

Reserves management and FX intervention

South African Reserve Bank

Abstract

Emerging market economies (EMEs) have increased their reserves holdings primarily for self-insurance. The South African Reserve Bank (SARB) has accumulated its foreign exchange (FX) reserves for the same reason, recognising the need to reduce external vulnerability. Both debt issuance and the growth in the monetary base have been used to fund reserve accumulation, and therefore the cost (of holding reserves) comes through the cost of foreign debt issuance and the opportunity cost of forgone monetary accommodation to banks. As a benefit of FX reserve accumulation, reserves as a means of self-insurance can bolster investor confidence, particularly during a crisis, while the level of reserves often plays an important role in broader sovereign credit rating assessments. More recently, and in South Africa's case, other macro factors such as GDP growth and fiscal debt metrics have tended to be ratings-sensitive.

Most EMEs have remained active in the FX markets for various reasons, ranging from attempts to limit exchange rate volatility and/or influencing the level of the exchange rate, to accumulating foreign reserves. This note delves into the evolution of the SARB's FX intervention objectives, strategies and tactics, as South Africa has become more integrated with the global financial markets. It also highlights the impact of FX intervention on official reserves and the rand exchange rate. Currently, the SARB's intervention in the FX market is aimed at gradually building up the official reserves without unduly influencing the rand exchange rate in either direction.

The SARB's FX reserves management has matured over time, resulting in the introduction of new asset classes and currencies. There has been a growing focus on the cost of holding reserves as the size of the FX reserves has grown, and the note describes the use of tranches in the foreign exchange reserves portfolio to adequately address both the liability hedging requirements and return motivations. The note concludes by briefly touching on the SARB's securities lending and external fund management programmes.

Keywords: South African Reserve Bank, foreign exchange reserves, official reserves, foreign currency reserves, reserves management, foreign exchange intervention, reserves accumulation, reserves adequacy, reserves tranching, strategic asset allocation.

JEL classification: E44, E59, E65, F31, G11, G15, N27.

1. Introduction

This note addresses some aspects of reserves management and foreign exchange (FX) intervention that are of particular relevance to the South African Reserve Bank (SARB). In the first section, we focus on the measures and principles that guide the SARB in accumulating and determining the adequacy of FX reserves. The second section addresses the role of FX intervention strategies at the SARB and the final section concludes with a discussion on the management of the FX reserves and the strategic asset allocation (SAA).

2. Drivers of reserve accumulation from a policy perspective

As in the crisis periods of the late 1990s and 2000s, EMEs have built up their foreign exchange (FX) reserves mainly in order to self-insure against future crises. This motivation stemmed from an element of frustration with the International Monetary Fund (IMF) and a feeling that financial resources were provided to EMEs on very stringent terms, which in some instances may have slowed their economic recovery.

As South Africa has a floating exchange rate regime, creating capacity to intervene in the FX market has not been a significant driver for accumulating FX reserves. The key motive behind the SARB's accumulation of FX reserves has been largely for self-insurance purposes, recognising the need to reduce external vulnerability. South Africa's current level of gross reserves of approximately US\$ 50 billion, although above the estimated adequacy level, has not yet reached a level that is deemed as sufficient. Reserve adequacy refers to the amount in liquid assets that the country needs to hold to cover known and likely trade and debt obligations over a one-year period¹ – it can thus be viewed as the minimum required reserve holding. The optimal level of reserves is determined using various factors and an amount that is deemed most appropriate for purposes of maintaining macroeconomic stability. This includes the provision for unanticipated obligations or the risk of a sudden stop, and also takes into account the cost of holding reserves. The difference between adequate and optimal reserves can thus be viewed as a safety buffer. The SARB also frequently reviews the level of reserves held by other EMEs, although this does not result in any mechanistic trigger to increase FX reserves. In recent years, the level of reserves deemed as optimal for South Africa has tended to increase, due mainly to a significant increase in gross domestic debt and higher non-resident holdings of that debt.

In terms of the cost of holding FX reserves, the direct financial cost typically comes through the interest paid on sterilisation instruments transacted at domestic market interest rates, which are well in excess of the return earned on the reserve

¹ Forward-looking projections are also utilised in order to try and capture the changing short-term obligations in each calendar year. Furthermore, the time period or horizon over which the adequacy level is determined is dependent on the particular measure or model employed. For instance, the more traditional import cover rule assumes it might take three months for normalisation, and thus a country would need to cover that amount of imports. The models being employed by the SARB (in collaboration with National Treasury) are based on the size of shortfalls experienced by a country during a sudden stop. Time therefore is generally implied rather than being explicitly modelled.

assets. Should the monetary base be used to fund foreign exchange reserve accumulation, the shortage in the money market would not grow as expected, and therefore the cost would be the forgone interest earned on accommodation to banks transacted at the policy rate. Alternatively, reserves are funded through the issuance of foreign debt and the cost is then a combination of the term premium associated with issuing longer-dated liabilities and the country credit spread. South Africa has used both foreign debt issuance and the growth in the monetary base to fund accumulation, and therefore the cost comes through the cost of foreign debt issuance and the opportunity cost of forgone accommodation to banks. Moreover, in the past, FX reserves accumulation has been funded using SARB debentures² and government rand deposits.

Turning the focus to the benefit of FX reserve accumulation, reserves as a means of self-insurance can add to investor confidence, especially during a crisis. The level of reserves also often plays an important role in credit rating assessments. However, in the case of South Africa, more recently other macro factors such as GDP growth and fiscal debt metrics have tended to be more prominent issues for ratings outcomes. There is also the argument that higher reserves may help to reduce volatility in the FX rate. In fact, many country vulnerability assessments include reserve adequacy ratios, with the exchange rate commonly believed to be vulnerable to volatility and depreciation tendencies during times of stress. However, in practice, it is not always apparent that higher reserve holdings will contribute to lower FX volatility during such periods.

Measures to assess reserve adequacy are a greatly debated topic, particularly as regards the relevance of any specific measure to the country involved, and also whether certain measures should be augmented with others.

In assessing South Africa's optimal level of reserves, four measures are used in order to inform a range representing an optimal level, these include: the adjusted Guidotti rule, the Jeanne-Rancière model, the IMF's formula for reserve adequacy, sometimes referred to as IMF assessment of reserves adequacy (ARA), and the Southern African Development Community (SADC) macroeconomic convergence criteria.

When assessing the optimal level of reserves for South Africa, it is particularly useful to look at the various and significantly different inputs considered by each measure. For example, the Guidotti formula takes into account the level of non-resident holdings of domestic government bonds. This is structurally important from a South African perspective, as close to 40% of South African government debt is held by non-residents. In addition, the Jeanne-Rancière formula uses the input of the probability of a sudden stop, which is another structurally important variable to consider, given South Africa's heavy reliance on capital flows. In 2014, the IMF published a paper on estimating the optimal level of reserves. It noted that market maturity and flexibility affect this optimal level, but did not sufficiently take into consideration the relative maturity of South African markets. In measuring the optimal level of reserves for South Africa, the IMF's ARA formula is included in the set of reserves adequacy formulae used, although the IMF has suggested additional work

² SARB debentures are short-term debt instruments, issued by the SARB, with maturities of up to 56 days.

on understanding the impact of indicators such as short-term bank FX funding, trading liquidity and pricing behaviour.

From a regional perspective, and in line with the memorandum of understanding between the SADC countries on macroeconomic convergence, the SADC convergence criteria are also used to assess reserves adequacy, being that international reserves should not be less than six months' worth of import cover.

3. FX interventions: motivations, strategies and tactics

Many central banks intervene in the FX markets in response to undesirable exchange rate movements, or when their currencies experience extreme bouts of volatility. Their aims are to ensure the orderly functioning of markets; to influence the exchange rate if they believe that it is misaligned or dislocated from the underlying fundamentals; or to limit exchange rate volatility, and also to accumulate FX reserves.

The SARB's participation in the FX market has evolved over time as South Africa has become more integrated with global financial markets, but also in line with economic developments in the country, including the adoption of an explicit inflation targeting framework. South Africa has highly developed and liquid FX markets, which facilitate continuous price discovery and a smooth execution of FX transactions. Sophisticated and mature domestic financial markets allow market participants, including the SARB, to seamlessly transact in domestic FX markets using various derivative instruments. These instruments include, among others, outright forwards, FX swaps, forward-forwards, currency futures and currency options, currency swaps and basis trading. As at the end of October 2018, the net average daily turnover in the rand foreign exchange market amounted to approximately US\$ 8.5 billion.

Until 1998, the SARB's interventions in the FX market were aimed at limiting the depreciation of the rand or reversing the observed trend – the so called “leaning against the wind” policy. This entailed conducting spot sales of FX reserves with authorised dealers in the market. During this period, due to the relatively low level of official FX reserves, the SARB also conducted FX swaps in order to sterilise the rand and the related liquidity impact and also to safeguard the gross reserves position.

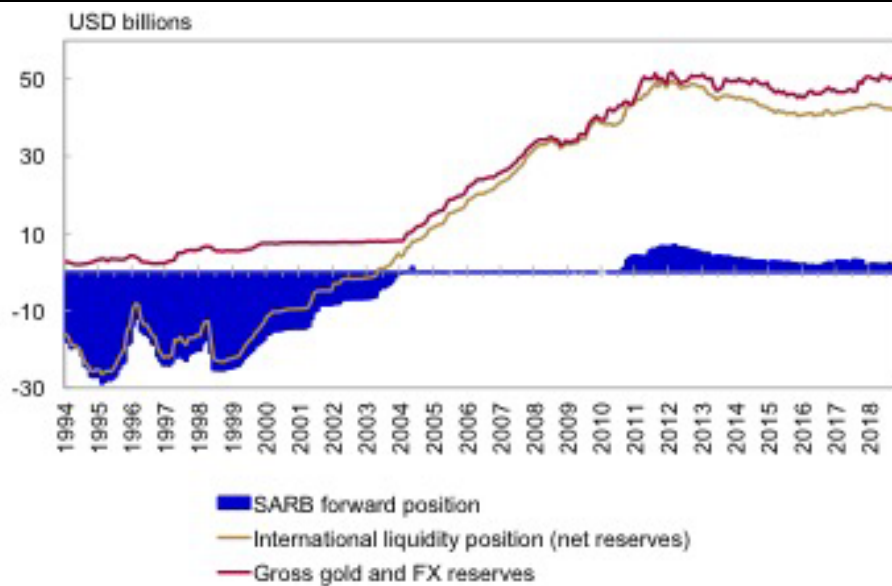
This intervention strategy to counter the depreciation of the rand resulted in an oversold forward book of US\$ 28.8 billion as at the end of February 1995, and consequently, for the same period, the SARB had a negative net open foreign currency position (NOFP) of US\$ 26.5 billion. This position effectively gave speculators reason to sell the rand, as this was then deemed a one-way bet given the huge forward dollar commitments of the country. Following unsuccessful FX interventions to support the depreciating rand exchange rate, and after almost depleting its foreign exchange reserves during the EME financial crisis in 1998, the SARB decided to reduce the NOFP to zero and also abandoned all FX interventions aimed at influencing the exchange rate. The SARB then shifted its focus to gradually rebuilding its international reserves without seeking to influence the exchange rate in either direction. After eliminating the NOFP in 2003, the SARB started accumulating reserves by buying foreign exchange on a spot basis when conditions were deemed favourable, while taking care not to influence the rand exchange rate towards any particular level or range. The combination of spot FX purchases and FX swaps conducted by the SARB

to match the oversold forward maturities ultimately led to the squaring-off of the forward book in February 2004.

Since then, the SARB has been successful in rebuilding its international reserves, resulting in an international liquidity position and official gross reserves of US\$ 43 billion and US\$ 51 billion, respectively, as at the end of November 2018. Graph 1 below shows the evolution of reserves accumulation during the period 1994 to end November 2018, which also includes the SARB's activity in the international syndicated loan market in the early 2000s, to augment gross reserves.

Official gross and foreign exchange reserves plus forward position

Graph 1



Source: SARB (November 2018).

As indicated earlier, in recent years the SARB's foreign exchange operations have been directed towards gradually building up the official FX reserves, also for the purpose of managing domestic liquidity for monetary policy implementation purposes. However, the SARB does not target a specific level or range for the rand exchange rate. This is consistent with the SARB's inflation targeting framework and flexible exchange rate.

South Africa's monetary policy is aimed at achieving price stability, while the nominal exchange rate is allowed to adjust to balance the external accounts. This does not mean that the SARB is indifferent to the challenges posed by the volatility and abrupt adjustments of the exchange rate. It is generally deemed appropriate for central banks operating within a flexible exchange rate system to intervene in FX markets to maintain orderly market conditions in support of financial stability.

Current FX accumulation strategies generally consist of a combination of methods such as purchasing or taking in the proceeds of government's foreign bond issues as a deposit (the latter only boosting gross reserves, but not net reserves) and purchasing FX from authorised dealers in the open market, when conditions allow, ie without unduly influencing the exchange rate or adding to volatility in the market. In certain exceptional circumstances, in order to facilitate the execution of transactions that are exceptionally large relative to the size of the local FX market, the SARB directly

purchases a portion of foreign direct investment inflows (FDI) or mergers and acquisitions-related flows.

Disclosures in relation to FX reserves have remained fairly consistent over the past decade. The SARB releases a monthly report to the public via its website indicating the level of official gross gold and foreign exchange reserves as well as the international liquidity position. This report is published monthly within five business days of the month-end and contains a brief explanation of the main changes. In addition, the SARB also publishes information about reserves management activities in its annual reports. Finally, in 2016, the SARB began publishing the Official Gold and Foreign Exchange Reserves Management Investment Policy (IP) on its website. The IP defines the approach and framework governing the management of reserves and its publication is an effort by the SARB to promote and improve transparency around the management of FX reserves.

4. Reserves management

As previously discussed, FX reserves accumulation at the SARB is primarily driven by precautionary considerations. As such, the currency composition of FX reserves is guided by relevant external liquidity considerations such as the foreign currency denomination of government debt and the currency composition of South Africa's imports. However, as reserves have grown, the holding costs have become an important consideration along with the question whether the FX reserves can generate sufficient returns to cover this cost. In terms of the SARB Act, gains and losses on gold and FX holdings due to foreign currency translations (into rand) are for the account of the South African government.

To balance the liability hedging and return motivations, the gross reserves are separated into two tranches, a liquidity and investment tranche. Furthermore, the liquidity tranche is segregated into a working capital subtranche that provides liquidity for short-term liabilities and cash management needs, and a buffer subtranche that provides for any external financial shocks that may require their immediate use. Additionally, the gold and SDR holdings are individual subtranches within the liquidity tranche. The investment tranche, however, is guided by the need to mitigate the cost of holding reserves and its composition is determined on a risk-return basis in order to generate returns within the Bank's risk parameters. The overriding objectives of capital preservation and liquidity are important to both the liquidity and investment tranches.

The size of these tranches is based on the Jean-Ranci re model as a measure of reserve adequacy, although the two tranches are considered separately within the strategic asset allocation (SAA). The buffer subtranche is optimised, based on the determined currency composition, to reduce the probability of negative returns to below 1%. The optimisation of the investment tranche, however, is guided by the risk-return objectives of the SARB and the need to recoup the cost of holding reserves. This can be achieved by either managing duration, and/or adding other higher-yielding asset classes to the SAA.

A number of changes have been made to the SAA over the past decade. In 2013, given the growth in mainly FX reserves, it became important to focus on improving the overall return on FX reserves, yet to also retain a balance between accumulation

and the cost of holding FX reserves. Within this context, yield became an important consideration, however, given the objectives of capital preservation and liquidity, explicit yield-enhancing activities were confined to the investment tranche. Furthermore, as an alternative to increasing risk-taking within traditional reserve currencies and securities, these activities were focused on increasing the number of asset classes and including currencies with higher-yielding assets.

As a result, the SARB then expanded its investment universe for internal portfolio managers to include China, South Korea, Japan, Sweden and Australia. Furthermore, new asset classes were introduced, namely; US agency mortgage-backed securities (MBS), US dollar supranational bonds, euro covered bonds, and the use of bond futures to enhance the efficiency of internal portfolios.

The new asset classes required enhancements to risk analytics. As a result, the SARB began a process of systems renewal, which included an end-to-end solution supporting reserves management and treasury operations as well as third-party payments.

In developing the latest SAA, implemented in 2017, the SARB was faced with the prospect of normalising policy rates in advanced economies, specifically in the United States. This resulted in a number of changes to the SAA developed in 2013, the most important of which was a significant reduction in overall portfolio duration and the introduction of a new asset class, namely US Treasury Inflation Protection Securities or TIPS. Other changes included, limiting exposures to certain currencies, including non-core reserve currencies as the prospects for more traditional reserve currency economies improved. The SARB also increased its portion of the reserves invested in the onshore Chinese bond market. This reflects the country's level of trade with China, as well as the risk-adjusted returns that were expected from the bond investments at the time of developing the SAA.

Another important change related to the outsourcing of the SARB's securities lending programme. As part of good governance, the SARB performed a comprehensive review of its securities lending programme which, since its introduction in 2005, had made use of a custodian to conduct securities lending on the Bank's behalf. The main purpose of the review exercise was to ascertain whether or not the SARB's current securities lending model best fitted the risk-reward optimisation objective of the programme by way of a peer comparison, while at the same time evaluating and comparing other important aspects of the service offerings such as risk processes, collateral management, indemnifications, utilisation ratios, revenue-sharing and track records. The project was concluded in 2016 with the appointment of a third-party securities lending agent. Hence, the securities lending programme changed from a custody lending to a third-party lending model.

The SARB has maintained an external fund management (EFM) programme since 1999. The EFM programme adds additional diversification to the management of FX reserves, allows for a transfer of skills, greater risk-taking given broader guidelines, and acts as a benchmark for the internal portfolio managers. The programme typically focuses on actively managed portfolios, specifically within specialist asset classes such as US TIPS and US MBS.