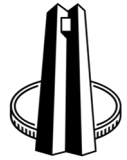


Transitioning to a new Monetary Policy Implementation Framework

Financial Markets Department



SOUTH AFRICAN RESERVE BANK



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Background

The South African Reserve Bank (SARB) will soon change to a new Monetary Policy Implementation Framework (MPIF). This is a technical change that will affect how monetary policy is implemented. However, it will not affect the inflation target or the interest rate choices of the Monetary Policy Committee (MPC). The reformed MPIF is detailed in a separate paper, *A new framework for implementing monetary policy in South Africa*, which is intended to be the basic reference for understanding the new framework. This paper, by contrast, covers two subjects of more transitional interest: the SARB's plan for phasing in the new framework, and major themes of the consultation period.

Section 1 of this paper details the transition plan. In brief, the SARB intends to implement the new MPIF over a 12-week period, starting on 8 June 2022. The gradual transition will allow users to acclimate to the new system. The major change to the current monetary implementation framework is the introduction of quotas, which will allow banks to earn the policy or repurchase (repo) rate on excess reserves, up to given limits. The quotas will be introduced at the start of the transition, at low levels, prior to adjustments to the current liquidity shortage. Banks will then have access to the SARB's repo lending facility to fill the shortage and populate these quotas. The SARB will thereafter steadily raise the amount of liquidity in the system, moving from a shortage of around R30 billion at the start of the transition to a surplus of R50 billion 12 weeks later. Quotas will be raised in tandem, so that the banking system also has sufficient quota space to absorb the surplus funds.

Section 2 reviews the consultation period. Following a period of discussion with key domestic stakeholders and international practitioners, the SARB published a *Consultation Paper*, in November 2021, which proposed a new MPIF. The public had a three-month window to give comments. The SARB received several written comments, and also conducted a range of engagements with local academics, analysts, and other relevant parties. This process showed broad support for the proposal in the *Consultation Paper*, but it also raised several issues and concerns which have shaped the final MPIF design. Given the large number of inputs received, these are discussed thematically rather than being attributed to any particular individual or organisation.

Section 1: Transition plan

Outline

The SARB's transition plan is to move the market from a liquidity shortage to a liquidity surplus position over a 12-week period. The first and last months would not coincide with the scheduled MPC meetings, and this would avoid having any possible shifts in the monetary policy stance overlapping with major changes in the implementation framework. The transition will move the system from the existing shortage, assumed to be R30 billion, to a surplus of R50 billion. The transition will start on Wednesday, 8 June 2022, with banks having quota access for the first time that night.

Transition concepts

The transition plan relies on three key concepts: a liquidity target, raw quotas and augmented quotas.

The liquidity target is the system-wide liquidity position aimed for by the SARB, excluding repo lending. In the initial stages of the transition, this target will be a shortage, starting at around R30 billion, in line with current practice. Halfway through the transition it will become a surplus; by the end of the transition, it will be a surplus of R50 billion.

Banks will be able to place surplus funds back at the SARB, earning the repo rate on any balances within banks' quotas. At the end of the transition, the target liquidity surplus will be equal to the raw quota of all banks. During the transition, however, there will be gaps between the two, with the liquidity target smaller than the aggregate quota. This will allow banks to continue using repo lending to fill in a shortage, with overfunding going into quotas, familiarising banks with these new facilities. As an example, with a R20 billion shortage and R10 billion total quota, banks could in total borrow R30 billion at a repo auction without facing a penalty.

While the starting point for quota design is the raw quota, which at steady state is equal to the liquidity target, quotas will also include a shock buffer and rounding rules, so that each bank's quota is a whole number. Accordingly, the transition plan also features augmented quotas,

which is the sum of all bank quotas, including shock buffers and rounding. The transition plan calls for a gradual expansion of the quotas, with the shock buffer introduced in week 7.

The evolution of these three concepts is shown in Figure 1, while figure 2 illustrates the role of repo lending during the transition.

Figure 1: Transition path

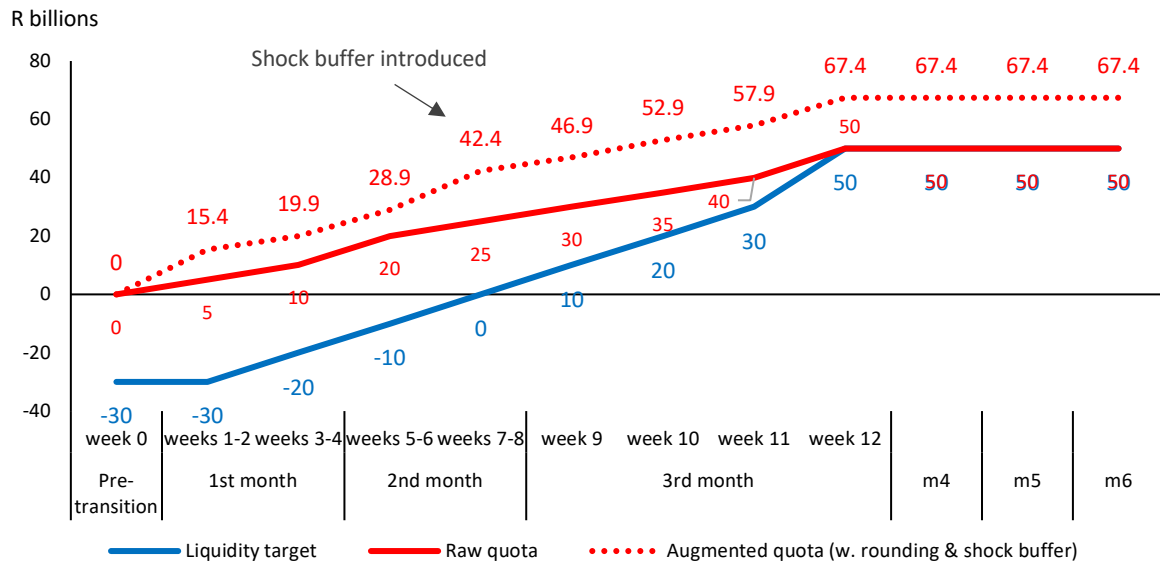
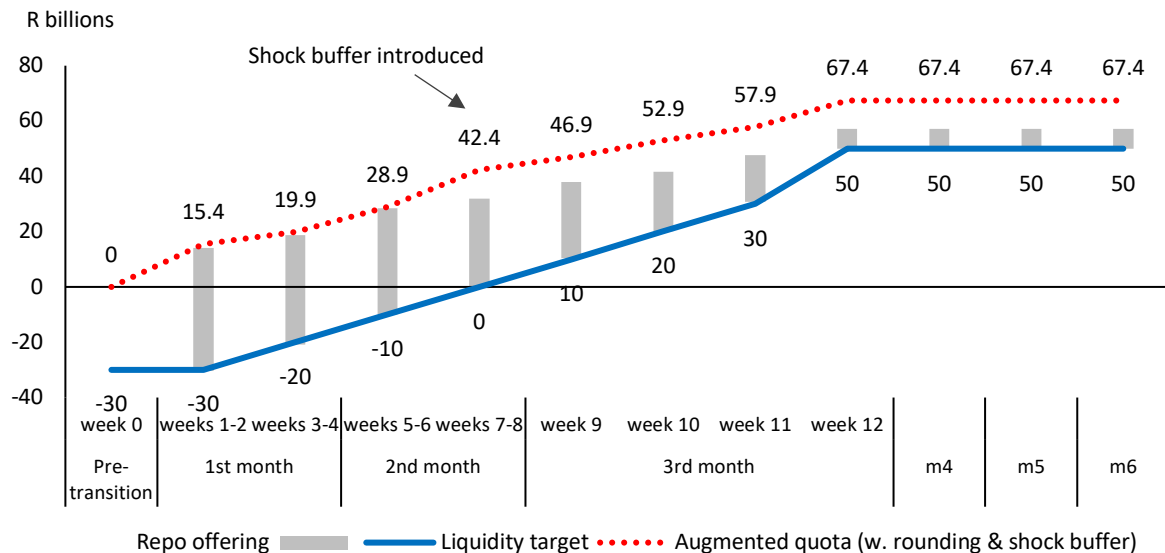


Figure 2: Transition path with repos



Transition process

In the first week of the transition, banks will receive access to their quotas. These will be introduced with a limited initial capacity for a two-week period, starting on Wednesday, 8 June 2022. This trial run will allow 'live' testing of banks' systems and understanding of quotas. It will also allow the SARB to identify and fix technical glitches before quota amounts become large.

In weeks 3 and 4, the SARB will reduce the size of the shortage from R30 billion to R20 billion. This will be achieved by liquidity injections, following principles detailed below. The SARB will continue to rely on repo auctions to fill the shortage and to populate quotas. In these weeks, quotas will be increased from their moderate initial levels.

In weeks 5 and 6, the shortage will be reduced to R10 billion – again, by liquidity injections. Quotas will be expanded further.

In weeks 7 and 8, the shortage will be eliminated through further liquidity injections. Quotas will be raised again and augmented for the first time with the shock buffer. At this stage, all repo funding will be used to fill quotas, as none will be required to offset a shortage.

Through weeks 9, 10, 11 and 12, the SARB will create a steadily larger surplus, reaching R10 billion, R20 billion, R30 billion and R50 billion in those respective weeks. Quotas will be expanded throughout this process, always staying ahead of the liquidity target. At the end of week 12, the system will have completed the transition sequence.

From week 13 onwards, the system will be mature. Repo auctions will remain available, but uptake is likely to be low, given an abundant supply of excess liquidity. Should the SARB choose to increase the surplus liquidity target subsequently, quotas would also be raised.

Debenture auctions

The SARB currently conducts weekly debenture auctions, with uptake typically below R5 billion. These will be phased out with the new framework. If it is necessary to drain some liquidity using debentures at the start of the transition, to achieve a R30 billion shortage, debentures will be offered for the first two weeks, and then concluded in the third week, when the shortage moves from R30 billion to R20 billion.

Repo auctions

During the transition, weekly repo auctions will be used to fund the shortage and populate quotas. For instance, where the shortage is R30 billion and the augmented quotas are just over R15 billion, the repo offering will be R45 billion, sufficient to fill the shortage and quotas, but not force any banks into the standing deposit facility. Repo offerings for each stage of the transition are shown in figure 3, while the total system capacity at each stage of the transition is shown in Figure 4. The SARB will have discretion to adjust these repo offering amounts as needed, given lessons learnt during the transition and the weekly liquidity forecast. The amounts shown here are therefore indicative rather than final.

Figure 3: Repo auctions

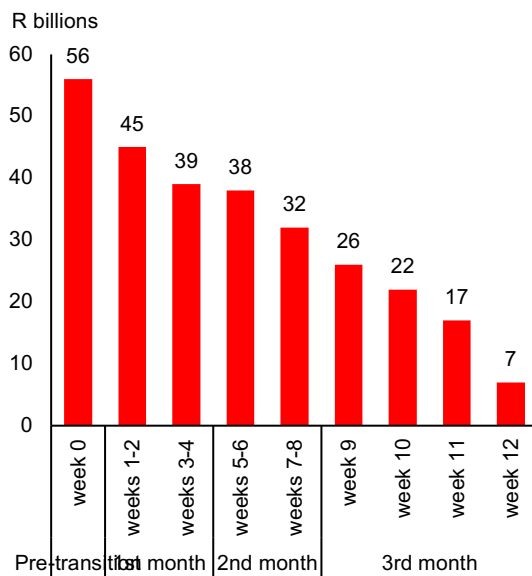
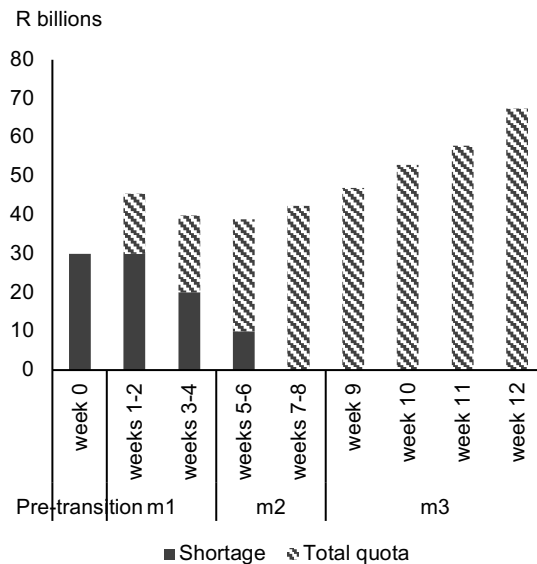


Figure 4: System capacity



Given that banks are currently overfunding at weekly repo auctions, the main difference in the preliminary stages of the transition would be that banks would not face punitive rates for

holding moderate excess reserve balances. Capping repo offerings will also avoid straining the system with more liquidity than it can accommodate (see figure 5). Despite the reduction in repo auction sizes, however, banks will at all stages of the transition be able to hold more excess reserves than they have recently been holding (see Figure 6). The supply of excess reserves is therefore likely to be sufficient to avoid a liquidity squeeze.

Figure 5: Repo offering less funding capacity

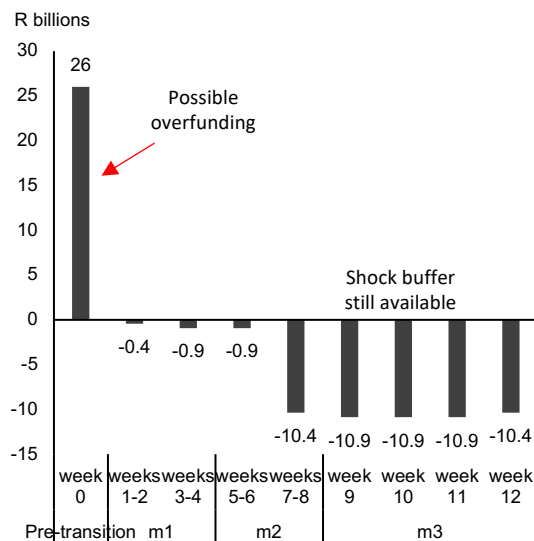
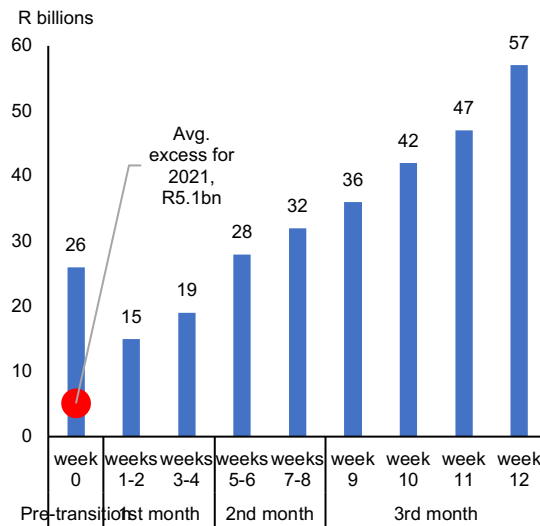


Figure 6: Max. excess reserves available



Shock buffers and supplementary measures

During the first six weeks of the transition – at which time there will still be a shortage – the SARB will intervene at the end of each day to offset exogenous liquidity shocks, such as movements in notes and coin, if needed. These interventions will take the form of supplementary repos or reverse repos, consistent with current practice.

From week 7 in the transition, shock buffers will be introduced, adding R10 billion to the system's absorptive capacity. These will make supplementary interventions more rare, as most shocks will be accommodated within buffers. Figure 5 shows the total capacity of the system to absorb additional SARB funding, either through a shortage or quotas. Figure 6 shows how repo lending would be capped to prevent overfunding and, from week 7 onwards, also to maintain shock buffers.

Transition quotas

Quotas are based on the liquidity target concept described above. During the transition, the liquidity target will gradually align with the raw quotas. Actual quotas, however, are also augmented with a shock buffer, with the sum of the liquidity target and the buffer pro-rated between banks, based on shares of total bank liabilities. The resulting individual bank quotas will then be further rounded up to whole numbers. This implies that the actual absorptive capacity of the system will be higher than the liquidity target.

For the purposes of the transition, it will not be appropriate to immediately adopt the full shock buffer, as this would make quotas large relative to the liquidity target. The shock buffer will therefore be phased in midway through the transition.

Given the rounding rules, smaller banks will effectively receive their full quotas upfront. The task of managing steadily larger liquidity surpluses, through steadily larger quotas, therefore falls disproportionately on larger banks. This is appropriate as bigger banks will be the main initial recipients of the SARB's liquidity injections, given the existing liabilities to be matured. These banks also tend to have larger liquidity management operations.

Transition quotas are detailed in Appendix A to this document.

Principles governing liquidity injections during the transition

To inject liquidity and achieve the liquidity targets described above, the SARB has liabilities exceeding R120 billion available in the form of Corporation for Public Deposits (CPD) funds, foreign exchange swaps and SARB debentures. The overall transition requires R80 billion to move from a shortage of around R30 billion to a surplus of R50 billion. Given that more liquidity is available than will be needed for the transition, the SARB has flexibility to choose which liabilities to mature. These choices will be informed by the following considerations.

- First, foreign exchange (FX) swaps will be matured in a way that avoids creating distortions in FX implied rates. Swaps should not be matured to the point where FX-implied rates drop materially below repo. It will be acceptable to maintain a positive forward position, provided FX-implied rates are not distorted.

If these rates drop below repo for an extended period, the SARB will consider offsetting swaps to drain rands and normalize FX-implied rates. In that scenario, offsetting measures will be taken with other tools to avoid undermining the stated liquidity target.

- Second, as discussed above, debentures will be phased out early on to avoid running debenture auctions throughout the transition. Debenture volumes are small, so this is likely to be achievable early in the transition. There are no long-term reverse repos outstanding and therefore this instrument will have zero impact on overall liquidity.
- Third, the bulk of new funds will be injected through the CPD funds being placed into the market. There are reasons to prefer maturing foreign exchange swaps and debentures before CPD funds, as explained above, but CPD funds will provide flexibility to adjust liquidity, as needed.

Any additional liquidity shock that might occur during the transition would be incorporated into the plans described above, so that the overall liquidity target is achieved. Such injections might come from loans for the Bounce Back Scheme, or other liquidity events separate from monetary policy.

Technical arrangements for paying interest on eligible reserves

The main technical change required for the MPIF will be paying interest on excess reserves at the appropriate rates – at repo for balances within quotas, and at repo less 100 basis points for reserves in excess of quotas.

The SARB has a project underway to capture quotas and automate the appropriate interest calculations in the South African Multiple Option Settlement (SAMOS) system. Settlement balances will be captured each night, with quota-eligible balances then earning the repo rate, and any funds in excess of quotas earning the repo rate less 100 basis points. However, it will only be feasible to automate this function by September 2022, as part of a larger SAMOS system upgrade. The SARB will therefore rely on an interim arrangement for paying interest on excess reserves during the transition period.

The SAMOS system already has the capacity to pay interest on excess reserves, daily, via the standing deposit facility. During the transition period, this rate will be set to repo. Given that most banks will be within their quotas most of the time, this means most balances will be appropriately remunerated, automatically. In the cases where banks leave balances on SAMOS system that are larger than their quotas, it will be necessary to claw back excess interest paid. This will be done by the SARB the next day. These arrangements have been discussed with banks.

Transition calendar

The following dates represent the key changes of the transition. The SARB will have flexibility to deviate from these dates if required. Any such changes will be communicated to system participants.

- 8 June: start of transition, introduction of quotas
- 22 June: first reduction in the shortage, to R20 billion
- 6 July: second reduction of shortage, to R10 billion
- 20 July: elimination of shortage
- 3 August: surplus of R10 billion established
- 10 August: surplus rises to R20 billion
- 17 August: surplus rises to R30 billion
- 24 August: surplus rises to R50 billion

Section 2: Major themes of the consultation process

The consultation process generated broad support for the proposed reform. Several correspondents noted that the reform of the MPIF was timely or even overdue. There were no comments to the effect that the proposal contained fatal flaws. Engagements and comments, instead, focused on clarifying aspects of the proposal and identifying risks. The following subsections detail the major points of the discussion, including the SARB's assessment and plans for managing risks, where necessary.

Balance sheet policies

One major theme of the consultation period was the balance sheet implications of a surplus framework. Attention focused on three different aspects of the problem. What are the governance arrangements for balance sheet policies? How would the SARB inject additional liquidity to maintain an adequate surplus? Does this framework clear the way for quantitative easing (QE) or other risky policies? These questions are explored below.

What are the governance arrangements for balance sheet policies?

A central bank operating a surplus system has greater leeway to pursue balance sheet policies than one operating a mid-corridor system. Indeed, a modest central bank balance sheet is often considered an advantage of a mid-corridor framework. Of course, larger balance sheets are not necessarily problematic, and some balance sheet policies are necessary for delivering on mandates (e.g. holding FX reserves and serving as a lender of last resort). But the scope for more active use of the balance sheet could entail risks. It is therefore important to consider the governance mechanisms used to control those risks.

A balance sheet can be used in different ways, so balance sheet policies need not be governed by a single mechanism. In the SARB's practice, this pluralism is clear. Some balance sheet policies are effectively automatic – for instance, the SARB satisfies any public demand for notes and coin. Other policies are delegated to operational teams, under the overall supervision of a deputy governor. Day-to-day liquidity management, for example, is undertaken by the Financial Markets Department within the SARB. Other policies are approved on a case-by-case basis, with authorisation coming directly from the Governor's Executive Committee (GEC). For instance, the GEC may authorise a lending facility or the

acquisition of FX reserves. It may also delegate a governor or a department to undertake a market intervention, within certain parameters, if conditions warrant (as with the 2020 Bond Purchase Programme).

Given that such policies are not monetary policy initiatives, it is not necessary that they be decided by the MPC. Indeed, keeping them separate from the MPC process may help avoid misconceptions that such policies affect the monetary policy stance. Overlap between the MPC membership and other decision-making bodies also helps prevent unintended spillovers from one policy decision to others.

Given these decision structures and safeguards, it is largely unnecessary to build stricter governance arrangements to accommodate the new MPIF. Despite running a shortage system, the SARB has experience at managing a substantial balance sheet: it has not conducted itself as a minimal-footprint central bank with a parsimonious balance sheet consisting mostly of notes and coin. A status quo approach is therefore generally acceptable.

Managing longer-term liquidity demand

The exception to this rule is the new challenge of managing long-term liquidity demand in an ample-reserves framework. There is compelling evidence that floor-type systems can require persistent growth of a central bank's balance sheet, a phenomenon sometimes referred to as the ratchet effect. This can oblige policymakers to buy assets they might otherwise not wish to acquire, a potentially uncomfortable outcome.

The SARB's primary defense against this outcome is quotas. Having started with pure floor-type systems, both Norway and New Zealand adopted quotas (also known as tiers) to cap banks' demand for reserves, ensuring some liquidity circulated on the interbank market. This innovation was successful: both central banks were able to stabilise the stock of reserves for extended periods (around a decade), reversing a previous trend increase in their balance sheet. Quotas are expected to have the same effect in South Africa, mitigating the ratchet effect.

Even with quotas, however, it is likely that the SARB will have to increase the supply of bank reserves over the longer run. Given a relatively high rate of nominal gross domestic product (GDP) growth – and with it also persistent growth in autonomous factors which drain liquidity

– the SARB will likely need to undertake a liquidity expansion over time, simply to deliver a broadly constant stock of bank reserves relative to the size of the real economy. How will this be delivered?

The starting point is the empirical fact that South Africa has had a structural surplus of bank reserves since at least the 2000s, which is explained primarily by the accumulation of FX reserves. This trend is problematic for a shortage system but helpful for a surplus system. Simply projecting the past into the future, it is likely that the new MPIF will be kept comfortably in surplus from further FX accumulation, despite growth in the autonomous factors which drain liquidity.

There is, however, no guarantee that the SARB's demand for FX reserves will perfectly match banks' evolving demand for liquidity. The framework also cannot and does not rely on the SARB buying FX reserves, as such decisions should not be forced by the MPIF. The SARB will therefore rely on a different tool, repo auctions, for satisfying liquidity demands unmet by other policies.

The final MPIF proposal makes provision for weekly repo offerings in fixed quantities at a fixed rate, the repo rate (consistent with existing practice). The operations team will have leeway to adjust the amounts on offer, based on their liquidity forecast and other information, such as bid rates at prior auctions. If, for instance, growth in notes and coin reduces liquidity by R2 billion in a given week, the SARB will be able to offer a further R2 billion at the weekly auction. Demand for these funds would provide useful information on whether the reserve supply is adequate.

Repo lending has several advantages as a tool for injecting liquidity. Such loans are fully collateralised and therefore require minimal SARB risk taking. They mature automatically, every week, so it is relatively easy to unwind a liquidity expansion when it is no longer needed, without actively selling assets. These instruments have been used by the SARB for several decades and are therefore familiar to market participants and commentators. Finally, they would not be costly for the SARB, as the extra liquidity would be lent at repo and remunerated at or below repo.

Does this framework clear the way for QE or other risky policies?

The widespread shift to floor-type systems among major central banks is closely tied to QE policies. In the consultation period, this pattern drew questions around the possibility that MPIF reform could lead to QE or weaken the SARB's credibility by creating perceptions of future monetary financing of the fiscus.

In the SARB's analysis, QE is a tool that is available should the repo rate become constrained by the zero lower bound. So long as policymakers are free to adjust this short-term rate, however, it is not necessary to undertake asset purchases to achieve monetary policy goals, as these tend to be less effective and riskier than repo changes.

It is possible that the new MPIF could inspire additional calls for QE or other risky policies. But QE has already been urged on the SARB, prior to MPIF reform, with proponents generally ignoring implications for the shortage system. It is therefore unlikely that the structure of the MPIF, by itself, represents a meaningful defense against inappropriate policies. The SARB's analytical capacity and its independence are more important for protecting its credibility.

The optics of buying assets are nonetheless potentially problematic, and stakeholders may not always appreciate fine distinctions between QE and bond purchases for monetary policy implementation purposes – even though such open-market operations are a long-standing aspect of central bank operations, pre-dating QE by around eight decades. To avoid misconceptions, the operations team will therefore avoid bond purchases as a device for expanding the liquidity supply, should such an expansion be required in future. Instead, this team will rely on the tools described above. For clarity, this policy does not affect the separate matter of bond purchases that might be required to address episodes of market dysfunction.

It is also worth noting that for the specific framework envisioned for the SARB, a tiered floor, neither of the two global precedents, Norway and New Zealand, adopted the framework in the context of QE. Furthermore, major central banks, including the Bank of England and the United States Federal Reserve, plan to use floor systems over the longer run, even after QE policies

have been concluded, given their other advantages.¹ The correlation between QE and floor-type systems does not, therefore, establish a causal relationship.

Exchange rate implications

During the review period, there was wide-ranging interest in the exchange rate-implications of the reform.

Some commenters were concerned that banks might sell their excess rand reserves for foreign currency, particularly during crises. Given the closed-loop structure of the SAMOS system, however, banks would have to sell their reserves to other banks.² The banking system could not, therefore, reduce its holdings of reserves on a net basis; any sale of bank reserves by one bank, to acquire foreign currency, would necessarily entail an acquisition of bank reserves by another bank.

Of course, this does not mean banks would be insensitive to the proportion of bank reserves in their portfolios. Banks would have incentives to trade reserves for other assets, including foreign currency, until the expected returns on alternative portfolios were matched, considering risk and regulatory considerations. Prices would be at equilibrium where banks were indifferent between holding reserves and holding other assets, with prices of assets, including the exchange rate value of the rand, adjusting as needed to satisfy the indifference criterion. The crucial variable in these trades, however, would be the policy rate and not the quantity of bank reserves. Given that the rand is already traded in very large and liquid markets, it is unlikely that somewhat more bank liquidity will lead to additional trading that changes the transmission of the repo rate.

One alternative mechanism whereby a tiered floor framework might influence the exchange rate would be if market rates diverged from the repo rate – for instance, if banks overfilled their

¹ The Board of Governors of the Federal Reserve System, 'Statement regarding monetary policy implementation and balance sheet normalization', 30 January 2019, <https://www.federalreserve.gov/newsevents/pressreleases/monetary20190130c.htm>, Andrew Hauser, 'Waiting for the exit: QT and the Bank of England's long-term balance sheet', 17 July 2019, available at <https://www.bankofengland.co.uk/speech/2019/andrew-hauser-speech-hosted-by-the-afme-isda-icma-london>, Bank of England, 'The Bank of England's future balance sheet and framework for controlling interest rates', *Discussion Paper*, August 2018. <https://www.bankofengland.co.uk/paper/2018/boe-future-balance-sheet-and-framework-for-controlling-interest-rates>

² The SARB also does not make its own FX reserves available for banks to purchase, which rules out one scenario where banks could otherwise, on net, reduce their holdings of bank reserves and expand holdings of FX.

quotas. In this case, marginal reserves might trade below the repo rate as banks with long positions sought to avoid the standing deposit facility at repo less 100 basis points. In such circumstances, the exchange rate could depreciate in response to a lower effective policy rate.

This mechanism has some theoretical plausibility,³ but the quotas in the SARB's MPIF are designed to comfortably accommodate all excess reserves placed in the system, precisely to avoid the problem of driving interbank rates below the policy rate. In assessing the effectiveness of transmission, the SARB would also monitor interbank rates and make adjustments to correct material deviations of interbank rates from repo.

The transition to the new MPIF could also have effects on the exchange rate through an alternative version of this mechanism, centered on the forward market. To add liquidity for the new MPIF, the SARB will mature swaps (among other operations). This will drain dollars from the market, expanding the SARB's FX reserves, and inject rands. It is possible that these operations could create dollar scarcity and drive the implied interest rate in the forward market below repo, which in turn might weaken the rand.

To mitigate this risk, the SARB will not close out the forward position automatically and completely. It is not necessary to mature large quantities of swaps to achieve a market surplus, with CPD funds available in large quantities as an alternative source of new liquidity during the transition. Swaps will therefore be matured only to the extent that this does not create distortions in FX-implied rates. If FX-implied rates fall materially and persistently below repo, the SARB will be able to cease maturing swaps. The SARB will also have the option to initiate new swaps, that re-inject dollars, if needed. It should further be noted that the SARB's operations, while draining dollars, would only return the market to pre-2020 conditions, where the SARB did not have a material forward position. An abrupt change in the forward book could plausibly disrupt the market and might move the exchange rate, but the SARB is aware of this risk and has tools to manage it.

Some analysts and market participants suggested a different kind of exchange rate risk, also connected to the forward market, with the new framework potentially making it easier to trade rands, creating greater volatility in the exchange rate. In particular, a surplus system could

³ It should be noted that an excess of reserves over the past two years has not consistently driven interbank rates below repo, despite the fact that banks have been forced to place this excess in the standing deposit facility at repo less 100 basis points.

make it easier to short the rand, leaving the currency weaker in crises, including crises where the rand was serving as a proxy for emerging markets or risk more generally.

Shorting a currency entails borrowing it now with a commitment to pay it back later; the profit lies in depreciation which makes the future repayment commitment cheaper. The first step in a short trade, locally, would therefore involve borrowing rand. If it is cheap to borrow rands, then a short trade will be more attractive, and *vice versa* if borrowing rates are high. For this reason, many central banks have historically raised short-term rates to head-off speculative attacks (with mixed success).

In the South African context, the specific area where a surplus system might change incentives to trade is in the forward market. Some commenters suggested that the shortage system has created a kind of a speedbump to slow down speculators: in the event of a surge in rand borrowing, to establish a short trade, FX-implied rates rise, making the short trade less attractive. By contrast, if there is surplus liquidity, banks might enter into these loans more readily and short sellers will therefore have more rands available to sell for foreign currency.

These considerations are assessed as follows:

First, the SARB has no policy regarding the use of FX-implied rates as a separate tool for influencing the exchange rate. The SARB has consistently avoided exchange rate intervention since the adoption of inflation targeting in 2000, pursuing its monetary policy mandate using the repo rate only and leaving exchange rate determination to market forces. It has not sought to develop a multiple-rate framework.

This parsimonious approach has advantages. A single tool is easier to use and understand, both for policymakers and for other economic actors. Furthermore, while obstructing short sellers might sometimes seem like an attractive goal, high FX-implied rates would also deter other trades, such as purchases of bonds or equities by investors who wished to acquire these assets while hedging exchange rate risk. Keeping FX-implied rates high to protect the currency could therefore have unanticipated consequences, damaging other asset markets by excluding them from the effects of the SARB's repo rate policy.

Second, there is very limited empirical evidence that FX-implied rates have shaped the exchange rate of the rand, and there is also only weak evidence that the FX-implied rates

have deterred short selling and muted volatility. It may be that there are specific moments where these effects apply, with risk-management implications discussed below, but this is not a central feature of exchange rate determination.

It is also striking that the South African rand has been a consistently volatile currency, relative to peers, and has experienced several major exchange rate overshoots over the inflation targeting period (2001, 2009, 2016 and 2020). Whatever shielding effect the shortage system may have provided, by deterring short sellers, it was clearly not strong.

This evidence is consistent with the fact that the onshore forward market represents a small share of rand transactions, compared to both the spot and offshore markets, making it a less potent determinant of exchange rates. It is also unlikely that liquidity would have been freely obtainable for regular banking purposes but would not have spilled over to the forward market, allowing rates there to rise despite the attractiveness of the resulting arbitrage trade. The fact that FX-implied rates have occasionally spiked, even during periods of excess liquidity as in 2020 and 2021, likely reflects internal bank limits on absorbing dollars – the other leg of a swap transaction – rather than providing rands.

These observations do not rule out any relationship between FX-implied rates and the repo. One important lesson from the consultation period, for the SARB, is that in future crises it could be imprudent to intervene to close FX-implied spreads with the repo rate without first analysing the drivers of spreads. Otherwise, the SARB could be indirectly financing short sellers, and very likely trying to serve as a counterparty for traders trying to use the local currency as a proxy for financial classes, such as emerging markets generally, which are much larger than South Africa. South Africa has no special obligation to serve as a proxy and the SARB need not provide such a service where private financial institutions are unable to do so. It may also be necessary to resist calls for substantial additional supplies of liquidity, during crises, so long as the banking system is adequately supplied and other short-rate benchmarks are well behaved.

Overall, while the surplus system would generally not have discrete exchange rate effects, there are circumstances where it might contribute to volatility. Managing these risk scenarios will require caution and vigilance, both during the transition to the new framework and in moments of acute market pressure. The risk is assessed as modest and does not represent

a major objection to the concept of the new MPIF. That said, the exchange rate may prove to be one area where South Africa's status as an emerging market yields a different experience to those of advanced economies which have used floor-style systems. Fortunately, the SARB has a long track record of tolerating FX volatility and has anchored inflation expectations, so these are not highly sensitive to exchange rate fluctuations. South Africa therefore appears well placed to be the first emerging market to implement a tiered floor MPIF.

Quotas

The consultation period yielded many questions about quotas. This feature adds complexity to the new framework. The justification for having quotas – avoiding the 'ratchet effect' described above – was nonetheless generally accepted during the SARB's engagements on the new MPIF.

One important takeaway from the consultation period was the importance of transparency around quotas. Based on these inputs, the SARB will publish the design principles for arriving at quotas as well as actual quotas of all SAMOS system participants. Quotas for the transition period are provided as Appendix A to this paper.

The consultation period also underscored the importance of updating quotas frequently enough to accommodate fast-growing banks. To address this need, the SARB will update quotas every six months, typically in April and October. These shares will be based on the preceding three months of banks' liabilities, an average long enough to smooth out volatility but without making the quotas too backward looking. For clarity, these updating procedures only affect banks' relative shares of the liquidity target and the shock buffer. The SARB will have discretion to adjust the total amount of liquidity in the system as needed, and to adjust quota volumes proportionately.

Quotas should also be relatively simple so that they are easy to use and understand. To achieve these goals, quotas will be grounded on a single variable, banks' liabilities. Bigger banks will have larger quotas. However, to make them easier to use, quotas will be rounded to whole numbers. Bigger banks will be rounded up to the nearest R1 billion; medium-sized banks will be rounded up to the nearest R500 million; smaller banks will be rounded up to the nearest R200 million. These rounding rules provide smaller banks with larger quotas than they would receive based purely on their shares of total liabilities, facilitating their participation in

the system. This feature will also simplify the admission of new banks into the system, with banks receiving their rounded-up quota directly on joining the SAMOS system.

Finally, the consultation period provided further affirmation of the principle that quotas should comfortably exceed available liquidity in the system, to avoid forcing banks into the deposit facility and thereby creating pressure on interbank rates to diverge from the policy rate. By design, quotas will be premised on the total amount of liquidity in the system, plus a shock buffer calibrated to absorb over 99% of historically observed liquidity shocks. Quotas will be further augmented by the rounding rules. If shocks overwhelm the shock buffer, the SARB will conduct supplementary measures at the end of the day to deal with the marginal excess or shortfall of liquidity. This will ensure that banks will never be obliged to access the standing facilities at punitive rates due to the system having too much liquidity.

MPIF communication and education

The consultation period demonstrated two contrasting views on the role of the MPC when communicating about the MPIF. One view is that the repo rate is the sole indicator of the monetary policy stance, and care should be taken to avoid giving any impression that MPIF initiatives are additional policy tools. For instance, with the proposed MPIF, a move from a shortage to a surplus framework should not be seen as signaling a different monetary policy stance. The alternative view is that implementation is part of monetary policy and must be owned, and seen to be owned, by the MPC. The former view would downplay the MPIF reform in MPC communications; the latter would highlight it.

The SARB's overall view of the reform is that it will have limited consequences for asset prices or economic activity. Where it has effects, these will tend to enhance monetary policy transmission, particularly by removing existing distortions. The reform to the implementation framework will not change the monetary policy stance.

The SARB has engaged extensively with stakeholders in preparation for this reform, recognising the importance of ensuring the reform is well understood and not misconstrued as a change in the policy stance. Over the longer run, the MPIF should not play a prominent role in monetary policy discussions, given that it is merely a technical device used to give effect to the MPC's decisions.

That said, in times of market stress, it may also be necessary for the MPC to communicate about the MPIF to explain how policy transmission is working.

More generally, an important challenge with public MPIF communication is that the subject is highly technical and of limited interest to most non-specialists. Several correspondents highlighted the importance of providing clear information on the MPIF reform to accompany more technical sources. The SARB will endeavour to do so through clear-language summaries of the major documents and through accessible website material.

Effects of the MPIF reform on financial markets

The consultation period yielded rich discussions on the effects of MPIF reform in various credit markets.

The starting point articulated in the *Consultation Paper* was that, in principle, there is no single-best MPIF, and a well-functioning scarce reserve system should have the same market effects as a well-functioning surplus system. Given that the existing system has not been functioning optimally, MPIF reform would likely mitigate some distortions, for instance to FX-implied rates. The *Consultation Paper* also flagged research suggesting modest differences in outcomes from floor and mid-corridor systems. For instance, floor systems have potential to reduce liquidity risk, facilitating credit extension, and may also raise consumer deposit rates marginally, bringing them closer to the rate available at the central bank.

A useful insight of the consultation period was that the current, scarce reserve system gives rise to frictions which hamper arbitrage by banks. In particular, while academic analysis usually focuses on frictions in *interbank* markets, practitioners also flagged the importance of *intra*bank flows between different banks' treasury desks, where liquidity desks are sometimes constrained in supplying cash to other desks (for instance FX or bond traders). This contributes to a series of partially segmented markets, with liquidity not flowing smoothly enough to fully enforce the law of one price. The MPIF reform is likely to change this dynamic by providing ample liquidity to banks, freeing liquidity desks to distribute it more freely within their institutions. The result is likely to be more efficient arbitrage and therefore better transmission of monetary policy.

The reform is also expected to remove a source of distortionary pressure in the forward market, contributing to more normal spreads of FX-implied rates to repo, as discussed above.

These two features, greater bank liquidity and lower FX-implied rates, are also likely to have effects on sovereign debt markets. Much of the initial thinking about the implications of MPIF reform for government bonds and bills focused on the competition between excess reserves and sovereign debt instruments as alternative forms of high-quality liquid assets (HQLA). The consultation period, however, showed that this competition effect would likely be countered by these two offsetting factors:

- Lower FX-implied spreads to repo will likely make it more attractive for offshore investors to purchase sovereign debt. Specifically, investors will have better incentives to buy longer-term debt, to profit from the relatively steep yield curve. In turn, additional demand will tend to depress longer-term yields.
- The reform will also affect liquidity, with the strongest effects on the short end of the yield curve. Short-term government debt instruments and SARB-issued bank reserves are relatively close substitutes. For this reason, material deviations of T-bill yields from the returns available on excess reserves will incentivise banks to trade reserves for bills, until their prices are more appropriately aligned.

As a result of these two factors, the net impact of the reform on sovereign yields is likely to be modest, with possible HQLA-substitution effects offset by non-resident bond purchases (aided by more normal FX-implied rates) and greater commercial bank liquidity.

Repo auctions

The consultation period identified vulnerabilities in the initial repo auction design proposed in the *Consultation Paper*. While fixed-rate, full-allotment auctions would be simple and easy to use, this format could make the SARB a lender of first rather than last resort. Such auctions might further cause banks to overfund the system and blunt the intended effects of quotas, as banks might use repos in preference to sourcing liquidity in the interbank market. The SARB will therefore cap auction sizes.

At present, the SARB offers R56 billion in repo funding, weekly, and accepts bids only at the repo rate. If total bids exceed R56 billion, the allocations are pro-rated. During the transition to the new MPIF, the SARB will reduce the amount on offer, as discussed above, to ensure the system is not overfunded. The auction design will otherwise remain unchanged. At the end of the transition period, the SARB will continue to offer repo auctions weekly, in the same format, with an amount on offer decided by the SARB, with the goals of ensuring ample liquidity and preventing overfunding of the system. This amount is likely to start off at around the same levels offered at the end of the transition period.

Retaining the fixed-quantity, fixed-rate format for repo auctions will reduce the number of changes during the MPIF transition. This will reduce the burden on users. It will also avoid additional systems changes. Over the longer run, should it be deemed necessary, the SARB may revisit the auction format. For example, the consultation period made a case for flexible-rate, fixed-quantity auctions, which offers greater flexibility for banks to bid at higher rates to improve their odds of being allocated liquidity; and allows for an additional source of intelligence for the SARB regarding banks' liquidity demands through observing their bidding behaviour.

Conclusion

The SARB's new MPIF has benefitted from extensive input from stakeholders and experts, both during its initial design phase and the public consultation period. The final MPIF design has been adjusted to incorporate advice received and address concerns. No major reform is riskless, but the proposal has been subjected to extensive scrutiny, which should help avoid serious unanticipated consequences. The SARB reserves the right to adjust the timelines and details described above, if this is necessary, to improve the performance of the new framework.

Appendix A: Transition quotas

Bank quotas												
Banks earn the repo rate overnight for excess reserves up to quotas. Reserve balances in excess of quotas earn repo less 1pp.												
All Rand millions												
Updated 04.22												
		Pre-transition	Weeks 1-2	Weeks 3-4	Weeks 5-6	Weeks 7-8	Week 9	Week 10	Week 11	Week 12		
	Liquidity target (shortage/sur)	-30000	-30 000	-20 000	-10 000	0	10 000	20 000	30 000	50 000		
	Total raw quota	0	5 000	10 000	20 000	25 000	30 000	35 000	40 000	50 000		
	Total raw quota + shock buffer	0	5 000	10 000	20 000	35 000	40 000	45 000	50 000	60 000	Rounding principle	
Bank	Raw share of liabilities		Bank quotas	Bank quotas	Bank quotas	Bank quotas	Bank quotas	Bank quotas	Bank quotas	Bank quotas		
STANDARD BANK OF SA	24.653%	0	2 000	3 000	5 000	9 000	10 000	12 000	13 000	15 000	Large banks, >10% of all liabilities. Round to nearest R1 billion	
FIRSTRAND BANK	21.658%	0	2 000	3 000	5 000	8 000	9 000	10 000	11 000	13 000		
ABSA BANK	20.315%	0	2 000	3 000	5 000	8 000	9 000	10 000	11 000	13 000		
NEDBANK	16.806%	0	1 000	2 000	4 000	6 000	7 000	8 000	9 000	11 000		
INVESTEC BANK	7.678%	0	500	1 000	2 000	3 000	3 500	3 500	4 000	5 000	Medium banks, 0.2-10% of all liabilities. Round to nearest R500 million	
CAPITEC BANK	2.333%	0	500	500	500	1 000	1 000	1 500	1 500	1 500		
CITIBANK	1.223%	0	500	500	500	500	500	1 000	1 000	1 000		
HSBC BANK - JHB	1.082%	0	500	500	500	500	500	500	1 000	1 000		
JPMORGAN CHASE BANK - JHB	0.837%	0	500	500	500	500	500	500	500	1 000		
STANDARD CHARTERED BANK	0.646%	0	500	500	500	500	500	500	500	500		
CHINA CONSTRUCTION BANK	0.537%	0	500	500	500	500	500	500	500	500		
BANK OF CHINA - JHB	0.493%	0	500	500	500	500	500	500	500	500		
AFRICAN BANK	0.282%	0	500	500	500	500	500	500	500	500		
GRINDROD BANK	0.201%	0	500	500	500	500	500	500	500	500		
BNP PARIBAS SOUTH AFRICA	0.199%	0	500	500	500	500	500	500	500	500		
DISCOVERY BANK	0.175%	0	500	500	500	500	500	500	500	500	Small banks, <0.2% of all liabilities. Round to nearest R200 million	
BIDVEST BANK	0.148%	0	200	200	200	200	200	200	200	200		
SASFIN BANK	0.143%	0	200	200	200	200	200	200	200	200		
ALBARAKA BANK	0.128%	0	200	200	200	200	200	200	200	200		
STATE BANK OF INDIA	0.115%	0	200	200	200	200	200	200	200	200		
HBZ BANK	0.115%	0	200	200	200	200	200	200	200	200		
UBANK L	0.079%	0	200	200	200	200	200	200	200	200		
ACCESS BANK	0.069%	0	200	200	200	200	200	200	200	200		
TYME BANK	0.049%	0	200	200	200	200	200	200	200	200		
HABIB OVERSEAS BANK	0.015%	0	200	200	200	200	200	200	200	200		
FINBOND MUTUAL BANK	0.015%	0	200	200	200	200	200	200	200	200		
ICICI BANK	0.004%	0	200	200	200	200	200	200	200	200		
BANK ZERO	0.001%	0	200	200	200	200	200	200	200	200		
VBS MUTUAL BANK	0.000%	0	0	0	0	0	0	0	0	0	Inactive, 0% of all liabilities	
Total Quota	100.0%	0	15 400	19 900	28 900	42 400	46 900	52 900	57 900	67 400		