South African Reserve Bank
Working Paper Series
WP/21/10

Macro works: applying integrated policy frameworks to South Africa

Christopher Loewald

Authorised for distribution by Konstantin Makrelov

9 June 2021

South African Reserve Bank

South African Reserve Bank Working Papers are written by staff members of the South African Reserve Bank and, on occasion, by consultants under the auspices of the South African Reserve Bank. The papers deal with topical issues and describe preliminary research findings, and develop new analytical or empirical approaches in their analyses. They are solely intended to elicit comments and stimulate debate.

The views expressed in this Working Paper are those of the author(s) and do not necessarily represent those of the South African Reserve Bank or South African Reserve Bank policy. While every precaution is taken to ensure the accuracy of information, the South African Reserve Bank shall not be liable to any person for inaccurate information, omissions or opinions contained herein.

South African Reserve Bank Working Papers are externally refereed.

Information on South African Reserve Bank Working Papers can be found at
https://www.resbank.co.za/en/home/publications/Papers/working-papers

Enquiries relating to the Working Paper Series can be addressed to:

Head: Economic Research Department
South African Reserve Bank
P O Box 427
Pretoria 0001

Tel. +27 12 313 3911

Macro works: applying integrated policy frameworks to South Africa

Christopher Loewald*

9 June 2021

Abstract

Since the Global Financial Crisis, international research and policy efforts have made the case for more interventionist management of capital inflows and exchange rates, motivated by the size and effects of gross flows of capital and a desire to maintain robust growth rates. This case differs considerably from the guidance during the Asian financial crisis period, which advised responding to capital inflows with higher saving achieved with more proactive fiscal, monetary and foreign exchange policies. Removing these macroeconomic policies from the toolkit leaves little other than macro- and microprudential instruments to address the over-leveraging, asset price inflation and relative price adjustments associated with sustained capital inflows. I show, through theory and empirics why the macroeconomic policy approach to capital flows should remain central to South Africa and how it can be strengthened further with asymmetric approaches to real exchange appreciation. Deep local currency capital markets and low inflation are critical elements of reducing the real costs of currency volatility. These ideas can be generalised to other emerging economies with inflation targets and floating exchange rates.

JEL classification: E4, F3

Keywords:

Macroeconomics, exchange rate policy, currency, capital flows

* Christopher Loewald is the Head of Economic Research at the South African Reserve Bank. chris.loewald@resbank.co.za

1. Introduction[1]

Since the Global Financial Crisis (GFC), several major international research and policy efforts have made the case for more interventionist management of exchange rates and capital inflows than was typically considered beneficial in the 2000s. These efforts are motivated by a sense that cross-border capital market integration is too complete. Gross flows of capital have become very large, limiting the effectiveness of macroeconomic policy.[2] Capital inflows, especially immediately following the GFC, caused currency appreciation and macroeconomic disequilibrium in some countries, with overheating and skewed distribution of growth across tradable and non-tradable sectors. Responding to this with contractionary fiscal and monetary policies presented other economic costs. Where monetary policy contracts, the resulting further inflows and appreciation can seem self-defeating, at least in the short term. After accepting capital inflows, currency depreciation can also entail large costs, particularly for small economies with global trade and local finance denominated in United States (US) dollars.[3]

This post-GFC focus on the costs of inflows differs considerably from the guidance of the Asian financial crisis period, which recommended managing capital inflows with better use of fiscal, monetary and foreign exchange policies. The underlying idea was to gain the economic benefits of capital inflows and minimise negative externalities, while retaining macroeconomic policy stability with more active 'leaning against the wind' – countercyclical efforts that raise saving and lower real exchange rates. But this policy mix became less attractive after the GFC. Few emerging markets wanted sustained appreciation but many expressed a desire to avoid macroeconomic policy adjustments that might slow the prevailing pace of growth. This left little more than foreign currency market interventions and specific macro- and microprudential instruments to address capital inflows.

---

1 Thanks are due to Erik Bostrom, Thuli Radebe, Andreas Wörgötter, Montford Mlachila, Nicola Viegi, Konstantin Makrelov, David Fowkes, Erik Visser, Alex Smith and Daan Steenkamp for a wide range of useful comments and research support. Errors are all mine.

2 Obstfeld (2017).

3 See Casas et al. (2017) and Bannerjee et al. (2020).

Such instruments have now become standard policy guidance, captured as steps in integrated policy frameworks, such as that of the International Monetary Fund (IMF) (2020).[4] Rather than raising interest rates or increasing fiscal saving, capital inflow management tools (or taxes placed on inflows) could compensate for negative externalities or slow the flow of capital. More active foreign currency intervention could stabilise exchange rates and more generally limit negative spillovers to emerging market economies from appreciation shocks from global monetary centres. Financial stability policies, in turn, could create buffers for capital loss, protecting credit extension, and manage demand for credit.

Despite these benefits, integrated policy frameworks proposed by multilateral institutions like the IMF are careful to condition use of such steps, suggesting that their use may in practice be quite limited.[5] A look at recent history further suggests the tools have not worked well, with many emerging economies still tipping into recession after spells of overheating.[6] After the 2013 taper tantrum, countries often ended up with high inflation and low growth (Figure 1), and real appreciation and lower export growth (Figure 2). Nor is it clear that higher interest rates always cause inflows – capital flows generally correlate better with growth outcomes than real interest rate differentials, a finding corroborated in the comparative literature.[7] In the post-taper tantrum era, as in the 1990s, capital has proved risk-averse, following growth more than higher real interest rate differentials.

In short, conditions differed before and after 2013, making neat conclusions about macro- and microprudential policies difficult. Pre-taper tantrum conditions needed far more macroeconomic leaning against the wind as inflows increased. Because macroeconomic saving didn't happen, however, many emerging market economies needed macroeconomic consolidation as inflows slowed after the taper tantrum. Easing prudential policies, assuming space was available, would in some cases have worked at cross-purposes and, in others, possibly beneficial where balance sheets of the public and private

4 IMF (2020).

5 Basu et al (2020).

6 Chamon et al (2019).

7 Cerutti et al. (2015), Davis and Zlate (2018), Zoega (2016) and Sahay et al. (2014).

sectors differed greatly. For instance, in South Africa, some macroprudential easing could have been growth-supportive but not contributing to larger macroeconomic imbalances as the public sector should have consolidated.

Given the broadly poor outcomes across emerging economies post-taper tantrum, it is not clear that macroprudential tools that reduced inflows or curbed borrowing were insufficiently applied. They may simply not have been the right tools. Certainly, looking back to 2013, as emerging economies' output weakened and capital flows became more volatile, the need for additional prudential instruments fell away. The thesis that macroeconomic impotence needs a panoply of supplementary tools may be more argument than empirical reality, and, like many policy sets, state contingent.

In this paper, I make the case that inflation targets, supplemented where needed with asymmetric efforts to moderate real appreciation, should remain core policies and should remove the need for many, but not all, macroprudential interventions. In economies with floating exchange rates that do not depend on hard currency financing, appreciation should be addressed by fiscal policy and/or reserve accumulation, and depreciation should be addressed by monetary policy. This probably applies most to medium-sized emerging market economies. I then look at how these policies might be applied in relation to South Africa.

Assuming capital flows resume post-COVID-19, should policy tools be readied to address short-run currency volatility, preparing for asset sales by investors (an insurance motive) and/or to increase financial stability? As the IMF has pointed out, policy use should align with local needs.[8] The South African experience suggests that the better answer to insurance and volatility concerns is to ensure a robust float, backed by deep local capital markets. I explain why further below.

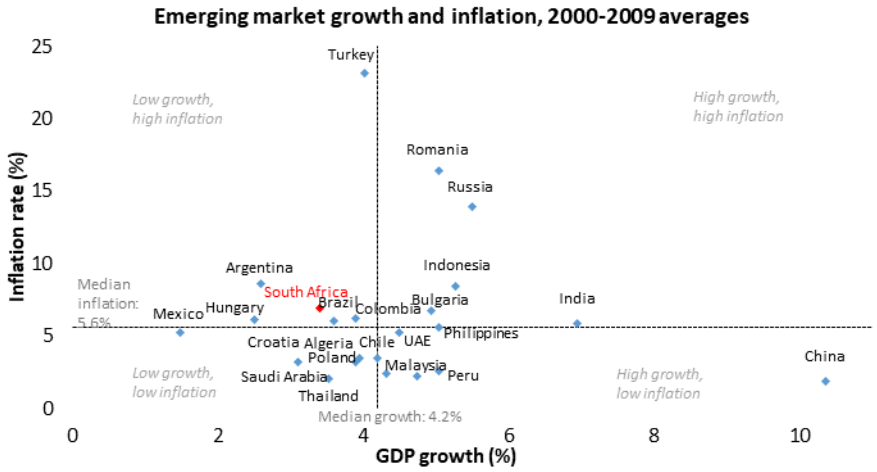
There is a stronger case for more direct efforts to prevent financial instability, like countercyclical capital buffers and other more specific micro-prudential limits to borrowing

[8] IMF (2020) and Fayad and Poirson (2020).

in extreme cases. In line with the guidance from integrated policy frameworks, however, even these efforts may be inefficient without macroeconomic policies that generate sustainable relative prices. While countercyclical buffers should be price neutral, credit limits and other tools may prove to be overly discretionary and undermine productivity growth, with extensive unintended consequences.[9]

I conclude the paper with some suggestions on South African policy going forward, given current economic conditions and fiscal and monetary policy stances. These conditions are unusual and shaped by a steady decline in productivity and potential growth, which, with generally expansionary fiscal policy, has caused real exchange rate appreciation.[10] This strictly constrains macroeconomic policy options and needs to be reversed as the first step in preventing the overheating and financial instability that could come about in a post-COVID-19 recovery.

Figure 1: Comparative statics, average inflation and GDP in 2000–2009 and 2010–2019 (Source: Haver and author's calculations)



9 For instance, when non-tradables prices (such as housing) are rising back to long-term trend levels and credit-limit instruments are deployed to limit economic transactions responding to the move in relative prices back to equilibrium. This could create shortages in the non-tradable good or service and is therefore simply a price control.

10 Loewald, Faulkner and Makrelov (2020) and Loewald (2019).

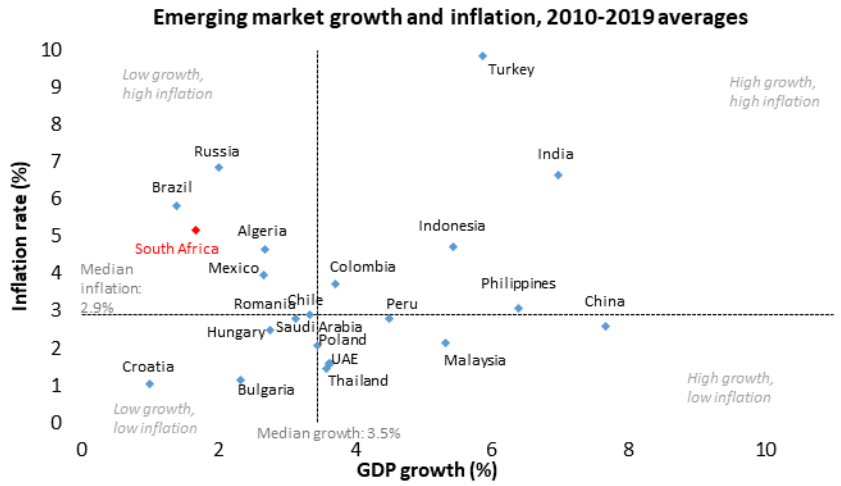
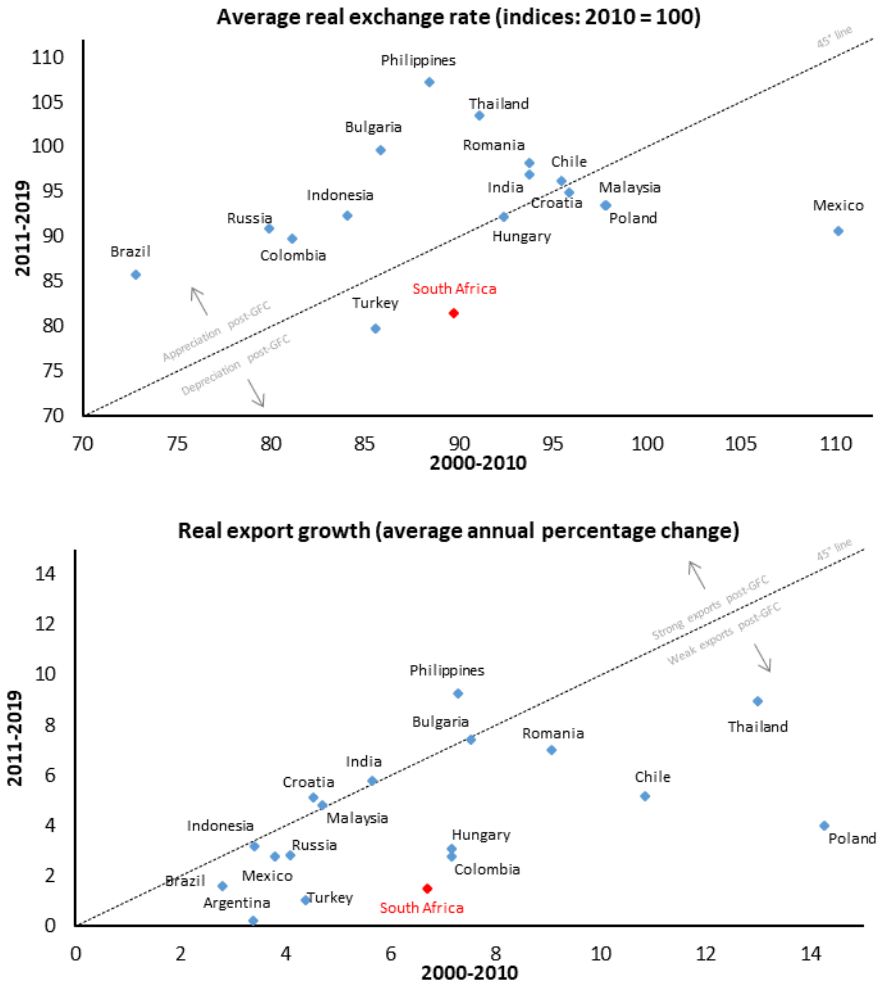


Figure 2: Comparative statics, emerging market average exchange rates and real export growth, 2000–2010 and 2011–2019 (Source: Haver and author's calculations)



2. What's not to like about integrated policy frameworks?

The cascading of policies in integrated policy frameworks from macroeconomic to microeconomic is clear and conceptually attractive. It is less clear how small open economies can make the policies work and what the thresholds should be for moving a country's policy response from one level to another.

Macroeconomic policy responses will certainly be more effective in solving macro-level problems if the policy instrument is correctly identified. As I discuss in the next section, it is easy to get this wrong. This is particularly true when it comes to the combination of fiscal policy and low potential growth, which makes it easy to misgauge the degree of countercyclicality needed. In terms of monetary policy, Taylor rules are usually thought to fully incorporate exchange rate misalignment and shocks, making augmentation with explicit exchange rate variables less compelling. Proposals to expand the number of targets in Taylor rules may also lead to policy confusion, as settings become averages rather than clearly calibrated to a target.[11]

In instances where macroeconomic policy space is limited, the shift down to macroprudential and capital inflow management tools seems compelling, but may not be effective for two reasons. First, they work against macroeconomic policy. Second, they simply do not affect enough transactions. While broad macroprudential regulations – say, limits on institutional foreign currency liabilities – will work well because they are scaled and industry-wide, instruments in the financial stability space are less generalisable.

All of these macroprudential, capital inflow, and financial stability tools are explicitly about limiting capital availability and implicitly about choosing how capital is used, both of which may reduce potential growth and have unintended economic consequences. Such tools do not 'get into the cracks' like monetary policy; they are more fiscal instruments, targeted at the cracks, and limit specific economic transactions. This sounds appealing, but may simply impose particular costs on certain transactions while shifting the larger problem

[11] Proposals to include macroprudential targets in Taylor rules come to mind. See Adrian (2020).

elsewhere. Rather than chasing evolving transactions with ever more regulation, it may be more effective to tax the returns to a set of clearly legal ones.[12] In sum, understanding the intended and unintended economic effects is as important for these tools as it is for taxes or any other regulations.

The rise in costs effects may be especially large where efforts to limit capital inflows restrict the pool of saving available to domestic savers and increase the cost of capital to the economy generally.[13] The cost of such measures needs to be assessed against the potential benefits of minimising negative, capital flow-induced externalities. In South Africa's case, it is not clear how to identify those negative externalities, making pre-emptive fixing of policy rules potentially expensive.[14] In sum, for South Africa, fine-tuning is useful, but major shifts in policy are not – even an extensive panoply of transactional limitations is unlikely to substitute for fiscal or monetary policies and may simply impose large costs. Most if not all emerging market economies remain fundamentally in need of foreign capital, a condition only episodically reversed. When this occurs, saving the inflows may be the more effective policy response.

It is also unclear why the growth efficiency of capital inflows should be impeded by policy, when compared to the efficiency of other spending options: South Africa's experience appears to provide a strong warning against this. When capital flows in, the policy framework should seek to improve the efficiency of investment irrespective of the source,

---

12 Which is well-established regulatory practice in the derivatives space in South Africa.

13 An argument is sometimes made that restricting capital inflows would reduce 'financialisation', but the very concept implies that there is too much capital, not too little, and therefore directly counters the idea that the cost of capital is the binding constraint to economic growth. If the issue then is that returns to more growth-enhancing economic activities are lower than financial transactions and are therefore crowded out of funding, then the solution should be public policy to equalise returns by removing the negative externalities associated with non-financial investments, not by reducing the availability of capital.

14 A range of financial stability and macroprudential indicators show little evidence of instability. There are no large foreign currency mismatches in the corporate or public sectors. Asset price inflation is not evident since the GFC. The larger financial stability concern derives from banks extending credit to households and firms with precarious income streams. These should be addressed with labour market policy reform to create more permanent jobs, social wages to smooth income and small business support, not through any direct financial stability tools. A renewal of strong credit growth, as measured by the countercyclical capital buffer methodology, and other instruments, should be implemented if evidence of a housing price bubble resurfaces.

perhaps most effectively by creating room for the capital by adjusting fiscal policy. A stronger general case exists for limiting household debt and other domestic asset price inflation when consumer price inflation and interest rates are low, but, as in the instance of excessive capital inflows and currency appreciation, these conditions are periodic rather than systemic.

Two important concerns related to capital flows are foreign exchange volatility and an insurance policy for creditors. As I discuss further below, these concerns are addressed by floating exchange rate policy frameworks. Floating limits foreign currency mismatch, a major financial and macroeconomic stability problem, and can reduce dependence on dominant currency financing and trade by deepening local capital markets. The effects of currency volatility on firms could be moderated by financial market solutions (cheaper hedging) if these were in higher demand by local exporters.

More broadly, the case for capital inflow management tends to be highly conditional on country variations in financial market depth, a long-term issue, and on the Asian-crisis-type regulations governing foreign currency positions of resident firms.[15] Neither of these conditions appears especially problematic in South Africa. The macroeconomic lens on capital inflow management tools and foreign currency intervention options first requires assessment. Without this, other tools may fail to deliver benefits. I turn to that topic next.

3. Appreciation, depreciation and macroeconomic policy

In general, there are three combinations of macroeconomic policy and exchange rates that suggest policy misalignments. The first is where macroeconomic settings generate excess saving relative to investment and consumption, creating internal depreciation (a rising ratio of tradable to non-tradable prices and production), rising net exports and capital outflows (case one). Outflows inflate other economies, increasing their current account deficits and imbalances. The main concern here is over global and/or regional patterns of

[15] IMF (2020).

imbalances across national economies, and where and how growth might become more balanced within and between economies.

The second is the most common combination of excess deficits of saving relative to investment, with real appreciation caused by higher inflation or episodes of strong capital inflows and nominal appreciation (case two). This has been the default condition for South Africa.[16] These conditions require either real depreciation, or macroeconomic expansion in other economies to rebalance with more exports. In practice, many emerging market economies choose to run investment-saving imbalances with the help of sustained capital inflows that fund the deficits and the resulting private and/or public debt levels that build up. To moderate or curtail the rise in debt, the investment-saving balance must at some point reverse to run current account surpluses. If capital inflows are the cause of the imbalance, then public and/or private spending must contract. This constraint, the point when policy must tighten, is hit earlier when, as in South Africa and some other emerging economies, potential growth has fallen, or where fiscal policy is expansionary and not coordinated.[17]

The third combination is a variant of the second, where capital inflows are so sustained that the domestic authorities cannot sterilise the effects with monetary or fiscal policy, resulting in excessive appreciation (case three).[18] Monetary policy tightening prompts further capital inflows and appreciation, while fiscal policy cannot run large enough surpluses to offset appreciation.[19] As set out in the IMF's integrated policy framework, a version of this problem comes from the appreciation of dominant currencies that cannot be sterilised by countries because financial flows and trade are denominated in those currencies.

---

16 The exception is the period running from 2002 to 2006, which is instructive: policy and circumstances generated a combination of disinflation, tighter fiscal policy, and an initially depreciated real exchange rate and stronger real GDP growth.

17 IMF (2020).

18 Rey (2015).

19 In the following equation, NER appreciates (US dollar/rand rises), while the fall in Pd relative to Pf is real depreciation: $\mathrm{RER} = \mathrm{NER}\ (\frac{\mathrm{pf}}{\mathrm{pd}})$, the net result is appreciation in the RER.

Our concern in this section is how inflation targeting and a floating exchange rate help to address macroeconomic imbalances in case two and, to a lesser extent, three, and how the policy framework can be supported to improve outcomes. The basic complaint about currencies in the post-GFC period was their rapid currency appreciation, although this reached pre-GFC levels in only a few cases.[20] A wave of currency market interventions nonetheless followed. And while these interventions were meant to reduce capital inflows, there were few obvious and positive effects on exports (see Figure 2). Instead, because other policies (monetary and fiscal) remained unadjusted, most emerging market economies experienced economic growth pushing beyond potential and higher inflation.[21] In these conditions and given the policy goals expressed, why didn't these countries more aggressively reverse expansionary policies? One answer is that they wanted more flexibility around inflation targets and found it easy to blame international financial integration, even though capital inflows initially kept inflation low. They may also have misperceived inflationary pressures, inducing more expansionary policies. A review of the role of floating exchange rates in monetary policy helps highlight the inconsistencies of the post-GFC approaches to policy.

Before the 1990s, most monetary policy frameworks included some strong element of exchange rate management (for all but the largest economies), often simply a fixed rate or peg, as a means of attaining a desired rate of inflation.[22] Stable exchange rates also reduced the risk of importing and exporting, contributing to cross-border transactions and associated productive capacity. However, more currency stability requires more strictly limited fiscal and monetary policy settings, and very large and abrupt adjustments when markets shut down.[23] As ever-larger international capital flows narrowed the space for

---

20 The term was coined by the Brazilian Minister of Finance, Guido Mantega, in September 2010. For a good retrospective article, see Wheatley (2014): "The weak real has not, as the first exchanges of the currency wars suggested it might, delivered a surge in competitiveness for Brazilian goods in export or domestic markets. Rather, it is contributing to inflation that is running above the government's upper limit of 6.5 per cent a year…"

21 Very few of the mid-size emerging economies (in other words, not China or India) exhibited a rise in exports to GDP in the post-GFC era or a rise real export growth, despite all of them experiencing real exchange rate depreciation. See Figures 1 and 2.

22 Obstfeld (2017).

23 Eichengreen (1992).

policy inefficiencies, the most glaring of which were large current account deficits and high inflation rates, these fixed rate policy frameworks came under increasing pressure (from the early 1970s onwards). These imbalances combined with price rigidities to reduce economic growth and eventually result in stagflation. In short, stable currencies became increasingly incompatible with expansionary macroeconomic policies interacting with sticky prices.[24] If macroeconomic policy tightening wasn't available to address the high inflation thrown out by institutional price determination, currencies sold off. The resulting inflation, in turn, eliminated any real gains from depreciation, preventing investment and growth and weakening the traditional Philips curve relationship.

The historical objection to dealing with the international financial constraint was that it would entail losing autonomy over interest rates and hence ability to expand. And yet, even before full capital and financial market integration, countries had little real control over interest rates. Domestic investors evaded capital controls, while foreign investors traded the relevant currency in offshore markets, creating different onshore and offshore interest rates. The cost of capital offshore adjusted freely, while financial repression (and administrative management of incomplete financial markets) allowed some difference to persist between on- and offshore rates (creating an incentive to move capital offshore).

In this context, allowing free capital movement and floating currencies, with more sustainable and effective macroeconomic policy frameworks, restored some policy autonomy that had been lost by protecting domestic financial markets (despite greater de facto international capital mobility). By increasing their openness to capital, countries opted for better access to foreign saving to finance their internal saving deficits. In return, they allowed supply and demand in foreign exchange (FX) markets to determine the value of the currency. This increase in policy credibility (by foregoing intervention) created space for policy settings to better reflect domestic conditions. Over the longer run, however, this rise in credibility created more fiscal policy space that could eventually be over-exploited. In many economies, perhaps most clearly in those countries joining the European Monetary Union, this eventually led to larger current account deficits as credibility

[24] Ball et al. (1988).

increased and real interest rate levels fell. And, for some, as a near-rule, where countries persisted in running large fiscal or even capital inflow-driven savings/investment imbalances with fixed or quasi-fixed exchange rates, they eventually fell into crisis.[25]

Inflation targeting frameworks, in contrast to fixed exchange rate policies, formalised this new macroeconomic policy transparency. And unlike fixed exchange rates, inflation targeting freed policy authorities to use a wider range of tools to achieve their objectives, not just interest rates and fiscal policy. Economies out of balance still need adjustment, but the target's credibility and time consistency imply lower risk of additional policy mistakes and reduce the cost of adjustment to the target. Higher credibility, through better communications and forward-looking expectations, particularly reduced the risk of mistakes. Improving communications and expectations (making them more credible) would lower pass-through from changing exchange rates or imported price shocks to domestic inflation. More directly, floating currencies further allowed price incentives for exporters and for importers to work in favour of external balance, while a low, positive and credible inflation target enables the achievement of external balance without upsetting internal balance.

But this policy space to better focus on domestic conditions is relative, not absolute, and internal and external balances are endogenous to pricing for capital, labour and outputs.[26] If factor markets fail to respond appropriately to the inflation target or to permanent relative price adjustments, then disequilibrium occurs and is difficult to reverse. In emerging economies, capital is fixed and sticky and more competitive pricing behaviour is usually limited to particular industrial sectors exposed to international competition. As a result,

---

25 Obstfeld (2017).

26 The key equation is the following: $\mathrm{RER} = \mathrm{NER}\,(\frac{\mathrm{pf}}{\mathrm{pd}})$, where a rise in the real exchange rate is a depreciation. See Claassen (1996). Inflation and exchange rates reflect macroeconomic balances, one internal and one external. When these are achieved, the economy is running at its potential, without destabilising shifts in the composition of growth or payments imbalances. The level of real income, the inflation rate and the degree of capital mobility of the economy, in turn, are the main determinants of the nominal exchange rate. Together, the nominal exchange rate and the inflation rate, relative to inflation and real income in trading partners, determines the real exchange rate level. A competitive real level of the currency supports the external balance of the economy – a healthy balance of importing, exporting and flows of foreign saving.

more volatile inflation outcomes go hand-in-hand with more volatile nominal exchange rates, both outcomes of insufficiently targeted fiscal, monetary and pricing policies.

I discuss next how currency movements facilitate (and impede) economic adjustment.

4. The exchange rate's adjustment value

Currency values generally change in line with movements in fundamentals, such as real interest rate differentials, productivity differentials and variables like the terms of trade.[27] There have however been periods of misalignment from fundamentals, in particular where real exchange rate levels diverge from their equilibrium levels.[28] Periods of appreciation caused by positive terms of trade shocks are expansions in demand and so are also periods of stronger-than-average GDP growth. When the currency appreciates, the economy more directly shows a worsening trade balance, as imports rise and, alongside higher commodity prices (in net commodity exporters like South Africa), these eventually extend into non-commodity sectors.[29] It is a commonly held view that these episodes of appreciation hollow out sectors that export or import-compete. If domestic costs are rising fast, while currency appreciation shifts consumption to imports, then businesses are squeezed. But there is less clear evidence that this is a direct function of the currency's appreciation (not least because usually brief) and much more that the squeeze occurs because the domestic price level rises too much.[30] A relative price shock becomes generalised.

---

27 Devereux et al. (2004).

28 See Fowkes, Loewald and Marinkov (2016) for a discussion of this for South Africa.

29 See Parsley (2012).

30 Fowkes, Loewald and Marinkov (2016). Manufacturing production has consistently increased in real level terms but manufacturing has not grown as fast as other sectors. This has generated the widespread notion that South Africa has deindustrialised, but it may be better to say that manufacturing has become more specialised.

Real appreciation can also be seen as a windfall income gain to the fiscus, assuming that tradable sector income is sticky in the short run.[31] Sectors boosted by appreciation should be taxed more heavily to build fiscal surpluses and to reduce inflation. This change in saving levels would help prevent compositional imbalances in growth as it impacts on relative prices across the economy, with larger effects relative to macroprudential policies. The central bank could assist the fiscal authorities to buy reserves more actively as an adjunct to fiscal measures that work to moderate appreciation relative to equilibrium. As discussed below, this should be done in an asymmetric way, triggered by sustained appreciation relative to real equilibrium.[32]

There are, however, limits to intervention. Central bank reserve purchases cannot substitute for coordination with fiscal policy, unless the central bank is willing to use its balance sheet much further (than it has up to now in South Africa's case).[33] Even if the central bank did this, it would remain important for reserve purchases to be done in a way that is still seen as floating, or without a currency level target. The float serves an important purpose: it makes leaning against the wind a primarily private sector responsibility, as has occurred in South Africa since the policy was articulated in the early 2000s. Much of the country's sovereign debt (from 30% to 40%) has been bought by non-residents (appreciating a cheap currency), while residents have increased their foreign asset positions (balancing out the appreciation), strengthening the country's net investment position with the rest of the world. Where macroeconomic policies are countercyclical to appreciation, and residents respond to appreciation by buying foreign assets, macroprudential policies could be marginal in design and still supportive.

If real appreciation relative to equilibrium is a policy problem requiring a response, what about real depreciation? In essence, even though it may reduce growth in non-tradable sectors, real depreciation makes external financing more sustainable and should be

---

31 In the longer term, this reverses if the Marshall-Lerner conditions holds.

32 In the Swiss case, where sustained appreciation occurs due to very high openness, appreciation can require sustained sterilisation.

33 As Borio and Pisyatat (2009) point out, central bank balance sheet activities normally form a very small part of broader public sector balance sheet operations, which are in all cases dominated by national finance ministry activities.

considered a temporary competitiveness gain. As long as the inflation target, fiscal policy and macroprudential policies are sustainable and effective, exchange rate pass-through to inflation should remain controlled, allowing real income gains from depreciation to flow through to tax revenue and eventually stronger demand. All this implies that intervention to stem depreciation is largely undesirable, even where the local economy has over-leveraged in foreign currency.[34] The short-term vulnerability should in any event be reduced and the immediate costs of depreciation will be offset by long-term gains, not least in terms of a better and more sustainable composition of growth.

A clear and credible floating regime would decrease the ex ante incentive for domestic firms to borrow in foreign currency and build foreign currency liabilities against domestic assets.[35] And the float reduces the incentive of market traders to speculate in the short term. Reserve accumulation intended to offset losses to either of these agents (resident and non-resident) in the event of currency depreciation would imply that the currency does not float in practice, and runs the risk of creating contingent liabilities.[36] In short, the floating rate creates a structural disincentive to certain behaviours in a way superior to insurance mechanisms (which create the reverse incentive as they bail out mistakes).

I have discussed how the floating exchange rate keeps both interest rates and inflation more stable, not less.[37] And how this exchange rate channel enables depreciation to price new foreign capital into the domestic market, while demand for imports and foreign currency falls. In an open economy framework with a variable price level, fiscal policy can consolidate to allow real depreciation to occur and this, in turn, reduces pressure on monetary policy – domestic demand does not necessarily need to contract to further

---

34 And which has been confirmed by the South African experience of trying to prevent depreciation, which in the pre-floating rate era (prior to 2001) was fully ineffective. See Schaling (2005).

35 The floating rate in fact encourages offshore investors to borrow in rand to buy rand assets, generating gains to the economy.

36 Such liabilities (or gains) are created when the central bank or another agent enters forward contracts at future prices that do not realise.

37 Friedman (1953: 158), Fleming (1962) and Mundell (1963). This model introduces the Impossible Trinity (macroeconomic trilemma). The three policy options of the trilemma (of which only two are possible) are free capital mobility, fixed exchange rates and independent monetary policy. South Africa has opted for a freely floating exchange rate policy that allows for free capital mobility and independent monetary policy.

reduce demand for foreign currency.[38] Both these channels show how depreciation of the local currency absorbs shocks – reducing the need for further policy action where economies run large imbalances.

In extreme cases of depreciation, finally, rules for spending reserves should be set out, limited by an appropriate definition of 'disorderly market conditions'. However, 'disorderliness' should be measured as the extent of loss of policy credibility, as reflected in the way in which forward markets respond to policy, rather than speed or size of movement in spot values. What to do about short-run volatility is trickier, but also less important, as I discuss next.[39]

5. Other reasons to intervene: insurance and volatility

I have discussed the importance of macroeconomic policy as the key to addressing misalignment but there are arguments for short-run interventions too, as marginal tools to get better long-run outcomes.[40] The case is also frequently made for interventions to self-insure to deal with sudden stops of capital. I discuss both here.

When pass-through from currency movements into domestic prices is fast and large, then a central bank could potentially use FX intervention to reduce this. But the efficacy of this intervention would depend considerably on having tools that actually offset the shocks. The higher the frequency of these shocks, the more difficult this will be to do. If the shocks' direction is random, then the tools presumably need to handle both random appreciation and random depreciation. If they are not random, the tools will be ineffective, since one-sided shocks are either a function of market movements toward a changed equilibrium rate or a function of information asymmetries. In the latter case, the most effective tool will be to remove the asymmetry. Hence, it is not very surprising to find that dampening

---

38 Currency intervention could be required when capital markets are very underdeveloped and FX debt is high, but South Africa has neither of those liabilities.

39 See Fowkes, Loewald and Marinkov (2016).

40 Neely (2001).

volatility has, in practice, only been modestly effective (see Table 1).[41] Unexpected, large and frequent interventions tended to be the most effective in reducing volatility.[42] In addition, interventions in markets where governments had more credibility and higher reserves-to-GDP ratios experienced more success, probably because they start from a position of sustainable policies and macroeconomic credibility.[43]

More broadly, volatility appears to have few measurable effects on long-term growth in countries with floating exchange rates, so long as the country has a well-developed financial system.[44] Although many emerging market economies have underdeveloped financial systems, South Africa is an exception, having about the 11th most developed financial system between 1960 and 2017.[45] This suggests limited approaches to FX interventions but clearly that policymakers should take determined steps to develop local currency financial and capital markets. Even temporary and limited interventions, however, need to be transparent and well-communicated, because short-term interventions that signal time inconsistency or the absence of longer-run macroeconomic policy credibility will cause more currency volatility and uncertainty about the economic trajectory and policy intentions.

---

41 Aghion et al. (2008). Table 1 is only a sample of a few studies on FX interventions and is by no means complete. The table provides a relatively wide range of emerging market countries to assess general intervention effectiveness.

42 Further study is necessary to analyse if certain intervention methods are more effective than others. For example, in Colombia and Mexico, put options tended to be effective (although one depreciated and the other appreciated the currency, respectively).

43 Basu et al. (2016). It is also important to note that in some instances when the exchange rate level was successfully manipulated, it was not a primary goal of the central bank.

44 Financial development is often measured as domestic credit to the private sector as a percentage of GDP.

45 Data from the World Bank and author's calculations. There were 188 countries in the sample.

Table 1: Effectiveness of FX interventions

Country[46]	Intervention period analysed	Successful in stabilising NEER?	Desired NEER movement	Successful in achieving NEER movement?	Method of intervention
Brazil	2013	Yes	Appreciation	Yes	Swaps
Brazil	2013–2015	No	Appreciation	No	Swaps
Chile	1998–2003	N/A	Appreciation	Yes	Spot market
Colombia	2001–2012	Yes	Appreciation	No	Options
Colombia	2001–2012	Yes	Depreciation	Yes	Options
Czech Republic	2001–2002	No	Appreciation	Yes (weak)	Spot market
India	1995–2003	Yes (weak)	Appreciation	No	Spot market
Mexico	1996–2001	Yes	Appreciation	Yes	Options
Mexico	1996–2001	No	Depreciation	No	Options
Philippines	2005–2010	Yes	Appreciation	N/A	Spot market
Turkey	2001–2002	Yes	Appreciation	Yes	Spot market
Turkey	2001–2002	Yes	Depreciation	No	Spot market

Source: Aghion (2008). Note: NEER = nominal effective exchange rate.

6. Building reserves for insurance

In a floating rate regime, precautionary reasons to build reserves may include reducing the likelihood of a run on the currency, addressing disorderly market conditions, providing foreign currency to particularly vulnerable sectors, and reducing domestic capital flight and its effect on financial stability. The level of reserves is normally assessed against their cost, the probability of a sudden stop, the growth effect of capital loss and risk aversion. On each of these measures, South Africa's impetus to increase reserve holdings is low.

The more managed the exchange rate, the more reserves are needed to make the FX regime credible. By this logic, a floating rate policy needs little (or no) back up reserves, since the market is allowed to equilibrate supply and demand. South Africa nonetheless has built reserves during periods of appreciation or when there were large once-off inflows

[46] Brazil: Chamon et al. (2017); Chile: Tapia and Tokman (2004); Colombia: Kuersteiner et al. (2018); Czech Republic: Disyatat and Galati (2005); India: Pattanaik and Sahoo (2003); Mexico and Turkey: Domaç and Mendoza (2004); Philippines: Guinigundo (2013).

to buy local firms. The case for building up many more reserves to reach a particular level is less compelling, unless, like in the 2000s, it is part of an effort to correct a misalignment by increasing national saving – in which fiscal policy needs to play a large and active role. The use of reserve adequacy rules to set reserve purchase target levels can be misunderstood by the public or create one-way bet-type conditions, and are not always well-mapped to particular structural aspects of economies. Some building blocks of these rules, like foreign ownership of local assets, may also have significant unintended consequences. As discussed later in this paper, there are potentially better guides to the level of reserves that should be accumulated over time.

How reserves are bought is also important. The build-up of reserves can be done in a way that affects the level of the currency over time, for instance, by buying reserves when the currency is appreciating. A clear challenge, however, lies in leaning against the wind when the spot level has moved away from equilibrium. Where the spot level has appreciated relative to equilibrium, a central bank can build reserves but may not move the level of the spot, and may even encourage additional inflows (and hence the need to continue buying reserves, as in the Swiss case). In the reverse case, a one-way bet may be established in which the central bank cannot sell enough foreign currency to stabilise the exchange rate. This was the condition of South African rand-buying in the crises of the late 1990s and through the Argentine crisis of 2001.[47] As one review of currency interventions shows (Table 1), it may cost far more to stop depreciation, while appreciation can be more effectively contained.

Buying too many reserves can also reduce risk aversion and incentivise the private sector to take on too many foreign currency liabilities, with the expectation that their losses will be covered in the event of a significant depreciation. A similar effect is achieved by the central bank defending a particular exchange rate level, which signals to the market that liabilities should be taken on and raises risks to financial stability. When sharp FX movements increase the impetus to sell assets, local financial institutions' balance sheets

[47] Intervention to appreciate (depreciate) the rand involves the South African Reserve Bank buying (selling) rands on the open market with (for) FX in order to increase (decrease) demand for the rand while decreasing (increasing) demand for FX.

weaken. Assets (loans) need to be sold to pay down foreign currency liabilities (borrowing), leading to domestic economic contraction. There are only two ways of resolving this risk. One is to provide an open-ended guarantee of the liabilities. Precautionary reserve buying, especially if badly motivated to the public, becomes a signal to the private sector that monetary authorities are willing to provide those guarantees. The other is to minimise the risk associated with such liabilities in the first place. For this reason, a floating exchange rate is a critical macroprudential policy instrument in its own right because, if the float is credible, it prevents this liability build-up from happening.[48] Low volatility, by contrast, can encourage the lending on of foreign currency loans, creating very large financial stability problems when the local currency depreciates or incomes fall abruptly.

Where economies have high foreign currency liabilities, the priority should be to either move to a credible, fixed exchange rate or rapidly develop local currency capital markets. The IMF's integrated policy framework is in part predicated on the observation that many developing economies have foreign-currency invoicing in trade and for financing.[49] This implies that local currency markets are under-developed or limited due to extensive economic linkages with a dominant currency economy. The dominant currency argument is essentially a claim of near-fixed exchange rate conditions, and is more relevant for very small economies where trade is heavily dominated by a particular hard-currency block, or where exports are dominated by one or very few commodity-like goods. It is also relevant for other emerging market economies but, in these cases, creating policy autonomy should still centre on developing local currency financial and capital markets, backed by sound macroeconomic policy. Over the longer run, this will be of more benefit than microeconomic interventions that, while palliative, ultimately fail to address the causal macroeconomic inconsistencies.

---

48 If the currency is perceived to trend stronger or weaker, or if the commitment to floating is undermined by interventions, then agents may be incentivised to accumulate foreign currency liabilities that become inconsistent with the level of the currency and, potentially, a financial stability problem.

49 See Boz et al. (2020); Adler et al. (2020); Adler, Gopinath and Buitron (2020).

7. How effective has South Africa been in addressing long-run misalignment?

For small open economies without dominant trade relationships, floating rates should increase policy flexibility in a useful way, even if reducing flexibility could potentially result in more macro- and microeconomic policy reform. I illustrate this point below by looking at South Africa's adoption of an inflation targeting policy framework, where the floating rate eased macroeconomic constraints and enabled larger savings-investment gaps. In more recent times, global monetary policy has set off a 'search for yield' and capital inflows have made savings-investment gaps more sustainable and offset the otherwise higher inflation. Getting macroeconomic policy right (sufficiently countercyclical to misalignment of the exchange rate) seems to be a pretty effective way of dealing with capital inflows, in part by allowing countries to more efficiently use a larger pool of cheaper capital: the sterilisation of capital inflows constitutes a saving to the economy and allows alternative uses for domestic capital. In South Africa's experience, the private sector in effect saved more and increased holdings of foreign assets, substituting for what the public sector might have done if it had saved more.[50]

It is critical that the macroeconomic policy framework is robust to the appreciation, and eventually higher inflation, made possible by inflows. The inflation targeting framework and a floating exchange rate generally help with the adjustment, but because they do this well, the credibility gain can create additional fiscal space that eventually leads to a reversal of the initial adjustment. This suggests that emerging markets need to embed credible inflation targeting frameworks and appropriately automatic countercyclical fiscal policy aligned to exchange rate overvaluation, and get factor markets to clear through prices rather than volumes. In the post-GFC period between 2009 and 2013, many emerging markets did not build fiscal surpluses or adjust macroeconomic policy to deal with currency appreciations. Instead, fiscal authorities treated the initially stronger growth (2009–2012) as permanent and higher tax revenues went into spending. The result was overheating and deficits that became unsustainable when growth faltered.

---

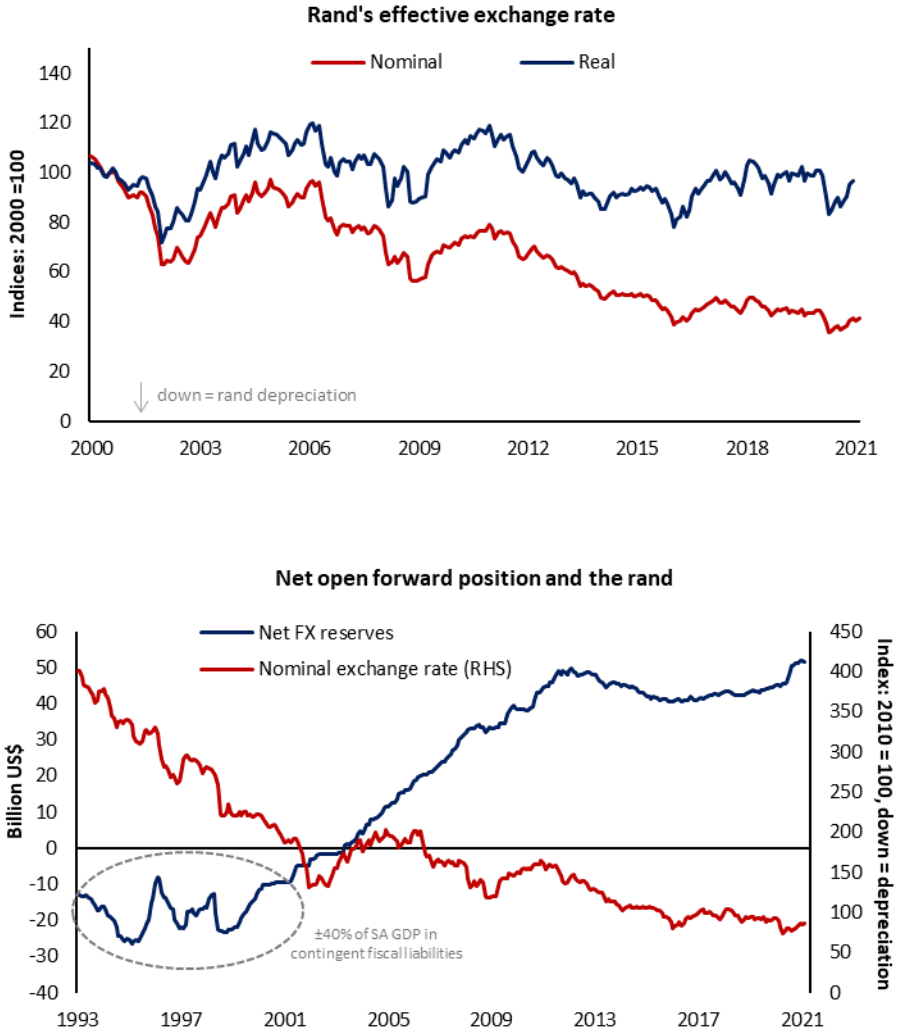
[50] Without the build-up of foreign assets, the combination of a large fiscal deficits, an appreciated real rand and weaker potential growth would have become unsustainable more quickly.

South Africa exhibited these dynamics, particularly in the immediate aftermath of the GFC, and, like some other emerging markets, fiscal dissaving failed to increase real growth. As potential growth fell and global policy looked set to tighten in 2013, liquidity to finance savings-investment gaps in emerging economies dried up. The subsequent reversal of US monetary policy (expansion of quantitative easing and easing of interest rates) delayed the need to close those emerging market fiscal and current account deficits. Global monetary policy accommodated more expansionary emerging market policies than otherwise would have been possible.

The rand has depreciated in nominal terms since its peak value against the US dollar in 2004 and further since the GFC. Short-term (daily, weekly) nominal exchange rate volatility has been high, in large part due to financial openness in a world of growing financial market integration and greater capital flows. However, the longer-term real level of the rand, which affects competitiveness, is more closely linked to its macroeconomic fundamentals, depreciating alongside the nominal rate and then realigning with the terms of trade and inflation differentials. Real appreciation, a decline in competitiveness, is a result of periods of nominal depreciation, followed by inflation in excess of trading partner inflation.

A formal inflation targeting framework was introduced in 2000, largely in response to the lack of transparency in the de facto inflation target and to liabilities created in efforts to intervene against rand depreciation. At least some of this currency market intervention was intended to indirectly lower the inflation rate. It is unclear if there was an exchange rate level that was being targeted before 2000, although the implicit inflation target of the period was between 1% and 4%. This target proved difficult to meet given the negative rand shocks of the period, even with active interest rate movements and currency intervention. By 1998, the South African Reserve Bank had borrowed a cumulative US$22.5 billion, or 16.3% of GDP, shown in the net open forward position.

Figure 3: The rand since the start of inflation targeting, and previous interventions in the currency (Source: SARB)



In the wake of the Asian financial crisis, it was recognised that unrestricted capital and currency movements can force economies away from equilibrium by overheating them (and appreciating the local currency), skewing the composition of growth towards non-tradable sectors. For this reason, a range of emerging economies combined an inflation target, as the primary target for macroeconomic stability, with foreign currency interventions to sterilise and prevent undesired appreciation.

South Africa's policy authorities took the same lesson from the Asian crisis. After the Russian and Argentine crises and rand depreciation of 2001, they closed the net open forward position and built a positive reserve balance. Between 2001 and 2004, the forward

position swung from a US$25 billion deficit to a US$50 billion positive balance as a result of explicit policy decisions to partially sterilise the strengthening of the rand. The rand's appreciation reached a high point of R5.66 to the US dollar in December 2004. From this point onward, FX purchases became a function of specific inflows of foreign currency, often as part of direct investment inflows.

Larger FX reserve purchases between 2004 and 2006 would have been consistent with macroeconomic equilibrium. While the rand appreciated (in real terms) in that period, the interest rate was cut as consumer price inflation softened. This, alongside strong growth in public spending, contributed to procyclical policy settings in the period before the Lehman crash and the GFC. Credit growth reached about 30% annually. The correct policy setting would have been to reduce overall demand with more fiscal funding of reserve purchases or larger fiscal surpluses.

A second period of appreciation occurred from December 2008 to December 2010. In this period, the currency bounced back from a 41.7% depreciation at the low point of the GFC. It achieved a level of R6.83 against the US dollar and R9.03 against the euro, as the world economy partially recovered from the crash. In particular, the rand benefitted from the rebound in commodity prices to pre-GFC levels. Relative to the period between 2006 and 2008 (when the rand depreciated significantly), in nominal effective terms, the rand appreciated by nearly 40% up to 2011. Higher food prices, and an extraordinary rise in public sector wages, contributed to stronger real appreciation and a higher inflation rate than in most trading partners. In this period, it is less clear that FX reserves purchases would have contributed to better macroeconomic outcomes. One possibility is that leaning against appreciation could have generated even stronger capital inflows as global liquidity was rising, resulting in an even higher level for the currency. In this case, a reversal of the fiscal deficit to surplus would have pulled down long-term interest rates and curbed the carry trade inflows, leading to less appreciation. But this approach was not taken. Instead, large fiscal deficits were maintained.

From 2011 to 2016, the rand experienced a sustained nominal and real depreciation trend. Intervention to prevent rand depreciation in this period would clearly have worked against

macroeconomic equilibrium, with the cost of intervention rising over time as the deviation from the fundamental exchange rate level increased. In the case of external shocks or internal idiosyncratic shocks, maintaining some macroeconomic stability required considerable depreciation. Without it, the large current account deficit of this period would have been more negative, and the probability of a crisis therefore far more acute.

Overall, between 2010 and 2019, the South African nominal effective exchange rate depreciated by 42.5% and the real effective exchange rate depreciated by 18.1%, or 2% per year. This trend can be explained as nominal depreciation turning over time into a domestic inflation rate that partially reverses the depreciation.[51]

Neither fiscal nor monetary policy has brought the inflation rate in line with those of trading partners over this period.[52] Instead, both policies have been expansionary, targeted at closing a negative output gap. Real interest rates have been set well below the estimated neutral real rate until 2018, when unexpected moderation in consumer price inflation pushed them above the neutral rate ex post. Similarly, fiscal policy increased government consumption expenditure in real terms by 2.1% per year, which, with lower-than-expected growth in overall GDP, has resulted in a nearly three-fold rise in public debt over about 10 years. The debt level would have risen more if taxes had not been increased by 3.5% (in real terms) per year and global liquidity had not helped to keep external funding costs low. Long-term interest rates have steadily risen since 2011, contributing to rising service costs on government debt, higher debt levels and higher costs along the yield curve.

From 2013 to 2018, aggregate supply growth clearly slowed, as a result of a global cyclical slowdown, somewhat weaker terms of trade, the increasingly poor performance of state-owned enterprises and a surge in policy uncertainty. The fiscal multiplier (government spending to aggregate growth) appeared to have broken down.[53] The implicit decline in

---

51 Some emerging market comparators, in particular Russia and Brazil, have exhibited similar real exchange rate trends as South Africa – long-term depreciation followed by appreciation in the last couple of years – but these outcomes have been caused by stronger nominal appreciation.

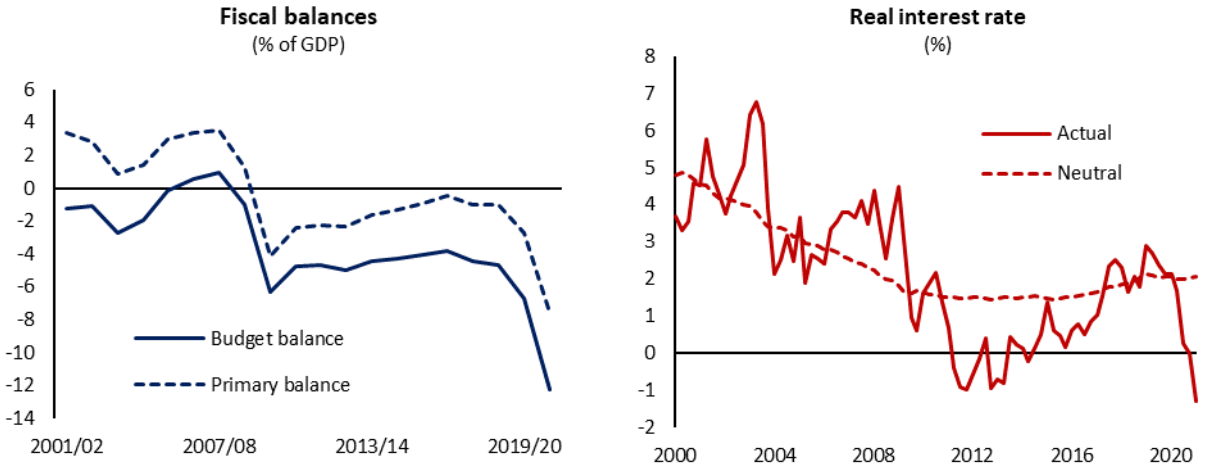
52 Rapapali and Steenkamp (2020).

53 Loewald, Faulkner and Makrelov (2020).

productivity (same capital and labour with less output) should have resulted in depreciation of the real equilibrium exchange rate. Instead, the period has exhibited somewhat more nominal and real exchange rate stability, ultimately resulting in appreciation. Much of the time, inflation was sticky, but since late 2018, inflation eased from a range of 5.5% to 6% toward a range of 4% to 4.5%. Again, all else equal, this should have eased appreciation pressures, but such an outcome was frustrated by fiscal policy.[54]

Figure 4: Ranking of South Africa's inflation performance among emerging market and developing economies (Sources: IMF and SARB)

Figure 5: Macro policy settings and the business cycle (Sources: National Treasury, Statistics South Africa and SARB)



54 Fedderke (2020).

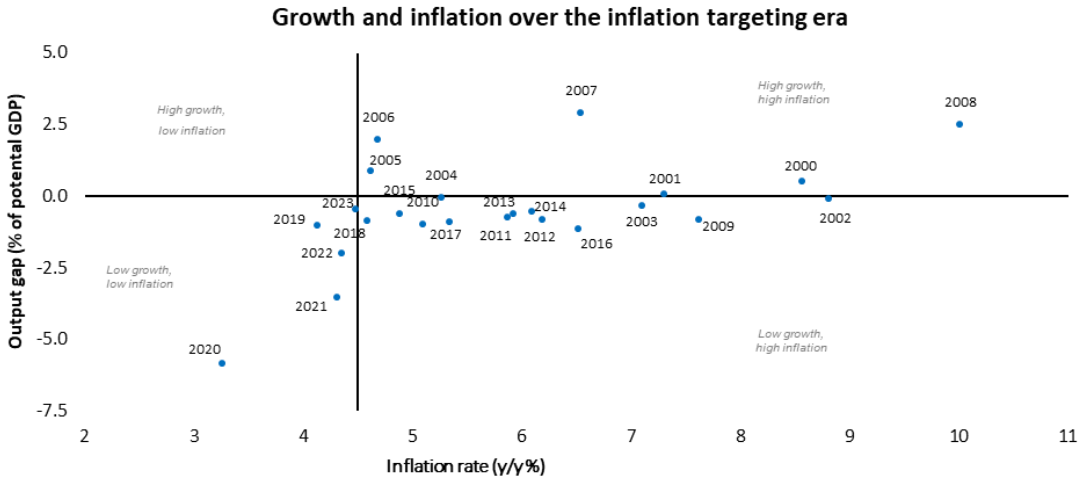
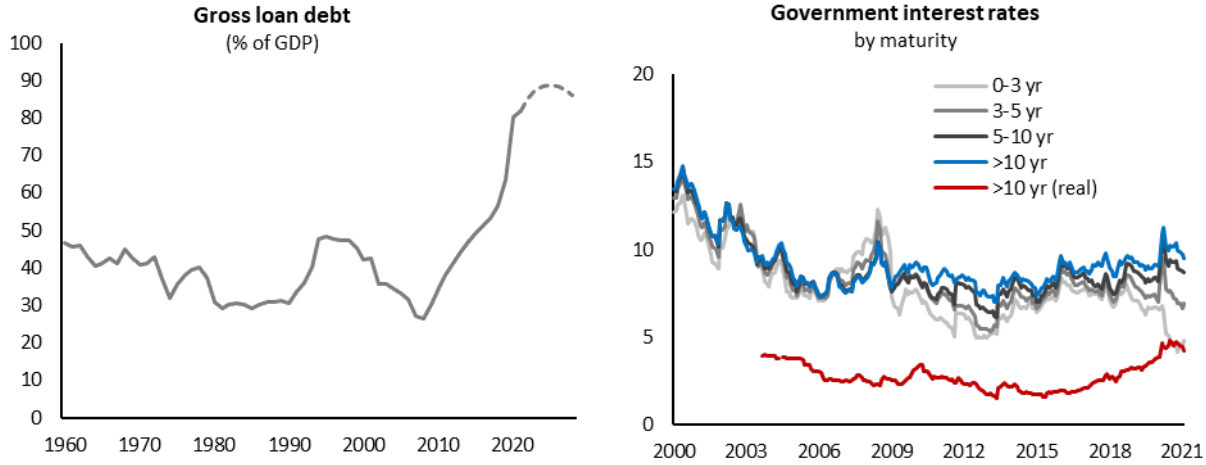


Figure 6: Debt stocks and servicing costs (Sources: National Treasury and SARB)



8. A revised policy framework

The current FX policy framework in South Africa remains broadly appropriate. The foreign currency market mostly values the currency in line with macroeconomic fundamentals given global conditions.[55] Episodes of real appreciation are almost entirely a function of two problems: relatively high inflation and weak productivity growth, both of which increase the real exchange rate relative to equilibrium and fail to increase the production of tradable goods and services.[56] This means that achieving a better distribution of growth

55 Steenkamp and Soobyah (2019).

56 Fowkes, Loewald and Marinkov (2016).

requires improving the balance of fiscal and monetary policy, structural policies, and nuanced fiscal support for long-term investment.

There is some general evidence that maintaining an undervalued real effective exchange rate can stimulate growth in emerging markets.[57] But depreciation gains fade when the higher savings rates associated with real appreciation are considered more fully, and imported capital goods become cheaper and investment appetite picks up.[58] And indeed, in the case of South Africa, an undervalued real effective exchange rate has not had clear effects on growth. Available estimates for very long time periods suggest that a 1% nominal depreciation in the rand increased overall export volumes by a very small 0.1%.[59] Periods of strong currency levels, alternatively, have coincided with robust economic growth, as in the period from 2004 to 2007, primarily as rising terms of trade generate income gains for the economy as a whole. In other words, periods of nominal appreciation are followed by real appreciation as the initial higher export prices (real depreciation) eventually reverse as domestic prices rise faster than export prices.

In a world of low inflation and lower potential growth, South Africa in general exhibits considerable real appreciation. Domestic supply constraints reduce the equilibrium real exchange rate level and limit potential economic growth. Less nominal depreciation and very low global inflation (and some secular price falls) have eased this overall problem considerably, enabling monetary policy to provide more cyclical accommodation. But this has its limits because fiscal policy is clearly over-extended and is raising risks of much more nominal depreciation, inflation and eventually real appreciation (and higher borrowing costs). More macroeconomic policy space could be achieved by shifting the focus of fiscal spending (and regulation) to relieving one of the most serious potential growth constraints: increasing the permanent supply of electricity.

---

57 Rodrik (2008) and Williamson (2008).

58 Goncalves and Rodrigues (2017).

59 Edwards and Lawrence (2006) and Edwards and Hlatshwayo (2019).

9. What can policy do now?

The challenge is to get real depreciation without having it reversed by nominal appreciation or higher inflation – the precise conditions South Africa now faces as the pandemic fades. The first move needs to be a reduction in inefficient fiscal spending, which would allow inflation to continue to ease and create space for monetary policy. The first-best option is for fiscal authorities to reduce debt. To do this, there are three key targets. First, achieve a primary budget surplus. Second, lower the inflation rate. Third, raise the efficiency of public spending. These would accomplish two complementary goals: (i) boosting confidence, private spending and investment, and (ii) stabilising the nominal exchange rate.

In turn, these targets will further lower inflation expectations and allow monetary policy to have a more expansionary impact on the real economy. Without this, monetary policy is constrained by the negative impact of fiscal policy on risk and long-term interest rates, which have continued to rise despite a significant decline in inflation. In this instance, fiscal policy would substitute for active foreign currency intervention by reducing volatility and preventing real appreciation. Both tradable and non-tradable sectors will benefit, improving both internal and external balances and increasing potential growth.

Increasing the credibility of the inflation-targeting framework and reducing fiscal risk would further lower pass-through and limit long-run real appreciation. Communication around the 4.5% midpoint of the target is clearly helping with this and a lower point target would be an improvement for various reasons. In the context of this paper, a point target closer to the prevailing average rate of global inflation would reduce the expected inflation differential, reduce exchange rate volatility and the tendency towards real appreciation.

While monetary policy cannot substitute for fiscal policy, the second move would be for the South African Reserve Bank to purchase foreign currency on the margin and sterilise this. This could be achieved with the issuance of debentures (rather than sustained use of foreign currency swaps) but a market of sufficient depth in these instruments would

require further development.[60] The cost of reserve accumulation will also therefore be higher when fiscal deficits and debt is high, tempering the demand for reserves.[61] If there is inadequate demand for debentures, even at higher rates, or if the forward market is already oversupplied with dollars, then it would be necessary to use new tools. Paying banks' interest on excess reserves would be one such measure.

In practice, South Africa has generally built reserves in times of sustained currency appreciation. While successful in building reserves, this approach has failed to moderate currency strength in part due to an intermediate goal to not influence the value of the currency at any point in time. A revised approach should dispense with this intermediate goal, although some guidance needs to be in place for foreign currency purchases.

The third move is to put in place a macroeconomic policy-determined operational and financing plan for addressing only periods of sustained real appreciation. Real equilibrium measures should be developed and a report and policy advice should be developed and presented to every Monetary Policy Committee meeting. The policy should be set up as an asymmetric reaction function, triggered by ongoing assessments of nominal movements against a battery of real equilibrium estimates, set out in the context of actual relative to target inflation. Any further efforts to achieve real depreciation relative to equilibrium should focus on fiscal consolidation, a lower inflation target and factor market reforms, productivity boosts and low inflation.

Figure 7 shows when the policy becomes operational and when a symmetric policy would normally suggest sales of foreign currency. Because of the empirical regularity of one-way bet conditions when the currency depreciates into oversold territory (the dashed line dropping further) and the risk that the real equilibrium has fallen further (to the 'new' level)

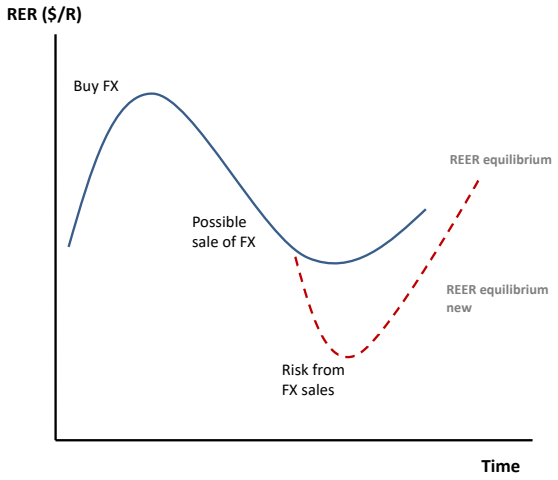
---

60 A case has also been made to finance reserves out of the autonomous factors, the notes and coins demanded by the financial system. This appears to be less transparent however than using debentures, which are a market instrument with clear pricing. Any such debentures should compete with other issuances in the market.

61 Domanski et al. (2016).

in the figure, the approach should be robustly asymmetric, set to buy FX but only sell it in exceptional circumstances.[62]

Figure 7: When to buy and sell FX



In general, appreciation can also be addressed by reconsidering capital controls on residents' foreign investment. Greater asset diversification carries a range of significant economic benefits, including the accumulation of foreign assets that can be repatriated to cover costs when local currency depreciation is extreme. In this sense, resident investments are a form of foreign currency reserves that match efficiently to private sector needs in case of crisis.[63]

The fourth move, when reserve levels accrue above a certain percentage of GDP, would be to use some reserves to retire public debt on condition that the lower debt-service cost is explicitly counted in the medium-term fiscal expenditure framework as a reduction in the primary deficit or increase in the primary surplus. This would strengthen the coordination of policy and clarify the saving role of reserves purchases.

---

62 There exist various rationales for supporting the currency when it depreciates. Beyond the impact of depreciation on confidence, none of them applies to South Africa, particularly as the main economic reason (to control inflation) is far more efficiently done with inflation targeting. Some countries rationalise currency support on political economy grounds, effectively protecting purchasing power over imports of particular social and income cohorts but at the cost of other cohorts.

63 Fanelli et al. (2017).

The fifth move would be to investigate, through a cost-benefit economic analysis, options-based instruments for dampening very short-term currency volatility and develop a proposal if the analysis is favourable.

As a sixth move, National Treasury and the South African Reserve Bank should investigate whether temporary fiscal support for small firms in tradable sectors would help the economy to benefit from positive growth externalities, and which instruments are available to achieve this. Tax policy or removing regulatory impediments to financial market solutions to those externalities should be explored.

The consideration of taxes or other restrictions on inflows is not recommended for several reasons. First, such instruments disincentivise inward investment, calling into question the viability of long-term investments in particular and raising the market-wide cost of capital for all investment. Second, except for certain and brief periods of time, appreciation episodes occurred when real equilibrium exchange rate levels were also appreciating, so these periods were not clearly cases of misalignment. In recent years, real appreciation has occurred alongside nominal weakness, risking more exaggerated moves in the real exchange rate. Third, other policy measures with less distorting effects could and should have been used to offset negative economic shocks hitting firms in tradable sectors. Fourth, despite considerable inflows of capital, there is little evidence linking them directly to financial stability risks. The rise in public debt has raised legitimate concerns that South Africa is inadvertently yet actively creating a doom loop between the banks and sovereign. This would be best addressed through more sustainable fiscal policy (and more active development of local capital markets in a growing economy), rather than tweaking risk-weightings for financial institutions' capital requirements with negative effects on credit extension.[64]

[64] Without alternatives to sovereign bonds, higher risk weightings are likely to reinforce holdings of these bonds, not reduce them.

And finally, the comparative literature demonstrates two reasonably clear takeaways: (i) that inflow controls have worked where macroeconomic conditions allow them to, as in Chile where they were predicated on a successful and rigorously countercyclical fiscal framework; and (ii) that they don't work well where macroeconomic policy lacks credibility and currency volatility is high.[65] The rationale for a financial stability-driven approach to currency intervention or use of capital inflow management tools in South Africa is weak.

10. Conclusion

Exchange rate volatility and misalignment reliably reignites debate about the desirability of freely floating exchange rate regimes. After the GFC, some emerging market economies shifted towards a 'managed' float and greater use of capital flow management instruments. But the benefits and feasibility of such regimes remain inconclusive. In South Africa's case, the textbook applies: a freely floating exchange rate and robust inflation target allows nominal depreciation to move the economy towards external and internal balance. Getting the right outcomes reliably, however, requires macroeconomic policy coordination, and this implies, first, that fiscal policy should be more resolutely countercyclical to periods of real exchange rate appreciation and closed output gaps. Greater fiscal saving would assist materially in moving back to macroeconomic balance, by reducing currency and inflation risk, thereby creating more monetary policy space at a lower inflation rate. A lower inflation rate improves the fiscal position, reducing the level of foreign currency reserves needed to reduce risk and, by reducing yields, lowers the cost of holding those reserves.

It is less clear how current macroprudential measures, other than those that will further crowd out the private sector, can be used to offset fiscal risks to financial stability. Outside of a shift in fiscal policy, the exchange rate will need to adjust (all else being equal), placing upward pressure on interest rates. Macroprudential interventions are unlikely to do much to address the usual 'push' and 'pull' explanations of capital flows. These are better addressed through macroeconomic policies that are deliberately countercyclical to capital

[65] Fratzscher et al. (2017).

flows and currency appreciation, and microeconomic policies that improve investment, productivity and jobs outcomes.

In the absence of clear financial instability from currency movements, there are good reasons to avoid the many more interventionist exchange rate policy measures, not least because the current framework has worked relatively well. In particular, South Africa should avoid two things. One is weakening the current disincentives to engage in short-term speculation. The second is engaging in reserve accumulation in order to create sufficient resources to pay for losses of resident or non-resident creditors of the economy.

Reserve accumulation should be pursued as part of a policy of leaning against sustained appreciating winds when they occur, towards equilibrium. But it should be a limited approach, secondary to both fiscal and residents' adjustments to saving in response to appreciation. The build-up of foreign currency-denominated financial assets by residents is part of a beneficial process of international financial integration. In order to maximise returns to investment and savings and maintain access to global savings, any policy initiative should be carefully calibrated not to disrupt that integrative process.

11. References

Adler, G, Casas, C, Cubeddu, L, Gopinath, G, Li, N, Meleshchuk, S, Buitron, C, Puy, D and Timmer, Y. 2020. 'Dominant currencies and external adjustment'. *IMF Staff Discussion Note, No. 20/5*.

Adler, G, Gopinath, G and Buitron, C O. 2020. 'Dominant currencies and the limits of exchange rate flexibility'. *IMF blog*, 20 July. https://blogs.imf.org/2020/07/20/currencies-and-crisis-how-dominant-currencies-limit-the-impact-of-exchange-rate-flexibility/ (accessed 31 March 2021).

Adrian, T, '"Low for Long" and Risk-Taking,' Money and Capital Markets Department, International Monetary Fund, 2020.

Aghion, P, Bacchetta, P, Rancièrec, R and Rogoff, K. 2009. 'Exchange rate volatility and productivity growth: the role of financial development'. *Journal of Monetary Economics* 4: 494–513.

BIS report. 2020. *Capital flows, exchange rates and policy frameworks in emerging Asia.* Working Group established by the Asian Consultative Council of the BIS.

Ball, L, Mankiw, G and Romer D. 1988. 'The New Keynesian economics and the output-inflation trade-off'. *Brookings Papers on Economic Activity*: 1–82.

Banerjee, R, Hofmann, B and Mehrotra, A. 2020. 'Corporate investment and the exchange rate: the financial channel'. *BIS Working Papers, No. 839*, February.

Basu, S, Ghosh, A R, Ostry, J D and Winant, P E. 2016. 'Managing capital outflows: the role of foreign exchange intervention'. International Monetary Fund.

Basu, S, Boz, E, Gopinath, G, Roch, F, Unsal, F, 'A Conceptual Model for the Integrated Policy Framework,' IMF Working Papers, International Monetary Fund, July 2020.

Brooks, B, Fortun, J and Hilgenstock, B. 2020. Capital Flows Report: ‘A slow and uneven recovery’. Institute of International Finance.

Borio, C and Pisyatat, P. ‘Unconventional monetary policies: an appraisal’. *BIS Working Papers, No. 292*.

Bosworth, B P, Collins, S M and Reinhart, C M. 1999. ‘Capital flows to developing economies: implications for saving and investment’. *Brookings Papers on Economic Activity*, *No. 1*: 143–180.

Botha, B and Schaling, E. 2020 ‘Commodity prices and policy stabilisation in South Africa’. *South African Reserve Bank Working Paper, No. WP/20/11*. Pretoria: South African Reserve Bank.

Boz, E, Casas, C, Georgiadis, G, Gopinath, G, Le Mezo, H, Mehl, A and Nguyen, T. 2020. ‘Patterns in invoicing currency in global trade’. *IMF Working Paper, No. WP/20/126*, July.

Casas, C, Díez, F J, Gopinath, G and Gourinchas, P. 2017. ‘Dominant currency paradigm: a new model for small open economies’. *IMF Working Paper, No. WP/17/264*, November.

Cerutti, E, Claessens, S and Puy, D. 2015. ‘Push factors and capital flows to emerging markets: why knowing your lender matters more than fundamentals’. *IMF Working Paper, No. WP/15/127*, June.

Chamon, M, Garcia, M and Souza, L. 2017. ‘FX interventions in Brazil: a synthetic control approach’. *Journal of International Economics* 108(C): 157–168.

Chamon, M, Hofman, D, Magud, N, and Werner, A, eds. *Foreign Exchange Intervention in Inflation Targeters in Latin America*, International Monetary Fund, 2019.

Claassen, E-M. 1996. *Global Monetary Economics*. Oxford University Press.

Cukierman, A. 2017. ‘Forex intervention and reserve management in Switzerland and Israel since the financial crisis: comparison and policy lessons’. Paper presented at CEPR-SNB-BoI conference titled ‘Foreign Exchange Market Intervention: Conventional or Unconventional Policy?’ Jerusalem, 7–8 December.

Davis, S and Zlate, A. 2018. ‘Monetary policy divergence and net capital flows: accounting for endogenous policy responses’. *Working Paper SRA 18-05*. Federal Reserve Bank of Boston, September.

Devereux, M, Engel, C and Storgaard, P E. 2004. ‘Endogenous exchange rate pass-through when nominal prices are set in local currency’. *NBER Working Paper, No. 9543.*

Disyatat, P and Galati, G. 2005. ‘The effectiveness of foreign exchange intervention in emerging market countries: evidence from the Czech koruna.’ *BIS Working Papers, No. 172*.

Domaç, I and Mendoza, A. 2004. ‘Is there room for foreign exchange interventions under an inflation targeting framework?: Evidence from Mexico and Turkey’. *World Bank Policy Research Working Paper Series, No. 3288*.

Domanski, D, Kohlscheen, E and Moreno, R. 2016. ‘Foreign exchange market intervention in EMEs: what has changed?’. *BIS Quarterly Review*, September.

Edwards, L and Hlatshwayo, A. 2019. ‘Exchange rates and firm export performance in South Africa’. *SA-TIED Working Paper, No. 89.*

Edwards, L and Lawrence, R. 2006. ‘South African trade policy matters: trade performance and trade policy’. *CID Faculty Working Paper, No. 135.*

Eichengreen, B. 1992. *Golden fetters: the gold standard and the Great Depression*. Oxford University Press.

Fanelli, S and Straub, L. 2017. ‘A theory of foreign exchange interventions’. Paper presented at CEPR-SNB-BoI conference titled ‘Foreign Exchange Market Intervention: Conventional or Unconventional Policy?’ Jerusalem, 7–8 December.

Fayad, G and Poirson, H. 2020. ‘Caught in the crosswinds: the experiences of selected economies responding to external volatility with multiple policy levels’. *IMF Working Paper*, *No. 2020/225*, November.

Fedderke, J. 2020. ‘The South African-United States sovereign bond spread and its association with macroeconomic fundamentals’. *South African Reserve Bank Working Paper, No. WP20/09.* Pretoria: South African Reserve Bank.

Fleming, M J. 1962. ‘Domestic financial policies under fixed and under floating exchange rates’. *IMF Staff Papers* 9(3): 369–380.

Fowkes, D. 2019. ‘The heterodox turn in emerging markets, and its consequences’. *Journal of Development Perspectives* 3(1–2): 80–95.

Fowkes, D, Loewald, C and Marinkov, M. 2016. ‘Inflating our troubles: South Africa’s economic performance and the exchange rate’. *ERSA Policy Paper Series, No. 22*.

Fratzscher, M, Gloede, O, Menkhoff, L, Sarno, L and Stöhr, T. 2017. ‘When is foreign exchange intervention effective? Evidence from 33 countries’. Paper presented at CEPR-SNB-BoI conference titled ‘Foreign Exchange Market Intervention: Conventional or Unconventional Policy?’ Jerusalem, 7–8 December.

Friedman, M. 1953. *Essays in positive economics*. Phoenix Books.

Ghosh, A R, Ostry, J and Chamon, M. 2016. ‘Two targets, two instruments: monetary and exchange rate policies in emerging market economies’. *Journal of International Money and Finance* 60: 172–196.

Goncalves, C and Rodrigues, M. 2017. ‘Exchange rate misalignment and growth: a myth?’ *IMF Working Papers, No. 17/283.*

Guinigundo, D C. 2013. ‘A note on the effectiveness of intervention in the foreign exchange market: the case of Philippines’. *BIS Papers, No. 73.*

Ibarra, R and Tellez-Leon, I E. 2020. ‘Are all types of capital flows driven by the same factors? Evidence from Mexico’. *Empirical Economics* 59: 461–502.

IMF. 2020. *Toward an integrated policy framework*. Policy paper. Washington, DC: IMF.

Kuersteiner, G, Phillips, D C and Villamizar-Villegas, M. 2018. ‘Effective sterilized foreign exchange intervention? Evidence from a rule-based policy’. *Journal of International Economics* 113: 118–138.

Loewald, C. 2018. ‘South African macroeconomics and growth’. *The Journal of the Helen Suzman Foundation* 82, May: 15–20.

Loewald, C. 2019. ‘Climbing a macro-micro consistency learning curve: emerging market challenges for the next decade’. *Journal of Development Perspectives* 3(1–2): 1–12.

Loewald, C, Faulkner, D and Makrelov, K. 2020. ‘Time consistency and economic growth: a case study of South African macroeconomic policy’. *South African Reserve Bank Working Paper Series, No. WP/20/12.*

Mundell, R. 1963. ‘Capital mobility and stabilization under fixed and flexible exchange rates’. *The Canadian Journal of Economics and Political Science* 29(4): 475–485.

Neely, C. 2001. ‘The practice of central bank intervention: looking under the hood’. Federal Reserve Bank of St. Louis. *Working Papers, No. 2000-028.*

Obstfeld, M. 2017. ‘Macrofinancial shocks and the trilemma’. Paper presented at CEPR-SNB-BoI conference titled ‘Foreign Exchange Market Intervention: Conventional or Unconventional Policy?’ Jerusalem, 7–8 December.

Parsley, D C. 2012. ‘Exchange rate pass-through in South Africa: panel evidence from individual goods and services’. *Journal of Development Studies* 48(7): 832–846.

Pattanaik, S and Sahoo, S. 2003. “The effectiveness of intervention in India: an empirical assessment’. *Reserve Bank of India Occasional Papers,* Vol. 22: 21–52.

Rapapali, M and Steenkamp, D. 2020. ‘Is there a relationship between productivity and relative prices in South Africa?’ *Journal of Development Perspectives* 3: 164–190.

Rey, H. 2015. ‘Dilemma not trilemma: the global financial cycle and monetary policy independence’. *NBER Working Paper, No. 21162.*

Reyes-Heroles, R and Tenorio, G. 2017. ‘Interest rate volatility and sudden stops: an empirical investigation’. *International Finance Discussion Papers, No. 1209.*

Rodrik, D. 2008. ‘The real exchange rate and economic growth’. *Brookings Papers on Economic Activity*, Fall: 365–412.

Sahay, R, Arora, V, Arvanitis, T, Hamid Faruqee, H, N’Diaye, P and Mancini-Griffoli, T. 2014. ‘Emerging market volatility: lessons from the taper tantrum’. *IMF Discussion Note*, September.

Schaling, E. 2005. ‘Capital controls, two-tiered exchange rate systems and exchange rate policy: the South African experience’. Center for Economic Research, Tilburg University *Discussion Paper No. 2005-110.*

Steenkamp, D and Soobyah, L. 2019. ‘The role of the rand as a shock absorber’. *South African Reserve Bank Working Papers, No. 19/02.*

Tapia, M and Tokman, A. 2004. ‘Effects of foreign exchange intervention under public information: the Chilean case’. *Central Bank of Chile Working Papers, No. 255.*

Wheatley, J. 2014. ‘Brazil achieves a hollow victory in “currency wars”’. *Financial Times*, 17 November.

Williamson, J. 2008. ‘Exchange rate economics’. *Commission on Growth and Development Working Paper No. 2.* The Peterson Institute for International Economics; Washington, DC: World Bank.

Zoega, G. 2016. ‘Responding to capital flows in a very small economy’. *Atlantic Economic Journal* 44(2): 159–170.