
<td>30</td>
</tr>
<tr>
<td>Promoted expansion into other markets</td>
<td>35</td>
<td>20</td>
<td>6</td>
<td>4</td>
<td>0</td>
</tr>
<tr>
<td>Encouraged retraction from other markets</td>
<td>0</td>
<td>6</td>
<td>13</td>
<td>8</td>
<td>38</td>
</tr>
<tr>
<td>Increased competition from imported products</td>
<td>2</td>
<td>1</td>
<td>7</td>
<td>15</td>
<td>40</td>
</tr>
<tr>
<td>Stifled Growth Prospects</td>
<td>0</td>
<td>8</td>
<td>10</td>
<td>10</td>
<td>37</td>
</tr>
</tbody>
</table>
The researcher carried out factor analysis to find out how the company performance was being affected by exchange rate volatility. According to Field (2005), Kaiser recommends that Kaiser-Meyer-Olkin values between .5 and .7 are acceptable. Values between .7 and .8 are good values, those between .8 and .9 are great values while .9 values and above are superb values. The values are superb for factor analysis to be conducted since they are all greater than 0.9.

**Factor Extraction**

For this data SPSS output, listed Eigenvalues in terms of variance explained, associated with each linear component before extraction, after extraction and after rotation. Table 4.1 shows the first 6 factors extracted which have Eigenvalues > than 1 explaining relatively large amounts of variance. The variance explained had cumulative percentage of 97.615%.

**Table 4.5 Total Variances Explained**

<table>
<thead>
<tr>
<th>Component</th>
<th>Initial Eigenvalues</th>
<th>Extraction Sums of Squared Loadings</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Total</td>
<td>% of Variance</td>
</tr>
<tr>
<td>1</td>
<td>5.413</td>
<td>67.659</td>
</tr>
<tr>
<td>2</td>
<td>.788</td>
<td>9.852</td>
</tr>
<tr>
<td>3</td>
<td>.686</td>
<td>8.573</td>
</tr>
<tr>
<td>4</td>
<td>.445</td>
<td>5.569</td>
</tr>
<tr>
<td>5</td>
<td>.272</td>
<td>3.394</td>
</tr>
<tr>
<td>6</td>
<td>.205</td>
<td>2.568</td>
</tr>
<tr>
<td>7</td>
<td>.112</td>
<td>1.402</td>
</tr>
<tr>
<td>8</td>
<td>.079</td>
<td>.983</td>
</tr>
</tbody>
</table>

Extraction Method: Principal Component Analysis.

**Scree Plot**

A scree plot displays the eigenvalues associated with a component or factor in descending order versus the number of the component or factor. You can use scree plots in principal components analysis and factor analysis to visually assess which components or factors explain most of the variability in the data.

The scree plot was run in order to compare results with Kaiser's recommendation of Eigenvalues >1. The plot is slightly ambiguous showing two inflexions that would justify
retaining the components 5 to 6. The scree plot retains the same 13 factors as those extracted by Kaiser’s criterion (Eigenvalues >1). If the scree plot and the Eigenvalues >1 leads to retaining the same number of factors, it is a cause for happiness as it helps triangulate Kaiser’s criterion (Field, 2009).

![Scree Plot](image)

Figure 4.7 Scree Plot

The plot above shows that the line starts to be straight at about the 5\textsuperscript{th} factor which therefore implies that the first 5 factors contains the highest variability of the data set. However, from the plot it is evident that the first factor has the most variability of the data with factor 2 up to factor 5 also contributing a significant variability in the data set.
Component Matrix

The following table provides an analysis of the component matrix where values greater than 0.5 are selected.

Table 4.6 Component Matrix

<table>
<thead>
<tr>
<th>Component Matrix</th>
<th>Component</th>
<th>1</th>
</tr>
</thead>
<tbody>
<tr>
<td>Increased Costs</td>
<td>-.837</td>
<td></td>
</tr>
<tr>
<td>Reduced Costs</td>
<td>.946</td>
<td></td>
</tr>
<tr>
<td>Improved Product Price Competitiveness</td>
<td>-.640</td>
<td></td>
</tr>
<tr>
<td>Reduced Product Price Competitiveness</td>
<td>.820</td>
<td></td>
</tr>
<tr>
<td>Promoted Expansion in Other Markets</td>
<td>-.583</td>
<td></td>
</tr>
<tr>
<td>Encouraged Retraction in Other Markets</td>
<td>.923</td>
<td></td>
</tr>
<tr>
<td>Increased Competition from Imported Products</td>
<td>.851</td>
<td></td>
</tr>
<tr>
<td>Stifled Growth Prospects</td>
<td>.904</td>
<td></td>
</tr>
</tbody>
</table>

Extraction Method: Principal Component.

The Table 4.6 shows that factors whose values are above 0.5 are reduced costs, reduced product price, encouraged retraction in other markets, increased competition from imported products and stifled growth prospects. This means that exchange rate volatility has caused firms to reduce costs, reduced product price competitiveness, encouraged retraction in other markets, increased competition from imported products and stifled growth prospects.
4.4.7 Trade

The research sought to find out whether manufacturing firms in Harare were involved in the export business. The findings from the research participants are presented below.

![Figure 4.8: Exports](image)

The majority of the survey participants, 58% agreed that their organisations were involved in the export business. On the other hand, 42% stated that they are not involved in the export business. This reveals that a significant proportion of Zimbabwean firms were exporting their products and are therefore fully knowledgeable on the impact of the fluctuations of the USD and the South African Rand as they experience price differentials due to exchange rate movements.

**Table 4.7: Proportion of the company’s total purchases that is imported**

<table>
<thead>
<tr>
<th></th>
<th>Frequency</th>
<th>Percent</th>
<th>Valid Percent</th>
</tr>
</thead>
<tbody>
<tr>
<td>0-20%</td>
<td>11</td>
<td>16.7%</td>
<td>16.7%</td>
</tr>
<tr>
<td>21-40%</td>
<td>13</td>
<td>20%</td>
<td>20.0%</td>
</tr>
<tr>
<td>41-60%</td>
<td>17</td>
<td>26.7%</td>
<td>26.7%</td>
</tr>
<tr>
<td>61-80%</td>
<td>13</td>
<td>20%</td>
<td>20.0%</td>
</tr>
<tr>
<td>81-100%</td>
<td>11</td>
<td>13.3%</td>
<td>13.3%</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>65</strong></td>
<td><strong>100%</strong></td>
<td><strong>100%</strong></td>
</tr>
</tbody>
</table>

Table 4.7 shows that 26.7% of the research participants revealed that they imported 41-60% of the company’s total purchases, 20% between 21-40% and 61-80% respectively, 16.7% between 0-20% and 13.3% between 81-100%. A significant proportion of firms are being
reliant on imported raw materials. This is largely to the continued appreciation of the USD against the South African Rand, which renders the imports to be extremely cheap.

Table 4.8: Proportion of company’s total sales that is exported

<table>
<thead>
<tr>
<th>Valid</th>
<th>Frequency</th>
<th>Percent</th>
<th>Valid Percent</th>
</tr>
</thead>
<tbody>
<tr>
<td>0-20%</td>
<td>26</td>
<td>40.0%</td>
<td>40.0%</td>
</tr>
<tr>
<td>21-40%</td>
<td>26</td>
<td>40.0%</td>
<td>40.0%</td>
</tr>
<tr>
<td>41-60%</td>
<td>7</td>
<td>10.0%</td>
<td>10.0%</td>
</tr>
<tr>
<td>61-80%</td>
<td>2</td>
<td>3.3%</td>
<td>3.3%</td>
</tr>
<tr>
<td>81-100%</td>
<td>4</td>
<td>6.7%</td>
<td>6.7%</td>
</tr>
<tr>
<td>Total</td>
<td>65</td>
<td>100.0%</td>
<td>100.0%</td>
</tr>
</tbody>
</table>

About 40.0% of the survey participants stated that they export 0-20% of company’s total sales another 40% between 21-40%, 10.0% between 41-60%, 3.3% between 61-80 and 6.7% between 81-100%. This means that firms are producing mainly for the local market as they understand the impact of continued depreciation of the South African Rand against the US dollar. The findings of this study are in line with results from the study by Isitua and Igue (2006) which observes that exchange rate volatility had a negative and significant effect on Nigeria’s goods exported to the US. Bah and Amusa (2003) examine the effect of real exchange rate volatility on South African exports to the US for the period 1990-2000 using ARCH and GARCH models and the results show that the South African Rand’s real exchange rate volatility exerted a significant and negative impact on exports both in the short and long-run. This is in line with findings of Bakhromov (2011) which shows that the real exchange rate volatility has a significant impact on the exports and imports of the country. The results shows that increases in the volatility of the real exchange rate have statistically significant negative effects on equations of exports and imports in the long-run dynamics, it also observes that declines in the real exchange rate, positively affect exports.
4.4.7 Competitiveness

Table 4.9: Competitiveness and Exchange rate volatility

<table>
<thead>
<tr>
<th>Has your firms’ competitiveness been affected by exchange rate volatility?</th>
<th>Frequency</th>
<th>Percent</th>
<th>Valid Percent</th>
<th>Cumulative Percent</th>
</tr>
</thead>
<tbody>
<tr>
<td>Strongly Agree</td>
<td>38</td>
<td>58</td>
<td>58</td>
<td>58</td>
</tr>
<tr>
<td>Agree</td>
<td>17</td>
<td>26</td>
<td>26</td>
<td>84</td>
</tr>
<tr>
<td>Neutral</td>
<td>10</td>
<td>16</td>
<td>16</td>
<td>100</td>
</tr>
<tr>
<td>Disagree</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>100</td>
</tr>
<tr>
<td>Strongly disagree</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>100</td>
</tr>
<tr>
<td>Total</td>
<td>65</td>
<td>100</td>
<td>100</td>
<td></td>
</tr>
</tbody>
</table>

Table 4.9 shows that 58% of the respondents strongly agree, 26% agree and 10% not sure on the impact of exchange rate on firm performance. The results imply that firms are experiencing the effects of exchange rate volatility between the USD and the South African Rand through the export channel. This is consistent with findings of Mtonga (2006), which shows that South African exports were at a competitive disadvantage as the Rand strongly appreciated in 2003. The findings on competitiveness are also in congruency with the results obtained in the study by Odili (2015) which reveals that exchange rate volatility depressed exports and imports in the long-run.

Table 4.10: Did your firm adopt any strategies to remain competitive

<table>
<thead>
<tr>
<th>Did your firm adopt measures to remain competitive in the face of exchange rate volatility?</th>
<th>Frequency</th>
<th>Percent</th>
<th>Valid Percent</th>
<th>Cumulative Percent</th>
</tr>
</thead>
<tbody>
<tr>
<td>Valid</td>
<td>Strongly Agree</td>
<td>46</td>
<td>71</td>
<td>71</td>
</tr>
<tr>
<td>Agree</td>
<td>8</td>
<td>13</td>
<td>13</td>
<td>84</td>
</tr>
<tr>
<td>Neutral</td>
<td>11</td>
<td>16</td>
<td>16</td>
<td>100</td>
</tr>
<tr>
<td>Disagree</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>100</td>
</tr>
<tr>
<td>Strongly disagree</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>100</td>
</tr>
<tr>
<td>Total</td>
<td>65</td>
<td>100</td>
<td>100</td>
<td></td>
</tr>
</tbody>
</table>

Table 4.10 shows that 71% of the respondents strongly agree, 13% agree, 12% not sure and 16% disagree on whether their firm’s adopted any strategies to mitigate the impact of
exchange rate fluctuations. The results imply that firms are fully aware of the effects the cheap imports as a result of the exchange rate volatility between the USD and the South African Rand.

Table 4.11: What measures or strategies have your company taken to remain competitive in the past 5 years?

<table>
<thead>
<tr>
<th>Strategy</th>
<th>Response Frequency</th>
</tr>
</thead>
<tbody>
<tr>
<td>Reducing Costs—production, administration and operational</td>
<td>62</td>
</tr>
<tr>
<td>Product diversification</td>
<td>30</td>
</tr>
<tr>
<td>Sourcing cheaper raw materials from SA and China</td>
<td>55</td>
</tr>
<tr>
<td>Focussing on increasing domestic market share</td>
<td>35</td>
</tr>
<tr>
<td>Aggressive marketing</td>
<td>50</td>
</tr>
<tr>
<td>Investing in infrastructure development</td>
<td>39</td>
</tr>
<tr>
<td>Retrenchment</td>
<td>45</td>
</tr>
<tr>
<td>Streamlining product portfolios</td>
<td>48</td>
</tr>
<tr>
<td>Tightening procurement procedures</td>
<td>52</td>
</tr>
<tr>
<td>Adjusted pricing regimes</td>
<td>60</td>
</tr>
</tbody>
</table>

Table 4.11 outlines the major strategies that firms have adopted as they seek to remain competitive. The findings from the study indicate that firms adopted multiple strategies to survive the harsh and illiquid business environment. The most common strategies adopted include reducing production costs, product diversification, sourcing cheaper raw materials mainly from South Africa and China, increasing domestic market, cost containment strategies, aggressive marketing and investing in infrastructure development. The findings are consistent with results by Bamiatzi and Kirchmaier (2014) which identified product differentiation, cost reduction measures and non aggressive pricing methods. The results of this study are in line with findings of Kaseke (2014) which identified retrenchment as a major turnaround strategy.
Table 4.12 Commodity pricing and exchange rate uncertainty

<table>
<thead>
<tr>
<th>In your opinion has the fluctuations in USD/Rand affected the pricing of your commodities?</th>
<th>Frequency</th>
<th>Percent</th>
<th>Valid Percent</th>
<th>Cumulative Percent</th>
</tr>
</thead>
<tbody>
<tr>
<td>Strongly Agree</td>
<td>29</td>
<td>45</td>
<td>45</td>
<td>45</td>
</tr>
<tr>
<td>Agree</td>
<td>21</td>
<td>33</td>
<td>33</td>
<td>78</td>
</tr>
<tr>
<td>Neutral</td>
<td>11</td>
<td>16</td>
<td>16</td>
<td>94</td>
</tr>
<tr>
<td>Disagree</td>
<td>4</td>
<td>6</td>
<td>6</td>
<td>100</td>
</tr>
<tr>
<td>Strongly disagree</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>100</td>
</tr>
<tr>
<td>Total</td>
<td>65</td>
<td>100</td>
<td>100</td>
<td>100</td>
</tr>
</tbody>
</table>

Table 4.12 shows that 45% of the respondents strongly agree, 33% agree, 16% not sure and 6% disagree that exchange rate fluctuations affect local commodity pricing. The results imply that firms appreciate the impact of exchange rate volatility between the USD and the South African Rand on their commodity pricing policies.

Table 4.13 Product pricing and exchange rate volatility

<table>
<thead>
<tr>
<th>To what extent has the currency fluctuations affected your core product pricing regime over the past 5 years?</th>
<th>Frequency</th>
<th>Percent</th>
<th>Valid Percent</th>
<th>Cumulative Percent</th>
</tr>
</thead>
<tbody>
<tr>
<td>No change in product prices</td>
<td>15</td>
<td>23</td>
<td>23</td>
<td>23</td>
</tr>
<tr>
<td>Prices have gone up</td>
<td>10</td>
<td>15</td>
<td>15</td>
<td>38</td>
</tr>
<tr>
<td>I don’t know</td>
<td>13</td>
<td>20</td>
<td>20</td>
<td>58</td>
</tr>
<tr>
<td>Product prices continue to decline</td>
<td>27</td>
<td>42</td>
<td>42</td>
<td>100</td>
</tr>
<tr>
<td>Total</td>
<td>65</td>
<td>100</td>
<td>100</td>
<td>100</td>
</tr>
</tbody>
</table>
Table 4.13 shows that 42% of the respondents point out that product prices continue to decline, 23% no change in product prices, 20% don’t know and 15% say prices have gone up. The findings of the study are consistent with Zhang and Buongiorno(2009) whose study observes that exchange rate volatility tended to have a negative effect on the export volume and prices when the exchange rate volatility of the importing country was large within the study period.

Table 4.14 What policies have your company adopted in pricing its products in the past 5 years

<table>
<thead>
<tr>
<th>Strategy</th>
<th>Response Frequency</th>
</tr>
</thead>
<tbody>
<tr>
<td>Competitive pricing</td>
<td>25</td>
</tr>
<tr>
<td>Cost based pricing</td>
<td>45</td>
</tr>
<tr>
<td>Market-determined pricing</td>
<td>28</td>
</tr>
<tr>
<td>Match competition pricing</td>
<td>25</td>
</tr>
<tr>
<td>Penetration pricing strategy</td>
<td>34</td>
</tr>
<tr>
<td>Price in comparison with the regional competition</td>
<td>15</td>
</tr>
<tr>
<td>Skimming pricing</td>
<td>36</td>
</tr>
</tbody>
</table>

The research participants indicated that the following are the policies that companies has adopted in pricing its products in the last six years: competitive pricing; cost based pricing; market-determined pricing; match competition pricing; penetration pricing strategy; price in comparison with the regional competition; price reduction, hedging, skimming pricing and reducing market consumption determined by cash flow. It is worth noting that firms in the metals and minerals sub sectors simply play along as the metal prices are determined by the global markets.
4.4.8 Investment, Profitability and Plant Survival

Figure 4.9: Sales trend

Figure 4.9 shows that 63.3% of the respondents revealed that sales increased in 2010, 66.7% in 2011, 56.7% in 2012, 52% in 2013, 45% in 2014 and 39% in 2015 in their companies. On the other hand 36.7% respondents highlighted that sales decreased in 2010, 33% in 2011, 43.3% in 2012, 48% in 2013, 55% in 2014 and 61% in 2015. Domestic sales have been decreasing at an increasing rate. The loss of market share of the local firms could be attributable to the increased competition from cheap imports. This finding is consistent with the results from the study by Fung and Liu (2009) which empirically examines the effects of exchange rate changes on the performance of firms listed on the Taiwan Stock exchange. The study results show that a negative shock on the NT dollar leads to an increase in exports, domestic sales, total sales and productivity.

Table 4.15: Profitability and Exchange rate volatility

<table>
<thead>
<tr>
<th>Our firms’ profitability has been affected by exchange rate volatility?</th>
<th>Frequency</th>
<th>Percent</th>
<th>Valid Percent</th>
<th>Cumulative Percent</th>
</tr>
</thead>
<tbody>
<tr>
<td>Strongly Agree</td>
<td>23</td>
<td>36</td>
<td>36</td>
<td>36</td>
</tr>
<tr>
<td>Agree</td>
<td>21</td>
<td>32</td>
<td>32</td>
<td>68</td>
</tr>
<tr>
<td>Neutral</td>
<td>8</td>
<td>13</td>
<td>13</td>
<td>81</td>
</tr>
</tbody>
</table>
Table 4.15 shows that 36% of the respondents strongly agree, 32% agree, 13% not sure and 19% disagree on the impact of exchange rate on firm profitability. The results imply that firms profitability is being affected by the effects of exchange rate volatility between the USD and the South African Rand through the export and import channels.

Table 4.16: Investment and Exchange rate volatility

<table>
<thead>
<tr>
<th>In your opinion has the USD/Rand fluctuations affected your investment initiatives?</th>
<th>Frequency</th>
<th>Percent</th>
<th>Valid Percent</th>
<th>Cumulative Percent</th>
</tr>
</thead>
<tbody>
<tr>
<td>Strongly Agree</td>
<td>8</td>
<td>13</td>
<td>13</td>
<td>13</td>
</tr>
<tr>
<td>Agree</td>
<td>25</td>
<td>39</td>
<td>39</td>
<td>52</td>
</tr>
<tr>
<td>Neutral</td>
<td>22</td>
<td>32</td>
<td>32</td>
<td>85</td>
</tr>
<tr>
<td>Disagree</td>
<td>10</td>
<td>15</td>
<td>15</td>
<td>100</td>
</tr>
<tr>
<td>Strongly disagree</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>100</td>
</tr>
<tr>
<td>Total</td>
<td>65</td>
<td>100</td>
<td>100</td>
<td></td>
</tr>
</tbody>
</table>

Table 4.16 reveals that 13% of the respondents strongly agree, 39% agree, 32% not sure and 15% disagree on the impact of exchange rate on firm performance. The results imply that a fairly significant number of firms are not doing any investment initiatives possibly because they are fully aware of the effects of the nexus between exchange rate volatility and investment.

Table 4.17: Investment and Exchange rate volatility

<table>
<thead>
<tr>
<th>Our firm’s expansion drive was affected by currency fluctuations?</th>
<th>Frequency</th>
<th>Percent</th>
<th>Valid Percent</th>
<th>Cumulative Percent</th>
</tr>
</thead>
<tbody>
<tr>
<td>Strongly Agree</td>
<td>4</td>
<td>6</td>
<td>6</td>
<td>6</td>
</tr>
</tbody>
</table>
Table 4.1 shows that 4% of the respondents strongly agree, 31% agree, 19% not sure and 11% disagree that exchange rate fluctuations affect firm’s expansion drives. The results imply that firm’s expansion initiatives were being curtailed by the continued appreciation of the USD against the South African Rand. The study reveals that most firms were not expanding their operations as such the exchange rate fluctuations was stifling growth prospects.

The findings are consistent with results obtained by Julia et al, (1999), Kandilov and Leblebicioglu (2008) and Fuentes (2008), which strongly suggest that exchange rate volatility, can have a significant negative impact on investment. The results found on the relationship between investment and exchange rate volatility is also in line with findings by Diallo (2009) which examines the link between the real exchange rate volatility and domestic investment in a small open economy, and the study findings show that the effects of exchange rate volatility on investment are nonlinear and that exchange rate volatility has a strong negative impact on investment.

The findings are also consistent with results obtained by the study carried out by Lee (2008) which finds evidence to support that appreciation of domestic currency reduces firm investment through the exports channel and that appreciation of the domestic currency increases firm investment through the imported input channel and that the converse is true for currency depreciation. The findings of this study are also consistent with the CZI (2015) report, which indicates that competition from imports is the fourth major constraint on firm capacity utilisation. The findings of this study are also in harmony with CZI (2015) report, which says South Africa is the largest trading partner of Zimbabwe mainly through the import channel.

<table>
<thead>
<tr>
<th>Agree</th>
<th>31</th>
<th>49</th>
<th>49</th>
<th>55</th>
</tr>
</thead>
<tbody>
<tr>
<td>Neutral</td>
<td>19</td>
<td>29</td>
<td>29</td>
<td>84</td>
</tr>
<tr>
<td>Disagree</td>
<td>11</td>
<td>16</td>
<td>16</td>
<td>100</td>
</tr>
<tr>
<td>Strongly disagree</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>100</td>
</tr>
<tr>
<td>Total</td>
<td>65</td>
<td>100</td>
<td>100</td>
<td>100</td>
</tr>
</tbody>
</table>

Table 4.18: Plant Survival and Exchange rate volatility
Do you think the USd/Rand changes affect the survival or exit of manufacturing firms?

<table>
<thead>
<tr>
<th></th>
<th>Frequency</th>
<th>Percent</th>
<th>Valid Percent</th>
<th>Cumulative Percent</th>
</tr>
</thead>
<tbody>
<tr>
<td>Strongly Agree</td>
<td>25</td>
<td>39</td>
<td>39</td>
<td>39</td>
</tr>
<tr>
<td>Agree</td>
<td>21</td>
<td>32</td>
<td>32</td>
<td>71</td>
</tr>
<tr>
<td>Neutral</td>
<td>11</td>
<td>16</td>
<td>16</td>
<td>87</td>
</tr>
<tr>
<td>Disagree</td>
<td>8</td>
<td>13</td>
<td>13</td>
<td>100</td>
</tr>
<tr>
<td>Strongly disagree</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>100</td>
</tr>
<tr>
<td>Total</td>
<td>65</td>
<td>100</td>
<td>100</td>
<td></td>
</tr>
</tbody>
</table>

Table 4.1 shows that 39% of the respondents strongly agree that exchange rate volatility affects firm survival, 32% agree, 16% neutral and a measly 13% disagree. This means firms are very sensitive to fluctuations in exchange rates. The findings of the study are in line with findings of Baldwin and Yan (2010) which reveal that real currency appreciation increases the probability of plant death. The plant closures can be explained by falling demand for locally produced manufactures as competition from imported products intensifies. Weller and O’Neill (2012) contend that deindustrialisation is said to become a headache when it involves not only a decline in both output and employment but also when manufacturing job losses are not offset by employment growth in other sectors.

### 4.5 Normality Tests

The normality test seeks to establish how the data is distributed. The normality tests were carried out in SPSS and the results are shown in table 4.11 below;

<table>
<thead>
<tr>
<th></th>
<th>Kolmogorov-Smirnov</th>
<th>Shapiro-Wilk</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Statistic</td>
<td>df</td>
</tr>
<tr>
<td>Volatility</td>
<td>.315</td>
<td>65</td>
</tr>
<tr>
<td>Firm Survial</td>
<td>.216</td>
<td>65</td>
</tr>
<tr>
<td>Employment</td>
<td>.240</td>
<td>65</td>
</tr>
<tr>
<td>Profitability</td>
<td>.218</td>
<td>65</td>
</tr>
<tr>
<td>Trade</td>
<td>.215</td>
<td>65</td>
</tr>
</tbody>
</table>

68
a. Lilliefors Significance Correction

Since all the statistical values of Kolmogorov Smirnov and the Shapiro Wilk are less than 0.05 it means the data is non-parametric implying that it deviates from normal distribution over mean. For both tests the p-value is less than 0.05 so we would reject the null hypothesis that the data come from a normally-distributed sample. If the p-values \( \geq 0.05 \), we would accept the null hypothesis and conclude that the data is normally distributed.

### 4.6 Correlation Analysis

To find out the strength and the statistical significance of the association of the independent and the dependant variables, this study used the Spearman’s Rank Correlation Coefficient. The tables are shown under section 4.7.2.

### 4.7 Discussion of Results

#### 4.7.1 Hypothesis Testing

**Rating Scale**

1= Strongly disagree  2= disagree  3= Not Sure(Neutral)  4=Agree  5=Strongly Agree

**Table 4.20 Mean Scores**

<table>
<thead>
<tr>
<th></th>
<th>Minimum</th>
<th>Maximum</th>
<th>Mean</th>
<th>Std. Deviation</th>
<th>N</th>
</tr>
</thead>
<tbody>
<tr>
<td>Firm Survival</td>
<td>2</td>
<td>5</td>
<td>3.9667</td>
<td>0.99943</td>
<td>65</td>
</tr>
<tr>
<td>Employment</td>
<td>2</td>
<td>5</td>
<td>4.2</td>
<td>0.80516</td>
<td>65</td>
</tr>
<tr>
<td>Profitability</td>
<td>2</td>
<td>5</td>
<td>3.8667</td>
<td>1.04166</td>
<td>65</td>
</tr>
<tr>
<td>Trade</td>
<td>1</td>
<td>5</td>
<td>3.75</td>
<td>1.21591</td>
<td>65</td>
</tr>
<tr>
<td>Investment</td>
<td>2</td>
<td>5</td>
<td>3.3833</td>
<td>0.84775</td>
<td>65</td>
</tr>
<tr>
<td>Sales</td>
<td>3</td>
<td>5</td>
<td>4.1333</td>
<td>0.66868</td>
<td>65</td>
</tr>
</tbody>
</table>
4.7.2.1 Hypothesis 1: The appreciation of the US Dollar against the South African Rand leads to a decline in competitiveness in the local manufacturing firms

Table 4.21: Competiveness and Exchange Rate Volatility

<table>
<thead>
<tr>
<th>Exchange rate volatility</th>
<th>Correlation Coefficient</th>
<th>Firm Competitiveness</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>0.923**</td>
</tr>
<tr>
<td>Sig (2 Tailed)</td>
<td></td>
<td>0</td>
</tr>
<tr>
<td>N</td>
<td></td>
<td>65</td>
</tr>
</tbody>
</table>

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

There is a statistically significant association of 0.923 between exchange rate volatility and Sales. This implies that volatility is affecting firm competitiveness. Table 4.20 shows that the mean score between exchange rate volatility and competitiveness is 4.3222 and a standard deviation of 0.81407. Table 4.9 shows over 84% of the respondents either agree or strongly agree that competitiveness have been negatively affected by the exchange rate volatility. We therefore accept H1 and conclude that the appreciation of the US Dollar against the South African Rand leads to a decline in competitiveness in the local manufacturing firms.

4.7.2.2 Hypothesis 2: The appreciation of the US Dollar against the South African Rand leads to a decline in profitability of the local manufacturing firms.

Table 4.22: Profitability and Exchange Rate Volatility

<table>
<thead>
<tr>
<th>Exchange rate volatility</th>
<th>Correlation Coefficient</th>
<th>Firm Profitability</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>0.741**</td>
</tr>
</tbody>
</table>
There is a statistically significant relationship of 0.741 between exchange rate volatility and profitability. Table 4.20 shows that the mean score between exchange rate volatility and profitability is 3.8667 and a standard deviation of 1.041166. Table 4.8 reveals that over 68% of the respondents either agree or strongly agree that profitability has been negatively affected by the exchange rate volatility. We therefore accept H2.

4.7.2.3 H3: The appreciation of the US Dollar against the South African Rand leads to job losses in the manufacturing sector.

Table 4.23 Employment and Exchange Rate volatility

<table>
<thead>
<tr>
<th>Exchange rate volatility</th>
<th>Correlation Coefficient</th>
<th>Sig (2 Tailed)</th>
<th>N</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>0.216**</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>0</td>
<td>65</td>
</tr>
</tbody>
</table>

There is no statistically significant relationship (p=0.216) between exchange rate volatility and employment. There is no evidence to support this hypothesis, we therefore reject H3.

4.7.2.4 Hypothesis 4: The appreciation of the US Dollar against the South African Rand leads to a decline in revenue sales in manufacturing firms.

Table 4.24 Sales and and Exchange Rate volatility

<table>
<thead>
<tr>
<th>Exchange rate volatility</th>
<th>Correlation Coefficient</th>
<th>Sig (2 Tailed)</th>
<th>Sales</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>0.856**</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>0</td>
<td></td>
</tr>
</tbody>
</table>
The above table shows that there is a statistically significant relationship of 0.856 between exchange rate volatility and sales. Table 4.20 shows that the mean score between exchange rate volatility and sales is 4.1333 and a standard deviation of 0.66868. Over 76% of the respondents either agree or strongly agree that sales has been negatively affected by the exchange rate volatility. We therefore accept H4.

4.7.2.5 Hypothesis 5: The strengthening of the US Dollar against the South African Rand leads to a reduction of commodity prices by local manufacturing firms.

Table 4.25 Commodity prices and Exchange Rate volatility

<table>
<thead>
<tr>
<th>Exchange rate volatility</th>
<th>Commodity Prices</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Correlation Coefficient</td>
</tr>
<tr>
<td></td>
<td>Sig (2 Tailed)</td>
</tr>
<tr>
<td></td>
<td>N</td>
</tr>
</tbody>
</table>

The above table shows that there is a statistically significant relationship of 0.901 between exchange rate volatility and domestic product prices. Table 4.20 shows that the mean score between exchange rate volatility and profitability is 3.9167 and a standard deviation of 0.89137. Over 80% of the respondents either agree or strongly agree that commodity pricing has been negatively affected by the exchange rate volatility. We therefore accept H5.

4.7.2.6 H6: There is a significant negative association between the appreciation of the US Dollar against the South African Rand and plant survival in the manufacturing sector.

Table 4.26 Firm Survival and Exchange Rate volatility

<table>
<thead>
<tr>
<th>Firm Survival</th>
</tr>
</thead>
</table>
The above table shows that there is a statistically significant relationship of 0.874 between exchange rate uncertainty and firm survival. Table 4.20 shows that the mean score between exchange rate volatility and profitability is 3.9667 and a standard deviation of 0.99943. Over 73% of the respondents either agree or strongly agree that plant survival has been negatively affected by the exchange rate volatility. We therefore accept Hypothesis 6.

4.7.2.7 H7: The appreciation of the US Dollar against the South African Rand leads to a decline in investment by manufacturing firms.

**Table 4.27 Investment and Exchange Rate volatility**

<table>
<thead>
<tr>
<th>Exchange rate volatility</th>
<th>Correlation Coefficient</th>
<th>0.894**</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Sig (2 Tailed)</td>
<td>0</td>
</tr>
<tr>
<td></td>
<td>N</td>
<td>65</td>
</tr>
</tbody>
</table>

The above table shows that there is a statistically significant relationship of 0.894 between exchange rate volatility and investment. Table 4.20 above shows that the mean score between exchange rate volatility and investment is 3.38833 and a standard deviation of 0.85775. Just over 50% of the respondents either agree or strongly agree with 34% not sure and 16% disagreeing that investment has been negatively affected by the exchange rate volatility. We therefore accept H7.

**4.8 Chapter Summary**

The chapter discussed the impact of exchange rate volatility on manufacturing firms based in Harare from 2010 to 2015. The study used the variables such as profitability, trade, sales,
employment, investment, firm survival and competitiveness to meet the objectives of the study. These findings were discussed by linking with the literature reviewed by the study. The next chapter presents the major conclusions and recommendations of the study.

Chapter Five

5.0 Conclusions and Recommendations

5.1 Introduction
The present chapter presents the conclusions and recommendations of the study. The chapter will restate the research’s main purpose and its main contributions. The chapter will also discuss the results and findings according to each research objective. The chapter will conclude by discussing the limitations of this study and areas of further study.

5.2 Hypothesis Validation
In this section, we highlight the hypothesis, in which this study found sufficient empirical evidence to support. The hypothesis are;

Hypothesis 1: The appreciation of the US Dollar against the South African Rand leads to a decline in competitiveness in the local manufacturing firms

Hypothesis 2: The appreciation of the US Dollar against the South African Rand leads to a decline in profitability of the local manufacturing firms.
Hypothesis 4: The appreciation of the US Dollar against the South African Rand leads to a decline in revenue sales in manufacturing firms.

Hypothesis 5: The strengthening of the US Dollar against the South African Rand leads to a reduction of commodity prices by local manufacturing firms.

Hypothesis 6: There is a significant negative association between the appreciation of the US Dollar against the South African Rand and plant survival in the manufacturing sector.

Hypothesis 7: The appreciation of the US Dollar against the South African Rand leads to a decline in investment by manufacturing firms.

On the other hand, this study failed to find sufficient evidence to support the following hypothesis;

Hypothesis 3: The appreciation of the US Dollar against the South African Rand leads to job losses in the manufacturing sector.

5.3 Conclusions
The research after much analysis therefore makes the following the conclusions;

5.3.1 Impact of the continued appreciation of the US dollar currency against the South African Rand on the performance of the manufacturing firms in Zimbabwe.

The study considered the following variables sales, revenue, profitability, investment and firm survival as it sought to assess the overall performance of firms. The research concludes that the performance of manufacturing firms has been negatively affected by the currency appreciation. The more the US dollar appreciated the poorer the firms performed, moreso in exporting firms.

5.3.1.1 Sales and exchange rate volatility

The study results indicate that there is a significant negative association on sales and currency appreciation. Specifically, sales both in dollar value and volume have been decreasing at an increasing rate as the US dollar continued to appreciate.

5.3.1.2 Investment and exchange rate volatility
The study concludes that most firms were not expanding their operations as such the exchange rate fluctuations was stifling growth prospects. The findings are consistent with results obtained by Julia et al (1999), Kandilov and Leblebicioglu (2008) and Fuentes (2008), which strongly suggest that exchange rate volatility can have a significant negative impact on investment.

5.3.1.3 Profitability and exchange rate volatility

This research concludes that a negative relationship exists between profitability and the appreciation of US dollar against the South African Rand. The results reveal that profit margins have been decreasing at an increasing rate for the few firms which have remained profitable. The study results show that a significant number of firms have been operating at a loss.

5.3.1.4 Firm Survival and exchange rate volatility

This research concludes that the appreciation of the USD against the Rand has a significant negative impact on firm survival. This means manufacturing firms are very sensitive to fluctuations in exchange rates. The findings of the study are in line with findings of Baldwin and Yan (2010) which reveal that real currency appreciation increases the probability of plant death. The plant closures can be explained by falling demand for locally produced manufactures as competition from imported products intensifies.

5.3.2 Effect of the strengthening US dollar against the South African Rand on pricing of commodities by manufacturing firms in Zimbabwe.

This research concludes that there is a negative statistically significant nexus between the commodity prices and the exchange rate volatility. 42% of the respondents point out that product prices continue to decline, 23% no change in product prices, 20% don’t know and 15% say prices have gone up. The findings of the study are consistent with Zhang and Buongiorno(2009) whose study observes that exchange rate volatility tended to have a negative effect on the export volume and prices when the exchange rate volatility of the importing country was large within the study period. The evidence points to the fact that the firms had to adopt specific strategies to fight off the cheap imports hitting the local market.
Firms had to adopt strategies such as competitive pricing; cost based pricing; market-determined pricing; match competition pricing; penetration pricing strategy; price in comparison with the regional competition; price reduction, hedging, skimming pricing to remain competitive and be going concerns.

5.3.3 Strategies that Zimbabwean manufacturing companies have adopted in the face of the strengthening US dollar currency

The findings from the study indicate that firms adopted multiple strategies to survive the harsh and illiquid business environment. The most common strategies adopted include reducing production costs, product diversification, sourcing cheaper raw materials mainly from South Africa and China, increasing domestic market, cost containment strategies, aggressive marketing and investing in infrastructure development. Firms’ have rationalised their operations one way or the other as they seek to stay afloat. The findings are consistent with results by Bamiatzi and Kirchmaier (2014) which identified product differentiation, cost reduction measures and non aggressive pricing methods.

5.3.4 Levels of competitiveness of manufacturing firms given the continued US dollar currency appreciation against the South African Rand.

Firm level competitiveness was found to exhibit a negative significant relationship with exchange rate fluctuation. This means that the exports of the manufacturing firms based in Harare were at a competitive disadvantage. This is consistent with findings of Mtonga (2006), which shows that South African exports where at a competitive disadvantage as the Rand strongly appreciated in 2003.

Trade showed a statistically significant association with exchange rate volatility. The firm’s level of imports were on the rise whereas the value and the volume of exports continued to decline. This is an indication of poor performance of the export sector and the over dependence of the country on imported goods. The study reveals that most firms intend to continue sourcing their raw materials from either South Africa or China. This is in line with findings of Bakhromov (2011) which shows that the real exchange rate volatility has a significant impact on the exports and imports of the country. The results shows that increases
in the volatility of the real exchange rate have statistically significant negative effects on
equations of exports and imports in the long-run dynamics, it also observes that declines in
the real exchange rate, positively affect exports. The findings on trade are also in congruency
with the results obtained in the study by Odili (2015) which reveals that exchange rate
volatility depressed exports and imports in the long run.

5.4 Recommendations
The research makes the following recommendations basing on the responses given by the
respondents.

5.4.1 Government Recommendations
The fragile manufacturing sector needs protection from the Government of Zimbabwe, more
specifically those that produce consumer goods. The assumption here being that consumer
goods are less capital intensive and require less complex technology compared to capital
goods. The intention is to cushion and shield the ailing sector from competition mainly South
Africa and China. There has to be wide consultations between GOZ and the captains of the
industry. The GOZ may have to increase the tariffs on imported goods, which are available
on the local market. In the same vein more has to done to remove taxes and import duties on
firms that import raw materials for production. To this end, if the Ministry of Industry and
Commerce is to urgently implement the CBCA certification programme. This would curtail
the dumping of substandard imports, which creates unfair competition to local manufacturers.

There is need to address the low capacity utilization in the manufacturing sector. The
government should promote and implement measures that will improve capacity utilisation so
that firm’s can enjoy the benefits of economies of scale. One such measure is import
substitution, which will trigger increases in capacity utilisation which in turn will reduce
unemployment and balance of payment.

On the regional scene, it is also high time for the regional bodies like the SADC, COMESA
and the African Union to start thinking about a regional currency pegged to a major world
currency to immune members from frequent fluctuations in the exchange rates and thus
stabilize export revenues for their export operators.

Besides, to boost export performance in the manufacturing sector, constraints facing our
exporters should be reduced to a desirable level. For example, lower electricity charges,
export processing efficiency in terms of reduced time for processing exports and lower rates of interest through the stimulus package. It is believed that these additional measures will give the export operators some breathing space in the light of external shocks facing their enterprises.

5.4.2 Firm Management Recommendations
There is need for firms to forsake their old business models and adopt new models and strategies such as Six sigma, lean manufacturing. For instance, firms need to adopt product differentiation such that their growth is not stifled by cheap imports. Firms need to invest in infrastructure development to replace the outdated equipment, which is negatively affecting efficiency and production.

There is a need to address working capital constraints, with a view of procuring funding which is fairly priced, and whose payback time is reasonable. This will allow firms to address outdated equipment and equipment breakdowns.

5.5 Area of Further Study
Given that the study was confined to Harare firms only, it may be necessary to carry out the same study in parts of Zimbabwe and see how comparable the findings will be. This study only focused on the effects of exchange rate volatility, it can be broadened to include other key variables such as tariffs and capital constraints.

Questionnaire

University Of Zimbabwe

Faculty of Commerce

Graduate School of Management
Questionnaire on the investigation of the effects of a strengthening US DOLLAR against the South African Rand on manufacturing firms in Zimbabwe

My name is Success Mhlanga and I am a Masters Degree in Business Administration student at the University of Zimbabwe. I am conducting a research study on the effects of a strengthening US DOLLAR against the South African Rand on manufacturing firms in Zimbabwe. I am kindly inviting you to complete this questionnaire.

The results of this survey are truly anonymous and as such do not write your name anywhere on this questionnaire. You may answer the questions honestly and as objective as you can be. The findings of this study will be treated as strictly confidential. Please contact me on successm2010@gmail.com or +263 774 454 909 for any questions and clarifications.

Thank you for your cooperation

Success Mhlanga

Section A: Demographic Information

1) Are you male or female?
   - [ ] Male
   - [ ] Female

2) What is your age?
   - [ ] Below 25
   - [ ] 25-34
   - [ ] 35-44
   - [ ] 45-54
   - [ ] above 55

3) Indicate your level of education
   - [ ] Certificate
   - [ ] Diploma
   - [ ] First Degree
   - [ ] Masters
   - [ ] PhD

4) How long, in years, have you been working for this company?
Section B: Corporate Information

5) Indicate the category your company falls under in the manufacturing sector

- Food, Dairy and Beverages
- Clothing and Textiles
- Chemicals
- Timber and Furniture
- Metals and Minerals
- Pharmaceuticals
- Oil Processing and Mining
- Other

6) How old is your company, in years?

- Below 10
- 10 to 20
- 21 to 30
- 31 to 40
- Above 40

7) How many employees does your organisation have?

- Below 100
- Between 101 and 500
- Between 501 and 1000
- Above 1000

8) How would describe your company shareholder structure

- Highly Concentrated
- Concentrated
- Diffused
- Fairly distributed
- Not sure

9) Is your organisation involved in the export business?

- Yes
- No
Section C: Effects of currency volatility on import and production costs

10) What percentage of your company’s total purchases are imported?

- [ ] 0 to 20%
- [ ] 21 to 40%
- [ ] 41 to 60%
- [ ] 61 to 80%
- [ ] 81 to 100%

11) What are your plan(s) for procuring raw materials and parts in the future? (You may tick more than one box)

- Increase ratio of local procurement
- Increase ratio of procurement from South Africa
- Increase ratio of procurement from China
- Increase ratio of procurement from Europe
- Maintain current ratios of local procurement
- Other ( )

12) In what currencies are you invoiced by your suppliers? (Rank in order, where 1 is the Most Frequently Used Currency and 5 is the Most Rarely Used Currency)

<table>
<thead>
<tr>
<th></th>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
<th>5</th>
</tr>
</thead>
<tbody>
<tr>
<td>SA Rand</td>
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<tr>
<td>USD</td>
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<tr>
<td>Kwacha</td>
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<tr>
<td>Yuan</td>
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<tr>
<td>Euro</td>
<td></td>
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<tr>
<td>Other</td>
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<tr>
<td>(Specify)</td>
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</tr>
</tbody>
</table>
Section D: Effects of currency volatility on Export sales

13) What percentage of your company’s total sales is exported?

- [ ] 0 to 20%
- [ ] 21 to 40%
- [ ] 41 to 60%
- [ ] 61 to 80%
- [ ] 81 to 100%

14) In what currencies do you invoice your exports? (Rank in order, where 1 is the Most Frequently Used Currency and 5 is the Least Frequently Used Currency)

<table>
<thead>
<tr>
<th>Rank</th>
<th>Currency</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>SA Rand</td>
</tr>
<tr>
<td>2</td>
<td>USD</td>
</tr>
<tr>
<td>3</td>
<td>EUR</td>
</tr>
<tr>
<td>4</td>
<td>Kwacha</td>
</tr>
<tr>
<td>5</td>
<td>Yuan</td>
</tr>
<tr>
<td></td>
<td>Other</td>
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<tr>
<td></td>
<td>(Specify)</td>
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</tbody>
</table>

Section E: Effects of currency volatility on firm’s competitiveness

15) What impact do you think that currency fluctuations has had on your company performance over the last 5 years? (You may tick more than one box)

<table>
<thead>
<tr>
<th>Impact</th>
</tr>
</thead>
<tbody>
<tr>
<td>Increased Costs</td>
</tr>
<tr>
<td>Reduced Costs</td>
</tr>
<tr>
<td>Improved Product Price Competitiveness</td>
</tr>
<tr>
<td>Reduced Product Price Competitiveness</td>
</tr>
<tr>
<td>Promoted expansion into other markets</td>
</tr>
</tbody>
</table>
16) To what extent, does each impact identified in question 20 affect your firm’s performance?

<table>
<thead>
<tr>
<th>Impact</th>
<th>Large Extent</th>
<th>Certain Extent</th>
<th>Not Sure</th>
<th>Limited Extent</th>
<th>Not at all</th>
</tr>
</thead>
<tbody>
<tr>
<td>Increased Costs</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Reduced Costs</td>
<td></td>
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<td></td>
<td></td>
</tr>
<tr>
<td>Improved Product Price Competitiveness</td>
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<td></td>
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</tr>
<tr>
<td>Reduced Product Price Competitiveness</td>
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<tr>
<td>Promoted expansion into other markets</td>
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<tr>
<td>Encouraged retraction from other markets</td>
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<tr>
<td>Competition from imported products</td>
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<tr>
<td>Stifled Growth Prospects</td>
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</table>

17) What measures or strategies have your company taken to remain competitive in the past 5 years?

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Section F: Effects of currency volatility on investment, pricing and profitability

18) Indicate your company’s operating profit trend for the years indicated below

<table>
<thead>
<tr>
<th>Year</th>
<th>Surplus(Profit)</th>
<th>Break even</th>
<th>Deficit(Loss)</th>
</tr>
</thead>
<tbody>
<tr>
<td>2010</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2011</td>
<td></td>
<td></td>
<td></td>
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<tr>
<td>2012</td>
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<td></td>
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<tr>
<td>2013</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2014</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2015</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

19) Indicate your company’s revenue sales trend over the years shown below

<table>
<thead>
<tr>
<th>Year</th>
<th>Sales Increasing</th>
<th>Sales Decreasing</th>
</tr>
</thead>
<tbody>
<tr>
<td>2010</td>
<td></td>
<td></td>
</tr>
<tr>
<td>2011</td>
<td></td>
<td></td>
</tr>
<tr>
<td>2012</td>
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<td>2013</td>
<td></td>
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<tr>
<td>2014</td>
<td></td>
<td></td>
</tr>
<tr>
<td>2015</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

20) To what extent has the currency fluctuations affected your core product pricing regime over the past 5 years?
No change in product prices  
Prices have gone up  
Product prices continue to decline  
I don’t know  

21) What policies have your company adopted in pricing its products in the past 5 years

…………………………………………………………………………………………
…………………………………………………………………………………………
…………………………………………………………………………………………
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…………………………………………………………………………………………
………………………………………………………………………………………….

Section G: Effects of exchange rate volatility on firm performance and competitiveness

Rating Scale

1= Strongly disagree  2= disagree  3= Not Sure(Neutral)  4=Agree  5=Strongly Agree

<table>
<thead>
<tr>
<th>In your view has the performance of your company over the last 5 years been affected by the rate of currency volatility?</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
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</tbody>
</table>

86
<table>
<thead>
<tr>
<th>Question</th>
<th>Answer</th>
</tr>
</thead>
<tbody>
<tr>
<td>In your honest view has the market share of your company over the last 5 years been affected by the rate of currency volatility?</td>
<td></td>
</tr>
<tr>
<td>In your opinion has exchange rate volatility caused your imported purchases in value to increase?</td>
<td></td>
</tr>
<tr>
<td>In your opinion has exchange rate volatility caused your imported volume of purchases to increase?</td>
<td></td>
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<tr>
<td>Can your firm’s export sales receipts in value be said to be on the decline over the past 5 years?</td>
<td></td>
</tr>
<tr>
<td>Can your firm’s export sales in volume be said to be on the decline over the past 5 years?</td>
<td></td>
</tr>
<tr>
<td>Do you think the USD/Rand fluctuations affects the survival or exit of manufacturing firms?</td>
<td></td>
</tr>
<tr>
<td>In your opinion has the USD/Rand currency fluctuations affected your firm’s investment initiatives?</td>
<td></td>
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<tr>
<td>Our firm’s expansion drive was largely affected by the exchange rate fluctuations?</td>
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</tr>
<tr>
<td>In your opinion does the exchange rate fluctuations affect your domestic sales?</td>
<td></td>
</tr>
<tr>
<td>My firm’s export sales were affected by the changes in the exchange rate</td>
<td></td>
</tr>
<tr>
<td>My firm’s competitiveness was affected by the fluctuations in the exchange rate?</td>
<td></td>
</tr>
<tr>
<td>Did your firm adopt measures or strategies to remain competitive in the face of currency volatility?</td>
<td></td>
</tr>
<tr>
<td>Did your firm change its procurement regime of raw materials to remain competitive in the face of currency volatility?</td>
<td></td>
</tr>
<tr>
<td>In your opinion has the fluctuations in USD/Rand exchange rate change affected your commodity prices?</td>
<td></td>
</tr>
<tr>
<td>In your view, did your company change its product mix in the past 5 years?</td>
<td></td>
</tr>
<tr>
<td>Our company downsized its workforce in the past 5 years mainly because pressures from the USD/RAND</td>
<td></td>
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</tbody>
</table>
Our firm’s profitability was greatly affected by changes of the USD/Rand exchange rate. Do you think the hedging techniques (if any) implemented by your company have had an impact on the company competitiveness and performance?

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