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Economic liberation or economic distress: Evaluation of Zimbabwe's foreign exchange circus and its impact on the financial system

Aitaa Sam Kilimvi [1*], Richard Mawarire [2]
Lecturer, Faculty of Management Science, Muni University; Lecturer, Royal Docks School of Business and Law, University of East London, England, United Kingdom
Head of Digital Financial Services, Steward Bank Zimbabwe, Royal Docks School of Business and Law, University of East London, England, United Kingdom

* Corresponding Author: **Aitaa Sam Kilimvi**

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Abstract
Zimbabwe's economy generates a large amount of foreign currency from a number of sources but the country is nevertheless experiencing a serious foreign exchange crisis. In spite of substantial forex revenues, the country is plagued by excessive inflation and currency instability. The study looks into how Zimbabwe's currency crisis has affected the financial systems. The interplay between the supply of money, the rate of inflation, the movement in the exchange rate, and spending by government have been examined to understand reasons of the currency crisis in Zimbabwe.
The research was hinged on the interpretivist paradigm and a quantitative approach used for data analysis as predestined by the purpose of this research. Secondary data were reviewed for the analysis. Descriptive statistics was employed for the data analysis, correlation coefficient was employed to evaluate the level of interaction between the variables.
The findings showed that the exchange rate between the local currency and US dollar declined from ZWL 24.60 to ZWL 810 between January 2020 and November 2022 antagonizing the money supply growth at the same period, from ZWL 36.27bn to ZWL 2.07tn respectively. The foreign currency premium significantly fell to 32% as of August 2022.
It was therefore recommended that since the excessive expansion of the money supply through borrowing appears to be the main issue causing the foreign exchange crisis, the Zimbabwean government must reduce its borrowing to prevent fiscal deficits. Secondly, the government should intervene in the pricing distortions caused by numerous players as a result of the absence of a market-wide consensus exchange rate. Thirdly, there should be implementation of fiscal rationalization policies and adherence to the requirements of the Zimbabwe Debt Management Act. Further studies could concentrate on examining the macro factors that lead to this economic distress.

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Keywords: Foreign Currency, Economy, Economic distress, Inflation, Government policy

1. Introduction

Zimbabwe is one of the countries in the south African block that has suffered economic distress for over a decade now. Zimbabwe's economy generates a large amount of foreign currency from a number of sources, including exports, external remittances, foreign direct investment, loan profits, and remittances from NGOs, but the country is nevertheless experiencing a serious foreign exchange crisis (Monacelli & Perotti, 2010) [28]. In spite of substantial forex revenues, Zimbabwe is plagued by excessive inflation and currency instability (Marukutira, 2016) [26].

Zimbabwe has had numerous times of foreign currency troubles (World Bank, 2020). In the period between 2010 and 2015, the economy saw cumulative GDP growth under the multicurrency regime, increasing from USD 12.04 billion to USD 19.96 billion (World Bank, 2020). To steam line the multicurrency system, the Zimbabwean government restored the Zimbabwe Dollar (ZWL) in June 2020 by legislative instrument 142 of 2022. Despite ZWL's reinstatement, the local currency (ZWL) suffered a continuous loss in value relative to significant trading currencies such as the US dollar.

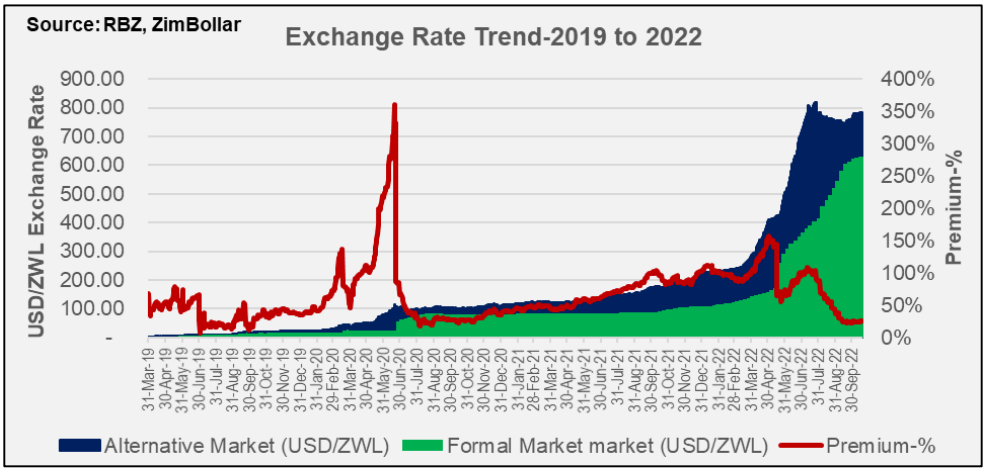


Fig 1: Trend in Exchange Rates

According to ZimBollar (2019), the ZWL fell 167% from June 2019 to December 2019, from 6.28 ZWL to 1 USD on the official interbank foreign currency market to 16.77 ZWL to 1 USD. Surprisingly, there exists a thriving alternative foreign currency. The corresponding premiums between the official exchange rate and black-market rates have been a consistent phenomenon since the ZWL was introduced. Premiums reached their maximum point in the three years between 2019 and 2022, as seen in figuren1, in June 2020, when the market experienced a premium of 360%. However, because of subsequent operations on the official interbank market to further devalue the ZWL, as well as tight steps to contain the money supply, the premium dramatically fell in the second half of 2022, trading at 25% as at Oct-22.

In light of this, the research critically evaluates the nature, features, and sources of Zimbabwe's forex problem.by critically looking at the interplay between the rate of inflation, the rate of exchange, the supply of money, expenditure by government, as well as shortages of foreign currency. The study investigates the links between these factors in further depth utilizing statistical computations and the Pearson's Correlation Coefficient to obtain answers to the research questions and hypotheses.

1.1 Scope of the study

The study looked at the period June 2019 and September 2022 within the context of the Zimbabwean economy. The research concentrated on major macro indicators such as the supply of money, the rate of inflation, the rate of exchange, the position of the balance of payment, and government expenditure. The fundamental linkages between these macroeconomic factors were analyzed in order to comprehend the currency dilemma that defined the Zimbabwean economic environment in 2019 to 2022.

1.2 Underlying Research Problem

Zimbabwe's economy generates a large amount of foreign currency from a number of sources, including exports, remittances, foreign direct investment, loan profits, and remittances from NGOs, but the country is nevertheless experiencing a serious foreign exchange crisis. In spite of substantial forex revenues, Zimbabwe is plagued by excessive inflation and currency instability (Monacelli & Perotti, 2010) [28].

Although the Exchange control directive RV 175 of 2020 sought to introduce the foreign currency auction platform accompanied by a list of authorized import priorities in a bid to curb the outflow of foreign currency in the economy this has not yielded any positive impact on the foreign exchange fuss.

1.3 Research Aims and objectives

The purpose of this study is to examine the form, causes, as well as consequences of the currency crisis in Zimbabwe and how they have affected the financial market environment of the nation.

The specific objectives of the study are:

a. To investigate the nexus between the supply of money and inflation.
b. To examine the relationship existing between inflation and currency exchange rates.
c. To evaluate the supply of money and the exchange rates movements.
d. To examine if government expenditure has effect on supply of foreign currency.

1.4 Research questions

a. Is there a connection between the supply of money and inflation.
b. What relationship exists between inflation and currency exchange rates.
c. Does supply of money have any contribution to the exchange rates movements.
d. What effect does government expenditure have on supply of foreign currency.

1.5 Study Hypothesis

In light of its research goals, the study seeks to evaluate the following research hypothesis:

H_o The Zimbabwean money market has been impacted by the foreign exchange crisis.

H_1 There is no linkage between the money market and foreign exchange crisis.

1.6 Significance of the study

The currency rate crisis, value preservation as well as balance sheet issues make the subject a significant area of study since the identified issues affect individuals and corporates in the same magnitude. The findings of the research will likewise provide a clue to governments and policy makers on the possible causes and remedies to foreign exchange crisis. It will also help other researchers by providing a starting point for further research in this context.

2. Review of Literature

In accordance with the objectives of the study the literature review examines literary sources that discuss the currency crisis. This section describes the currency challenges, investigates potential reasons, discusses the various nature of currency markets that are in Zimbabwe, and then reviews academic research on the nexus that exist between exchange rates, inflation the supply of money as well as expenditure by government. The review of literature is discussed under theoretical framework and empirical review.

2.1 Theoretical Framework

Monetary stability refers to the stability experienced in the general level of prices. It also refers to the absence of deflation or inflation. Financial stability on the other hand denotes the smooth functioning of the players in the financial system; the financial institutions and the financial market. Financial stability therefore is that perfect condition where the mechanisms of allocation of resources, pricing and risk management function perfectly in an economy and contribute to the performance of the economy (Schinasi, 2004) [34]

The principle of financial stability is hinged on the fact that there is a stable financial system that has the capability of efficient allocation of resources, that can assess and manage financial risks, and maintain employment levels quite closely to the natural rate of the economy. Financial stability eliminates relative price movements of real or financial assets. To achieve this financial stability, many economies strive to balance the effect of allocations, pricing and risk management to stabilize the economy.

In examination of the above, this research will evaluate the Bond Note Theory to examine if its application can save a country from the adverse effects of inflation and financial distress. The Bond Note Theory postulated by Chikosi (2016) [6] states that governments can finance budget deficits by issuance of treasury bonds and treasury bills through the central bank on behalf of the government and ensure that it has the capacity to service the domestic debts when they are due.

The government of Zimbabwe principally resorted to the issuing Treasury Bills and treasury bonds to fund government expenditure. As stated by Hon Patrick Chinamasa "Financing of the budget deficit has been primarily through issuance of treasury bills by the Reserve Bank on behalf of Government" (Chikosi, 2016) [6]. However, incapacity to service domestic debt may lead to roll-overs, which pose some financial risks on domestic debt instrument holders and domestic financial institutions.

2.2 Empirical Review

2.2.1 The currency crisis defined

Previous studies on this are categorize financial crises into two main kinds. There are two methods to categorize a foreign exchange/financial crisis, according to Dabrowski (2002) [25]: the particular definition and the all-encompassing term.

The narrow definition is based on earlier monetarist school writings that characterize a predicament to be defined by frantic bank drawings and a disregard for customers' rights (Friedman and Schwartz, 1963) [12]. According to Minskey (1972) and reaffirmed by Kindleberger (1978) a bigger crisis is marked by significant price rises, inflation, disruption in foreign currency markets, or a combination of all of the above. According to Antcak (2000), the crisis is characterized by a sharp drop in the value of a particular form of money that is frequently followed by speculative attacks on that currency.

2.2.2 Reasons behind the currency crisis.

The excessive growth and overborrowing of the public and private sectors, as well as inconsistent and opaque economic policies, are among the fundamental causes of currency crises (Eichengreen, Rose, and Wyplosz, 1994). Balance of payments deficits, overvaluation of the currency, rising liabilities, scarce reserves, are all signs of overexpansion and overborrowing. Inconsistent policies, such as the so-called "intermediate" exchange rate regimes, amplify market turbulence and put the local currency at risk of a speculative attack.

The effects of currency crises are typically severe and frequently involve lost output and employment, a decline in population real incomes, and a sharp decline in investment and capital flight.

2.2.3 Nature of unofficial currency markets

According to Kiguel and O'Connel (1994), every parallel market mechanism has its roots in an effort by a government to designate some businesses as using the regulated exchange rate while other businesses use the unofficial exchange rate. Although the structure and specifics of unofficial currency markets vary, they may also be categorized between coverage or the framework's legality.

According to Kiguel and O'Connell (1994), unofficial parallel foreign exchange markets are mostly present in developing nations as a result of continued limitations on capital account movement. Exchange control directive RV 175 of 2020 sought to introduce the foreign currency auction platform accompanied by a list of authorized import priorities in a bid to curb the outflow of foreign currency in the economy. This process according to Kiguel and O'Connell (1994) leads to the development of a foreign exchange market that is often biased in favor of depreciation.

The introduction of dual or official parallel markets was primarily done to manage a balance of payment problem and to lessen the detrimental effects of currency devaluations (Kiguel and O'Connell, 1994), The Reserve Bank of Zimbabwe (RBZ) now uses a dual exchange rate system, with trades taking place in addition to the two official channels.

2.2.4 The interplay between government spending and the currency crisis

Monacelli and Perotti (2010) [28]; and Ravn, Schmitt-Grohé, and Uribe (2012) [31] state that a boost in government expenditure is predicted to result in a trade balance deficit, as well as a fall in the domestic currency and a spike in consumption, There are still various unanswered problems regarding the consequences of government expenditure in an open market given these divergent empirical findings in studies of a small number of nations: First, does government spending worsen the current account and lead to a real increase in the value of the domestic currency? Second, are there differences in how government spending shocks affect different nations, particularly between developed and developing nations?

2.2.5 Government Spending, the Crowding Out Effect, and the Forex Crisis?

Mamatzkis (2001) argued that between 1950 and 1998, government spending and private investment are at odds with one another. This finding is consistent with the crowding out theory which holds that because capital is scarce, if interest rates are raised and the government becomes the largest borrower in the private capital markets, the effect on the private sector's capacity to produce has the potential to have a negative impact on the economy according to Tambudzai (2007).

Other scholars claim the Zimbabwe's government is the main perpetrator of the foreign exchange crisis. According to Marukutira (2016) [26], the use of Treasury Bills and other money market debt instruments by the government contributed to the exchange crisis. Marukutira (2016) [26] claims that the government forces institutional investors to hold at least 30% of their investments as Prescribed Assets through the minimum prescribed assets ratio.

As stated by Chikosi (2016) [6]:

> *It is important from the outset to highlight that the government faces an untenable fiscal situation where over 94% of its revenues are channeled towards recurrent expenditure. This has left the government with no fiscal headroom to fund capital and other expenditures. It is even worrying to note that faced with dwindling tax revenues owing to the biting economic conditions, the government has principally resorted to the issuance of Treasury Bills to fund government expenditure.*

Commercial banks were told not to keep more than 5% of their balance sheet sizes as Nostro balances in 2015 by the RBZ under the terms of Excon directive 3 of 2015 (ECOGAD3/2015). The government began borrowing excessive amounts of money from the market as a result of these two concurrent mandates, and the Reserve Bank of Zimbabwe (RBZ) was given access to any excess Nostro balances (foreign currency), which it used to feed the government's insatiable desire for foreign currency. Zimbabwe Treasury deployed treasury bills, savings bonds, and other bills to borrow from financial markets, imposing a demand on the country's finite foreign currency resources. This fact is crucial in the explanation the currency crisis that was observed between 2019 and 2022.

The broad money supply increased by 47, 97% from $5, 42 billion in 2016 to close at $8, 02 billion at the end of 2017, according to financial statistics outside the purview of the study (RBZ, 2018) [33]. Meanwhile, Zimbabwe Treasury's debt increased by 72.40% to close at $6.25b (RBZ, 2018) [33]. When combined with the rise in government bond and bill holdings, which increased by 62,5% between 2016 and 2017, from US$3,2 billion to US$5,2 billion, it becomes clear that the government dominated the currency markets.

2.2.6 The currency crisis and balance of trade

Other scholars claim that Zimbabwe's currency crisis issue is caused by the country's falling trade balance because of the export sector's poor performance over time (Kanyenze, 2017). The difference between a country's total exports and imports over a certain time period is known as its Balance of Trade (BOT). When exports are higher than imports, the trade balance is positive or favorable. When the contrary occurs, there is a negative or unfavorable balance.

Simply expressed, a nation has a positive BOT if, for a specific period, its exports exceed its imports. It's interesting to notice that the agricultural sector's contribution to the export profits of the country has slightly decreased in the years ahead of the currency crisis, (CIA World Economic Factbook, 2016). According to Marukutira's theory (2016) [26], the persistently negative current account deficit over the past six years has depleted the nation's foreign currency reserves and resulted in a foreign exchange crisis.

3.0 Methodology

This section outlines the research guiding principles and methodology adopted, research design, population sample, data analysis techniques, and the research ethics that will be taken into account. The suggested procedure discussed here justify the rationale for the research techniques and procedures selected.

3.1 Research approach and design

The research was hinged on the interpretivist paradigm and a quantitative approach used for data analysis. According to Johnson and Onwuegbuzie (2004), the interpretivist approach addresses questions like "why" and "how," while the quantitative approaches are objective and minimise bias.

A study design, according to Babbie and Mouton (2008), is the overarching strategy or road map used to collect and analyze data. Research can be classified as exploratory, descriptive, explanatory, or evaluative depending on the goal and context of the study (Salkind, 2010), and the "fitness for purpose" of each study influences the design decision. In this study, a descriptive-exploratory design was suggested. The exploratory research design was unstructured and flexible, whereas the descriptive aspect of the research has been extremely organized and strict in terms to data gathering. This allowed the researcher to ask the relevant questions. In order to establish the linkages between and among variables and take into account a wide range of opinions, the two types of study designs were integrated.

3.2 Methods of Data collection and Instruments of research

In order to accomplish the goals and provide answers to the research questions, the study only employed secondary data. According to Saunders *et al*. (1997), secondary data include quantitative and qualitative data that are employed in both descriptive and explanatory research. Kervin (1992) further divided these data into raw data (which have undergone little to no processing) and computed data (which have undergone

some type of selection or summarization). As a result, this study uses computed quantitative data and is explanatory. Among the secondary sources employed in this study were RBZ publications, news announcements, textbooks, journals, reports as well as the internet.

Secondary data was chosen because of its availability and relevance in such a study. Time series analysis was made possible by secondary data, which was also easily accessible and less expensive.

3.3 Validity and dependability

The information used was obtained from reputable sources, mainly from the RBZ and the national statistical agency in Zimbabwe (ZIMSTATS) gathered continuously throughout the time frame from June 2019 to September 2022. Every effort was taken to ensure the correctness of the date in the case of parallel market rates, which are unauthorized and could be found via semi-official sources as ZimBollar and Market monitor. The data was sampled over a lengthy period of time to eliminate data inaccuracies.

3.4 Quality of Secondary Data

Four criteria were used to assess the quality of the secondary data collected for this research: relevance, credibility, accuracy, and appropriateness (Roller, 2019). A qualitative analysis was performed to determine whether the collected data was suitable for this research. The relevance and appropriateness of the collected data was judged considering the context in which it was collected and its relationship to the research topic (Mugenda, 2003). To assess credibility and accuracy, a review of the sources of information used to collect the data were conducted. This was to determine whether they are reliable and authoritative (Burns & Grove, 2005)

4.0 Findings

The results of the data collection exercise that was used are presented in this section. In this part, we provide information on the supply of money, the rate of inflation, currency exchange rates, government spending, balance of trade, and the distribution of foreign currencies. The information is provided in a way that strives to answer the questions relating to the research and aims to put to the test the study hypothesis of the study.

4.1 The supply of money and inflation

Figure 2 illustrates the relationship between inflation and the broad money supply (M3) from January 2018 to November 2022. Over the time period, the growth of the money supply averaged 224%, whereas the average rate of headline inflation was 218%. In order to verify the claim that the money supply influences inflation, the link between the money supply and inflation will be particularly crucial.

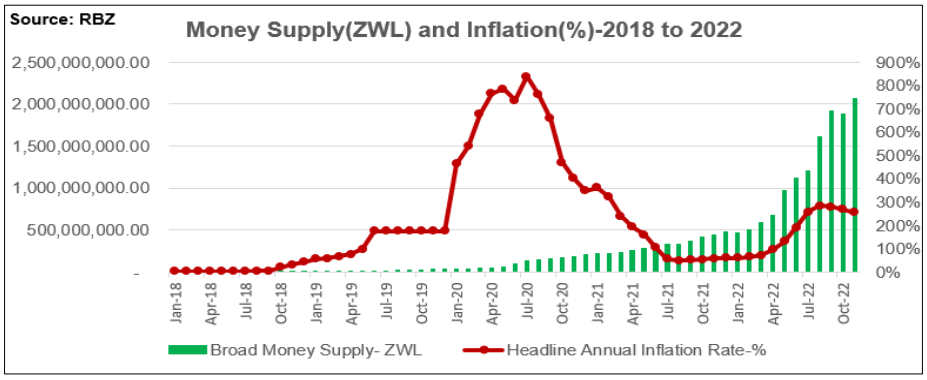


Fig 2: Money supply and inflation trends

In figure 3, we display the percentage movement in the supply of money plotted alongside the inflation rate given as percentages to enable useful comparisons. By allowing, the researcher to do a covariance calculation on the two data sets from Jan-18 to Nov-22, this presentation successfully enables statistical judgments about the existence of a link between the two. The results of the data comparison are used to either support or refute the theory that inflation is influenced by changes in the money supply.

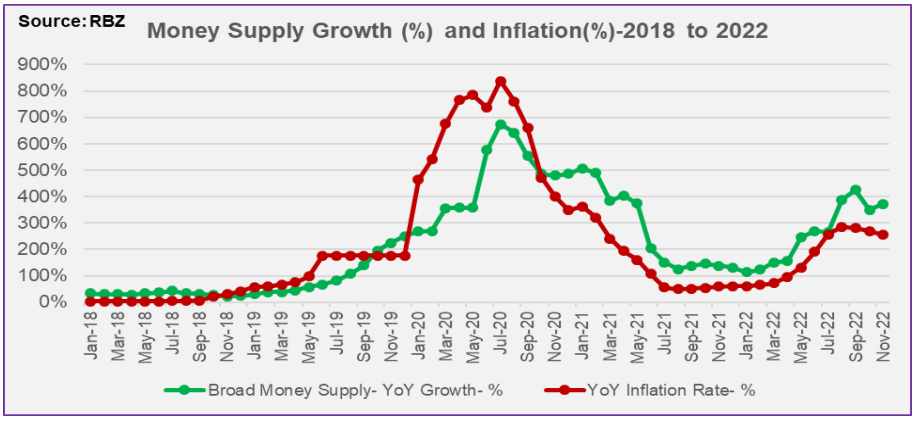


Fig 3: Inflation and money supply increase from 2018 to 2022

4.2 Changes in exchange rates and inflation

The exchange rate continued to trend upward during the time frame shown below, on both the official interbank market and the alternative market. On the alternate market, the currency rate changed during that time from ZWL 3.30 in Jan-19 to ZWL 965 in Dec-22. Interestingly, the market place has continued a trend where the official interbank market and black market trade at a premium to one another throughout the same time period, peaking over the time period given below in January 2019, when it was reported at 290%.

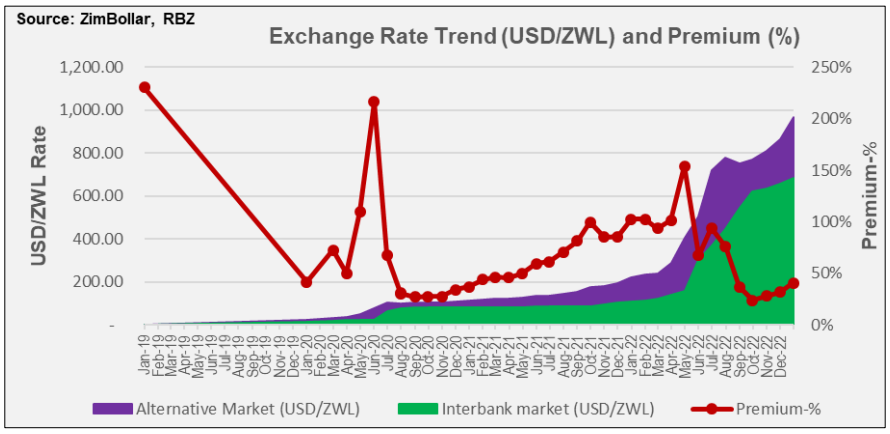


Fig 4: Trend in Exchange Rate and Premium

The diagram illustrates the change in the two variables by presenting the year-over-year movement in the exchange rate versus the movement in headline inflation. This comparison enables a like-for-like comparison, evaluating the notion that inflation and exchange rate movement are related.

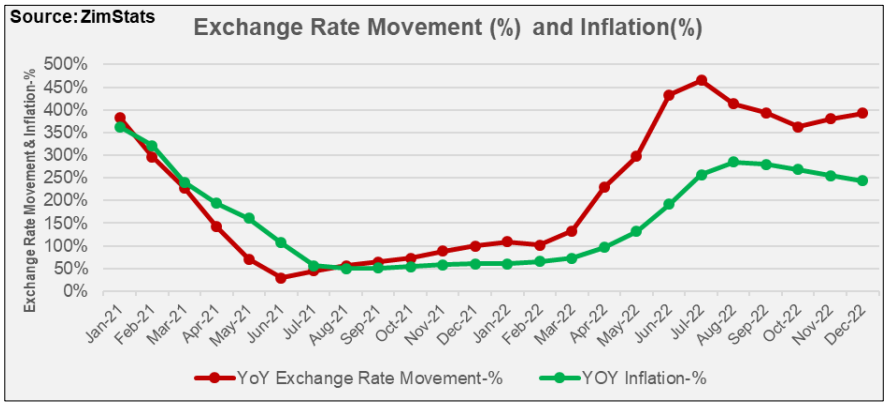


Fig 5: Changes in Exchange Rates and Inflation

4.3 Changes in the money supply v exchange rate movement

The ZWL declined from ZWL 24.60 to ZWL 810 compared to the USD between January 2020 and November 2022. Money supply also experienced tremendous growth at this time, rising from ZWL 36.27b to ZWL 2.07t between January-20 and November-22, respectively.

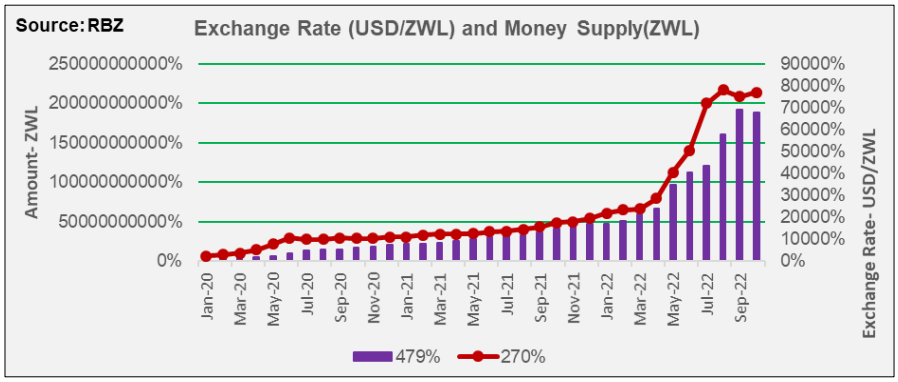


Fig 6: Money supply and exchange rates

When the money supply and exchange rate are shown as percentage changes, it is clear that the two variables are co-moving and had positive growth from January 2021 to November 2022.

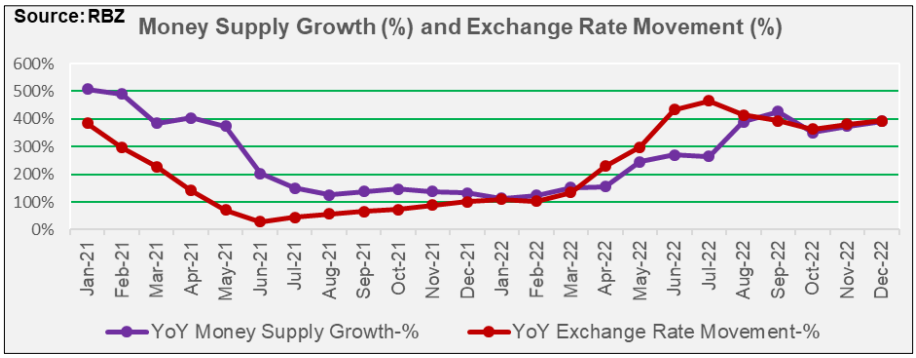


Fig 7: Supply of money and exchange rate

4.4 Spending by the government and the currency crisis

The study makes use of information on treasury bills or other government assets that have been sold in the market to monitor how government spending has affected the foreign exchange problem. The market's net foreign currency gap, calculated from 2016 to 2019, was then compared to this data. The market's net foreign currency gap is the difference between foreign currency deposits and foreign currency assets (cash and Nostro).

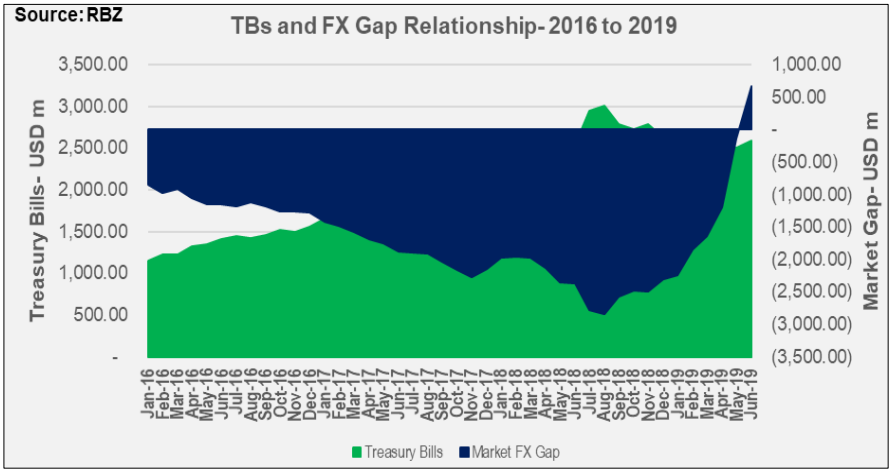


Fig 8: Relationship between the Foreign Currency Gap and Treasury Bills

As seen in the picture above, the market's stock of Treasury Bills and Government Securities increased from USD 1.14Bn in Jan-16 to USD 2.59Bn in June-19. During the period, the forex gap difference was also growing from USD 844 million in Jan-16 to USD 2.83 Bn in Aug-18.

4.5 The exchange rate and the platform for the foreign currency auction (FCAS)

Total foreign exchange payments increased from USD 6.70 billion in 2021 to USD 8.59 billion in 2022. 84 percent of all foreign currency payments came from foreign currency accounts (FCA), followed by 13 percent from the auction platform and 3 percent via the interbank platform. Between 2021 and 2022, transactions funded through FCA accounts had a large growth of 63% annually, from USD 4.44 billion to USD 7.25 billion. On the other hand, over the same time period, auction payments fell by 43%, from USD 1.97 billion to USD 1.11 billion.

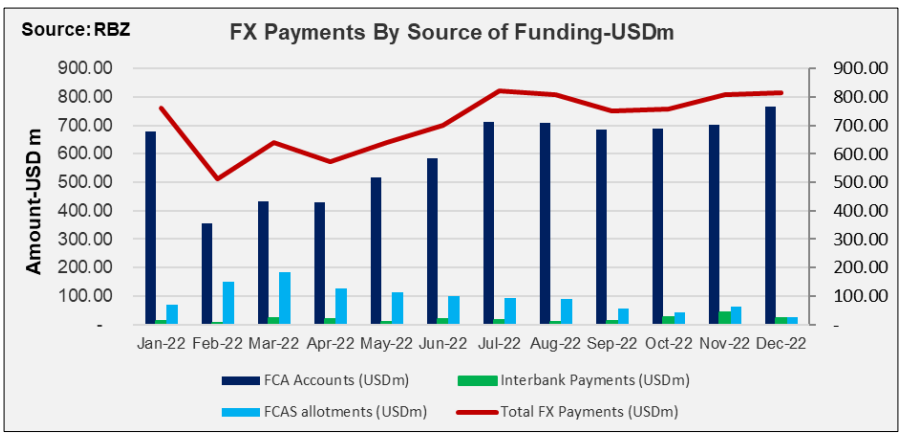
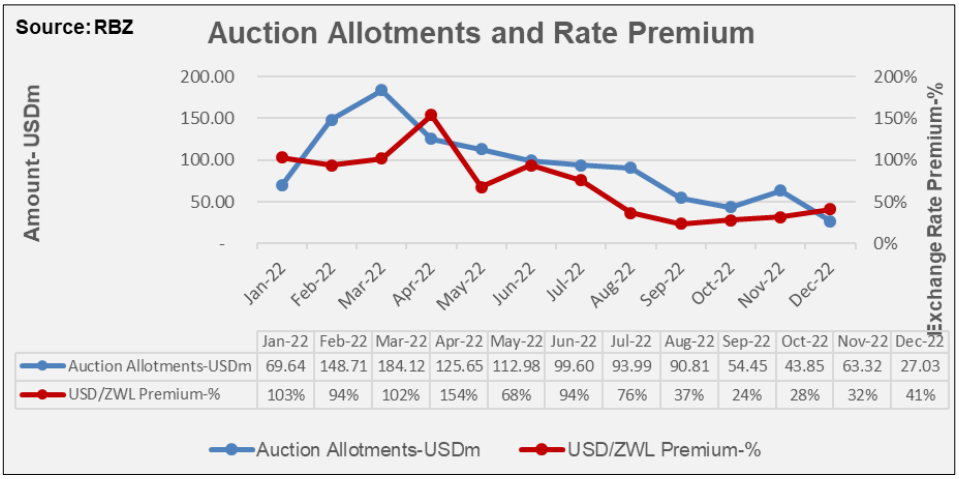


Fig 9: Payments in Foreign Currency by Source

The forex auction platform handled almost USD 1.11Bn in 2022 during the year, equivalent to an average of USD 92m each month, according to the auction data for the year 2022. The demand for foreign currency on the auction platform was larger during times when the premiums were higher, according to a review of the auction allotments relative to the observed foreign currency premium during the same timeframe. For instance, the auction site processed almost USD 834m in payments between January and July 2022. The exchange rate premium fluctuated between 76% and 154% within the same time period, making it the most unstable in 2022.



	Jan-22	Feb-22	Mar-22	Apr-22	May-22	Jun-22	Jul-22	Aug-22	Sep-22	Oct-22	Nov-22	Dec-22
Auction Allotments-USDm	69.64	148.71	184.12	125.65	112.98	99.60	93.99	90.81	54.45	43.85	63.32	27.03
USD/ZWL Premium-%	103%	94%	102%	154%	68%	94%	76%	37%	24%	28%	32%	41%

Fig 10: Exchange Rate Premium and Auction Allotments for 2022

The foreign currency premium did, however, significantly fall to 32% as of August 2022 as a result of the Central Bank's decision to raise interest rates for the local currency (ZWL) across all Banks. The foreign exchange premium fluctuated between 24% and 41% between August and December 2022. It's interesting to note that between August and December 2022, only USD 279 million, or 25% of the total auction allotments for the year 2022, were handled via the foreign currency auction platform.

In order to fully comprehend the foreign exchange crisis in Zimbabwe, a thorough explanation of the important macroeconomic variables has been provided in this section. In accordance with the goals and objectives of the research, data on the supply of money, the rate of inflation, government spending, and forex auctions were rationally presented. The research's primary takeaways, recommendations, and analyses will all be included in the next chapter.

5.0 Analysis of the Findings

Riding on the methodology this chapter explores the four relationships in more detail. This section investigates correlation coefficient, the mean, the variance and standard deviation between the given data combinations. The relationship between the variables under consideration is further examined. Pearson's correlation coefficient was used to ascertain the nature of the strength in their relationships.

5.1 Examining the interplay between inflation and the supply of money

The findings from the relationship between supply of money and inflation are shown in the table below using the statistical calculations:

Table 1: Inflation and Money Supply Correlations-2018 to 2022

	Money Supply	Inflation	Money Supply & Inflation
Standard Deviation	183%	233%	209%
Variance	334%	544%	439%
Mean/ Average	224%	218%	
Correlation Coefficient			**0.8287**

The average rate of growth of the money supply from January 2018 to November 2022 was 224%. The rate of growth was observed to be in line with the inflation rate, which averaged 218% annually. According to our secondary hypothesis, this infers a significant positive relationship between money supply and the rate of inflation.

Between January 2018 and November 2022, there was a correlation of 0.8287 that existed between the rate of inflation and the supply of money. This suggests that money supply and inflation have a very strong positive correlation. The analysis's findings demonstrate that the money supply and inflation are indeed strongly and positively correlated.

5.2 Examining the interplay in the rate of inflation and the exchange rate

The rate of exchange declined by 220% from January 2021 to December 2022. This was in line with the same period's average inflation rate, which was determined to be 164%. According to the secondary hypothesis, which contends that inflation and the exchange rate are related, the two variables show a very strong positive link.

For the period Jan-21 to Nov-22 the computation below

shows the statistical relationships that exist between the rate of inflation and the exchange rate.

Table 2: Statistics regarding the exchange rate and inflation from January 2021 to December 2022

	Exchange Rate	Inflation	Exchange Rate and Inflation
Standard Deviation	147%	101%	129%
Variance	217%	101%	167%
Mean	220%	164%	
Correlation Coefficient			**0.8293**

A Pearson's r of 0.8293 was found between the observed variables. This correlation coefficient supports the observation that there exists a connection between the two variables, hence confirming the secondary hypothesis.

5.3 Examining the nexus between the supply of money and the rate

The following tables shows statistical calculations between Jan-21 to Dec-22 to explore the relationship between the supply of money and the exchange rate.

Table 3: The Supply of Money and Exchange Rate Statistics Jan-21 to Dec-22.

	Money Supply	Exchange Rate	Money Supply and Exchange Rate
Standard Deviation	130%	101%	125%
Variance	168%	101%	156%
Mean	257%	164%	
Correlation Coefficient			**0.8705**

The supply of money increased by 257% from January 2021 to December 2022. This was consistent with the ZWL's observed depreciation, which was determined by the exchange rate's 164% decline over the same time period. There is a an affirmative positive association between the supply of money and the rate of inflation.

The movement in the supply of money and the exchange rate were correlated from January 2021 to December 2022, with Pearson's r **of 0.8705**. This correlation coefficient supports the connection between the expansion of the supply of money and depreciation in the exchange rate by attesting to the significant positive association between the two variables.

5.4 Examining how government spending and the currency problem are related

Two variables were chosen to examine whether there is a connection between the level of government spending and the foreign exchange crisis:

Table 4: Treasury Bills and Foreign Currency Gap Statistics from January 2016 to June 2019

	Forex Gap	Treasury Bills	FX Gap and Treasury Bills
Standard Deviation	94%	5%	67%
Variance	88%	0.2%	45%
Mean	-16%	2%	
Correlation Coefficient			- 0.9946

Treasury bill holdings climbed by 2% month over month from January 2016 to June 2019, the foreign currency imbalance fluctuated by 16% month over month. The information points to a significant negative correlation between the two.

For the period from Jan-16 to June-19, a **Pearson's r of -0.9946** was noted between the two variables. This demonstrates the substantial inverse linkage between government spending and the foreign currency gap position, hence confirming the secondary hypothesis.

5.5 Connection between foreign currency platform allocations and the premium on exchange rates

Auction allotments and the exchange rate premium showed a Pearson's r of 0.6669, indicating a direct link between the two variables. This supports the claim that the two variables are related, in line with the premise stated in the report's aims and objectives section.

Table 5 illustrates statistical calculations between exchange rate premiums and auction allocations:

Table 5: Statistics for the period from January to December 2022 for Auction allotments and Exchange rate premium

	Auction Allotments	Exchange Rate Premium	Auction Allotments & Exchange Rate Premium
Standard Deviation	43%	38%	55%
Mean	USD 92.85	71%	
Correlation Coefficient			**0.6669**

Data on the important macroeconomic indicators that the study is employing to get a thorough grasp of the foreign exchange situation in Zimbabwe have been supplied in this part. Data on the supply of money, the price movements, the rate of exchange as well as spending by governments, were presented in this section to assess the relationship that exists between the variables. The research's main suggestions and takeaways as well as an analysis of the findings are covered in the next section of the report.

6.0 Conclusion and Recommendations

The research's findings and suggestions are presented in this final section of the report. The research gives suggestions to

the government and the RBZ on how to navigate the challenges identified by the research.

6.1 Conclusions

The initial goal of the study was to assess the Zimbabwean foreign exchange crisis critically as well as how it affected the country's money market.

According to the research's results, a significant correlation exists between the supply of money and the rate of inflation. With a Pearson's r of 0.8287, it is clear the two variables are moving in tandem, indicating that the high inflation we saw was caused by an overabundance of money in the economy. This finding bolsters the observation by Monacelli and Perotti (2010) [28] and Ravn, Schmitt-Grohé, and Uribe (2012) [31] that inflation eventually results from an increase in the money supply or government spending. The results support the theory that there is a link between inflation and the money supply.

There is a significant positive correlation between inflation and the exchange rate. The research finds that a Pearson's r of 0.8293 exists between the two variables. Businesses use replacement cost pricing to achieve this goal, where prices for goods and services are set in accordance with the current exchange rate on the secondary market. Because the exchange rate losses are reflected in prices, we see an increase in inflation with each depreciation in the currency rate.

The money supply and exchange rate have a high positive link, as seen by the observation of a 0.8705 correlation coefficient between the two variables. The money supply increased by 257% between January 2021 and December 2022 during the observation period, but the exchange rate declined by 164%. The economy is under more strain due to the increased supply of Zimbabwe dollars, which is why the exchange rate is falling.

The study finds that the two variables have a very strong negative correlation, with a value of -0.9946 attesting to this. The information gathered between June 2016 and June 2019 shows that the government's stock of treasury bills on the market was growing.. The finding in this regard supports findings by Tambudzai (2007) that there will be some crowding out of private companies.

According to the study, there is a significant correlation between auction allotments and the market premium for the exchange rate. The correlation between the two variables is 0.6669, which points to a very strong positive association between them. Participants in the forex market take advantage of speculative opportunities created by the premium between the official and unofficial markets. The study's observations support the conclusions made by Kiguel and O'Connell (1994), which found that high capital constraints and unfair exchange rate policies encourage the black market.

6.2 The Recommendations

The research's conclusions allow for the following recommendations:

The excessive expansion of the money supply appears to be the main issue causing the foreign exchange crisis. When the Zimbabwean government is unable to collect enough money from taxation, it turns to broad money supply growth to cover its budget deficits. The counter effect of this posture, however, is what we saw in the research on inflation and the currency rate. In light of this, the Zimbabwean government must reduce its borrowing via variety of fiscal measures in order to prevent fiscal deficits.

Exchange rate inefficiencies are caused by the lack of a functioning willing foreign currency market founded on a market clearing mechanism. The premiums which existed between the official and unofficial markets created market opportunities for arbitrage. The operating environment in Zimbabwe across numerous sectors is clear evidence of pricing distortions caused by the absence of a market-wide consensus exchange rate.

When its income fall short of the need for spending, the Government of Zimbabwe has been forced to rely significantly on the Reserve Bank of Zimbabwe's (RBZ) borrowing window. This has shown to be a consistent source of the economy's surplus money supply, necessitating the implementation of fiscal rationalization policies and adherence to the requirements of the Zimbabwe Debt Management Act.

Currency differences were brought about by the forex auction, which served as a source of sub optimally priced foreign currency for the economy. In this context, the RBZ must dissolve or alter this market and hand over responsibility to commercial banks while it regulates.

6.3 Areas for further research

The study concentrated on the currency crisis and how it affected the Zimbabwean currency market. An analysis of the interaction and contribution of the money supply and government spending on the determination of the rate of exchange and the rate of inflation will be suggested as further research on this subject. Future studies on this topic should be able to forecast exchange rates and inflation rates using mathematical models after doing a thorough analysis of the causal factors revealed by this research.

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