



**ASSESSING THE IMPACT OF THE REAL EFFECTIVE EXCHANGE RATE ON
COMPETITIVENESS IN ZIMBABWE**

By

ECONOMIC RESEARCH DEPARTMENT

RBZ WORKING PAPER SERIES No 1-2015

2015

ABSTRACT

This paper attempts to estimate the equilibrium real effective exchange rate for Zimbabwe, with a view to determine the level of adjustment required to attain both internal and external balance. The macro-balance approach which is a standard model used by the International Monetary Fund (IMF) to assess equilibrium exchange rates was applied to estimate the medium-term value of the exchange rate that is consistent with internal and external balance. Based on the calibrated current account balance to the Gross Domestic Product (GDP) norm of 11 percent and exchange rate elasticity with respect to current account of -0.31, the analysis found that the real effective exchange rate would need to depreciate by about 45 percent to eliminate the disparity between the current account norm and the medium term current account forecast. However, given the lack of policy autonomy on the exchange rate front to undertake external devaluation, the disparity can only be removed through a fiscal or an internal devaluation process. Fiscal devaluation measures entail reducing taxes on labour and increasing value added tax on imported products, while internal devaluation can be achieved through relative price changes and improvement in productivity. This entails removing structural bottlenecks in the economy and promoting investment in infrastructure to reduce the cost of doing business. The policy implication is the need for Government to come up with strategies for undertaking fiscal and internal devaluation to eliminate the competitiveness challenges caused by the real effective exchange rate overvaluation.

KEYWORDS: External Balance, Real Effective Exchange Rate, Macroeconomic Balance Approach

JEL: F31, F41, E65

Disclaimer: The views and conclusions expressed in this paper are those of the authors and do not necessarily reflect the official position of the Reserve Bank of Zimbabwe. For more information concerning the paper do not hesitate to contact the Director, Economic Research, Mr. Simon Nyarota, email address: snyarota@rbz.co.zw

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SECTION ONE: INTRODUCTION

The adoption of multiple currencies in the aftermath of episodes of hyperinflation saw economic activity rebounding on the back of an improved business environment. In this regard, industrial capacity utilization improved from estimated levels of less than 10% in 2008 to 57.6% in 2012 on the back of relative price stability. Benefitting from improved industrial capacity utilization, Gross Domestic Product (GDP) which had cumulatively declined by an estimated 50% over the period 2000 to 2008, rebounded to an overage of 10.6% over the period 2009 to 2012. In concomitance with revival in economic activity, export performance improved markedly from US\$1.65 billion in 2008 to US\$4.4 billion in 2011 before declining to US\$3.4 billion in 2014.

The decline in export performance particularly on the back of a relatively high import bill has ignited debate on the impact of the appreciation of the US\$ on the competitiveness of the country's products in both the domestic and export markets. The progressive appreciation of the US\$ against major trading partner currencies particularly the South African Rand, has prompted a review of the suitability of the continued use of the US\$ as the anchor currency in Zimbabwe's basket of multiple currencies. This topical subject has prompted a rethink in terms of the need to establish an exchange rate threshold beyond which the continued appreciation of the US\$ will significantly dent economic growth prospects in Zimbabwe.

Notwithstanding the negative year on year inflation experienced in Zimbabwe over past few months, the implied real effective exchange rate computed using the US\$ exchange rate against Zimbabwe's major trading partners adjusted for inflation has sustainably appreciated, reflecting further loss of competitiveness. These adverse exchange rate developments have occurred in a multiple currency environment that has largely been typified by lack of exchange rate and interest rate policy tools to correct both internal and external imbalances. As such, in the absence of nominal exchange rate devaluation to enhance export competitiveness, alternative policies of fiscal or internal devaluation may be explored to mimic the expenditure-switching effects of exchange rate devaluation. Fiscal devaluation entails reducing taxes on labour and increasing value added tax on imported products. Internal devaluation measures reduces domestic prices either by affecting relative export-import prices or by lowering domestic production costs, thereby, reversing the appreciation in the real exchange rate.

On the back of Zimbabwe's strong trade and investment ties, the appreciation of the US\$ against the South African rand has adverse effects on the competitiveness of the country's exports in South Africa. On the other hand, the weakening of the Rand, has also made imports from South Africa relatively cheaper on the domestic market. The weakening of the Rand against the US\$ has had negative effects on the country's trade balance and the overall balance of payments at large. In view of the country's high import dependence occasioned by attendant supply gaps, liquidity conditions have further tightened and foreign exchange reserve buffers have remained depleted.

Notably, the country has realized persistent current account deficits which have averaged more than 20% of GDP since the introduction of multiple currencies, a development that is attributed to underlying competitiveness challenges. Against the background of these competitiveness challenges, the volume of manufactured exports has declined progressively since 2011. Further, the dominance of mining and agriculture commodities in the export basket also brings to the fore, the lack of competitiveness in the country's manufacturing sector.

In addition, the influx of imports, particularly finished retail products from South Africa and the Far East, has lent credence to the view that the competitiveness of the country's manufacturing sector has remained compromised. In the same context, high share of consumption goods in total imports suggests that the real effective exchange rate may be overvalued (IMF, 2014). Similarly, survey-based indicators of competitiveness, governance, corruption and business environment also confirm the country's lack of competitiveness. Recent reviews of non-price factors such as the World Bank Ease of Doing Business and the World Economic Forum's Global Competitiveness Index show that Zimbabwe's ranking compares unfavourably with its regional peers.

Against this backdrop, this paper attempts to estimate the extent of overvaluation of the real effective exchange rate and proposes the magnitude of the level of internal devaluation required to restore competitiveness. An assessment of competitiveness is important in evaluating the sustainability a country's macroeconomic policies and its growth path. International competitiveness is important in achieving economic growth in the long run.

The study contributes to the literature on competitiveness by calibration of the degree of internal devaluation that is required to improve competitiveness in the economy. The study also reviews the real exchange rate of the country as it is critical since it reflects movements in relative prices. It is essential that the real exchange rate does not depart significantly and persistently from its equilibrium level as determined by economic fundamentals. This is to ensure that relative prices remain close to equilibrium over time and also that the country's external position is sustainable.

The rest of the study is organised as follows: Section II, provides an overview of trends in Zimbabwe's competitiveness indicators utilising both price and non-price factors. Section III reviews theoretical and empirical literature, while methodological issues are addressed in Section IV. Section V analyses the results based on the empirical findings. Section VI proffers policy recommendations.

SECTION TWO: TRENDS IN ZIMBABWE'S COMPETITIVENESS INDICATORS

Introduction

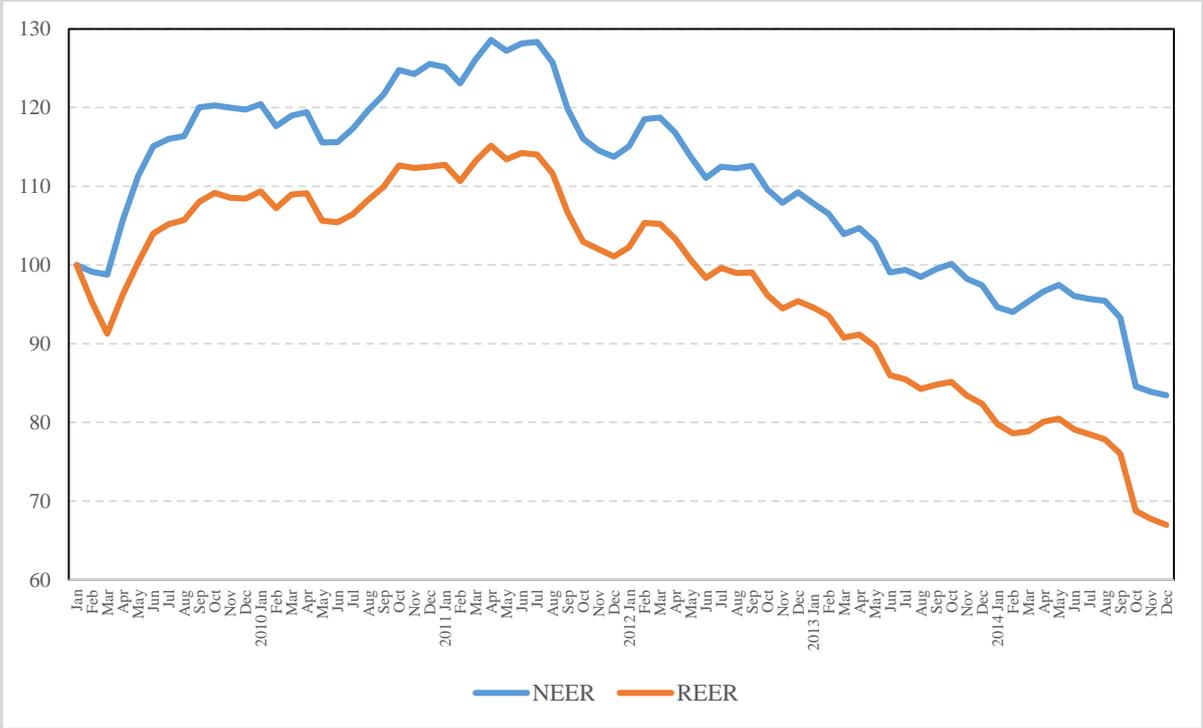
This section reviews recent trends in Zimbabwe's external competitiveness position with particular focus on real exchange rate trends, and trade patterns. In addition, this section of the study will discuss findings of other non-price competitiveness measures.

Real Exchange Rate

The real effective exchange rate is a key relative price in the economy which provides economic agents with signals on how to optimally deploy production factors between goods and service provision. In addition, the real effective exchange rate indicates how the structure of the economy should adjust to the external environment in the medium term. Unlike bilateral nominal exchange rates, the real effective exchange rate is not directly observable, which underscores the need for requisite estimation techniques to be employed in its computation. In the Zimbabwean case, the appreciation of the US dollar against the currencies of major trading partners since 2012, has raised concern regarding the country's external

competitiveness. Figure 1 below shows the Zimbabwe’s implied¹ real effective exchange rate, (REER) and nominal effective exchange rates, (NEER) for the period January 2009 to December 2014.

Figure 1: Implied Real Effective Exchange Rates and Nominal Effective Exchange² rates (Jan 2009 =100)



Source: RBZ

The appreciation of the REER on the back of the nominal appreciation of the US dollar has undermined the competitiveness of the country’s exports. The appreciation of the US dollar against the South African Rand has been one of the major factors which has affected the country’s competitiveness as South Africa is Zimbabwe’s major trading partner accounting for 67% of exports and 43%, of imports in 2014. Relative to the South African rand, the US dollar appreciated by 22% in nominal terms against the South Africa rand over the period 2009 to 2014, resulting in the appreciation of the NEER as depicted in the graph above.

¹ The real effective exchange rate is implied for Zimbabwe since the country does not have a local currency under the multiple currency system adopted in 2009.

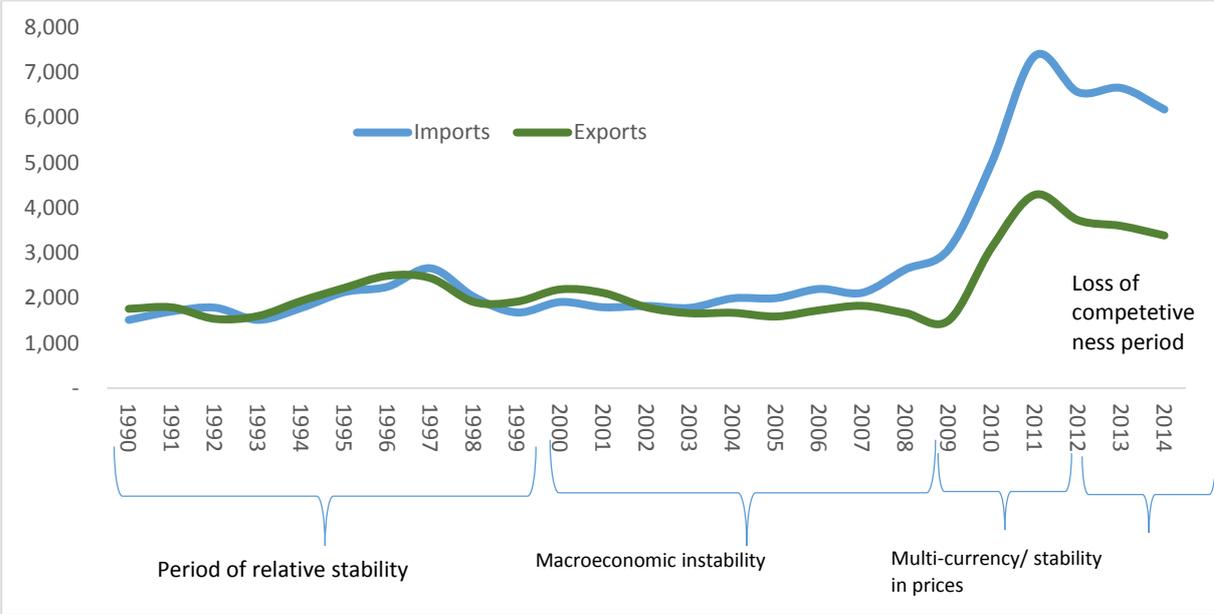
² Nominal exchange rates are directly quoted such that an increase in REER and NEER represents a depreciation while a decrease represents an appreciation. The implied real and nominal exchange rates are calculated using geometric method.

Trade Developments

The country’s merchandise exports totalled US\$1,753 million in 1990, before steadily increasing to US\$3,694.2 million in 2013. The steady increase in exports reflects the discovery of major minerals notably platinum and diamonds, increases in horticultural production as well as the rebound in tobacco output. The general increase in international commodity prices particularly for gold, platinum, nickel and copper before the global financial crisis of 2009, also provided strong impetus to export earnings.

The decline in exports by 6 .1% to US\$3,468.2 million in 2014 was largely underpinned by the general retreat in international commodity prices. On the other hand, merchandise imports, increased from US\$1,069 million in 1990 to US\$2,630 million in 2008, and US\$6,174 million in 2014. Figure 2 below depicts the country’s export and import performance for the period 1990 to 2014.

Figure 2: Merchandise Exports and Imports: 1990 to 2014 (US\$m)



Source: ZIMSTAT

Evidently, the period 1990 to 1999, highlights a phase of relative macroeconomic stability where the trade deficit remained favourable and sustainable. This notwithstanding, the period 2000-2008 which was largely typified by macroeconomic instability, witnessed the widening of the trade deficit underpinned by the excess of imports over exports, a development that exacerbated foreign exchange shortages. The introduction of multicurrency system in 2009

resulted in the increase in both exports and imports. The country, however, experienced loss of competitiveness from 2012 as depicted by the deceleration in exports that culminated in the further widening of the gap between exports and imports. Reflecting reduced competitiveness of manufactured exports, Zimbabwe’s exports gradually shifted from manufactured exports in 1990 to minerals in 2014. The composition of manufactured exports to total exports, decreased from 41% in 1990 to 15% in 2014. Table 1 below compares the composition of Zimbabwe’s exports between 1990 and 2014.

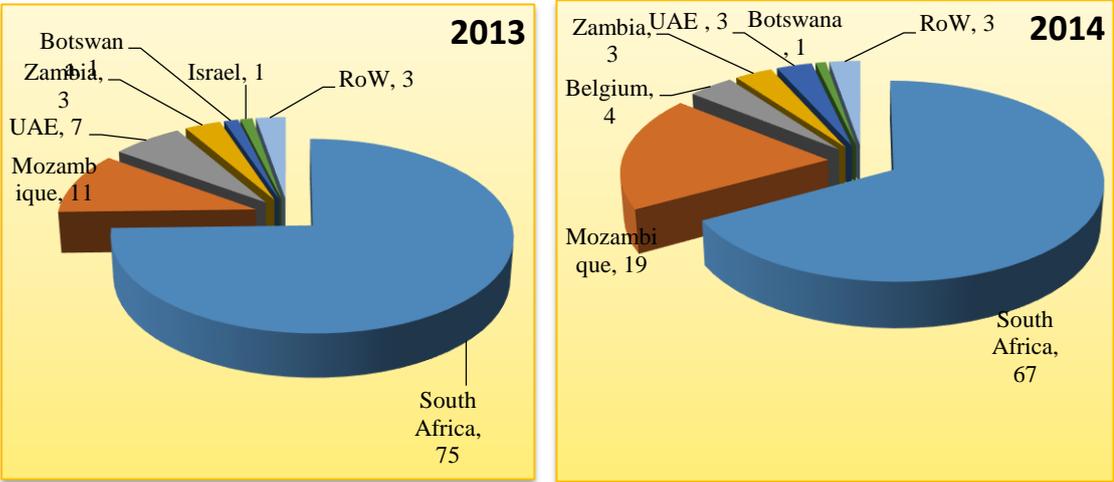
Table 1: Composition of Exports in 1990 and 2014

Classification	Exports	
	1990 (% Share)	2014 (% Share)
Mineral	23.66	55.56
Agriculture	30.84	27.57
Manufactured	40.90	14.48
Other	4.60	2.39
Total	100.00	100.00

Source: ZIMSTAT and RBZ computations

South Africa remained the dominant market for Zimbabwe’s exports, accounting for 67% of the country’s total exports in 2014. The balance was destined for markets in Mozambique (19%), Belgium (4%), Zambia (3%), UAE (3%) and Botswana (1%), as depicted in Figure 3 below. Evidently, 90 % of the country’s exports are destined for the SADC region reflecting growing intra-regional trade.

Figure 3: Major Export Markets 2013 & 2014 (%)



Source: ZIMSTAT

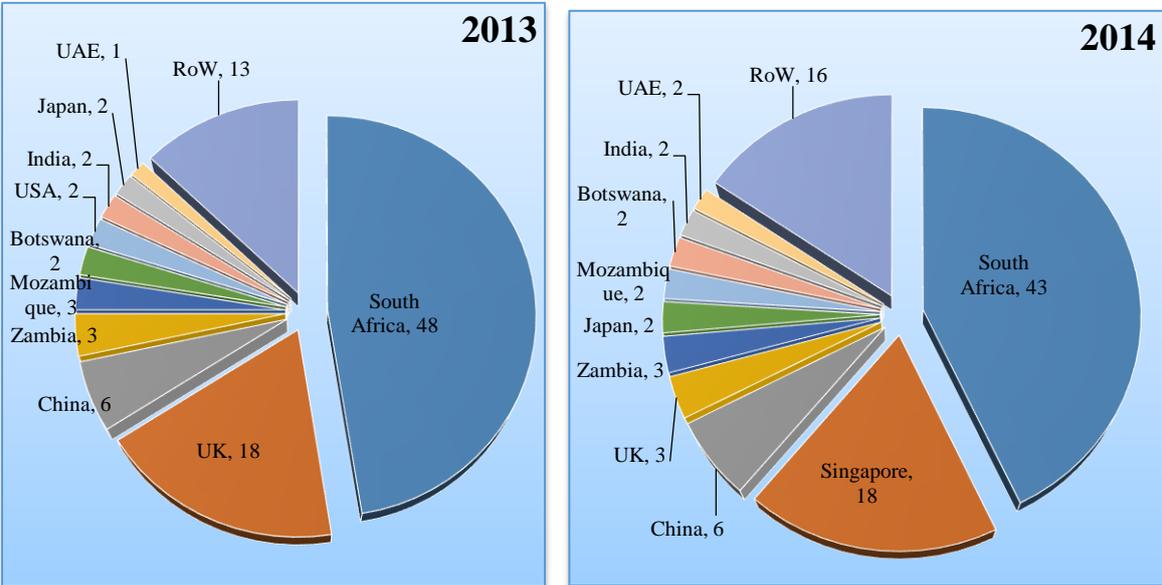
As alluded to in the foregoing, imports accelerated considerably since 2009, on the back of increased aggregate demand and emerging supply gaps in the economy. As such, the country’s import basket has, largely comprised of finished consumption goods since 2009.

Zimbabwe’s regional and international trade dynamics indicate the dominance of intra-regional trade particularly within the SADC economic bloc. In 2014, SADC contributed 65.1% of Zimbabwe’s total trade flows, followed by Asia (24.8%), EU (7.4%) and the rest of the world (2.7%).

Major Import Sources

Zimbabwe continue to source most of its imports from South Africa. In 2014, the country sourced its imports from South Africa (43%), Singapore (18%), China (6%), UK (3%), Zambia (3%), Japan (2%), Mozambique (2%), Botswana, (2%), India (2%) and UAE (2%). Figure 5 below shows the import sources by country for 2013 and 2014.

Figure 4: Import Sources 2013 & 2014 (%)



Source: ZIMSTAT & RBZ Computations

Table 2: Regional and International Trade Shares for 2013 & 2014

Partner	Export Share (%)		Imports Share (%)		Total Trade (%)	
	2013	2014	2013	2014	2013	2014
SADC	90.4	90.7	57.6	52.8	67.9	65.1
Asia	8.6	4.0	14.7	34.8	12.8	24.8
European Union	0.9	5.0	22.8	8.6	15.9	7.4
Rest of the World	0.1	0.3	4.9	3.8	3.4	2.7
World	100	100	100	100	100	100

Source: ZIMSTAT & RBZ Computations

Table 2 above, however, indicates that Zimbabwe's share of total trade with trading partners in the SADC region contracted by about 2.8 percentage points in 2014, compared to 2013. This decline is largely underpinned by the decline in the share of Zimbabwe's trade with South Africa from about 56% in 2013 to about 51% in 2014.

Non-Price Factors of Competitiveness

External price and trade related competitiveness assessments are normally buttressed by information on non-price factors. The non-price factors normally used for assessment of competitiveness include the Global Competitiveness by the World Economic Forum and the Ease of Doing Business Index by the World Bank. Other competitiveness indicators used include the Corruption Perceptions Index and Economic Freedom Index. Zimbabwe has performed poorly in all these non-price ratings since 2000.

Global Competitiveness Index

The World Economic Forum's Global Competitiveness index provides insights into the drivers of a country's productivity and prosperity. In the latest Report for 2014-15, Zimbabwe was at position 124 out of 144 countries and far below most of its regional comparators, with the exception of Malawi and Angola as shown in Table 3.

Table 3: Global Competitiveness Index for Selected SADC Countries

Country	Rank
South Africa	56
Botswana	74
Namibia	88
Zambia	96
Tanzania	121
Zimbabwe	124
Malawi	132
Angola	140

Source: World Economic Forum 2014

Ease of Doing Business Index

Zimbabwe's relative international uncompetitive position is also confirmed by the World Bank's Ease of Doing Business Index. The country is ranked lowly against its regional comparators with the exception of Angola. Globally, the country was ranked at 171 out of 189 countries in 2014. The Table 4 below compares Zimbabwe's Ease of Doing Business Index in relation to other regional countries in the SADC region.

Table 4: Ease of Doing Business Index

Country	Rank
South Africa	43
Botswana	74
Namibia	88
Zambia	111
Tanzania	131
Malawi	164
Zimbabwe	171
Angola	181

Source: World Bank, 2014

The foregoing review of real effective exchange rate, external developments and non-price factors raises concerns about country's external competitiveness. In this regard, it's important to assess the real effective exchange rate and gauge its degree of overvaluation.

SECTION THREE: LITERATURE REVIEW

Theoretical Literature

Aiginger (2006) defines competitiveness as the ability to create welfare, the relative ability of a nation to create and maintain an environment in which enterprises can compete. As such, competitiveness in its broad sense includes a set of institutions, policies, and factors that determine the level of productivity of a country.

Stanovnik and Kovacic (2000), argue that the assessment of competitiveness, normally begins with the examination of the real exchange rate. In many instances competitiveness of an economy is usually linked to changes in real exchange rate movements of that economy although there is no clear evidence of this relationship (Guerguil & Kaufman, 1998).

According to Guerguil and Kaufman (1998), an appreciation of the real exchange rate may or may not have an impact on an economy's competitiveness. They highlighted that an economy may lose its competitiveness in the event of an exchange rate appreciation if there exists a misalignment situation, while its competitiveness may be seen improving if changes in the exchange rate emanate from major causes such as productivity gains among others. Guerguil and Kaufman (1998), established that an economy's competitiveness can only be affected by real exchange rates movements if there exists a huge gap between the Real exchange rate and the equilibrium exchange rate.

Williamson (1983), defines the equilibrium exchange as the exchange rate that equilibrates supply and demand of a currency without any manipulation by the authorities. This definition does not reflect any time restrictions but merely depends on the exchange rate regime being used to determine the exchange rate.

It can be noted that the concept of equilibrium exchange rate can refer to either short run or long run movements in the exchange rate. Driver and Westaway (2004) define the short-run equilibrium as the exchange rate that prevails when its fundamental determinants are at current

levels without the influence of random effects. The long run equilibrium exchange rate on the other hand occurs when the economy is not motivated to change overtime (Milgate, 1998).

Given this background, the equilibrium real exchange rate is considered a key macroeconomic indicator in evaluating an economy's competitiveness (Weber & Yang, 2011). Weber and Yang (2011) established that assessing how close a country's real exchange rate is to its equilibrium assists in the determination of future adjustment needs as well as potential trajectories of economic fundamentals. In emerging markets and developing markets the assessment of the equilibrium exchange rate presents challenges as these markets are characterised by data limitations, structural breaks and very unstable macroeconomic conditions (Weber & Yang, 2011).

Methodologies for Equilibrium Exchange Rates

The study on assessing exchange rate competitiveness normally utilises the 3 conventional IMF Consultative Group on Exchange Rate Issues (CGER) methodologies. These methods have been used by IMF since the 1990s as part of its exchange rate assessment. The CGER approaches include the "macroeconomic balance" approach, a reduced form "equilibrium real exchange rate" approach, and an "external sustainability" approach. As highlighted by Bussiere et al (2010) the empirical analysis of the equilibrium real exchange rate has its own challenges. The main challenges for emerging market and developing economies include limited data availability, structural breaks and high macroeconomic volatility.

Macroeconomic Balance (MB) Approach

The Macroeconomic Balance (MB) approach defines the equilibrium exchange rate as the real exchange rate that meets simultaneously conditions of internal and external balances (Brixiova et al 2013). The MB approach measures the exchange rate adjustment required to move the underlying current account (CA) to its sustainable level, that is, where output is at its potential. The application of MB involves three steps. The first step is to estimate an equilibrium relationship between the current account balance and a set of fundamentals, which are the determinants of saving and investment. The second step is to estimate the current account norm based on the estimated relationship and medium term projected values of fundamentals. The third step is to measure the required exchange rate adjustment to close the gap between

the CA norm and the projected (or underlying) current account. The adjustment is a function of the elasticity of the current account to the real exchange rate.

The Equilibrium Real Exchange Rate Approach

The equilibrium real exchange rate approach (ERER) models the medium run equilibrium value of the real effective exchange rate as a function of macroeconomic fundamentals. According to the IMF, the ERER involves 3 stages. The first is to run a panel regression of real exchange rates against a set of fundamentals. The second step is to calculate the equilibrium real exchange rates as a function of the medium-term level of the fundamentals. The third step is to calculate the magnitude of the exchange rate adjustment that would restore equilibrium as the difference between each country's actual real exchange rate and the medium term equilibrium value. Following, Vitek (2009), the panel equation can be specified as:

$$\ln Q_{i,t} = \beta_{0,i} + \beta' x_{i,t} + \varepsilon_{i,t}$$

Where

$Q_{i,t}$, is the real effective exchange rate for economy i at time t

$\varepsilon_{i,t} \sim N(0, \delta^2)$, is the error term,

$x_{i,t}$ is a vector of explanatory variables;

$\beta_{0,i}$ denotes an economy specific fixed effect

The explanatory variables include terms of trade, investment to GDP, productivity, government consumption as a share of GDP, degree of openness, debt service as a share of exports, net foreign assets as a share of GDP and remittance inflows.

External Sustainability

The external sustainability (ES) approach, equates the current account norm to the ratio of the current account balance to output required to stabilize the ratio of the Net Foreign Asset (NFA) position to output at its estimated medium run equilibrium value. The ES consists of three steps. The first involves determining the trade or current account balance to GDP ratios that would stabilize the net foreign asset position at given 'benchmark' values. The second step compares these NFA stabilizing trade or current account balances with the level of a country's

trade or current account balance expected to prevail over the medium term. The third step consists of assessing the adjustment in the real effective exchange rate that is needed to close the gap between the medium-term trade and current account balances and the NFA stabilizing trade and current account balances. Unlike the MB and ERER approaches, which rely on econometric estimation, the ES approach requires only a few assumptions about the economy's potential growth rate, inflation rate, and rates of return on external assets and liabilities. This simple and transparent structure makes it a natural reference point against which to compare more sophisticated econometric approaches.

Empirical Literature

The IMF normally undertakes the exchange rate assessments as part of the normal surveillance work. In this regard, most of the empirical literature on exchange rate assessment in developing countries and in particular the sub Saharan Africa (SSA) is based on IMF work.

Using the macroeconomic balance approach and external sustainability assessment standard methodologies to Zimbabwe, the IMF (2014) found that real effective exchange rate was overvalued by between 21 to 23 per cent using end 2013 data. In Angola, IMF (2014), found out that the real exchange rate was overvalued by 10-25 per cent using the standard CGER-type approaches. The MB approach showed that Angola's real exchange rate was overvalued by 26 percent, while ERER and ES, showed overvaluation of 15 percent and 11 percent, respectively. The results of all the three methods pointed to overvaluation, however, REER and MB depicted wide confidence bands which means the estimates may be imprecise.

Bakhache, et al., (2006) employed the real exchange rate and recent trade performance measures in assessing competitiveness of the Central African Republic (CAR). They, also used other measures which they considered more useful in capturing the competitiveness position of a post conflict country like CAR. These methods included governance measures as well as transport costs among others. Bakhache, et al., (2006), observed that the real exchange rate and trade measures indicated a slight decline in competitiveness. On the other hand, the other methods used showed that there is more to be worried about in assessing the CARs competitiveness challenges than just the measures considered.

Vitek, (2009) used a variety of indicators to assess the external price competitiveness for Mozambique which included indicators such as the real effective exchange rate and the terms of trade. The indicators reflected that the country had lost its external price competitiveness with its major trading partners. Vitek, (2009) further investigates the country's competitiveness using the exchange rate assessment based on the macroeconomic balance, equilibrium real exchange rate, and external sustainability approaches. The results indicated that the metical was overvalued by 26 to 41 percent in real effective terms.

Miyajima (2007), undertook an exchange rate assessment for Namibia using the EREER approach in a single country framework and used a data set spanning from 1970 to 2004. The study used the ARDL framework, with variables that included productivity, terms of trade, openness, investment, money supply, fiscal balance, public consumption expenditure and public consumption expenditure and net lending. Miyajima (2007), concluded that Namibia's real effective exchange rate was in equilibrium.

Chudik and Mongardini (2007), assessed equilibrium real exchange rates (ERER) for Sub-Saharan African (SSA) countries by applying both single-country and panel estimation techniques. The panel estimates were found to be statistically and economically significant, but limited data sets negatively affected single-country estimations for most countries in the sample. The advantage of the panel technique is that it allows for out of sample estimates for countries with limited data sets such as Zimbabwe. In Chudik and Mongardini (2007), out of sample estimates were made for countries such as Eritrea.

The IMF (2012) applied the CGER methodology to assess Zambia and concluded that the country's real effective exchange rate was close to equilibrium in 2012. The study concluded that the appreciation of the REER from 2000 was a function of fundamentals, particularly increases in copper prices. Brixiova et al (2013), assessed exchange rates for Egypt, Morocco and Tunisia using a stock-flow approach to the real equilibrium exchange rates. The results showed that Egypt experienced substantial misalignment during the period under review. Developments in Morocco and Tunisia exchange rates were, however, in line with evolution of the underlying fundamentals in the two countries.

Kramarenko et al (2010), used a backward-looking component of Zimbabwe's NFA (financial) position and a forward-looking component based on the Net Present Value (NPV)

of Zimbabwe's mining receipt to assess the country's external competitiveness. They went further to do a qualitative examination of the implications of the NFA position, inclusive of the NPV of mining receipts and observed that the external position for the country was unsustainable. The objective was to assess the country's potential to outgrow the external debt overhang. They concluded that the country cannot solve its debt challenges without debt relief.

Nakunyada & Chikoko (2012), also conducted a study to test for the stationarity of the current account deficit as well as examining the cointegration of exports and imports for the period 1990 to 2012. The research concluded that the country's current account deficit and the external sector position has been unsustainable since dollarization. Arocha, et al 2014 (2014) dealt with the issue of competitiveness of the country through analysing the major cost drivers that have made local products uncompetitive. The study concluded that competitiveness edge has been eroded by high electricity, water, borrowing and labour costs. In addition, poor infrastructures, high transportation, multiplicity of fees and charges, tariff policy and cumbersome regulations and procedures have all conspired to impede competitiveness of the economy.

SECTION FOUR: METHODOLOGY

In this paper, the Macroeconomic Balance (MB) approach is applied to estimate the current account norm and the real effective exchange rate gap. The macroeconomic balance approach calculates the exchange rate adjustment needed to close the gap between the actual current account balance, adjusted for temporary factors, called underlying current account and the equilibrium current account balance, called the norm. Following Lee e-tal (2008), the model specification is as follows:

$$CAB_t = \beta_1 + \beta_2 Age_t + \beta_3 POP_t + \beta_4 INC_t + \beta_5 GPP_t + \beta_6 OIL_t + \beta_7 GB_t + \beta_8 NFA_t + \varepsilon_t$$

Where,

CAB_t is the current account balance to GDP ratio, Age_t is the relative old age dependency ratio, measured as ratio of retirement age to working population, POP_t denotes the relative population growth rate, INC_t is the log of per capita GDP in PPP terms, GPP_t is the relative economic growth measured as percentage change in GDP per Capita in PPP terms, OIL_t is the

oil trade balance, GB_t is the general government balance to GDP ratio, NFA_t is the initial NFA to GDP ratio, ε_t is the error term.

Justification of Variables

The selection of variables for the panel equation is inferred from several studies that have been done in African economies including Chudik and Mongardini (2007), Miyajima (2007), Vitek (2009), García-Verdú (AFR) and Pedras, (2014). The old age dependency ratio and population growth rate are included to capture demographic effects. A higher share of inactive population reduces national savings and decreases the CA balance, (Higgins (1998) and FRB Kansas (2004)).

The level of NFA can affect the current account in two opposite directions. On the one hand, economies with relatively high NFA can afford to run trade deficits on an extended basis and still remain solvent, potentially leading to a negative association between NFA and the current account. On the other hand, economies with high NFA benefit from higher net foreign income flows, which tend to create a positive association between NFA and current account balances (Rajan, 2006).

The relative oil price balance affects countries differently, increased oil prices improves the current account balance of oil exporting countries and decrease the current account balance of oil-importing countries (IMF, 2006). Economies in early stage of economic development have a greater need for investments and are likely to finance investment through external borrowing. As they develop and approach income of advanced economies, their CA should improve.

The relative income is taken as a measure of the relative stage of economic development. Economies in early stage of economic development have a greater need for investments and are likely to finance investment through external borrowing. The real GDP per capita growth rate is the variable used to capture relative economic growth, compared to trading partners. The CA is expected to increase with relative income but to decline with relative growth. The current account balance is expected to increase with relative income but to decline with relative growth.

Current account elasticity with respect to real exchange rate

The estimated coefficients from the regression analysis are used to compute the current account balance to GDP norm. The last step of the macro balance approach consists of computing the real exchange rate adjustment that would close the gap between the estimated CA norm and the underlying current account of each country. The real effective exchange rate gap is calculated as:

$$RERgap_t = \frac{1}{\vartheta_{CA}} (CA^U - CA^{norm})$$

Where CA^U is the underlying current account balance to GDP ratio.

The underlying current account was computed using historical information and forecasts derived from the Hodrick Prescott filter (HPF). The magnitude of the exchange rate adjustment is derived by applying the elasticity of the current account balance to the real exchange rate. The current account elasticity is calculated as:

$$\vartheta_{ca,i} = x_i \vartheta_X - m_i (\vartheta_m - 1)$$

Where, ϑ_X export elasticity with respect to RER, ϑ_m import elasticity with respect to RER, x_i is the export to GDP ratio, m_i is the import to GDP ratio.

For a given response of export and import volumes to the real exchange rate, the impact on the current account balance will be roughly proportional to trade openness. Therefore, a country more open to trade will be able to close the current account gap with less exchange rate adjustment.

Data Sources and Estimation

The study uses pooled panel regression estimation methods to estimate the current account balance for selected low income countries in Africa. The pooled estimation results do not include country-specific constants and, therefore, use the variables in the regression to explain both the cross-section and time-series (within country) variation in the data. Pooled panel regression is desirable to avoid the biases arising from country specific factors. The data used

in the analysis was obtained from the world development indicators as well as the IMF world economic outlook database (2015).

SECTION FIVE: ESTIMATION RESULTS AND ANALYSIS

Table 5 below shows the estimated coefficients from a panel regression analysis and these are compared to estimates from previous studies Prati et al (2011) and Lee et al (2008).

Table 5: Macroeconomic Balance Estimation (CAB/GDP Dependant Variable)

Variable	Poled Estimations	Prati e-tal (2011)	CGER³ (2008)
<i>C</i>	<i>0.00***</i>	<i>0.2933**</i>	<i>-0.00</i>
<i>Age_t</i>	<i>-0.10***</i>	<i>-0.24</i>	<i>-0.14**</i>
<i>POP_t</i>	<i>-0.57***</i>	<i>-1.466***</i>	<i>-1.21***</i>
<i>INC_t</i>	<i>0.00***</i>	<i>0.0372</i>	<i>0.02*</i>
<i>GPP_t</i>	<i>-0.76***</i>	<i>0.0263</i>	<i>-0.21**</i>
<i>OIL_t</i>	<i>0.36***</i>	<i>0.1892</i>	<i>0.23***</i>
<i>GB_t</i>	<i>0.31***</i>	<i>0.24***</i>	<i>0.20***</i>
<i>NFA_t</i>	<i>0.04*</i>	<i>-0.0099</i>	<i>0.02***</i>
<i>Adjusted R squared</i>	<i>0.50</i>	<i>0.52</i>	<i>0.52</i>

Source: IMF and CGER for LICs (2013)

*** Significant at 1%, **, significant at 5% and *, significant at 10%

³ Lee et-al, (2008)

The coefficient on the fiscal balance (GB_t) implies that 1 percentage-point increase in the government budget balance (relative to trading partners) leads to a 0.31 percentage-point increase in the current account balance in percent of GDP. A higher dependency ratio reduces the current account balance. The coefficient on population growth (POP_t) implies that a 1 percentage-point increase in the population growth rate relative to trading partners worsens the current account balance by 0.57 percent of GDP.

The coefficient of NFA implies that an increase in NFA of 1 percent of GDP raises the medium-term current account balance by about 0.04 percent of GDP. The panel regression coefficient for NFA which is lower than the mean return on foreign assets and liabilities highlight that countries that maintain a small trade balance largely on account of large initial foreign asset positions and typically benefit from high investment income. The coefficient on the oil balance is 0.36, reflecting a positive impact of increases in oil prices on current account balance. Oil exporters use their large oil surpluses on imports of goods and services, leading to lower current account surplus. Oil importing countries such as Zimbabwe reduce oil imports when oil prices increase. An increase in output reduces the current account balance. A one-percentage point real GDP growth increase in comparison to a trading partner average results in a reduction the current account balance by 0.76 of a percent of GDP. Relative income is, however, positively correlated to the current account balance.

Estimated Current Account Elasticity

Table 7 below shows the evolution in the current account elasticity with respect to real exchange rate for Zimbabwe over the period 2000 to 2015.

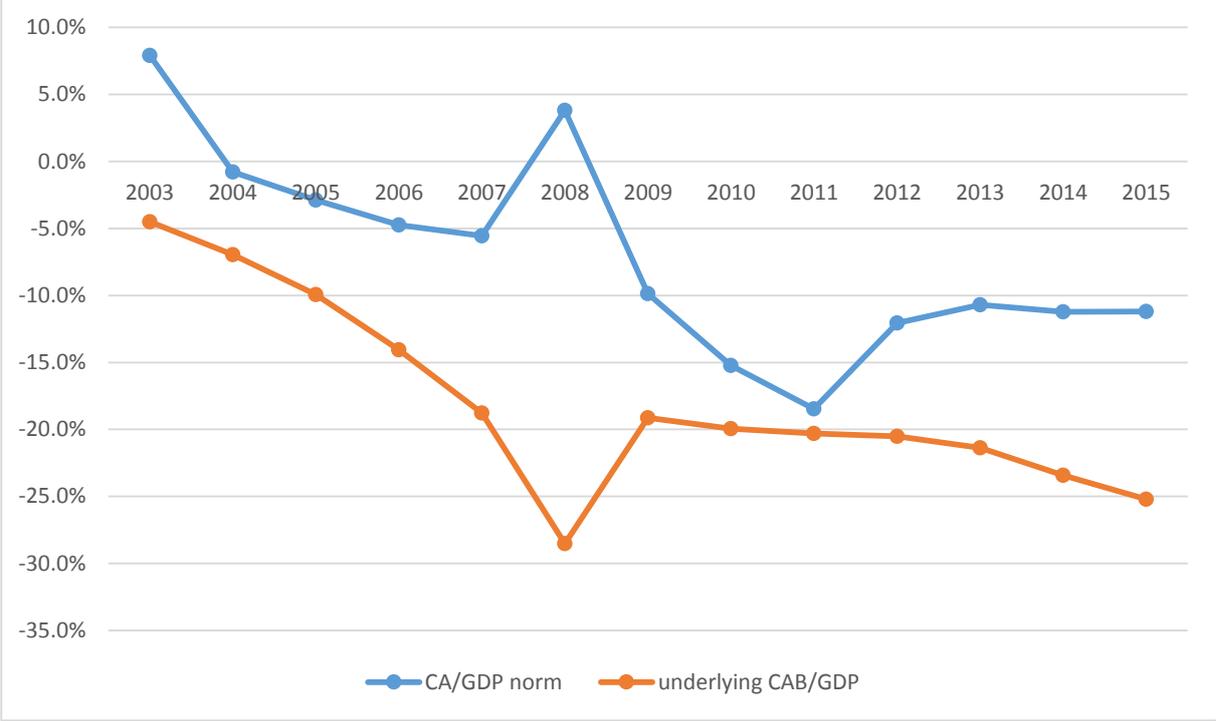
Table 6: Current account elasticity computations

Year	Total Imports/GDP ratio	Total Export/GDP ratio	Current Account Elasticity
2000	0.29	0.33	-0.18
2001	0.26	0.31	-0.16
2002	0.29	0.28	-0.18
2003	0.31	0.29	-0.20
2004	0.34	0.29	-0.22
2005	0.35	0.28	-0.22
2006	0.40	0.32	-0.26
2007	0.40	0.34	-0.26
2008	0.60	0.38	-0.39
2009	0.76	0.28	-0.52
2010	0.62	0.34	-0.41
2011	0.78	0.32	-0.53
2012	0.60	0.31	-0.40
2013	0.57	0.26	-0.38
2014	0.46	0.26	-0.31
2015	0.44	0.26	-0.29

Source: Authors' Own Computations

The results presented in Table 7 show the projected current account balance elasticity for 2015 of -0.29. This suggests that one percent exchange rate depreciation increases the current account balance by roughly 0.29 percent of GDP. The elasticity increased significantly during the multiple currency regime to an average of -0.42. This implies that the current account has been more responsive to the real exchange rate in the multiple currency regime. The more negative the current account balance elasticity, the greater is the response of the current account balance to the real exchange rate. Figure 3 below shows the evolution of current account norm and underlying current account for the period 2000 to 2015.

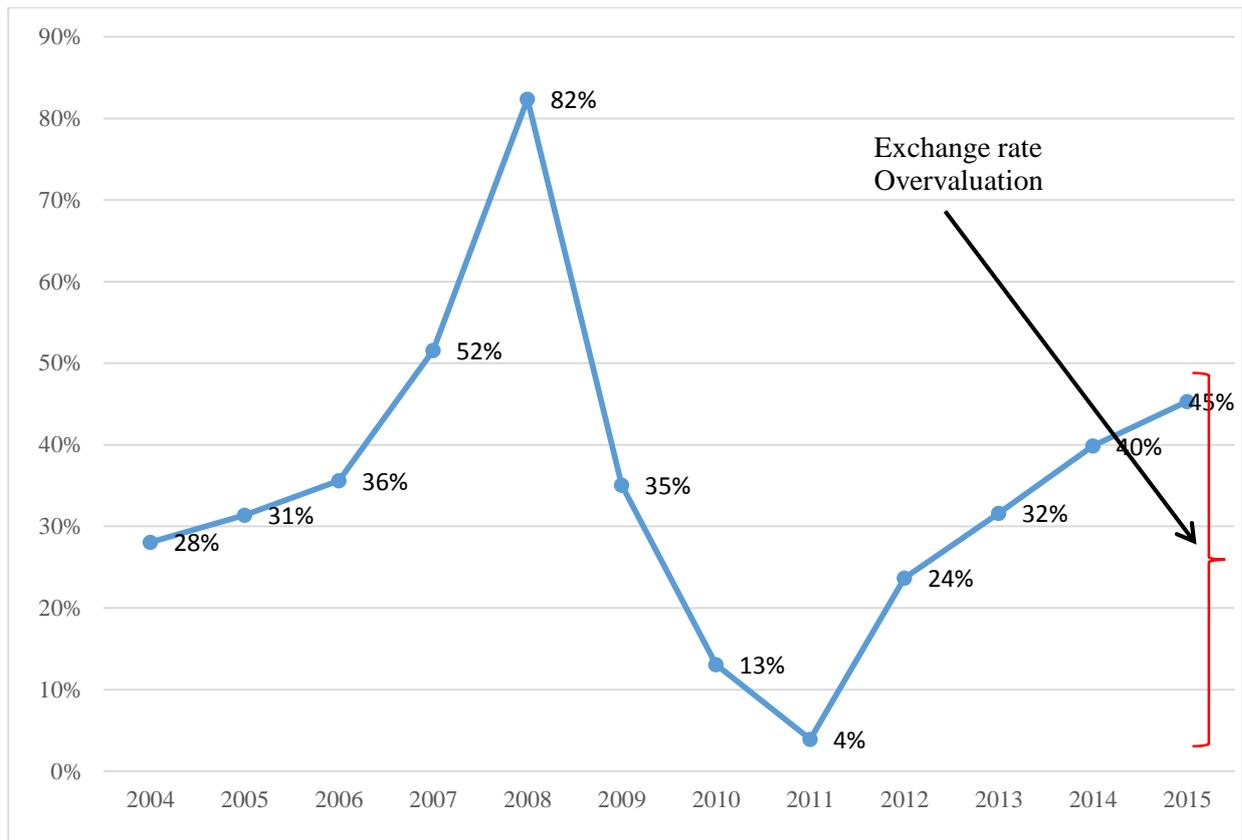
Figure 5: Current account balance norm and underlying current account balance (2000-2015)



Source: Authors' Own Computations

The calculated current account norm for Zimbabwe based on estimated current account regression equation for 2014 was about 11 percent. The projected underlying medium term current account balance to GDP is 22 percent. This reflects the presence of an exchange rate overvaluation in Zimbabwe. Accordingly, based on the norm and the average exchange rate elasticity with respect to current account of -0.31, the real effective exchange rate would need to depreciate by about 45 percent to eliminate the disparity between the current account norm and the medium term current account forecast. Figure 4 below shows the estimated real effective exchange rate gap from (2000-2015).

Figure 6: Estimated Reel Effective Exchange Rate Gap (2000-2015)

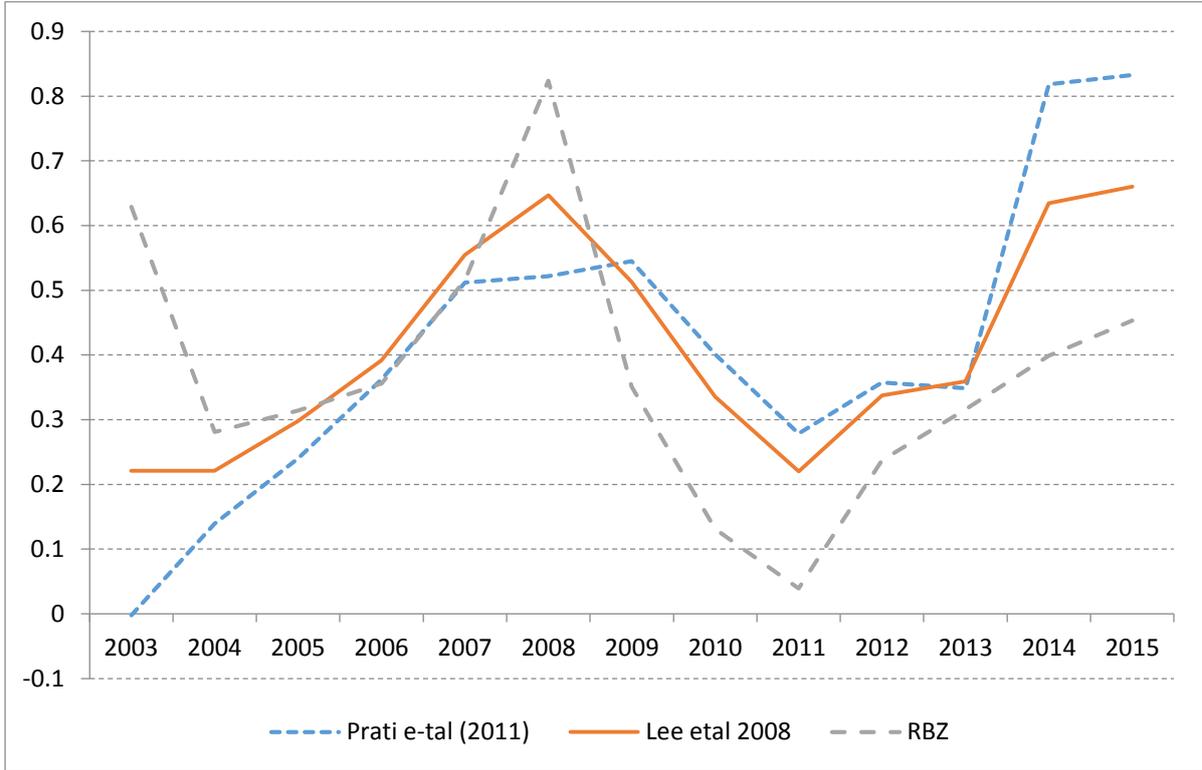


Source: Authors Own Computations

Figure 4 above show that Zimbabwe has over the years been facing an overvalued exchange rate much to the detriment of the country's export competitiveness. The positive value indicates overvaluation, while negative shows undervaluation

For robustness check, the coefficients used in the initial CGER model (Lee et-al (2008) and calibrations for low income countries (Prati et-al (2011) were applied to estimate the real effective exchange rate gap. The results are shown in figure 5 below.

Figure 7: Comparisons of Results with Initial CGER Coefficients



Source: RBZ Researchers Own Computations,

The results obtained from using initial coefficients in the CGER model and coefficients for low income countries also confirm the country’s real effective exchange rate to be overvalued. As shown in Figure 5, the trend is gravitating towards the 2008 when the country experienced its worst crisis. The results, therefore, suggest the need for a comprehensive fiscal or internal devaluation process to mitigate the potential crisis from the exchange rate overvaluation.

Overall the macroeconomic balance approach method using coefficients from original CGER estimations for low income countries show that the country’s real effective exchange rate is significantly overvalued. The extent of overvaluation has been widening since 2011 and is expected to moderate at higher levels in the medium term.

SECTION SIX: CONCLUSION AND POLICY RECOMMENDATIONS

The analysis of this study's results reveal that the country's real effective exchange rate has been overvalued since the adoption of multicurrency regime in 2009. The magnitude of the overvaluation however, increased significantly starting in 2011. The results show the real effective exchange rate gap of about 45 percent by end of 2014, implying that the currency is overvalued to that extent. The overvalued exchange rate has been hurting export competitiveness, with exports remaining subdued against a huge import bill.

The absence of an exchange rate policy to deal with the overvalued real effective exchange rate, imply that the country has to undertake fiscal and internal devaluation to eliminate the disparity between the current account norm and the underlying current account deficit. A fiscal devaluation aims primarily at influencing the competitiveness of a country in the short-term by mimicking the effects of nominal currency devaluation. The standard fiscal devaluation takes the form of a reduction in taxation of labour, financed by an increase in VAT. Fiscal devaluation can be undertaken through a revenue-neutral shift from taxes on labour to taxes on consumption. By reducing the tax burden on exports and raising that on imports, this policy can help to restore competitiveness.

Specifically, the Government can increase VAT on imported finished products by the magnitude of the real exchange rate overvaluation. By so doing the Government will be levelling the playing field on price competitiveness between the country and its trading partners. This policy stance imply that competition will be based on non-price factors such as quality and product branding. The Government can simultaneously reduce taxes on labour, particularly low income earners by the same potential revenue gain from increases in VAT in a way that ensures a revenue neutral shift. The broad objective of a revenue neutral shift is to boost domestic demand, thereby promoting long-term growth and employment creation.

Fiscal devaluation measures can be boosted by ensuring availability of affordable credit facilities for financing the companies producing the targeted import-substituting products. Cheaper financing from the banking sector, would lower the cost of production for domestic producers, improves their competitiveness, and enable them to expand production, increase employment and lower prices. Moreover, increased consumption of domestically produced

goods has further downstream benefits for the economy, including increased output, employment opportunities and additional future tax revenues for Government.

Fiscal devaluations were implemented in Denmark in 1987 and Germany in 2007. Denmark introduced a wide-ranging tax reform to contain overheating pressures, reduce labour cost and improve cost-competitiveness, while preserving exchange rate stability within the European Exchange Rate Mechanism. VAT was increased by 3 percentage points (from 22 to 25 percent). The OECD (1988) estimates that this increased price competitiveness by 5 percent, as measured by relative export prices.

Germany raised the VAT rate from 16 to 19 percent and used about one third of the additional revenues to cut employer contributions to the unemployment insurance scheme. The remaining revenue was used to consolidate the budget. Recently, there has been extensive research in Europe, on whether fiscal devaluations can help alleviate competitiveness challenges in the absence of a nominal exchange rate devaluation. Moreover, the case for fiscal devaluation is particularly strong for Zimbabwe, owing to downward rigidities in nominal wages, amid a highly overvalued real exchange rate and extensive involuntary unemployment.

Internal devaluation policy options include implementing measures that boost productivity to reduce the overall cost of production. Zimbabwe can address the competitiveness problems in the absence of a nominal devaluation through fiscal and internal devaluation mechanisms. Both fiscal and internal devaluation mechanisms mimic the external nominal devaluation of an exchange rate process.

The research findings suggest that there is need for adjustment mechanisms to eliminate exchange rate overvaluation. In the absence of an exchange rate adjustment, the disequilibrium can be restored through changes in relative prices or structural reforms. Empirical evidence reveal that the continued postponement of adjustment and the institution of far reaching reforms can result in a crisis or compression of real aggregate demand or output. Accordingly, authorities should undertake a serious Fiscal or internal devaluation process to correct the huge discrepancy between the current account balance to GDP norm and actual current account balance to GDP ratio in the economy.

The policy implication from the above analysis is the need for policies that enhance productivity to reduce the cost of production and general price level. In this regard, there is need to improve availability, access and costs of major cost drivers such as electricity, finance, water, transport, labour and Information Technology. Supplementing internal devaluation with fiscal consolidation reinforces the positive trade-balance effect over the short and medium term. The adoption of permanent internal devaluation measures can have a long-lasting impact on competitiveness, contrary to permanent nominal exchange rate devaluation, where the effect is only transitory. The long term competitiveness gain from a permanent internal devaluation measure does not, however, result in a permanent improvement in the trade balance.

Productivity has over the years been compromised by continued use of archaic and obsolete machinery and equipment. There is need for authorities to put in place policies that attract FDI, particularly in the manufacturing and energy sectors to replace obsolete and archaic machinery and equipment to enhance the country's price competitiveness. This also requires government to adopt policies that are particularly aimed at removing all impediments to economic growth in order to attracting foreign direct investment into the country.

Authorities should also consider implementing policies that aggressively promote foreign direct investment in the productive sectors to boost liquidity and promote the replacement of obsolete machinery. The need for government to remove bureaucratic and legal obstacles to productivity and efficiency to lower the costs of doing business in the economy is also critical to boost the country's competitiveness.

Other measures that can be considered include reducing the distortions created by administered prices as well as amending labour laws to favour flexibility of wages. After achieving successful fiscal or internal devaluation under a dollarized environment, an appropriate exchange rate regime can be pursued to sustain the economy in the long term.

It should, however, be noted that the real exchange rate adjustment needed to close the gap between the underlying current account balance and the current account balance norm was calculated using global estimates of trade elasticity, which are not Zimbabwe specific. As such, estimating the elasticity of current account with respect to real effective exchange rates presents avenues for future research in Zimbabwe.

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