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## Botswana's fiscal policy, monetary policy, and exchange rate policy: Three instruments and three targets?

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by

**J. Clark Leith**

**Research Report # 2020-2**

**February 2020**



***Department of Economics***

***Research Report Series***

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Social Science Centre  
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Canada

# **BOTSWANA’S FISCAL POLICY, MONETARY POLICY, AND EXCHANGE RATE POLICY: THREE INSTRUMENTS AND THREE TARGETS?<sup>1</sup>**

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**KEYWORDS:** Botswana, Policies, Fiscal, Monetary, Exchange Rate

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## **ABSTRACT**

In the decades since Independence Botswana has faced significant macroeconomic challenges. Official institutions set fiscal, monetary, and exchange rate policies in the face of these challenges. This paper identifies a target for each policy, reviews the extent to which each policy has been deployed to achieve its assigned target, and the degree of its success in doing so. Recognising that there are interactions among the policies opens up the possibility of inconsistencies. There have been no egregious inconsistencies, but the failure to take into account the effect of substantial movement of the Rand/SDR exchange rate on prices in Botswana has created a potential policy trilemma.

## **1. Introduction**

1.1. The Botswana Government has long held three macroeconomic policy objectives:

maintaining internal balance; maintaining monetary stability; and maintaining external balance.<sup>i</sup>

Those objectives are generally pursued via three policy instruments:

- fiscal policy to achieve internal balance;
- monetary policy to achieve monetary stability; and
- exchange rate policy to achieve external balance.

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<sup>1</sup> This paper has been prepared as part of a volume on the economy of Botswana, and has benefited from the helpful comments of other participants in the project.

1.2. This assignment of policies to objectives is consistent with the economics literature which has established that the number of instruments must equal or exceed the number of independent targets in order to achieve the targets.<sup>ii</sup> Beyond that, an instrument should be matched with the target on which it exerts the greatest influence.<sup>iii</sup> Nevertheless, some policy instruments may also affect other policy objectives besides the assigned one. This is something that the Botswana Government has also recognized for many years.<sup>iv</sup> It however opens up the possibility that there may be a policy trilemma if policy makers pursue three desirable, yet potentially inconsistent objectives.<sup>v</sup>

1.3. The basic question that this paper considers is whether or not the three policies identified above focused on their optimal targets. In answering that question, it is important to pay particular attention to the interaction among the policies, and the extent to which two or more of the objectives are potentially inconsistent.

1.4. In addition to the policy consistency requirement, Government faces a further macroeconomic policy challenge. In some periods the minerals sector generates substantial mineral rents, which are initially denominated in foreign exchange, with a large part accruing to Government. The ups and downs of mineral rents thus affect fiscal balance, external balance, and, potentially, monetary stability – and thus have implications for fiscal, exchange rate and monetary policies.

## **2. Fiscal Policy and Internal Balance**

2.1. The simplest measure of internal balance is Gross Domestic Expenditure (GDE) relative to Gross Domestic Product (GDP). When GDE is less than GDP, domestic residents are spending less than the value of domestic output, with the economy saving the residual output. Likewise,

the converse holds if domestic residents are spending more than the domestic economy is producing, with the economy dis-saving by either borrowing from abroad or drawing down foreign assets.

2.2. For most of the last thirty years in Botswana, GDE has been less than GDP (Chart 1). The principal exceptions have been the major world recessions of 1998, and from 2009 which hit the world diamond market. Prior to this, the income stream from the Jwaneng diamond mine grew rapidly in the mid 1980s, and GDE growth did not keep up with GDP growth: such that much of the additional income was saved, and not spent. This did not reflect a Keynesian lack of aggregate demand for domestic output. Rather it reflected the fact that the additional output had no domestic market.

2.3. A substantial portion of the additional diamond income accrued to Government. The diamond income's influence is evident from the dominance of the Mineral Revenue plotted in Chart 2. What is particularly remarkable is the fact that not all the additional mineral revenue was spent, generating a substantial fiscal surplus for years. Consequently, GDE remained substantially below GDP. In other words, rather than using fiscal policy to expand aggregate demand when expenditure fell below income, Government deliberately saved a major portion of the additional revenue. The fiscal surplus continued for over a decade, building up the stock of Government's savings in its account at the central bank (Chart 3), which was further augmented in 1997 when the revaluation reserve in the central bank's foreign exchange reserves was recognised as part of the central bank's liability to Government. The savings balance remained substantial until the early part of the new century when over a five year period a considerable amount – about 36% of GDP – was transferred to finance Government's public sector pension liabilities. This was followed by the great recession which took its toll on Government's budget,

as it necessitated drawing down Government's reserves even more. However, since the great recession, Government's budget has balanced on average, and Government's account at the central bank rose to about 25% of GDP, but has since settled around 20% of GDP.

2.4. Government's expenditure policy was generally not used to make up for a lack of aggregate demand. There was some variation of Government expenditure and net lending relative to GDP as shown in Chart 2. However, if the role of the mineral sector in GDP is removed by looking at Government Expenditure and Net Lending relative to Non-Mining Value Added, the level of Government spending while high by some standards, did not exhibit a consistent fiscal policy response to low real growth rates of non-mining value added.<sup>vi</sup>

2.5. Why then did the fiscal balance show so much variation? The answer, in brief, is that a substantial portion of Government revenues were not derived directly from domestic residents, and did not involve explicit Government decisions to either increase or decrease taxes. The Customs plus Mineral Revenues amounted to more than 25% of GDP from 1983/84 until the great recession hit in 2008/09. Customs and Excise Revenue is determined by the formula of the Southern African Customs Union (SACU).<sup>vii</sup> Mineral Revenues depend on the international markets for the minerals, and on the royalties and dividend arrangements set out in the contracts with the mining companies. On a year to year basis these revenues are only indirectly affected by the decisions of the Botswana Government.

2.6. Looking to the future, in NDP 11, which runs from 2017/18 through 2022/2023, Government recognizes that mineral revenues will likely decline relative to GDP, and that the SACU revenue is subject to ongoing negotiation.<sup>viii</sup> Consequently, in NDP 11 greater fiscal discipline is promised, not only for macroeconomic stability but also for fiscal sustainability. Non-mineral income tax and value added taxes will need to increase their share of revenues. On

the expenditure side, NDP 11 advocates “rigorous project appraisal ... to develop economic infrastructure and build an appropriate skill base [to] improve total factor productivity, and ensure the country’s future sustained economic growth.”<sup>ix</sup>

### **3. Monetary Policy and Monetary Stability**

3.1. Monetary independence was achieved when the Pula withdrew from the Rand Monetary Area in 1976. Since then, monetary policy has for the most part been effective in achieving monetary stability over the medium term (a three to five year horizon).<sup>x</sup> Chart 4 shows the ratio of year end money to GDP in the years since monetary independence.<sup>xi</sup> While the changing ratio requires some explanation, in the short-to-medium term there is not substantial variance around the four-year moving average as the economy evolved, first to reduce the ratio of money to GDP, and since 1997 to move upwards to a plateau of just under 10% of GDP.

3.2. The principal instrument which the Bank of Botswana uses to affect monetary conditions is the bank rate, which it charges commercial banks for its short-term lending. As banks are expected to respond to changes in the bank rate by adjusting the prime lending rate, a shorthand measure of the monetary policy stance is the real bank rate (Chart 5). It was not until the early 1990s that the real bank rate became positive, and gradually moved to around 5%, where it hovered until the major recession of 2008. At that point the inflation rate and nominal bank rate both declined, leaving the real bank rate and the inflation rate in the range of approximately 2% to 3%, where they remained at the end of 2018.

3.3. The commercial banks’ loans and advances relative to GDP are shown in Chart 6, along with the real bank rate. When looked at over the entire period charted,<sup>xii</sup> there does not appear to be a very stable relationship between the real bank rate as an instrument and the target – loans



and advances relative to GDP. However, by breaking the history at about 1994, when the real bank rate became positive, we observe a reasonably stable relationship: a correlation of minus .4815. From the turn of the century, the real bank rate drifted downwards, while commercial bank loans and advances relative to GDP accelerated. Inflation continued to fall from the onset of the major recession of 2007/08 (Chart 5). Even after the world recession was over, loans and advances exceeded thirty percent of GDP, without creating inflationary pressure. This suggests that another instrument was also at work on macroeconomic balance. That will become evident when we consider the third policy dimension, the exchange rate policy.

3.4. An important element of Botswana's monetary history has to be highlighted. As the flow of funds from the Jwaneng diamond mine started to grow dramatically in the 1980s, the net surplus of exports of goods and services (Chart 8) was absorbed in part by Government deposits at the Bank of Botswana (Chart 3), and in part by private deposits (mostly Debswana) at the Bank of Botswana. There remained substantial excess liquidity in the system for which there were few viable lending outlets in the domestic economy. An additional policy instrument was clearly needed.

3.5. In the early 1990s, a new policy was introduced to absorb the excess liquidity in the system. The Bank of Botswana began to auction what are known as Bank of Botswana Certificates (BoBCs).<sup>xiii</sup> The outstanding issue of BoBCs grew to over 15% of GDP in the late 1990s (Chart 7), before slipping back to a trough in 2001. The magnitude of the BoBC issue then rose to over 20% of GDP, where it remained through 2011. At that point the cost of funding the BoBC program had become such a drain on the Bank of Botswana's revenues, that with the reduction in monetary pressures in the wake of the great recession, Bank of Botswana started reducing the

total issue, reaching a minimum of 2.9% of GDP at the end of 2014, before a modest reversal in 2015.

3.6. Beyond simply absorbing excess liquidity, one of the reasons for the launching of BoBCs in the first place was to introduce a market-based interest rate which could serve as a reference point for the private sector.<sup>xiv</sup> However, the BoBC instruments remained short term. There was no reference point for the longer term. To develop the longer end of the financial market Government began issuing bonds in 2003, with 2 year, 5 year and 12 year terms, the cost of which was paid by Government.<sup>xv</sup> A few years later short term Treasury Bills were added to the mix of government debt. Over the last few years the total outstanding issuance of Government domestic debt has settled at about 5% of GDP (lower portion of Chart 7).

3.7. It should be noted that the Government's domestic debt was not issued to finance Government deficits, but rather to facilitate the development of financial markets. As Chart 3 showed, Government deposits at the Bank of Botswana were in excess of 20% of GDP when the Government bond issuance began in 2003. Thus, the development of financial markets as a whole was the principal motivation; markets which could ultimately be used if necessary to finance Government deficits.

## **4. Exchange Rate Policy and External Balance**

4.1. External macroeconomic balance is generally thought of as the balance between the values of Exports of Goods and Services on the one hand and Imports of Goods and Services on the other hand.<sup>xvi</sup> In making comparisons over decades it is useful to consider these variables relative to GDP (Chart 8). Ever since the income from the Jwaneng diamond mine came on-stream in the mid-1980s, Botswana has been generally successful in maintaining a surplus of

exports of goods and services over imports of goods and services. The principal exception is the period following the recent major world recession.

4.2. The instrument that directly affects the external balance is the exchange rate. More generally, for a small open economy, exchange rate policy is the single most important policy for it affects all other prices.<sup>xvii</sup> The complication for exchange rate policy in the Botswana case is that the bulk of exports are denominated in US dollars, while the bulk of imports are denominated in South African Rand. Since Botswana has virtually no influence on how the Rand and the Dollar move relative to each other, a major policy choice that has to be made is how closely to align the Pula with movement of one versus the other.

4.3. The most dramatic sequence of exchange rate changes was from 1995 to 2001 with the rapid depreciation of the South African Rand against the major international currencies<sup>xviii</sup> (i.e., increase in Rand/SDR), which resulted in a substantial increase in the Pula/SDR exchange rate over the same period.<sup>xix</sup> The depreciation of the Pula relative to the international currencies bumped Government's mineral revenue to 25.8% of GDP in fiscal years 1999/00 and 2000/01. This was followed by a reversal: appreciation of the Rand relative to the SDR from late 2001 through 2004, with the Pula/SDR mimicking the movement of the Rand (Chart 9). The mineral revenue paid to Government dropped, and budget deficits emerged in FY 2001/02, 2002/03, and 2003/04 (Chart 2). Government's reserve at the central bank fell dramatically (Chart 3), as did the foreign exchange reserves (Chart 11), with the drop in mineral revenue adding to the decline caused by the funding of the public officers' pension fund - which also drew down both the balance of Government's account and foreign exchange reserves.

4.4 There remains the task of characterizing the exchange rate policy choices made over the decades in the context of the corresponding fiscal and monetary policy choices. The current

measure of the exchange rate stance is the Real Effective Exchange Rate (REER). This is an index which measures the exchange rate between Botswana and its trading partners, relative to the cost of living in Botswana vis-à-vis the trading partners. An official REER calculation is currently published, but it was not until 2015 that this was published, and only going back to 2005. To deal with this problem I have constructed an unofficial REER for the years since monetary independence in 1976, using the exchange rates between the Pula versus the South African Rand and the US Dollar, and the CPI in all three countries, with the Rand and the Dollar given equal weights.<sup>xx</sup> The resulting index (2010 = 100) is shown in Chart 10<sup>xxi</sup>. In addition, the chart shows the real exchange rate indexes of the Pula relative to the South African Rand (ZAR) and relative to the US Dollar (USD). There has been considerable volatility of the ZAR/USD exchange rate which has not been matched by the relative CPIs. Consequently, the real exchange rate indexes of the ZAR and the USD against the BWP have shown considerable volatility. From 1989 until 1995, this measure shows the REER to have been roughly constant, but from 1998 to 2003 the REER index rose by more than 25 percent.

4.5 This prompted major exchange rate adjustments in an attempt to restore the REER to the level that pertained in the 1990s: a devaluation of 7.5% in February 2004 and a further 12% in May 2005, with the introduction of a crawling peg exchange rate.<sup>xxii</sup> The Press release at the time emphasized that “[b]y keeping the real effective exchange rate in line with the fundamentals, exporters and domestic producers competing with imports will be in a much stronger position vis-à-vis the rest of the world.”<sup>xxiii</sup> While the devaluation and the crawl brought the REER significantly below the peak by the end of 2005, the downward crawl rate did not sustain the REER at its lower level. Rather, the REER was allowed to drift upwards. This continued even in the face the negative external balance brought on by the world recession.

Simply put, the exchange rate was not used as an instrument to deal with the effect of the world recession on the external balance.

4.6 The ZAR/BWP real exchange rate is traced in Chart 10, which shows a deterioration of the competitive position of the Real ZAR/BWP from 2010 onwards.<sup>xxiv</sup> Even after the end of the world recession, net exports of goods and services remained negative before turning positive in 2014 (Chart 8). Imports of goods and services, which are generally more sensitive to the REER than exports, which had dropped to the mid thirties as a percentage of GDP following the exchange rate adjustments of 2004 and 2005, moved to more than 50% of GDP from 2008 through 2011, and then to over 60% in 2012 and 2013, before settling back to near the pre-recession average in 2016. Some of this may also have been due to the weakened competitive position of Botswana domestic suppliers of goods and services relative to South African suppliers within the Customs Union market.

## **5. Policy Linkages**

5.1. Fiscal policy, monetary policy, and exchange rate policy coexist in a delicate macroeconomic balancing act. Each policy is faced with the task of achieving its own objective – internal balance, monetary stability or external balance – using its own instrument. Yet, each of these policy instruments potentially affects the other balances. Consequently, the linkages across the policy instruments may be important.<sup>xxv</sup>

**5.2. Fiscal Policy and External Balance:** Potentially, fiscal stimulus could adversely impact the external balance. To see whether or not this happened we consider the recent experience with the world recession. Government expenditure relative to GDP was generally stable at a little less than 40% of GDP until the turn of the century (Chart 2). With the onslaught of the world

recession in 2008/09, the fiscal stance responded. Government expenditure and net lending initially surged as a percent of GDP (in part because GDP fell), and peaked at over 51% of GDP in 2009/10, before settling back to an average of about 36%. The recession reduced mineral revenue from about 21% of GDP to an average of around 12% of GDP mid-decade, where it remains. Some of this decline in revenue was made up for by an increase in customs revenues arising from the new SACU revenue sharing scheme that came into force in the early 2000s. Nevertheless, in FY 2010/11 total Government Revenue and Grants fell below 40% of GDP, where it has remained since. To separate out the mineral revenues and mining GDP from the aggregate picture, Chart 12 traces Government expenditure and net lending relative to non-mining value added along with the real growth of non-mining value added. A modest Keynesian-style policy of an increase in Government expenditure to offset the slower growth of non-mining GDP is evident in Chart 12 for 2008/09 and 2009/10, but after two years this fell back. Indeed, Government expenditure relative to non-mining value added has continued to decline from the recession peaks. By FY 2011/12 the fiscal stance was smaller relative to non-mining GDP than in any previous years. Thus the fiscal stance did not exacerbate the external balance deficits that followed the world recession.

**5.3. Monetary Policy and External Balance:** The recent experience with the world recession can also be used to illustrate how monetary policy can impact the external balance. The monetary policy instrument, the real Bank Rate, was loosened sharply in the face of the world recession (Chart 5), but did not return to previous levels as the economy recovered. Consistent with the Bank Rate stance was the substantial reduction in the absorption of excess liquidity by the Bank of Botswana Certificates (Chart 7). The value of BoBCs outstanding were reduced sharply with the onset of the recession from a pre-recession peak of 24 % of GDP, to less than

10% of GDP, and have continued to be recycled at well below 10% of GDP since.<sup>xxvi</sup> The response of commercial bank lending relative to GDP (Chart 6), which had dropped in 2010, was to quickly recover as GDP fell, and to continue to grow as a percent of GDP to 33% at the end of 2015, about double what it had been at the turn of the century, before dropping back to 30% at the end of 2016. In other words, post-recession monetary policy took and maintained an expansionary stance even though net exports did not become positive until 2014 (Chart 8). Some of the increase in Loans and Advances/GDP was spent on imports, especially from South Africa, reinforcing the economic effect of the real appreciation of the ZAR/BWP exchange rate and exacerbating the negative net exports position (of goods and services) over that period. It is noteworthy that this post-recession expansion of loans and advances relative to GDP did not yield higher inflation. Why? The reason for this relates primarily to exchange rate policy to which we now turn.

**5.4. Exchange Rate and Consumer Prices:** A substantial part of the explanation for the absence of inflationary pressure, despite rapid credit expansion in recent years, lies in imported prices and the exchange rate. Chart 13 traces the Imported Tradeables Price Index (IMT), which constitutes over 43% of the Botswana CPI. Since a high portion of the imports of consumer goods come from the Rand Monetary Area, the ZAR/BWP exchange rate is relevant to the IMT.<sup>xxvii</sup> It is noticeable in Chart 13 that from the end of 1997 to the end of 2001 the ZAR/BWP rose, and the slope of the IMT slowed.<sup>xxviii</sup> Similarly in the period from the end of 2010 to the end of 2014 the ZAR/BWP rose and the slope of IMT flattened. Since 2005 the exchange rate of the Pula is set by a formula which incorporates the value of the ZAR and the SDR<sup>xxix</sup>. Thus the ZAR/BWP and the SDR/BWP exchange rates are linked by the formula. However, the value of the ZAR and the SDR are determined in international currency markets. For this reason, in Chart 13 we also show

the SDR/BWP and ZAR/SDR exchange rate indexes. Over the period from the end of 2010 to the end of 2015 the ZAR/SDR rose much faster than the SDR/BWP fell, so the ZAR/BWP rose, dampening the rise of the IMT.

5.5 The Botswana economy is thus not immune from the effects of the floating Rand/SDR exchange rate. A depreciation of the floating Rand in world financial markets secondarily results in appreciation of the Pula relative to the Rand under the exchange rate formula, thus making Rand denominated imports cheaper in Botswana, reducing the Botswana CPI – not because of monetary policy, but because of the working of the exchange rate formula. To reflect this interaction, in addition to the usual effect of short term interest rates on Botswana's aggregate demand, the effect the floating Rand/SDR rate on prices of importables in Botswana should be reflected in the deliberations of the Bank of Botswana's Monetary Policy Committee. For the same reason, policy decisions dealing with the exchange rate should reflect the effect of the floating Rand/SDR exchange rate on the Rand/Pula and the SDR/Pula exchange rates. An adjustment in the rate of crawl to reduce or enhance what would otherwise happen to the Pula exchange rate would be appropriate.

## **6. Conclusion**

6.1. This paper set out to examine the principal macroeconomic policy targets and the effectiveness of the instruments which have been used in pursuit of those targets. The standard list of targets and instruments is shown in Table 1. The usual matching of the optimal instrument to the appropriate target has generally been followed by the Botswana authorities. There have been no egregious incidents where extreme imbalances built up. Nevertheless, for each target there were periods when the target was not achieved. Since the missing of targets has associated



economic or social costs, the goal of policy makers should be to avoid such occurrences. These periods, therefore, provide lessons for the future that can help avert the repetition of such lapses.

**Table 1: Macroeconomic Instruments and Targets**

<b>Instrument</b>	<b>Target</b>
Fiscal policy	Internal balance
Monetary policy	Monetary stability
Exchange rate policy	External balance

6.2. Fiscal policy deliberately avoided spending all the available revenues when substantial additional mineral revenues started to flow in the mid-1980s. As a result Government built up a savings account to draw on, which was especially helpful when the great recession hit.

Nevertheless, Government has not been particularly adept at stabilizing its total expenditure relative to GDP in the wake of the great recession, and has not consistently ensured that the spending of mineral revenues created capital for future generations. It remains to be seen whether or not the greater fiscal discipline promised in NDP 11 will be achieved.

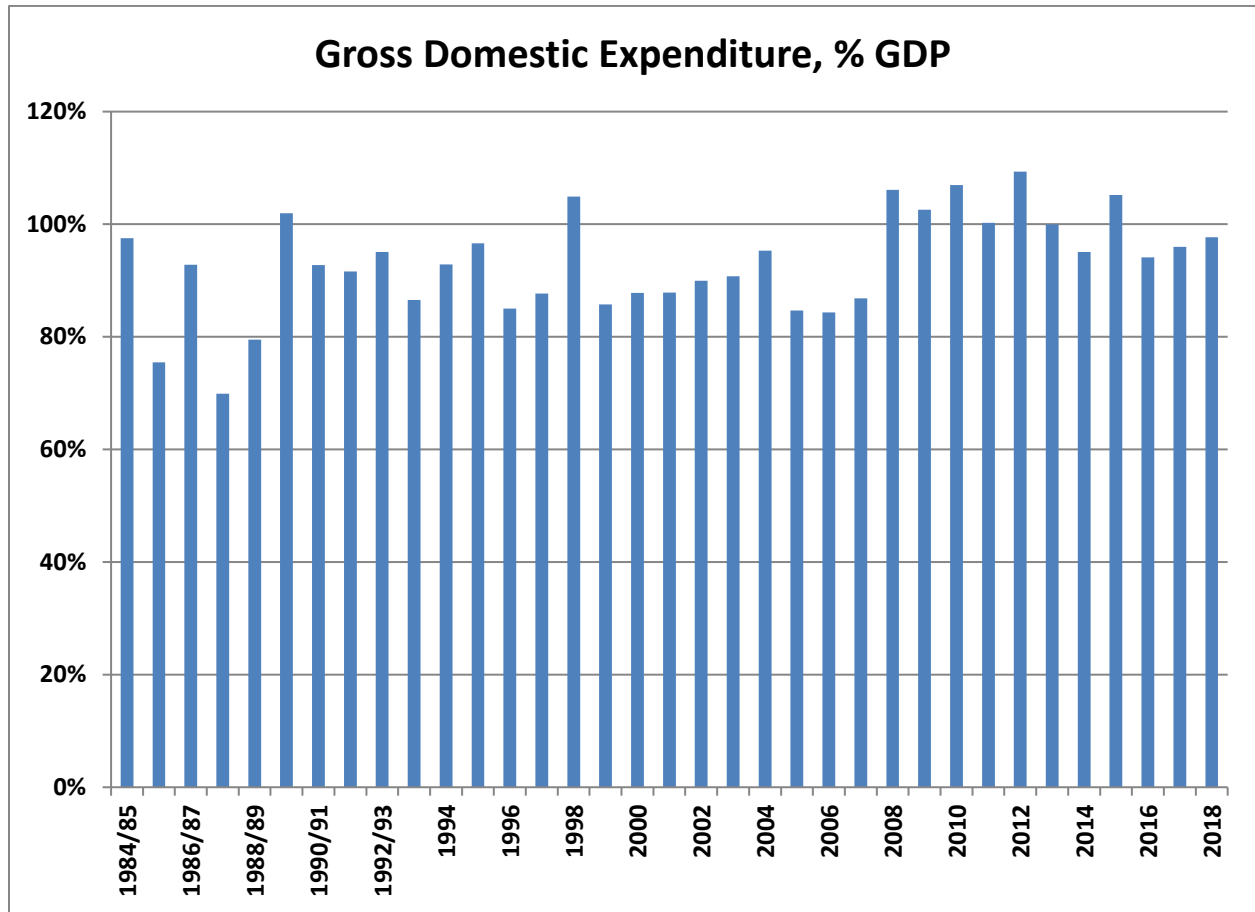
6.3. The stock of money relative to GDP has stabilized. Monetary policy, which subtly changed its target from monetary stability to sustainable inflation in the early years of the current century, was successful in bringing inflation down, but depended on the exchange rate to achieve its goal. Furthermore loans and advances relative to GDP have more than doubled over the past two decades. Therefore, a return to a focus on monetary stability rather than price stability is required.

6.4. It has proved difficult to maintain the targeted stable real exchange rate policy stance over the past two decades. The substantial foreign exchange reserves built up before the turn of the century made it possible to ride out a few years of negative net external balance following the world recession. Exchange rate policy has, however, been used to support lower inflation – a

different (monetary) target from that stipulated in its description. Therefore, as monetary policy resumes its focus on monetary stability, the exchange rate policy target of a stable and competitive real effective exchange rate should be restored.

6.5. The movement of the Rand/SDR exchange rate affects the inflation rate in Botswana via its effect on the Rand/Pula exchange rate, and yet Botswana policies have no effect on the former exchange rate. Hence, there is always the possibility that the Botswana price stability target will be missed because of a factor over which the Botswana policy mechanism as currently structured has no mitigation capacity, with the result that expectations of low inflation cannot be sustained. The exchange rate mechanism can and should be structured to maintain a stable and competitive real effective exchange rate. A refocus on the original target of monetary stability, and the use of the central bank's real bank rate to influence domestic credit would return the matching of the monetary policy instrument with the target on which it has the greatest influence. Until this happens, Botswana's policy makers will face a potential trilemma.

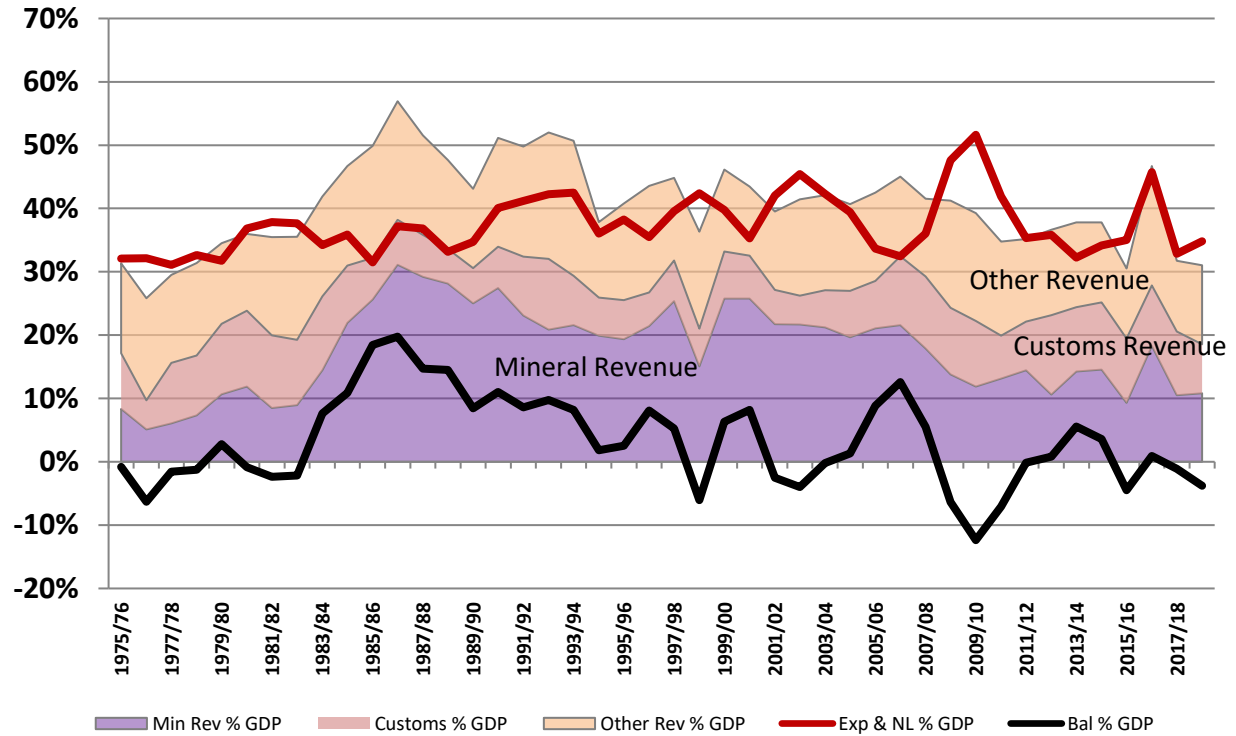
**Chart 1**



*Note: Until 1995 the National Income Accounts year ran from July 1 through 30 June.*

Chart 2

# Revenues, Expenditures, & Budget Balance, by FY, % GDP



**Chart 3**

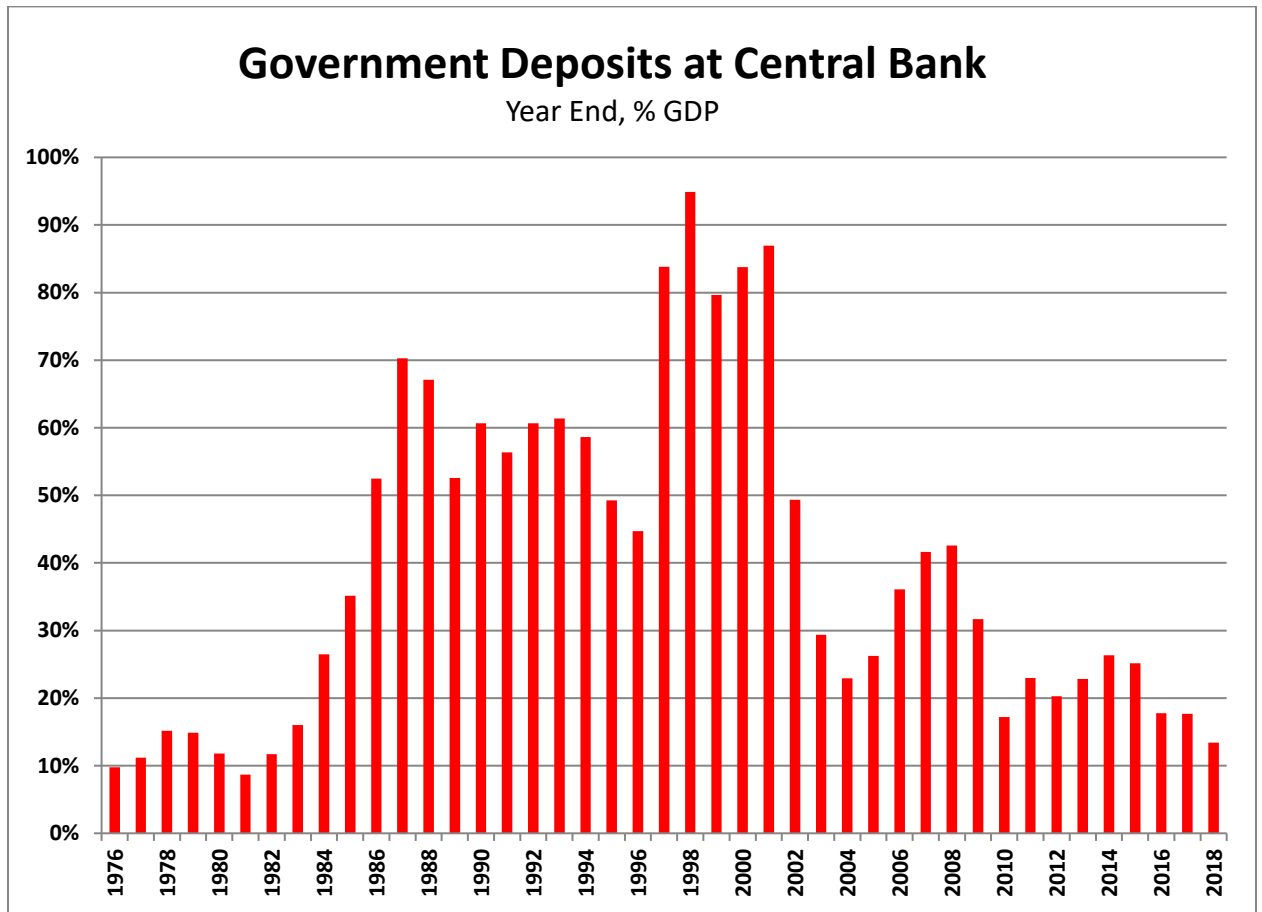


Chart 4

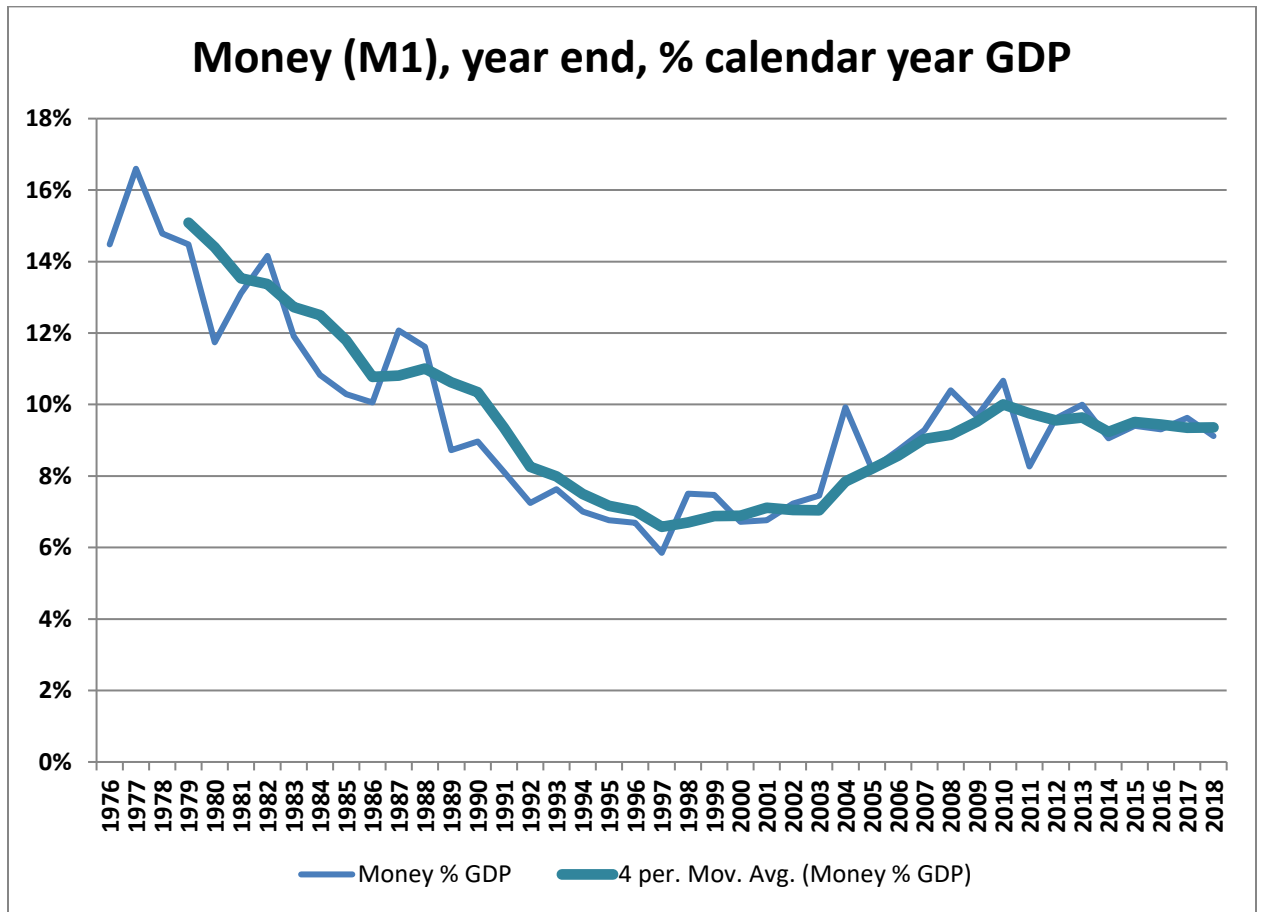


Chart 5

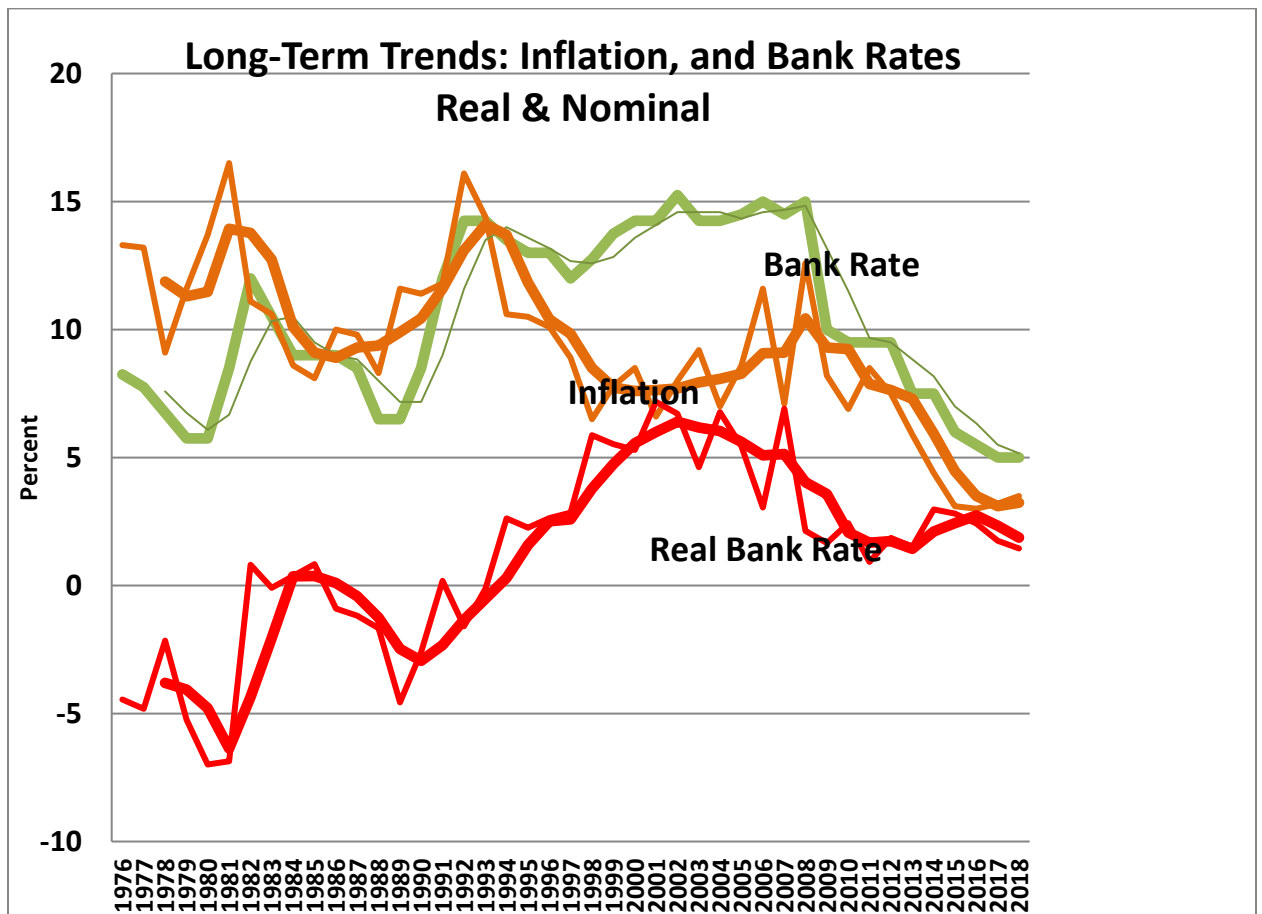
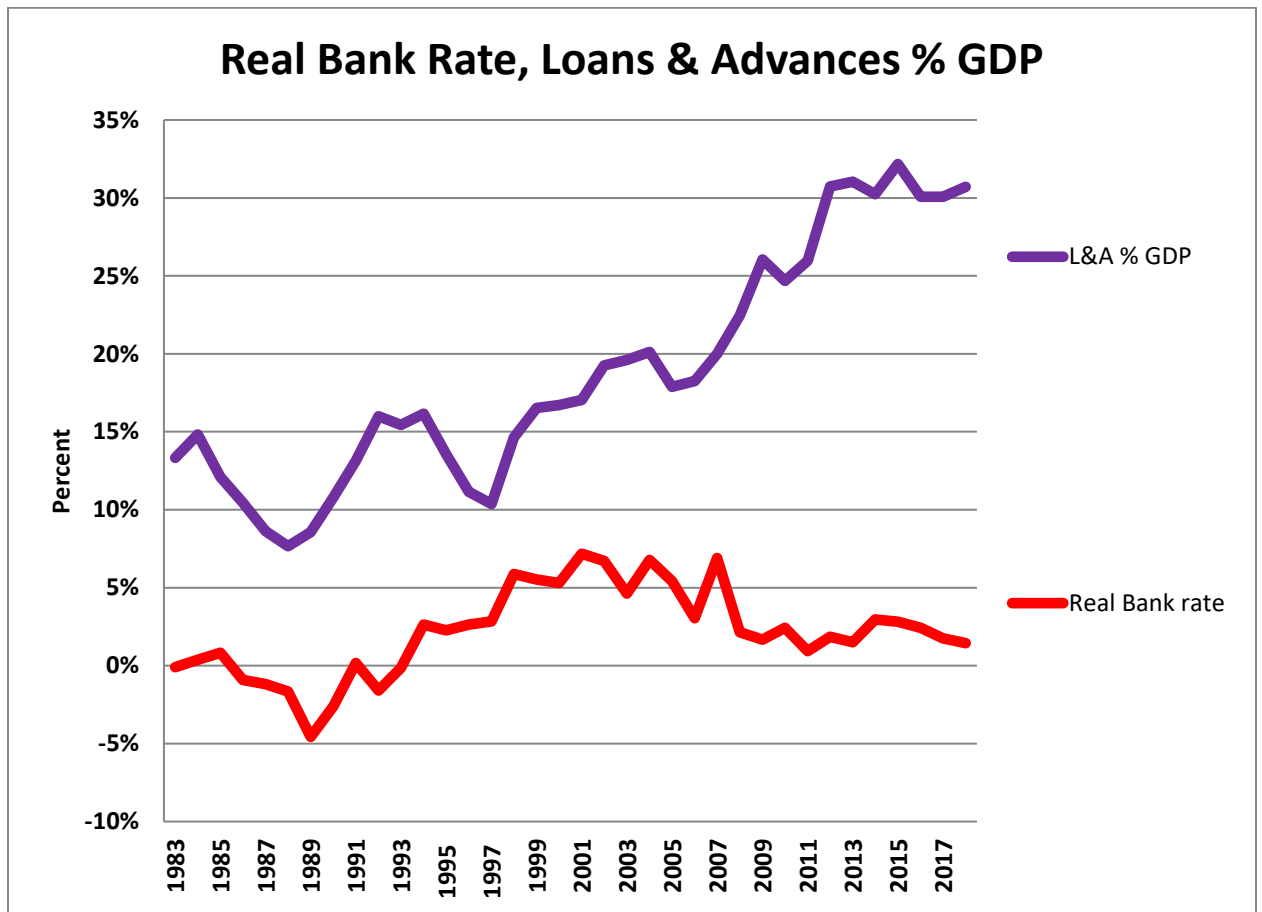


Chart 6





**Chart 7**

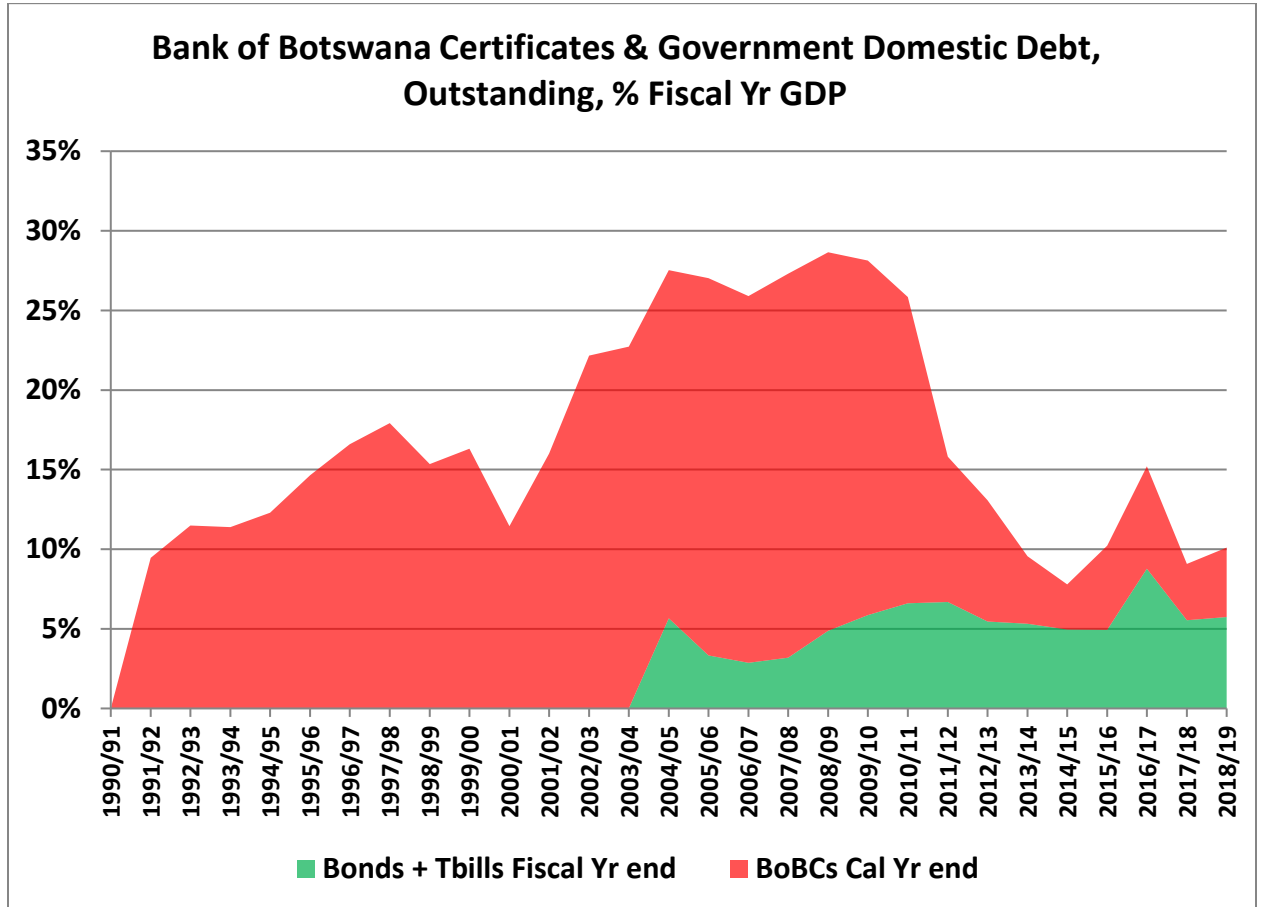


Chart 8

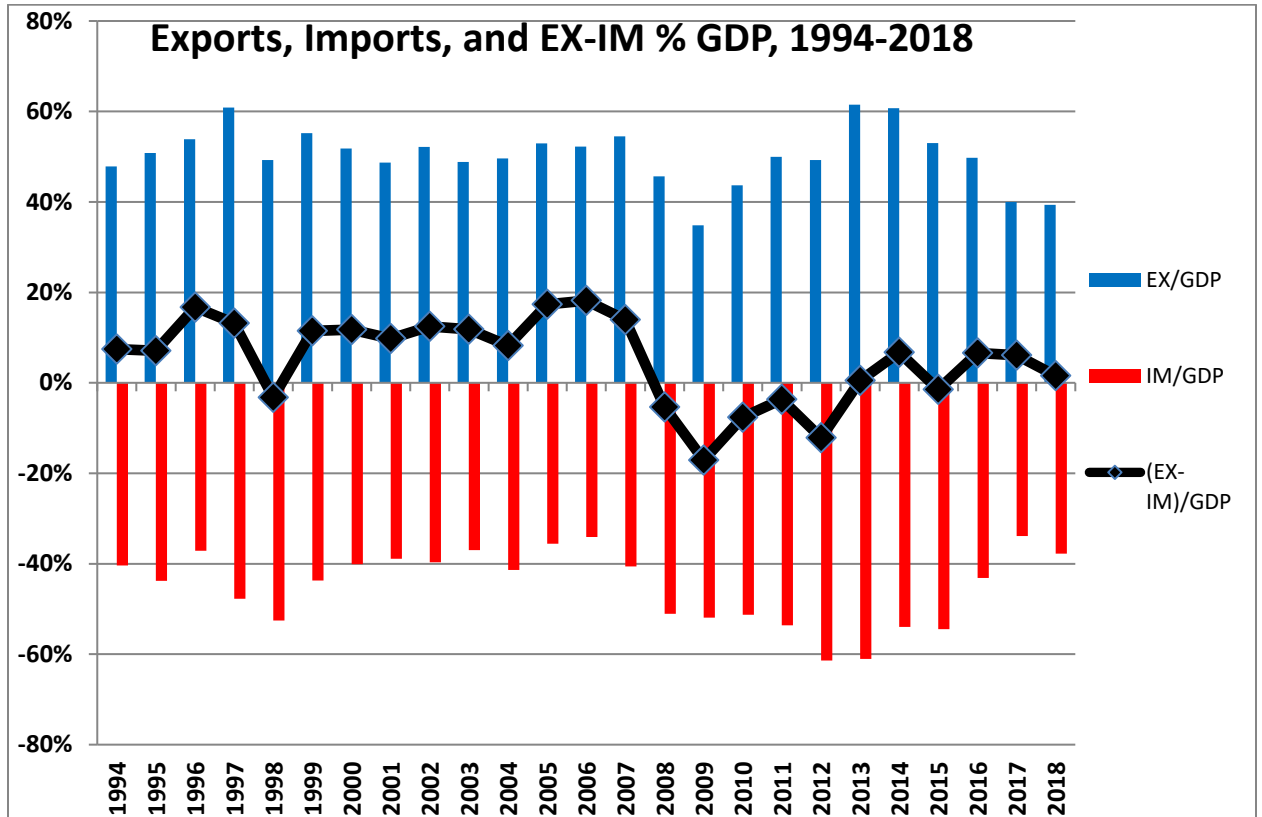


Chart 9:

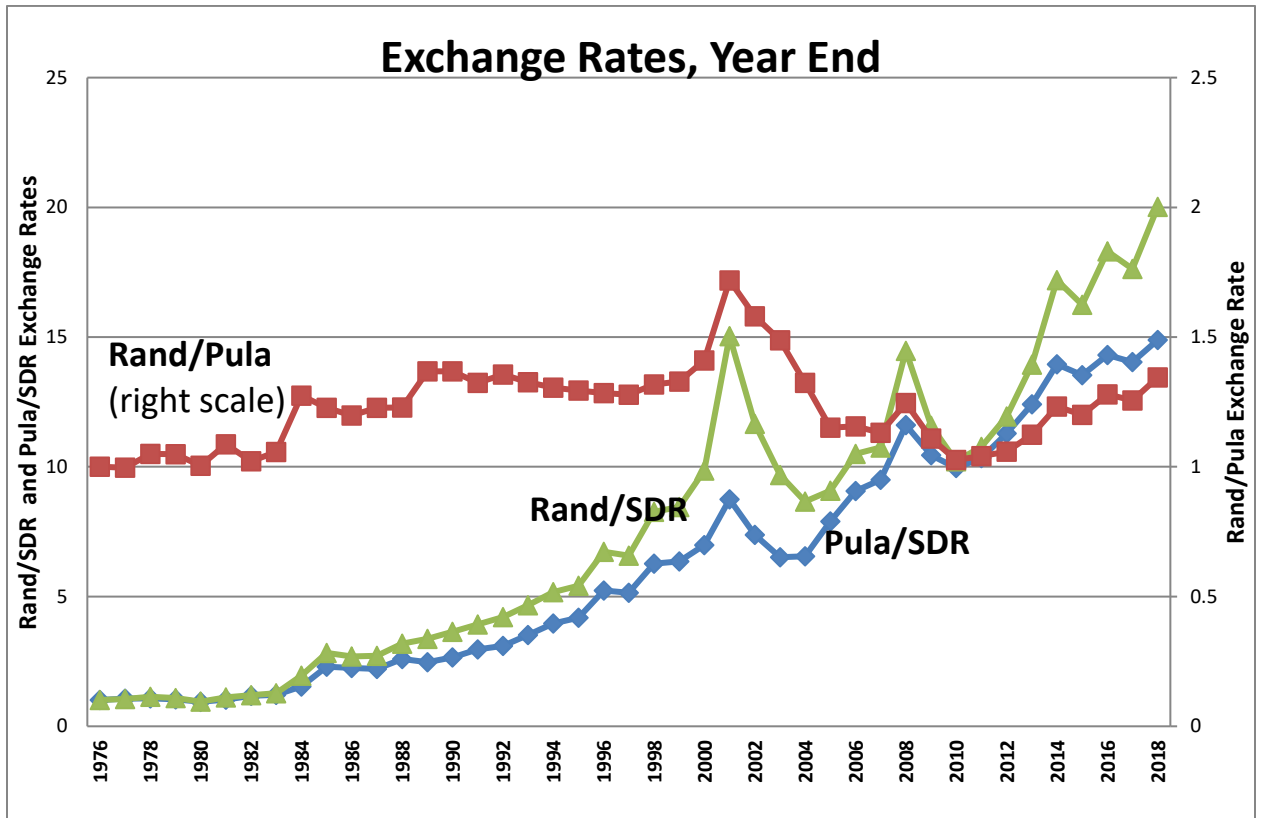


Chart 10

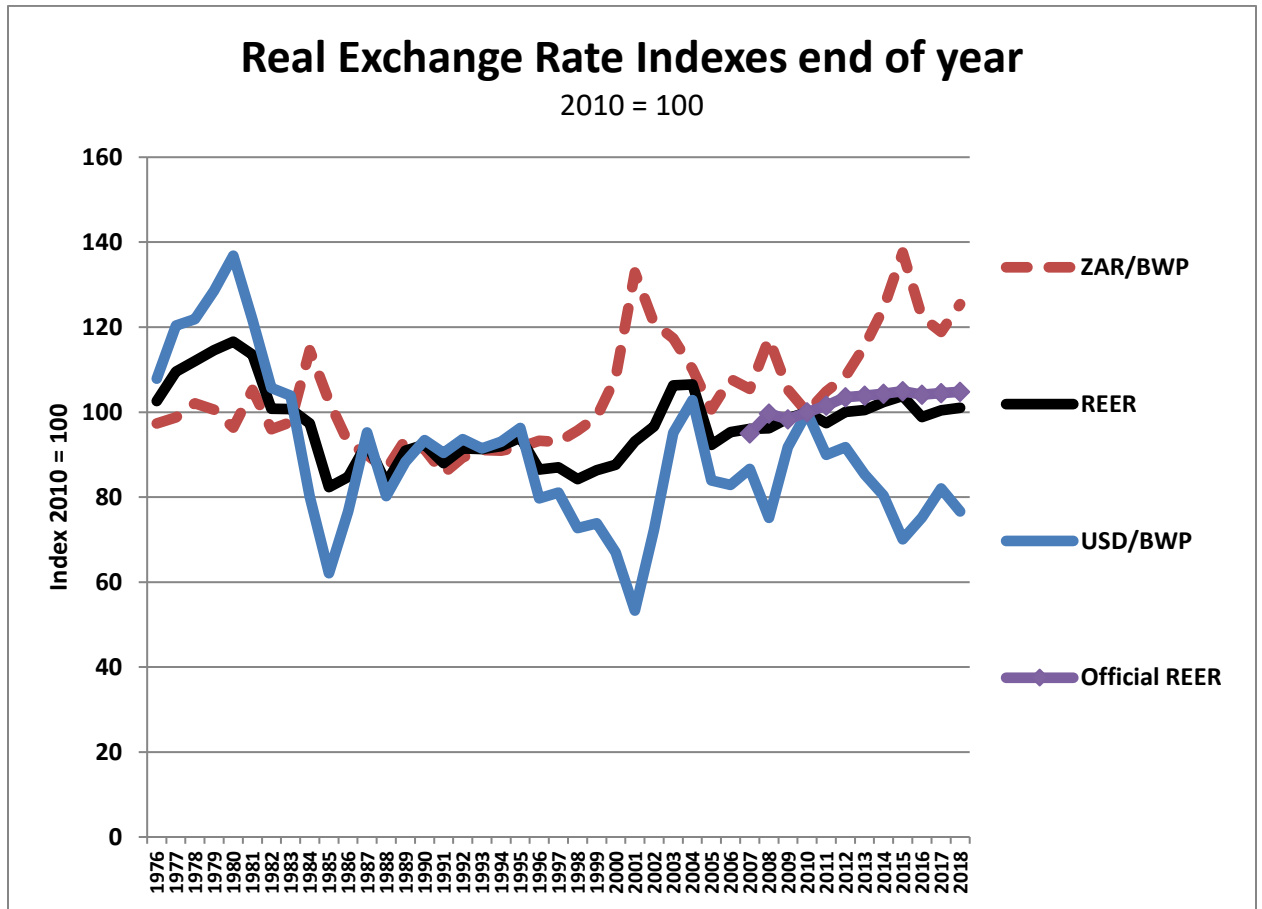


Chart 11

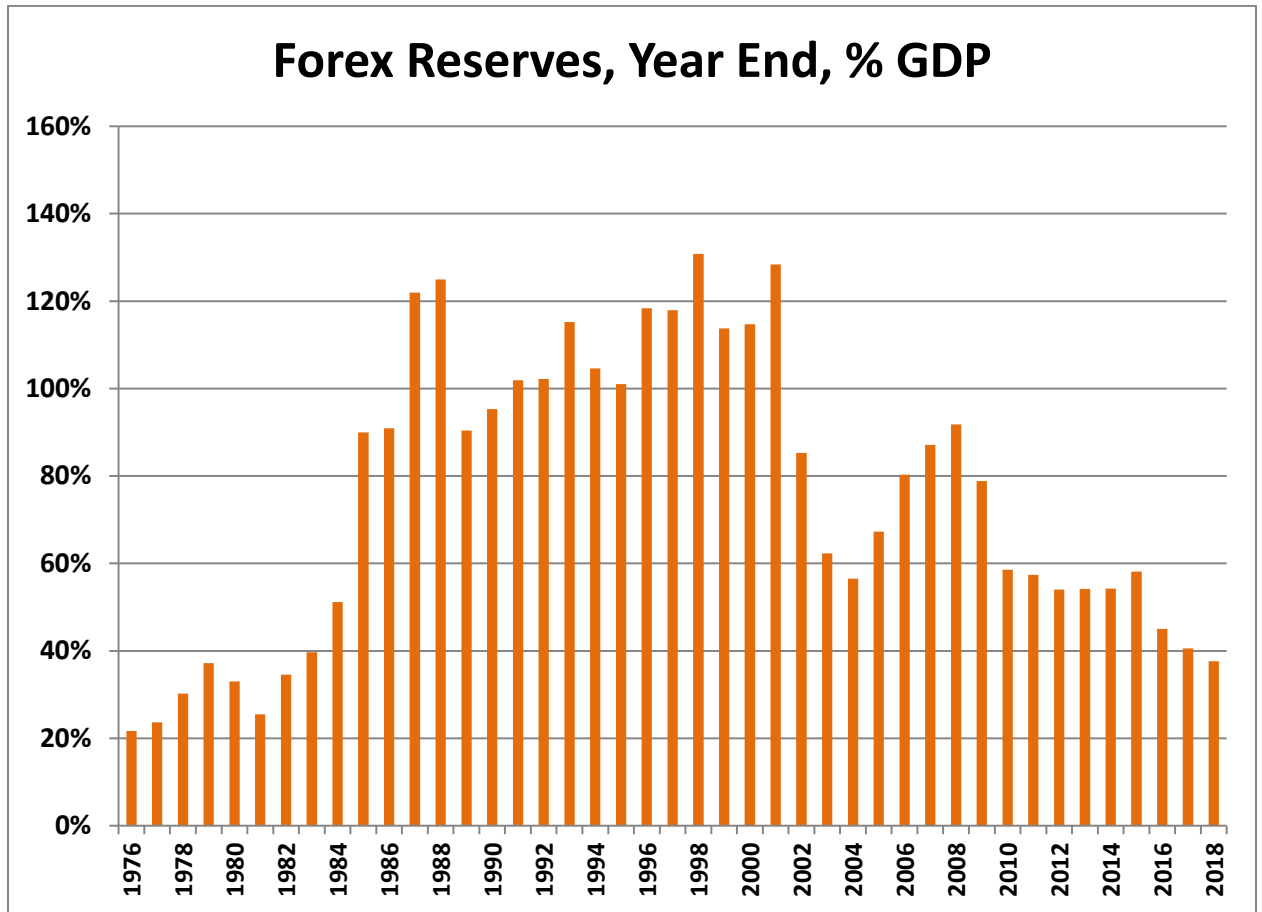


Chart 12

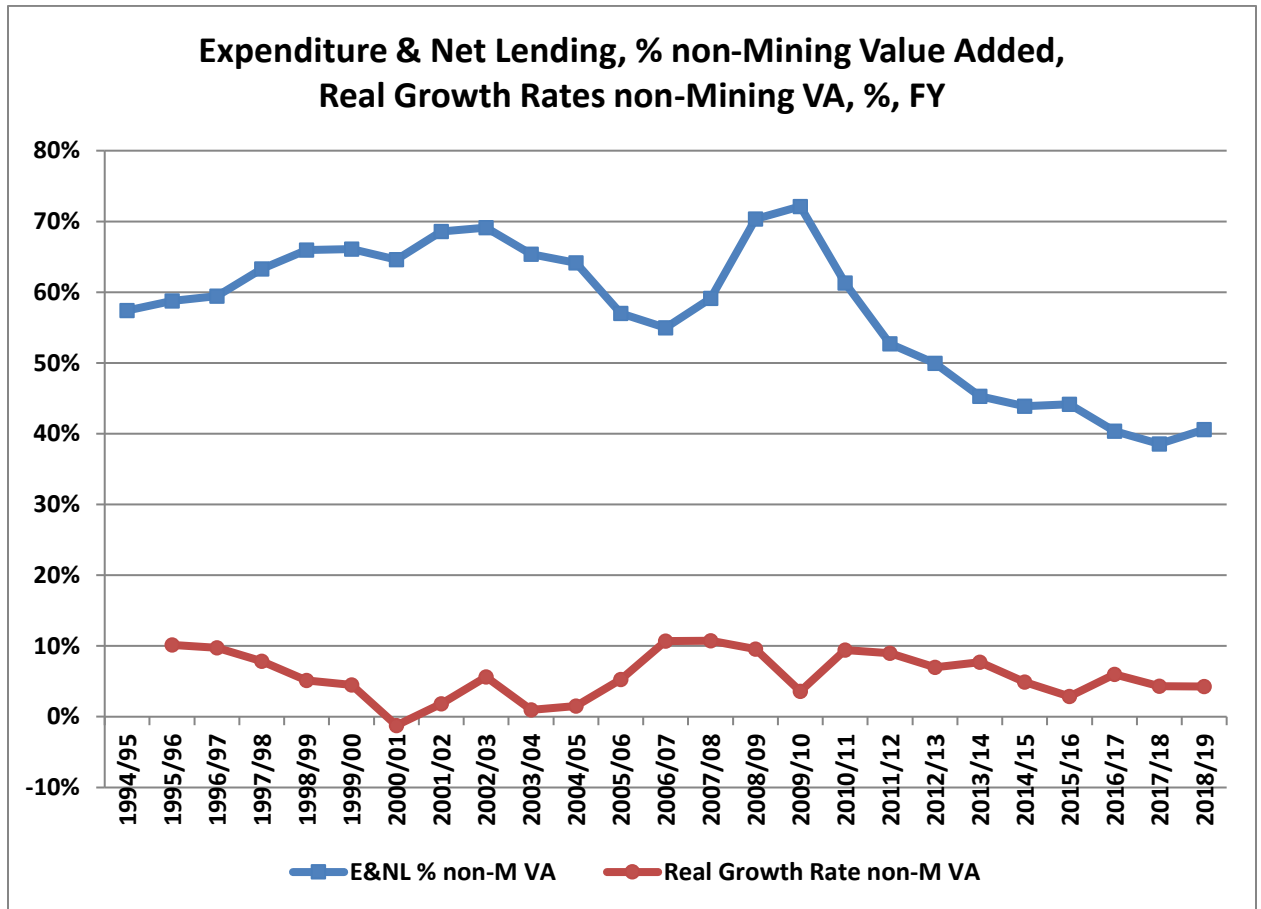
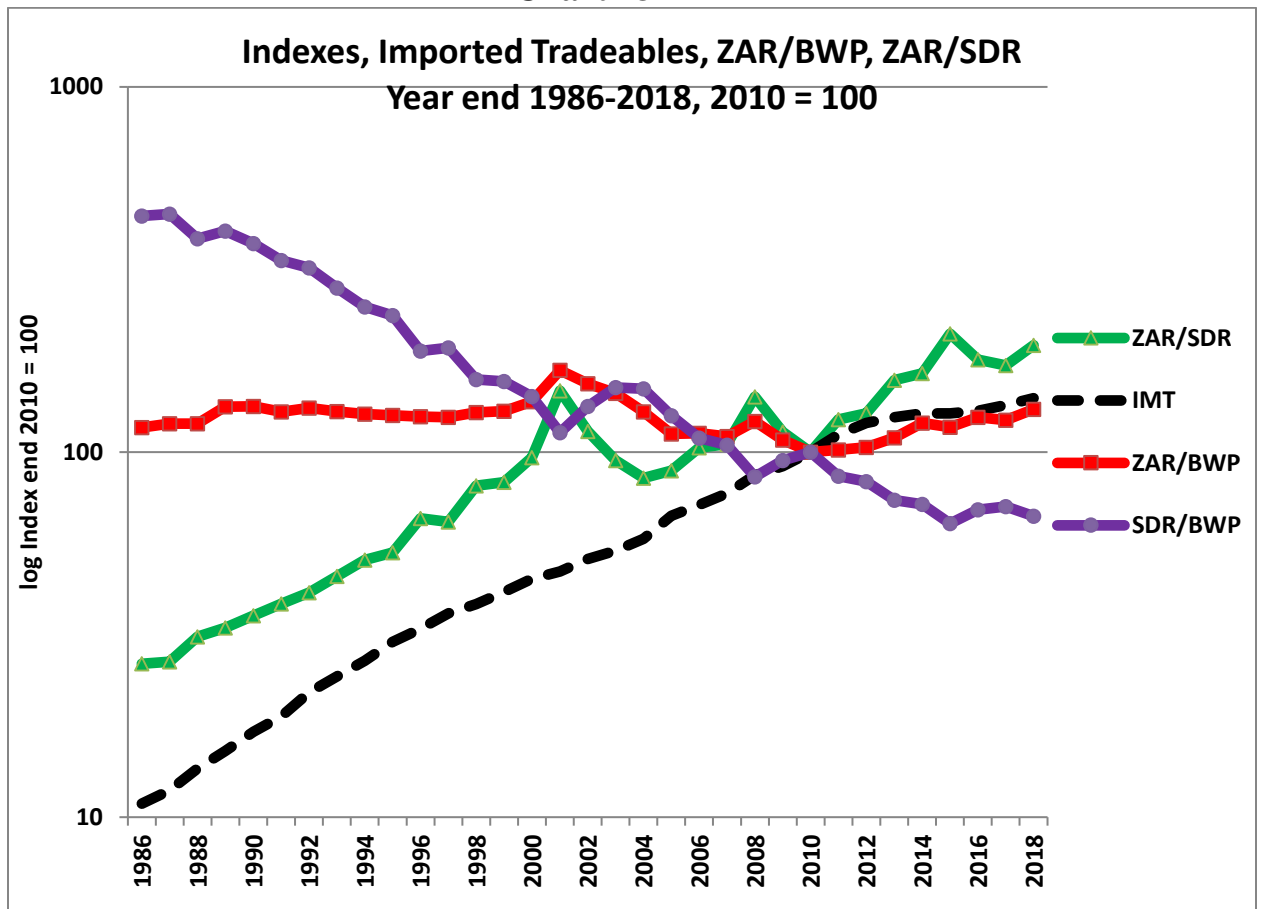


Chart 13



## Endnotes

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<sup>i</sup>See Chapter 3, National Development Plan 1985-91, Ministry of Finance and Development Planning, December 1985, and Bank of Botswana Act 1996, Section 4(1)(a), and a similar clause in earlier versions.

<sup>ii</sup>J. Tinbergen, *On the Theory of Economic Policy* (Amsterdam: North Holland) 1952.

<sup>iii</sup>R.A. Mundell, *International Economics* (New York: Macmillan) 1968, p. 201.

<sup>iv</sup>Chapter 3, National Development Plan 1985-91, Ministry of Finance and Development Planning, December 1985.

<sup>v</sup>A trilemma arises when the three policies available to accomplish the three objectives may not yield all three objectives. This may happen if particular policies compromise the achievement of objectives other than the one with which it is paired. The most common trilemma in economics involves the tradeoffs among exchange rate policy, monetary policy and capital mobility. This was initially recognized by R.A. Mundell, “Capital Mobility and Stabilization Policy under Fixed and Flexible Exchange Rates”, *Canadian Journal of Economics and Political Science*, 29, 475-285 (Nov 1963), and J.M. Fleming, “Domestic financial policies under fixed and floating exchange rates”, *IMF Staff Papers*. 9: 369–379. For a more recent overview of the issue, see M. Obstfeld, J.C. Shambaugh, and A.M. Taylor, “The Trilemma in History: Tradeoffs Among Exchange Rate, Monetary Policies, and Capital Mobility,” *Review of Economics and Statistics* 87 (August 2005): 423-438.

<sup>vi</sup> For the Fiscal Years from 1995/96 through 2016/17 the correlation between the growth rate of Government Expenditure and Net Lending as a percent of Non-Mining Gross Domestic Product with Real Growth of non- Mining Value Added was close to zero at +.003.

<sup>vii</sup>The customs and excise rates are set by South Africa. The customs revenues to be distributed depend on the volume of imports into the Customs Union as a whole, while the excise revenues to be distributed depend on consumption of excisable goods in the Customs Union as a whole.

<sup>viii</sup> National Development Plan 11, Table 5.2 and associated discussion.

<sup>ix</sup> National Development Plan 11, ¶5.47.

<sup>x</sup> In recent decades, the Bank of Botswana interpreted its mandate of monetary stability as targeting a relatively low range of inflation rates. “*The primary objective of the Bank’s monetary policy is to achieve price stability, which is*



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defined as a sustainable level of inflation that is within the medium-term objective range of 3 – 6 percent.” MID-TERM REVIEW OF THE 2015 MONETARY POLICY STATEMENT, ¶2.1.

<sup>xi</sup> Chart 4 shows M1 which is the only consistent series of Money stock for the whole period. The early years are from the IMF International Financial Statistics.

<sup>xii</sup> I have not been able to track loans and advances prior to 1983.

<sup>xiii</sup> The development of such a market was a key recommendation in a report prepared over a two year period by a team from the World Bank and the International Finance Corporation, with extensive input from the Botswana Ministry of Finance and Development Planning, and the Bank of Botswana. World Bank, Southern Africa Department, Report No. 7690-BT, “Botswana: Fiscal Policies for Diversified Growth,” August, 1989.

<sup>xiv</sup> For an assessment of the success of this, see Paper 035 in this volume, which reviews the development of the financial sector and the capital market. Without duplicating the analysis in that paper, it is worth noting that beyond Government, parastatals, banks and other lenders, the bond market today provides a very small proportion of the private sector financing: only two other types of companies have bonds listed, which amount to 2.6% of the total.

<sup>xv</sup> Government bond market maturities have subsequently been lengthened. As of March 2018 the longest maturity is 2 June 2040.

<sup>xvi</sup> This definition of external balance excludes capital flows, which are not normally directly affected by aggregate demand.

<sup>xvii</sup> This argument is the central point of J. Frieden, *The Political Economy of Currency Choice*, Princeton UP, 2014.

<sup>xviii</sup> The South African Financial Rand, which had been in place since 1985, was replaced by “surveillance” of capital transactions in 1995, thus turning the Rand into a floating exchange rate.

<sup>xix</sup> ZAR is the international currency symbol for the South African Rand. SDR is the International Monetary Fund Special Drawing Right, which is a basket of the major international currencies. The SDR today consists of the US Dollar, the Euro, the Chinese Yuan, the Japanese Yen, and the British Pound.

<sup>xx</sup> The principal rationale for equal weights is that Botswana’s exports are denominated largely in USD, while most imports are denominated in South African Rand, and that has changed little over the decades. The official Real Effective Exchange Rate (REER) uses the real Rand/Pula and the SDR/Pula exchange rates, and employs weights between the Rand and the SDR in the Pula exchange rate formula (see endnote below), which are changed from time to time.

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<sup>xxi</sup>Chart 9 also shows the official index from end 2007 onwards, rebased to 2010 = 100.

<sup>xxii</sup>It is important to note the innovation of the basket and the crawl had to be accompanied by a significant devaluation. Otherwise the forward exchange rate implied by the crawl and the interest rate differential between domestic and foreign interest rates would have been inconsistent, inviting a capital outflow.

<sup>xxiii</sup> Minister of Finance and Development Planning, *Press Release*, 29 May 2005.

<sup>xxiv</sup>In January 2015 the downward crawl was halted for 2016, and the weight of the ZAR reduced from 55% to 50%. In January 2016 the crawl was changed to an upward crawl of 0.38% per annum. In January 2017 the upward crawl was set at 0.26% per annum, and the weight of the ZAR reduced to 45%. (Official Press Releases from Minister of Finance and Development Planning.)

<sup>xxv</sup> The joint impact and sequencing of inflation targeting and fiscal rules on fiscal behaviour and inflation over the period 1990-2009 is reviewed in J-L Combes, A. Minea, and R Tapsoba, IMF Working Paper WP/14/89, May 2014.

<sup>xxvi</sup> Part of the drop in Bank of Botswana Certificate issues was made up for by an increase in the issue of Government bonds.

<sup>xxvii</sup>This effect was noted earlier in J. Clark Leith, “The Exchange Rate and the Price Level in a Small Open Economy,” *Journal of Policy Modeling*, 1991, which shows that for the period from monetary independence to the end of 1987, the pass through of the South African price level and the Rand/Pula exchange rate was 100% with a half-life of 15 months.

<sup>xxviii</sup>Note that the vertical axis is in logarithms. Hence a change in the slope reflects a change in the rate of growth.

<sup>xxix</sup>  $\text{USD/Pula} = A * \{(\text{USD/Rand})^w\} * \{(\text{USD/SDR})^{(1-w)}\}$ , where  $w$  = weight of the Rand, which is currently 45%.