A Review of the South African Reserve Bank's Financial Stability Policies

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Hylton Hollander and Dawie van Lill

Abstract

The establishment of the Financial Stability Board (FSB) in April 2009 by the Group of 20 (G20) leaders legitimized the South African Reserve Bank's (SARB) role to incorporate a clearly defined strategy to deal with instability generated in the financial sector. Accordingly, as affirmed by the "twin peaks" regulatory framework, in 2017 the SARB was tasked with a new mandate to protect and enhance the financial system. In its capacity as Prudential Authority, the SARB emphasize that the purpose of macroprudential policy is to ensure a resilient financial system and to limit the build-up of systemic risk, with the ultimate objective of curtailing macroeconomic costs associated with any financial distress. Although macroprudential policies are designed to mitigate financial instability, the lack of consensus on a clear definition for financial stability is well-documented. This article contextualizes the SARB's formal depiction of financial stability in relation to other central banks and in the academic literature. In addition, we also evaluate the appropriateness of the SARB's framework in limiting financial instability, and its associated influence on the real economy. We pay particular attention to the SARB's alignment within international best practices (the Basel accords), and whether or not this is sufficient within an integrated global financial system. Our preliminary finding is that the SARB has showcased commendable restraint in the face of mounting pressure to implement macroprudential tools at its disposal.

1. Introduction

In the immediate aftermath of the 2007-09 global financial crisis the (then) Minister of Finance Pravin Gordhan announced, during the 27 October 2010 Medium Term Budget Policy Statement, an expanded mandate of the South African Reserve Bank (SARB). This mandate sanctioned the SARB to maintain and enhance financial stability. Now, after nearly seven years, the imposition of the Financial Sector Regulation Act (FSR Act No. 9) on 21 August 2017 introduced sweeping financial sector reforms and aligned South African regulatory and supervision practices with global standards. In addition to providing an explicit mandate for the SARB, this act establishes two juristic authorities under the so-called "twin peaks" model of financial regulation. The first peak is the Prudential Authority (PA). The PA is a juristic person within the administration of the SARB. It facilitates the sound management of all deposit-taking institutions (e.g., traditional and cooperative banks), non-bank financial institutions (e.g., insurers and microloan organisations), financial conglomerates, and key market structures such as the national payments system for clearing and settling in the interbank funding market. The second peak, the Financial Sector Conduct Authority (FSCA), is responsible for market conduct, regulation, and supervision orientated toward financial consumer protection. This paper critically appraises the SARB's mandate to maintain financial stability, coordinate with other regulatory and supervisory bodies (including relevant departments within the SARB) and implement regulatory instruments for macroprudential policy (MaPP). We summarize the risks and vulnerabilities to the resilience and functioning of the system and appraise the SARB's approach to mitigating unintended consequences, with respect to both the institutional design and implementation of MaPP.

South Africa has a well-established regulatory and supervisory system compliant with international regulatory best practice in banking, insurance, and securities regulation. The financial system is well-capitalized and equipped to weather liquidity stresses, as observed during recent systemic events such as the global financial crisis of 2007-09, the European sovereign debt crisis from 2010, and the emerging market "taper tantrum" episode in response to U.S. Federal Reserve monetary policy normalization. Fissures in the domestic financial system appear to be isolated to unsecured lending and micro-lending activities, with African Bank, as an example, placed under curatorship in August 2014 due to significant wholesale funding shortages (i.e., an interbank liquidity run).[1] Although clearly resilient, and notwithstanding the politico- and socio-economic climate since 2011,[2] the resilience and unabated provision of intermediation services of the financial sector faces a number of challenges going forward.

Current risks and vulnerabilities to financial stability, as identified by the SARB (2018a) in its financial stability report, include the precarious domestic fiscal position, low growth rates, the associated decline in the quality of assets on the balance sheets of banks, a sharp increase in

[1] South Africa experienced a small banking crisis from 2000-2002—the most significant insolvencies were Saambou, Board of Executors and UniFer (Schoombee, 2004). More recently, in March 2018, VBS Mutual Bank was placed under curatorship for similar imprudent lending standards.

[2] These include the police shooting at Marikana, the mining charter, populism, public finance constraints, and growing economic inequality.

global risk premia, and the potential impact of protectionist policies stemming from the United States and the resulting impact on trade agreements.[3] Risks emphasised in its report are inclined to highlight shocks emanating outside the borders of the country, than endemic risk arising because of local behaviour. This is indicative of the nature of shocks experienced historically by most small open economies, where one broadly divides the origination of risk into domestic and international origins. We focus on three domestic originations of risk which the SARB could directly counteract: market concentration and concentration risk, lending risk, and funding liquidity risk. Counteracting these risks pose trade-offs between financial stability and real economic development that may or may not be welfare improving.

It is also important to realize that all of these risks and vulnerabilities are aggregate market (i.e., *systematic*) risks that contribute to *systemic* risk. Moreover, these risks can even trigger a *systemic event*. But the presence of systematic risks are not mutually exclusive, and therefore do not have a unique mapping from a specific policy instrument to a specific risk. MaPP therefore creates conflicts between its own instrument-dependent intermediate objectives and other policy objectives. As such, there is now wide acknowledgement for the need to coordinate macroprudential policy with microprudential regulation and supervision, monetary policy, fiscal policy, and structural policies (BIS, 2018; Tucker, 2017).

Our discussion raises two broad themes related to this policy implementation and coordination problem. On one hand, financial sector regulation and supervision should correct incentive incompatibilities that lead to market failures. These perverse incentives may arise from, for example, banking sector objectives to maximize the return on shareholder equity, a lack of competition, or risk-shifting behaviour. To address such issues, most central banks have access to a wide range of targeted macroprudential policy instruments (i.e., "tools"). But the selection and implementation of tools is complex, and their direct and indirect transmission channels are not well-understood. This uncertainty can generate policy coordination failures between MaPP instruments (regulatory arbitrage) and outright conflicting macroeconomic policies. In other words, there are unintended consequences that MaPP can have on the financial sector, the real economy, and other macroeconomic policies.[4] On the other hand, even if financial imbalances can be identified, it is nearly impossible to *ex ante* measure the costs and benefits of using alternative MaPP instruments.[5] As such, there are weak incentives to take potentially costly actions. This, "inaction bias" is an important challenge for macroprudential policy and includes undesirable interactions with the political cycle not discussed here (Szpunar, 2017). Instead, we focus on how the implementation of MaPP and its coordination with other policies can mitigate unintended policy consequences. A prudent approach to MaPP is clearly desirable, but faced with

[3] Other systemic risks, identified as less likely to occur, include global geopolitical events (e.g., Brexit), domestic political uncertainty, and land expropriation without compensation.
[4] We emphasize market concentration and concentration risk, lending risk, funding liquidity risks, and the intensive and extensive margins of macroprudential policy coordination.
[5] These tools (or policy instruments) are often tailored for specific sectors, regions, and institutions, and can be classified as capital-based instruments, asset-side tools, and liquidity-based instruments. There are a wide array of tools, with multiple intermediate targets, all charged with the same final objective of financial stability (Arslan & Upper, 2017; Villar, 2017).

this possible inaction bias, the question remains how the SARB can limit the probability and severity of financial crises.

In summary, the SARB has performed in a restrained manner when it comes to implementation of macroprudential policies. The Bank has only implemented a handful of policy tools to abide by international standards and deal with potential pressures exerted from domestic and international sources. The main reason for caution is that macroprudential policy can create perverse incentives between imposed policy instruments, which can conflict with other macroeconomic policies as well. MaPP therefore cannot be seen as a panacea to all financial instability woes and must, in particular, be coordinated with and subordinate to monetary policy. But given the structure, size, and international integration of South Africa's financial sector, it is clear that supervision and regulation is needed.

The key to mitigating the probability and severity of financial crises is to reduce the buildup of imbalances (i.e., build resiliency through incentive compatible instruments and effective supervision) and contain financial distress that allows for a dynamic and innovative financial system (i.e., clear crisis management and resolution rules that minimize any implicit or explicit bail-out or too-big-to-fail guarantee). We see little scope, currently, for a strong "leaning against the financial cycle" approach (i.e., the active use of the counter-cyclical capital buffer), and advocate, instead, for a macro-financial (or "whole-economy") approach to macroprudential policy, which emphasizes independent yet close coordination with other macroeconomic policies. Once again, the important caveat is that MaPP should be subordinate to monetary policy when conflicts arise between their objectives. Finally, financial stability can be a mandate of the central bank, but it cannot be the objective of monetary policy. The purpose of this division is twofold. First, monetary policy is ill-equipped to combat financial instability and its policy objectives can conflict with the promotion of financial stability. Second, independent decision-making bodies separate accountability for achieving their respective goals. For example, this independence mitigates the spillover of credibility erosion on both monetary policy, in the event of a financial crisis, and financial stability, in the event of a recession or temporary inflation. The rest of this article outlines the different challenges faced by the regulatory authority and how we believe they should deal with future concerns.

2. Rationale for focus on financial stability

Many central banks across the world have had to shoulder the burden of financial instability, either *de jure* by institutional design or *de facto* through public perception.[6] Legal objectives for central banks with respect to financial stability, however, are "generally vague, do not define success or failure, and say nothing about competing objectives" (Upper, 2017, p. 1). Decades of research in monetary policy has taught us that central banks need an appropriate, well-defined objective to remain accountable and, by extension, to be regarded as a credible institution (Villar, 2017, p. 9).

[6] A common example would be de jure deposit insurance schemes purposed to prevent traditional bank runs versus a de facto bail-out premium for systemically important financial institutions.

When curating these objectives, it needs to be considered that macroprudential measures available to central banks are meant to deal with financial instability in a preventative sense, rather than trying to manage risk once it manifests.

In this section, we first define financial stability to give context for the discussion on the most appropriate way for policymakers to address financial externalities. After that, we explore the reasons why the current incarnation of monetary policy is not equipped to deal with preventing the build-up of systemic risk in the financial system. Finally, we discuss the role of macroprudential policy in maintaining financial stability. In particular, this section outlines the way in which we believe macroprudential policy can be most effectively framed.

2.1. Defining financial stability

At this point there is little convergence in the literature on a true definition of financial stability. Financial stability is most often defined as the lack of financial fragility or systemic risk. Some would argue that this only shifts the burden of definition to a different, similarly vague, notion. Nonetheless, we adopt this approach and define financial stability as the lack of systemic risk. In this setting, systemic risk relates directly to possible impairment of the financial system, and by extension the broader macroeconomy. Systemic risk arises endogenously, for example, in the form of *ex ante* correlated risk choices by agents in the financial and banking system (strategic complementarities) or a coordinated interbank liquidity run (asset fire sales and credit crunches). In addition, it could also be the result of exogenous shocks, such as a surge in foreign capital flows, which originate outside of the system. The financial system here refers primarily to financial intermediaries and financial markets but can extend to any systemically important financial institutions in the economy.

Given our discussion thus far, the best way for policymakers to think about financial instability is in terms of the externalities that are generated by a build-up of systemic risk. It is also important to realise that there are two dimensions to systemic risk. First, there is systemic risk that evolves over time, normally during periods of increased credit extension, accommodative monetary policies and unsustainable asset price growth. One example of this is the low policy rates of the early 2000s in the US. In this case, these low rates were the result of historically low inflation during the Great Moderation and an active attempt by the Federal Reserve to dispel deflationary concerns in the wake of the mild 2001 recession. In fact, Taylor (2007) argues that the policy rate was significantly lower than prescribed by an optimal interest rate setting rule. Such an environment could plausibly induce a risk-taking attitude of investors in several ways, which Borio and Zhu (2012) call the “risk-taking channel” of monetary policy.

Second, there is a cross-sectional dimension, which captures negative externalities from contagion and spillover effects (Freixas, Laeven, & Peydró, 2015). Identifying the source of market failure will help regulatory authorities determine the appropriate policy tool. In the next section, we further develop ideas surrounding these externalities and how prudential authorities can potentially prevent perverse incentives.

In the economic landscape after the financial crisis, policymakers have been forced to develop tools that deal with externalities generated from financial activity along both a time series and cross-sectional dimension. Claessens (2015) provides a classification of externalities along the following lines in his discussion on financial instability and the role of macroprudential policy. First, we have externalities that are generated by borrowers that are unable to fully see the impact of their borrowing decisions on asset prices. In particular, we are referring to borrowers that leverage in a procyclical fashion. This behaviour can lead to potential fire sales of assets, and derivatives based on these assets, once asset prices stall or start to decline (Galati and Moessner, 2013). During a contractionary phase of the financial cycle, collateralized borrowing and financing is adversely affected as a result of the weakened balance sheets of financial intermediaries.

Second, we have externalities related to strategic complementarities. Externalities of this kind reflect the strategic interaction between banks and other financial market participants that result in a build-up of risk that correlates with the expansion of the financial cycle. While Claessens reserves strategic complementarities as a different class of externalities, Galati and Moessner (2013) argue that strategic complementarities are simply an amplification mechanism once fire sales have started. Third, along with the cross-sectional, or structural dimension, we have that externalities related to interconnectedness and contagion are of significance This reflects how financial shocks transmit to systemic institutions and financial agents through their established connection of networks. In the section that follows we discuss the role that monetary policy plays in addressing these externalities.

2.2. Are monetary authorities equipped to maintain financial stability?

Historically, policymakers were concerned with both price and financial stability. In fact, as argued by Goodhart (1988), central banks were initially created to prevent financial crises and bank failures. Central banks were designed with the unique ability to generate liquidity, in the form of bank reserves, providing them with a monopoly over the issuance of their liabilities (Bank for International Settlements, 2014). As originally envisaged, the principal role for the central bank is the provision of liquidity to key financial institutions in times of crisis, the so-called 'lender-of-last-resort' function as first described by Thornton (1802) and Bagehot (1873). Framed in this way, achieving financial stability is at the heart of monetary policy. In this instance, financial stability can be viewed as a supply-side constraint in credit markets whereby financial intermediation is potentially interrupted. The apparent solution to this problem is for the central bank to issue liabilities to resolve this disruption in intermediation.

However, during the latter quarter of the 20th century, several arguments arose that lead to fewer discussions on the central bank's role in achieving financial stability. First, central banks were too narrowly focused on price stability. And as a result, financial sector risk was not taken into account in determining the appropriate stance of monetary policy (Borio, 2011). It is further widely accepted that the capacity of the central bank to combat the build-up of financial instability with conventional policy tools is limited (Woodford, 2012). For example, to combat housing price increases, the magnitude of the change in the nominal short-term interest rate might either be too large or unnecessary for its inflation objective. Indeed, in their seminal article, Bernanke and

Gertler (2001) argue that monetary policy should be concerned only with factors that could plausibly influence the future path of inflation. In their study, they found that the central bank gains relatively little from responding to asset prices, and it should consider asset price fluctuations only in its capacity to affect the forecast of inflation, referred to as the "benign neglect" approach. In addition, the increase in the policy interest rate might impact asset classes beyond the one where a bubble is developing (Woodford, 2012).[7]

This means that targeted instruments found in macroprudential regulation would perhaps be more appropriate. In fact, after the financial crisis there was a resurgence in the literature on the interaction of monetary policy and financial stability. Smets (2014, p.32) argues that "price stability has proven not to be a sufficient condition for financial stability and lack of financial stability can have large negative feedback effects on price stability". He calls for macroprudential regulation to run complementary to monetary policy in dealing with the build-up of financial imbalances. Monetary policy should be able to "lean-against-the-wind" in the short-run, coordinated with macroprudential policy, while focusing on price stability in the medium-term (Smets, 2014).

Second, measurement of the build-up of risk has been problematic. For example, it has proven almost impossible to identify asset price 'bubbles' until they have burst. Without a proper method for identifying 'bubbles', it is not considered worthwhile for the central bank to try and lean against asset price increases through contractionary policy. This has led academics and policymakers alike to suggest mopping up after the bubble has burst. However, as evidenced by the recent crisis, this might prove too costly. On the other hand, one thing gained from the crisis is that the overvaluation of an asset and the accompanying drop in price is not always the issue that needs to be addressed. The important consideration is the development of systemic risk that poses a threat to the health of the overall financial system, in other words, the joint failure of systemically important financial institutions. In this sense there have been significant improvements in the measurement of risk to financial stability (Woodford, 2012).

Third, central banks generally adhere to the Tinbergen principle of one independent instrument (tool) for one independent target (goal). One tool for two goals creates "conceptual and practical" confusion as to the ultimate objective, with communication becoming increasingly difficult (Svensson, 2012). Rather, the fact that there are cyclical differences in intermediate objectives—such as consumer price inflation, housing price growth, and total credit growth—and varying effects and types of instruments speaks to a multifaceted but coordinated approach to the two policies. Before the GFC central banks largely adopted an overnight interest rate as the tool of monetary policy, and therefore had no power beyond their lender-of-last-resort function to navigate the financial stability space. Microprudential regulation was thought to complement monetary policy and take care of idiosyncratic financial stability concerns. However, once the crisis had hit, this idea surrounding the tools available to the monetary authority with respect to financial stability changed dramatically, bringing the balance sheet of the central bank and macroprudential policy into contention (Blanchard, 2011).

[7] The term "bubble" does not necessarily imply irrationality or market failure. Rather, a "bubble" may be an equilibrium state and even optimal for funding (Martin & Ventura, 2012; 2016). Alternatively, ex post, one can characterize a "bubble" as a misallocation of resources that leads to a build-up of financial imbalances.

2.3. Using macroprudential policies to combat financial instability

Having established that interest rates are a blunt instrument against asset price fluctuations and that monetary authorities should be focusing their policy tool at maintaining price stability, we turn our attention to macroprudential policy. Financial regulation before the financial crisis took a microfocused perspective on risk. There was a focus on the health of the balance sheets of individual financial institutions, rather than a holistic understanding of the financial system and its interconnected web of networks (Freixas, et al., 2015). Capital adequacy ratios were considered as sufficient as they generated buffers to protect individual institutions and by extension the entire financial system (Galati and Moessner, 2013). However, after the crisis, it was ascertained that other externalities, such as those outlined above, were at the heart of financial instability and that microprudential regulation as espoused by the first two Basel Accords would need to be reconsidered.

According to the renewed view that financial cycles were the driving force behind the recent crisis, financial instability in an economy is generated as a product of, most commonly, excessive risk-taking. It is therefore possible to take preventative measures to combat this type of behaviour. In other words, risks arise in this setting because of perverse incentives, which can to a certain extent be corrected by a regulatory body. In particular, macroprudential policies are seen as "those policies aiming to reduce systemic risks arising from 'excessive' financial procyclicality and from interconnections and other 'cross-sectional' factors" (Claessens, 2014, p.12). Policymakers are then tasked with understanding the sources of increased risk-taking and the build-up of systemic risk in financial markets.

There are two general channels identified in the literature. First, the preference channel, by which asset price bubbles originate from investor behaviour that is explained by the tenets of behavioral finance. Motivation for asset price bubbles in this framework include concepts such as irrational exuberance, which reflects an overoptimistic view of the market in good times, while almost entirely neglecting tail risk (Freixas, et al., 2015). This does not mean that preference shifts are always linked to irrationality. There are various theories, such as those that incorporate habit formation, where agents are considered fully rational. In these types of models financial market participants are less risk-averse during a boom period (Freixas, et al., 2015).

The second explanation forwarded for the pervasiveness of growth in credit and asset prices is limited liability on the behaviour of financial intermediaries, causing them to become highly leveraged. Conventionally, when yields on safe assets are low, investors substitute toward higher-yielding risky assets, a phenomenon that was recorded in the build-up to the crisis, described as a "search-for-yield" (Rajan, 2005; Shirakawa, 2013). This was compounded by the fact that, as suggested by several measures of implied volatility, perceived risk was at an all-time low during the Great Moderation (Bean, Paustian, Penalver, & Taylor, 2010). In addition, as argued by Adrian and Shin (2008) and Moench, Shin and Adrian (2010), the increase in the price of risky assets improves the balance sheet position of financial intermediaries and encourages them to take on more debt (either through the extension of loans or the acquisition of securities), which in turn fuels further asset price increases. This effect was amplified by the procyclical capital

requirements of the Basel II accord. Over time, owing to the limited number of 'safe borrowers' in an economy and the depressed interest margins of commercial and investment banks, increased loan provision translates into increased funding of risky projects, inducing a leverage cycle (Bean et al., 2010). This is considered an agency view of risk-taking, which puts ideas such as moral hazard and adverse selection into play. As argued by Freixas, et al. (2015: 85) in this environment "financial gains are privatised but losses are in large part socialised".

Macroprudential policy can address problems if they originate from financial cycles but will struggle to provide useful assistance if they try to regulate activity in the business cycle. In other words, preventative measures can be used in the case of financial cycles, but these policies are ineffective in managing the business cycle. These types of policies can create significant market distortions, often negating the effects of other policy measures, such as monetary and fiscal policy. Macroprudential policies should then be implemented as a preventative (and subordinate) measure in coordination with other policies to regulate financial market instability. Crucially, this class of policy should not be enacted in a reactive fashion. If implemented reactively, it could deepen the liquidity problems that have to be resolved in times of crisis (e.g., Basel II accords forced unreasonably high capital requirements during a downturn when value of bank capital was declining).

Regulation and supervision of the financial system can be likened to that of firefighters and forest fires. In this analogy policymakers are firefighters and the sources of financial instability are the fires that they wish to extinguish. Given this setting, should firefighters fight forest fires to minimize immediate costs (reactive policy) or contain them to maximize long-run growth (preventative policy)? At the turn of the century the strategy of firefighters changed dramatically from trying to prevent every fire and make as small as possible the damage to trees and wild life (i.e., economic assets) to simply managing and containing fires to limit the build-up of debris (i.e., vulnerabilities) which fosters rejuvenation, growth, and resilience. There were high costs associated with the former strategy, and both elevated systemic risk and active, resource-intensive management.

Most policymakers have taken a more preventative approach, but maintain a significant degree of discretionary power. In fact, describing central bankers as "crisis managers" and "firefighters" implies exactly that (Chorafas, 2013). For this reason, monetary policy must be clearly delineated from macroprudential policy. The former involves maintaining nominal stability and being a lender-of-last-resort. The latter involves credit policies, crisis management, and resolution. A second temptation stems from technological advances that have fast-tracked digitization and microscopic monitoring of the financial sector. Under this presumption of precision, the temptation to fine-tune policies and to foster centralization (in terms of financial system concentration and infrastructure) must be avoided. If not, it can delegitimize the hard-fought credibility and institutional independence of monetary policy and create a system with a concentrated point of failure.

The core of this message is that macroprudential policies are inherently distortionary. The role of policymakers is to weigh the benefits and costs of this distortion. If the financial system is already resilient, it is not clear that these policies prevent instability and losses. On the contrary, these policies might lead to a system that allows for failures and no bail-outs. As argued by Claessens

(2014), unless firefighters (policymakers) use the appropriate equipment to extinguish the fires they can "worsen some resource allocations. And by constraining actions of agents, they can increase overall systemic risks". Identifying the precise source of the externality is crucial in this regard and will pose unique challenges for each country that implements these measures.

Theoretical development of issues surrounding macroprudential policy is in its infancy. Discussion surrounding macroprudential policy is in a similar stage of development that monetary policy was during the 1940s. Galati and Moessner (2013) argue that in comparison to our development of thought on issues of monetary and fiscal policy, we are "still in the Stone Age in respect of deploying macroprudential policies". One way to think about macroprudential policy then is to frame it within the same setting as monetary policy. We can start thinking along the dimensions of the primary objective, intermediate targets and instruments required. The objective would be the same for most countries, the prevention of systemic risk (increasing system-wide stability). Contained in this objective is the goal of "limiting macroeconomic costs from financial distress" (Galati and Moessner, 2013). This definition of the objective clearly delineates the importance of thinking of economic growth being at risk during times of financial instability. This means that financial sector volatility can have real consequences and by implication, macroprudential policies will be indirectly aimed at promoting growth over the longer run.

The source of systemic risk is not the same, however, for all nations and would then mean different intermediate targets and instruments implemented. Developed nations will tend to consider endogenous sources of risk and therefore try to shield against the buildup of risk by using specific tools that provide a well-capitalised financial sector and the ability to monitor the probability of default among institutions. In addition, these countries might place a higher weight on the interconnectedness of financial intermediaries and non-banks in order to prevent contagion. In developing countries, the focus might shift toward external factors that could potentially disrupt financial market activity. In the next section, we will take a deeper look at the risks that are specifically relevant for South Africa and the tools that have been utilised to assuage these concerns.

3. Macroprudential policy in South Africa: institutional structure, goals, and decision-making

In this section, we discuss the SARB in South Africa's post-1994 dispensation and provide a summary of the recent developments surrounding macroprudential policy (MaPP). Section 3.1 describes the institutional evolution of the SARB in response to financial system instability generated before and after the recent financial crisis. Section 3.2 contextualizes South Africa's macroprudential framework and implementation in response to the GFC.[8]

[8] Non-market (direct) control measures in credit and currency markets, in particular, as well as opaque operating procedures characterized the SARB prior to Dr C L Stals' appointment as Reserve Bank Governor

3.1. Institutional Structure

In response to the series of emerging market crises from 1995 through 2001, global financial stability concerns heightened and a concerted effort began to promote international prudential standards (Helleiner, 2010; Frankel, 2011).[9] Yet unlike the G20 countries, and even peer emerging market economies (EMEs), the SARB has had limited experience in implementing macroprudential policies (Ceruttia, Claessens, & Laevenc, 2017; Lombardi & Siklos, 2016; Havemann, 2014).[10] Since the turn of the century EMEs have more frequently adopted macroprudential measures related to foreign exchange deposits and credit growth, whereas advanced economies have concentrated more on borrower-based credit constraints such as loan-to-value ratios. Both groups generally favour limits on funding from key borrowers (concentration risks), or more specifically, non-bank to bank funding (wholesale funding exposure), as well as limits to leverage. With regards to international prudential standards, however, the SARB has been on par with peer EME countries.

In August 1999, the SARB announced its intention to align its monetary policy framework with global developments. The adoption of an explicit inflation targeting framework, coincided with its efforts to position itself within global regulatory and supervisory standards set out in the Basel accords. The Banks Act of 1990, along with exchange control regulations, provided financial institutions with a strong buffer to absorb both internal and international shocks (National Treasury, 2011: 13-15). There is some *de facto* evidence that from 2003 to 2006, in response to credit growth concerns, the SARB took measures to raise bank capital adequacy ratios (Havemann, 2014). However, due to the overwhelming nature of the shocks generated by the global financial crisis, it was not possible to completely shield South Africa's financial system.[11] In response to the GFC, the Minister of Finance reaffirmed the SARB's role as the nation's macroprudential supervisor. By 2013, with the National Treasury's publication of the proposed 'twin peaks' model, the SARB was committed to and had already begun re-orientating its existing

in August 1989 (Mollentze, 2000; SARB, 2010). It is not clear how financial stability objectives and intervention influenced monetary policy during this period. Besides, the crisis management and resolution of the 1985 corporate debt crisis was unique (Harris, 1986). It is also important to note that direct monetary controls were in use between 1965 and 1980 (Mollentz, 2000, S-6). These included ceilings on bank credit to the private sector, deposit rate control, foreign exchange control and outright control of hire-purchase and consumer credit. According to Mollentz (2000, S-6), banks were intermittently requested to be selective in their credit extension.

[9] These events led to the creation of The Financial Stability Forum (FSF), the Financial Stability Board's predecessor, in February 1999 by G7 finance officials. In response to mounting legitimacy issues, the Financial Stability Board (FSB) was established in April 2009 by the Group of 20 (G20) countries.

[10] Furthermore, unlike its peer EMEs (Argentina, Brazil, Chile, China, Colombia, Peru and Turkey) the SARB does not include, or use, monetary policy instruments (e.g., reserve requirements on domestic and foreign deposits) as part of its MaPP toolkit or with the aim to stabilize financial conditions (Villar, 2017, p. 11).

[11] It is not obvious to what extent South Africa's 2009 recession was linked directly to the GFC and capital flows (financial channel) versus that of global demand for goods and services and commodity prices (trade channel).

regulatory framework to address liquidity (funding) and credit risks, as well as investigating the potential for unintended regulatory arbitrage (Havemann, 2014; National Treasury, 2011).

With the FSR Act of 2017 the Minister of Finance legally delegated financial stability responsibilities to the Prudential Authority under the SARB's oversight. Notably, the Financial Stability Committee (FSC) holds executive power to implement MaPP and to coordinate financial stability objectives with other regulatory bodies as well as monetary policy.[12] Of twenty-four surveyed EME central banks, in a 2016 Bank for International Settlements (BIS) questionnaire, South Africa is one of thirteen that have full control over macroprudential tools (Villar, 2017, p. 7).[13] Brazil and South Africa are the only two that share decision-making making responsibilities with the banking supervisor (the Chief Executive Officer of the Prudential Authority in South Africa's case) and other regulatory bodies. In South Africa, members of the FSC overlap with the Monetary Policy Committee (MPC) and include senior SARB officials (South African Reserve Bank, 2017, p. 331). The most common coordination approach taken by central banks are inter-agency committees. Villar (2017, p. 12) identifies fourteen out of twenty-four countries with inter-agency committees in which the central bank governor either chairs (as in South Africa) or takes a lead role.[14]

The Financial Stability Oversight Committee (FSOC) is an advisory committee that includes members from the SARB, National Treasury and financial regulators (see South African Reserve Bank, 2017, p. 331, ft. 6). Much like the SARB's monetary policy institutional design, the FSOC intends to meet every six months, issue public statements and reports, as well as issue a comprehensive biannual Financial Stability Review. Finally, thirteen of the twenty-four central banks in the previously mentioned survey, now including South Africa, also have statutory mandates with a financial stability objective. These objectives range from being entirely broad (e.g., "promoting financial stability" or "reducing systemic risk") to narrowly defined objectives (e.g., the "normal functioning of internal and external payments" and "to regulate credit in the financial system") (Villar, 2017, p. 7).

3.2. A framework for macroprudential policy decision-making

With the shift in focus away from crisis management and resolution (i.e., reactive policy), MaPP adopted the mechanism design approach of monetary policy. This entails, as discussed more generally in Section 2, first identifying the goal(s) of MaPP, then the related intermediate target(s), and finally the relevant instrument(s). The SARB, specifically, has adopted a clear three-step process to identify, motivate, and respond to financial sector developments. First, it assesses systemic risk. Thereafter, it builds a case for MaPP intervention. Finally, the SARB selects and

[12] Established in 2000, the FSC was recently restructured in accordance with the SARB's enhanced financial stability mandate. Currently, MaPP is subordinate to and supportive of monetary policy and microprudential policy.

[13] These include, amongst others: countercyclical capital buffers and capital requirements, margins and haircuts, sector-specific capital requirements for the banking sector and debt service-to-income and loan-to-value ratios. (Villar, 2017, p. 7)

[14] The effectiveness of such committees is not uniform and difficult to quantify.

decides whether to implement the relevant MaPP instrument(s). Within this context, the SARB views MaPP as subordinate to and supportive of monetary policy and microprudential policy. In what follows, we discuss how the SARB defines its MaPP objectives (goals) and how this relates to "systemic risk" (Step 1). We then contextualize their approach to identifying MaPP intervention within current realities (Step 2). Our discussion on Step 3 follows in Section 4.

The SARB's definition of financial stability stresses the "resilience" of and "confidence" in financial institutions and market infrastructures:

> Financial stability refers to a financial system that is resilient to systemic shocks, facilitates efficient financial intermediation, and mitigates the macroeconomic costs of disruptions in such a way that confidence in the system is maintained. (SARB, 2017, p. D)

Maintaining the general provision and performance of services matters as well. That is, despite a changing environment, the SARB endeavours to not only maintain the functioning (capability) of the financial system but also to ensure confidence in its ability to do so. Notably, the SARB identifies the macroeconomic costs associated with *financial disruptions* as its ultimate welfare objective. This potential *growth-at-risk* is borne out by the SARB's emphasis on *systemic risk* as the focus of macroprudential policy:

> 'Systemic risk' is defined here as the risk of a disruption(s) to the provision of any of the key financial services that is caused by an impairment of a part(s) of the financial system or the financial system as a whole, and which can have serious consequences for the real economy. (SARB, 2017, p. 33)

It is importance to notice the distinction (as discussed in Section 2) between *systemic risk*—which is wholly or in-part unobserved and tends to build-up during the expansionary phase of the business cycle—and *financial disruptions*—which are realized outcomes in the financial sector and the real economy from the (endogenous) response of economic agents to externalities. In this light, the SARB recognises the origination of risks—both domestic and international—but emphasize MaPP instruments that target impediments to the provision of financial services that put economic growth at risk.

As we will discuss below, the SARB implicitly acknowledges that both systemic risk and the potential impact it may have on the real economy are difficult to identify *ex ante* (i.e., are typically only observed when they materialize). And, even more so than with monetary policy, it is difficult to establish a stable link between instruments (on cross-sectional and time dimensions), intermediate objectives (the financial system, individual sectors, indicators or measurements) and final goals (the macroeconomic costs of financial disruptions). As such, the SARB has put the "prudent" in Prudential Authority by taking a *preventative approach* to limiting systemic risks and mitigating externalities:

> Two broad aims that are not mutually exclusive: first, strengthening the resilience of the financial system to economic downturns and other adverse aggregate shocks, and

second, leaning against the financial cycle to limit both the accumulation of financial risks and the likelihood or the extent of a financial crisis. (SARB, 2017, p. 33)

Here it is important to note that "strengthening the resilience of the financial system" does not imply that the central bank (or prudential authority) needs to specifically identify systemic risks or build a case for intervention with a specific MaPP instrument in mind. In fact, Villar (2017, p. 11) points out that "central banks have more instruments at their disposal to strengthen the resilience of the financial system than to rein in financial booms."[15] This is not only an important reality but a desirable one. The SARB's attempts to identify financial cycle vulnerabilities, motivate policy intervention, and select effective instruments will need to be guided, at least initially, by an undesirable amount of discretion (South African Reserve Bank, 2017).

The SARB is, however, clearly proactive with its supervision of the financial system, and it actively seeks a high level of compliance with international standards outlined by the Basel Committee on Banking Supervision (BCBS). Indeed, existing relatively high capital and liquidity buffers for large banks and insurers, above Basel III requirements, has fostered a robust financial system and mitigated any pressures on the SARB to actively enforce any regulatory tools, both domestic and international. In section 4, we highlight key risks and vulnerabilities that the SARB faces and how it intends to respond to them (Step 3). We also raise important risks and vulnerabilities not identified and/or clearly dealt with by the SARB, to which we hope to contribute to the SARB paving the way forward.

4. The Way Forward

In the second section of the paper we considered the role that macroprudential authorities could play in facilitating an environment conducive to financial stability. In what follows, we discuss how policymakers within the South African context could potentially approach concerns of financial instability. Section 4.1 details unique characteristics of South Africa's financial system. In section 4.2, we specifically identify key risks and vulnerabilities in the South African economy that may lead to or currently justify a MaPP response. In Section 4.3, we first highlight some of the unintended policy consequences of MaPP, and then consider how the SARB should manage these risks and vulnerabilities. We then contrast these realities with the current approach being followed by the SARB, as outlined in the previous section, and provide a critical evaluation of its actions.

[15] According to a BIS survey response (Arslan & Upper, 2017, p. 41) the SARB measures vulnerabilities using the following tools: "(1) Risks in institutions identified as systemically important, shadow banks, asset markets and the non-financial sector. (2) Level of leverage, and general credit market conditions. (3) Maturity and currency mismatches. (4) Changes to lending standards. (5) Stress tests. (6) House prices, commercial property prices and asset valuations in equity markets. (7) Government and corporate bond spreads, credit default swap spreads and measures of risk premia. (8) Underwriting standards, and asset quality and credit conditions."

4.1. Financial markets and institutions: an overview of recent developments

4.1.1. Market size, market innovation, and international integration

A well-established regulatory framework goes hand-in-hand with a large, sophisticated and globally integrated financial sector (Ceruttia, Claessens, & Laevenc, 2017; Lombardi & Siklos, 2016). In this regard, South Africa is well-placed with its peer emerging market economies. South African total financial sector assets amount to 305% of GDP (as of December 2017), where total banking assets make up 108% of GDP and total assets for non-bank financial institutions make up 197% of GDP.[16] In addition, total off-balance sheet activities of banks amount to 27% of GDP. Finally, the gross external position of the private sector at 283% of GDP, measured as the sum of total foreign assets and liabilities, highlights the degree of global integration.[17] The exposure of the banking sector to external positions are, however, muted. Most banking assets are domestic, long-term, and a mix of commercial and retail credit facilities and loans. Most banking liabilities are domestic, short-term, and deposit financed.

Since 2013, non-bank financial institutions (henceforth, NBFIs or non-banks) account for two-thirds of total assets. NBFIs are categorized as insurance companies, pension funds, public financial enterprises, and other financial intermediaries (OFIs). NBFIs typically include so-called "shadow banking" activities sub-categorized into money market funds (MMFs), fixed income, multi asset, fund of funds, hedge funds, finance companies, insurance, and securitization. Shadow banking is a term used to describe the services that NBFIs provide similar to that of "traditional" deposit-taking banks which fall outside banking regulations.[18] These shadow banking activities amounted to R2 208 billion in the third quarter of 2016 (Kemp, 2017). Notably, collective investment schemes, identified as being susceptible to funding liquidity shortfalls (i.e., "runs"), make up approximately 80% of this total figure. It is worth pointing out here that the global financial crisis of 2007-2008 predominately involved risk-taking behaviour in such market-based finance of non-bank financial institutions (Adrian & Jones, 2018). Taken as given, however, these credit intermediation innovations reflect the needs and preferences of South African borrowers and

[16] We derive this value from SARB data for total bank and non-bank assets (KBP1132M and KBP2637K). This value is different from the inferred shares of total assets ascribed from each sector in SARB (2018b). Using the ratios of total financial assets for banks and non-banks (29.2% and 66.7%, respectively) we find total assets to be between 295% and 370% of GDP.

[17] As of December 2017, South Africa's foreign liabilities were 138% of GDP, while the country's foreign assets amounted to 145% of GDP. The country's (positive) net international investment position was 7.4% of GDP at the end of 2017.

[18] See Kemp (2017, pp. 4, 13-19) for an explanation of the SARB's narrow measure of shadow banking. The multi asset category currently dominates shadow banking activities at 47%, followed by funds of funds (13%), MMFs (13%), finance companies (12%), and fixed income (11%). It is important to note that the majority of shadow banking entities or activities in South Africa are indeed regulated, and not all NBFIs activities are considered shadow banking activities. In fact, some traditional bank activities fall under this definition of shadow banking.

lenders.[19] From this perspective, the South African economy exhibits a modern and innovative financial sector.

4.1.2. Market structure

The South African banking system is dominated by Standard Bank, Barclays/ABSA, Old Mutual (Nedbank), FirstRand Bank, and Investec. These financial conglomerates maintain a 90% market share of total bank assets. The high concentration within the banking sector can be attributed to the high barriers to entry imposed by the Banks Act of 1990. Notably, however, the traditional banking subsidiaries have seen a marked decline in the share of total financial assets from 37.6% for 2003 to 29.2% for 2017 (SARB, 2018b). This market share decline, including the declining shares of insurance companies, pension funds, and public financial enterprises, has been taken-up by non-banks referred to by the SARB as "other financial institutions" (OFIs). Their share of total financial assets has risen from 8.4% in 2003 to 21.1% in 2017 (SARB, 2018b). This rise in market-based finance mirrors that of the global trend before and after the global financial crisis, wherein shadow banking exhibits the weakest resilience (Adrian & Jones, 2018).

This phenomenon has occurred in South Africa, in particular, with the commensurate rise in non-bank (wholesale) funding to the banking sector. Non-bank claims on banks as a share of total non-bank assets is 20.1% as of 2016. This statistic places South Africa as the second largest wholesale funded banking sector out of the 27 advanced and emerging economies considered in the SARB's Financial Stability Report (2018a). Recent work by IMF (2014) and Kemp (2017) document this high degree of interconnectedness between banks and non-bank financial institutions—with money market funds (MMFs) taking the predominant exposure (SARB, 2018a). Banks' increasing reliance on MMFs for short-term wholesale funding, as well as the general rise in off-balance sheet and shadow banking activities, is likely both a result of tighter regulation in the traditional banking sector and the search for yield of financial conglomerates—that is, to maintain an attractive return on equity (ROE). Notably, this robust increase in financial activity has persisted through a weakly performing economy. For example, the average ROE for all banks from 2001 to 2007 was 13% (over a period of rapid global and local economic growth) and approximately 16.5% from 2015 to 2018 (over a period of weak global and local economic growth). At the same time, there has been a marked increase in over-the-counter (OTC) foreign exchange (FX) and interest rate derivative trading.

With respect to the provision of domestic banking services to households and non-financial firms, South Africa faces several unique structural pressures. Most notably, high unemployment and inequality make access to credit and even basic financial services provision difficult for the un-banked and under-banked (typically individuals living in non-urban areas and/or who are dependent on the informal sector). More generally, the stagnant economic performance of the

[19] As our earlier discussion on market failures suggests, an inefficient allocation of financial products can lead to a net social welfare loss. That is, the needs and preferences of South African borrowers and lenders likely do not coincide with some more-efficient social outcome.

country over the last decade has tightened credit conditions and produced an excess demand for funding.[20]

This apparent demand for banking services and various forms of financing has led to the proliferation of the micro-lending sector. As a result, this sector has seen at least two major financial distress episodes since 2000 (Schoombee, 2004; Havemann, 2018). The first major episode occurred over the period 2000 to 2002 with the insolvencies and even voluntary relinquishment of bank licenses of several medium to small banks (Schoombee, 2004; Havemann, 2018). The failures of the 7th largest bank (Saambou) and then the 6th largest bank (Board of Executors) at the time where the most notable. From 1999 to 2003, the total number of registered banks operating in South Africa dwindled from 60 to 38.[21] Fissures in the domestic financial system appeared again in August 2014 when African Bank was placed under curatorship due to significant wholesale funding shortages. More recently, in March 2018, VBS Mutual Bank was placed under curatorship for similar imprudent (and allegedly fraudulant) lending standards. On both counts, the SARB's decisive action limited contagion to the sector and the wider financial system. By not simply bailing-out these institutions the SARB reduced any implicit too-big-to-fail (or *de facto* bail-out) premium. Overall, immediate financial sector risks and vulnerabilities appear isolated to this sector.

4.2. Risks, vulnerabilities, and policy trade-offs

4.2.1. Market concentration and concentration risk: financial stability versus consumer welfare

South Africa's concentrated banking sector has been fostered by the so-called "four-pillar" policy (Mboweni, 2004). The idea being that a concentrated banking sector of at least four "big banks" makes prudential supervision easier, promotes resilience, and limits the spread of risk. Naturally, however, there are concerns around concentration risk in a bank's portfolio and high market concentration.

High concentration risk, whether on the asset-side to a specific sector or on the liability-side to a particular wholesale funding counterparty, implies low bank portfolio diversity, highly correlated returns, and therefore greater risk of a systemic event. In this sense, competition raises consumer welfare through financial sector diversification and minimizing systemic externalities from financial institutions. High market concentration implies high barriers to entry, which tends to limit fruitful competition in the financial system. Reducing entry-barriers reduces costs to the supply of services and funding to households and firms, and it incentivizes the provision of financial technologies that broaden access. Another concern is that with market concentration comes

[20] For large-, medium- and small-sized firms in urban areas, access to credit and banking services is less of an issue than structural issues related to electricity provision and perceptions related to corruption and the legal system (see, e.g., World Bank (2008)). The stagnant economic performance of the country over the last decade, in particular, can be attributed to the erosion of business and consumer confidence (BER, 2019). These factors stem from inefficient infrastructure investment and maintenance, political uncertainty, and the malfunctioning of key institutions and state owned enterprises.

greater market power (monopolistic competition) which may lead to unintended consequences for policy effectiveness and consumers of financial services. For example, market power can stifle monetary policy by limiting the pass-through of policy rate changes (Hollander & Liu, 2016; Hollander & van Lill, forthcoming), or the costs associated with funding a deposit insurance scheme could more easily be pushed onto consumers.

Therefore, without the appropriate amount of competition, key institutions become too large and the potential for rent-seeking and moral hazard is increased. That said, bank competition can also induce excessive risk taking due to risk shifting (Feng, 2018).[22] It is not clear which of these two dimensions (or, possibly, both, when one takes the view that banks operate globally) dominated during the 2008-2009 global financial crisis. Nevertheless, with a few large commercial banks in South Africa, policymakers would have no choice but to rescue these systemically important institutions if they were to experience sudden liquidity shortages or become severely undercapitalised. Indeed, the SARB recognizes the need for a clear resolution framework for designated financial institutions (i.e., designated resolution institutions). At this time, the SARB, with National Treasury oversight, intends to draft a Special Resolution Bill which would cover registered banks[23], non-bank financial institutions (including insurance companies), financial market infrastructures, and financial conglomerates (National Treasury, 2019).

4.2.2. Lending risk: financial stability versus access to credit

Access to credit is an important facet of financial inclusion in South Africa. Yet, under the auspices of financial inclusion, an excess demand for credit has led to the proliferation of micro-lending and unsecured loans. These short-term loans are normally provided to individuals and firms with below average credit ratings, which implies higher risk premia priced into interest rates and higher probabilities of borrower defaults. As a result, banks' inherit greater liquidity risk if actual loan losses significantly exceed loan loss provisions, and are therefore more likely to default (solvency risk) as well. In 2014, for example, African Bank was placed under curatorship because of its exposure to these risky loan portfolios. While these externalities generated little systemic risk in the form of contagion (Havemann, 2018), they did initiate a narrative in South Africa, as the special resolution framework suggests, around the role of the SARB in crisis management and resolution.

One widely implemented tool to prevent bank runs, especially for those institutions exposed to these unsecured loans, is that of an industry-funded deposit insurance scheme (DIS) (Demirgüç-Kunt, Kane, & Laeven, 2014). In fact, the SARB is currently designing a DIS (SARB, 2017). There are, however, well-known unintended consequences from implementing such a scheme (Anginer & Demirgüç-Kunt, 2018). For example, with an explicit deposit guarantee, depositors do not have

[22] Because bank competition can lower the franchise value of a bank, higher volatility in asset returns can become more attractive. Feng (2018) uses micro-level US mortgage data to show how banks operating in competitive mortgage markets lowered lending standards (e.g., the loan-to-income ratio and acceptence rate) twice as much from 2000 through 2005.

[23] Registered banks refer to any bank registered in terms of the Banks Act 94 of 1990, a cooperative bank registered in terms of the Cooperative Banks Act 40 of 2007 or a mutual bank registered in terms of the Mutual Banks Act 124 of 1993.

an incentive to monitor the riskiness of their bank's assets. And given that deposit losses are "covered", both banks and depositors have an incentive to increase the aggregate level of risk in their portfolios.[24]

Turning to the general provision of credit for consumption and production activities, we observe exacerbated private domestic debt burdens. The deleveraging process by both borrowers and banks in response to the global financial crisis has led to markedly weak average credit growth of 6% (from January 2010 to December 2017) from a pre-crisis average of 20.6% (from March 2003 to December 2008). As a result, the banking sector is also exposed to demand-side (borrower) credit risk for two reasons. Firstly, households and non-financial corporations (firms) are highly indebted and face rising debt servicing costs (for example, domestic and international upward pressure on interest rates can emanate from US monetary policy, sovereign debt downgrades, exchange rate uncertainty, and higher domestic inflation). Secondly, there has been an erosion of non-financial sector collateral and creditworthiness (for example, weaker house price growth and weaker household incomes and firm profits). These demand-side factors put significant pressure on the whole economy. Current banking sector funding trends, however, suggest movement away from risk exposure on assets in the retail sector to assets held off-balance sheet or in wholesale markets.

4.2.3. Funding liquidity risk: internal and external drains (or, the interplay between domestic financial stability and currency stability)

South Africa's financial system depends on access to external financing and over-the-counter (OTC) markets and is highly integrated with the global financial system, which means that cross-border capital flows have a large impact on the liquidity position of local institutions. As such, the South African economy can experience several shocks along the international dimension that constrain the ease with which financial institutions can obtain funding. This external funding risk is especially prominent in capital markets and OTC foreign exchange and interest rate derivatives, which can lead to episodes when access to foreign financing tightens considerably.[25] Equally important, and in contrast to typical concerns about "sudden stops" of capital inflows (Calvo & Reinhart, 2000; Rodrik, 2006)[26], are risks associated with systemic liquidity drains, both internal and external. Internal drains occur during bank deposit runs as short-term obligations are

[24] The SARB has proposed a DIS fund equivalent to 5% of "covered deposits," which, in 2016, amounted to approximately R17 billion (SARB, 2017, p. 35). The perceived credibility of institutions is therefore still important for financial stability. And an important unintended consequence is to incentivise risk-shifting behaviour: most notably, an even greater skewed distribution toward a concentrated group of wholesale (non-bank) funders.

[25] Funding liquidity risks need not relate to fundamental factors, but can emanate from contagion: e.g., from political instability in a systemic middle-income country like Turkey, which does not have a major trade or financial link with South Africa.

[26] The literature on sudden stops typically highlight external short-term debt and trade openness as important predictors of currency crises. This led to what is known as the Guidotti-Greenspan rule for adequate foreign exchange reserves holdings for central banks. However, the high levels of international reserves we currently observe in emerging markets far exceed what these predictors would deem adequate. Obstfeld et al. (2010) show that financial stability and financial openness can account for this global reserve accumulation puzzle.

converted into currency. External drains occur in capital flight episodes when domestic assets are converted into foreign assets: that is, *the import of foreign assets by domestic residents*. The threat of a "double drain scenario", as documented by Obstfeld, Shambaugh & Taylor (2010, p. 63), sees foreign exchange reserves drained as residents use domestic bank deposits (internal drain) to finance domestic capital flight (external drain). In their own words "domestic financial stability is inescapably a central consideration in reserve management policy [the Central Bank's function as lender-of-last-resort]" and "it is the threat of this type of drain that most worries emerging market policymakers" (ibid., p. 63).

Obstfeld, Shambaugh & Taylor (2010) attribute the continued shoring up of international reserves by emerging markets to buffers against internal and external drains (bank deposit runs and capital flight). Essentially, the lender-of-last-resort (LLR) function of the central bank together with the size and openness of the domestic banking sector drives reserve accumulation—as opposed to the traditional trade channel (see also, Rodrik (2006)). In economies not operating within a fixed exchange rate regime, the rationale to shore-up foreign liquidity buffers extends predominantly to public insolvency risks. On one hand, Rodrik (2006) argues that countries can avoid costly pecuniary externalities from reserve accumulation by implementing capital controls on short-term capital inflows.[27] On the other hand, Obstfeld et al (2010) point out the difficulty of implementing such a policy and that foreign exchange reserve accumulation may be the intermittent social welfare improving insurance that emerging markets need in today's level of financial globalization.

The SARB does not include, or use, reserve requirements on domestic and foreign deposits (that is, *monetary policy* instruments) as part of its MaPP toolkit or with the aim to stabilize financial conditions. That said, the reserve bank does maintain adequate foreign exchange reserves (as measured by the Guidotti-Greenspan ratio of a one-to-one ratio between reserves and short-term foreign debt obligations). But it is unclear how useful this will be for active MaPP given its direct conflict with monetary policy implementation—disentangling, in particular, macroprudential policy from monetary policy's LLR function. It is also unclear whether the SARB's continued use of the Guidotti-Greenspan ratio to maintain an "adequate" level of foreign reserves suggests either an implicit guarantee (a limited "tolerance of risk") or, simply, institutional inertia related to operational requirements and investment (SARB, 2010, pp. 31-37).[28]

From a national point of view and given the country's low savings rate and high dependence on international capital inflows, the realization of these risks can lead to a current account reversal. Political uncertainty and a chronically weak fiscal position only raise the probability of such events. In this respect, the banking sectors' share of high-quality liquid assets (HQLA) has been rising

[27] Taxes of the Chilean-type in the 1990s are typically the "go-to" example (see also, Forbes (2007)).
[28] The SARB allocates its foreign-exchange reserve holdings into three functions: (1) domestic liquidity management for the "timely availability of reserves to meet commitments without incurring significant penalties", (2) a capital preservation buffer such that "risks are controlled in a prudent manner to ensure the security of reserves", and (3) income generation from reserve holdings (investments) that provide a "market-related total return within a framework of acceptable risk" (SARB Commemorative publication, 2010, p. 35). Somewhat more concerning is the discretionary leeway given to itself in defining what "adequate" means: "The level of foreign reserves may be described as adequate when a central bank feels that it can achieve its selected objectives." (SARB Commemorative publication, 2010, p. 32).

steadily since the phasing-in of the Basel III liquidity coverage ratios; over half of which are Rand-denominated government debt securities. How exactly the SARB can integrate sovereign default (downgrade) risks, and its associated corporate spillover risks, into the prudential framework is also unclear given the banking sector's heavy reliance on government debt securities for HQLA.

4.3. Unintended policy consequences

4.3.1. Conflicting macroeconomic policies and regulatory arbitrage

We define policy coordination failures on the extensive margin to be conflicting outcomes between macroprudential policy and monetary or fiscal policy. Policy coordination failures on the intensive margin describe regulatory arbitrage between macroprudential instruments.

Policy coordination on the extensive margin has received the most attention in the literature to date (Galati & Moessner, 2013; Hollander, 2017). These studies either look at the interaction of specific macroprudential policy instruments, such as loan-to-value rules and capital adequacy rules, with monetary policy and fiscal policy or on the impact of various macroprudential policy tools on the broader economy. The performance of these policy coordination exercises are typically measured by the minimization of welfare losses. For example, the success of macroprudential policy is measured by its ability to reduce the procyclicality of the financial system (Borio, 2011, p. 17). Here, variables like house prices, equity prices, bank leverage, and credit spreads serve as measures of financial stability, and the risk of financial instability can be related to the distance of observed bank leverage from a regulatory leverage ratio or excessive maturity mismatches between assets and liabilities. Furthermore, these regulatory requirements can be set to adjust to financial and/or business cycle fluctuations such as the credit-to-GDP ratio. Notably, monetary policy and MaPP instruments may also have positive and negative spillover effects on each other's objectives (Arslan & Upper, 2017). For example, in an economic expansion, tighter monetary policy (aimed to reduce inflation) can reinforce financial system resilience by constraining credit expansion. In contrast, if bank liquidity or capital requirements become binding in a recession, this can constrain the countercyclical effectiveness of monetary policy. Regarding fiscal policy, the relationship between its stance and the activation of macroprudential instruments is much less clear. Arslan & Upper (2017) suggest that MaPP can limit the ability of low-income earners and SMEs to access finance, which conflicts with redistributive (fiscal) policies. Policymakers cannot combat these spillover effects, but need to take into account the effect of each measure on the whole economy.

Requiring monetary policy and financial stability policy coordination under the oversight of the central bank, as with the SARB, can conflict with the credibility and independence of monetary policy. If South Africa experiences a systemic financial crisis and public perception is such that the episode is viewed as a financial stability policy failure, it is unclear to what degree the credibility of monetary policy decisions will remain unaffected. The independence of the monetary authority can then come under disrepute. There is also growing concern over consolidated (unelected) power within these institutions and the trade-off it faces with political interference (Tucker, 2017).

Analysis of regulatory arbitrage on the intensive margin (that is, policy coordination failures between MaPP instruments) has received much less attention in the literature. We have already touched on perverse incentives, such as risk-shifting from deposit insurance, which leads to the substitution from bank-based to non-banking intermediation. Incentive incompatibilities can further arise from profit maximizing behaviour, competition, and regulations. A more subtle problem is when macroprudential instruments impact financial risk indictors without dealing with the underlying systemic risk (Arslan & Upper, 2017). A good example is the well-documented unintended pro-cyclical effect of Basel II regulations on the business cycle. Here, research shows how Basel II altered its own measure of resiliency due to its risk-weighted approach to capital adequacy requirements. Once a MaPP policy instrument is activated or implemented financial institutions tend to allocate time and resources to target that requirement, whether it be a systemic risk measure or a financial stability stress test simulation. These unintended consequences are only compounded when two or more macroprudential policy instruments become binding in the financial system.

4.4. Dealing with the unintended consequences of policy (in)action

4.4.1. Measurement, infrequent instrument activation, and rules versus discretion

The first point to note is that the SARB faces a trade-off between correctly measuring the likelihood and cost of financial distress with a sufficient lead (i.e., missing the buildup of financial imbalances) and being confident about the desired effect from taking a specific preventative action (i.e., activating an instrument(s) that is not needed or inappropriate). Most institutions in charge of financial stability measure systemic risk with historical and real-time data, across institutions and across time (see Section 2). And most institutions measure the vulnerability of the financial system to risks by simulating stress tests (Arslan & Upper, 2017, p. 27).[29] Financial stability stress tests provide forward-looking counterfactual scenarios to determine whether policy intervention is currently necessary. It therefore follows that measuring systemic risk and financial system vulnerabilities are sensitive to methodological approaches: any over-weighted single measure or under-weighted discrepancy can have a sizeable influence on the assessment of systemic risk (Step 1 in Section 3). Real-time data and quantitative methods only compound the likelihood of measurement error. Furthermore, there may be systematic biases in the underlying approach: inference errors from standardized or prescribed stress tests can lead to severe consequences when it matters most (the recent global financial crisis being a clear example). And as policy communication improves and markets internalize policy decisions more rapidly (that is, policy becomes more endogenous and operates with long and variable leads), estimating the effects of macroprudential policy becomes increasingly difficult. These realities will have a non-negligible influence on making a case for MaPP intervention (Step 2)—especially if selecting and applying the relevant MaPP instrument (Step 3) requires experimentation and informed discretion (South African Reserve Bank, 2017).

[29] SARB financial stability stress tests follow both bottom-up and top-down approaches, and involve both banks and non-banks (i.e., insurers and financial conglomerates).

In South Africa, the major banks are well-above key metrics such as the leverage ratio, liquidity coverage ratio, and capital requirements. The SARB have therefore had little need to use its instruments. Currently, and in line with international standards (Basel III), the SARB only uses its countercyclical capital buffer (CCB) as an indicator of the stance of MaPP (SARB, 2018a). But even if it decides to activate the CCB during a credit expansion (the main early-warning indicator being a high credit-to-GDP ratio) overall capital ratios may remain unchanged if banks prefer to reduce their precautionary capital holdings. This short-run ineffectiveness of the CCB on the financial cycle brings into question what level of capital requirements is appropriate for an economy like South Africa, and whether the CCB can even mitigate the financial cycle. Given this, the SARB has taken a prudent approach, and emphasize the usage of the CCB on building up resilience aimed at long-run growth stability. As such the CCB could represent an acceptable risk tolerance, or so-called "standard of resilience" (Tucker, 2017).

An unfortunate unintended consequence of prudence is inaction. One way to deal with inaction bias is with a rule-based approach. For example, a predetermined response of the CCB to the ratio of credit to GDP, akin to those adopted for monetary policy, works well in constrained model environments. In reality, however, it requires not only a good understanding of the transmission mechanisms, but a stable relationship between the instrument and the objective. More generally, the CCB reaction function may involve following a systematic rule or a process of "guided discretion" whereby the SARB sets its instrument (the CCB) to target the forecasts of its target variables (the financial cycle) to show how policy should be made to hit their objective over the medium- to long-run. The communication and interpretation of stress tests and the CCB should emphasize the expected path of a policy intervention given the available information fed into the model(s) and given the CCB reaction function. These quantitative results should provide an informative range of counterfactual paths of the economy. It is also important to emphasize that the path of policy decisions are conditional on a certain decision making process: whether adopting a strict rule or guided discretion, it is crucial for both policymakers and the public to not be lulled into false expectations of the central bank's ability to fine-tune the financial cycle. A rule-based approach constrains this temptation, and can effectively leverage the communication of MaPP even if its regulatory requirement is not binding (Svensson, 2018).[30]

At the institutional level, structural reform that formalizes clear guidelines and rules can enhance financial system resilience. The SARB has made significant headway in this regard with the drafting of a Special Resolution Bill (National Treasury, 2019). The bill intends to establish the SARB as the sole resolution authority with clear governance guidelines and rules. The bill highlights the establishment of a uniform definition of a trigger for entry into resolution, open resolution procedures to restore and maintain critical functions of a designated resolution institution, transparency and cooperation with other jurisdictions, an industry funded DIS, and more certainty for creditors and investors. We have detailed some of the unintended consequences of a DIS scheme, and in a similar vein, a uniform trigger would likely create some distortions on the balance sheets of financial institutions. The distortions and administrative costs

[30] Broadly, the instruments of MaPP are supervision, regulation, and communication.

of these additional rules need to be carefully weighed against the benefits of guided discretion and market-based outcomes. Transparent and credible *ex post* measurement of stress episodes can also help ensure the accountability of the SARB to their mandate, thus building credibility in markets and with the public.

4.4.2. Policy coordination: a "whole-economy" approach

Policy coordination failures on both the intensive and extensive margins require a prudent approach to macroprudential policy. Because it is clear that the Prudential Authority should step in given an episode of financial distress or crisis, the key question that arises is on the appropriate response to the buildup of systemic risk. As Section 4.4.1 suggests, we see little scope for the active use of the counter-cyclical capital buffer to mitigate the financial cycle. We advocate, instead, for a macro-financial (or "whole-economy") approach to macroprudential policy, which emphasizes independent yet close coordination with other macroeconomic policies (BIS, 2018; Tucker, 2017)**.** This macro-financial stability framework encompasses policy coordination with microprudential regulation and supervision (to which there is often overlap or no clear distinction), monetary policy, fiscal policy, and structural policies.

Given the historically conflated responsibilities of monetary policy and macroprudential policy we highlight two important caveats for paving the way forward. The first caveat is that financial stability can be a mandate of the central bank, but it cannot be the objective of monetary policy. The purpose of this division is twofold. First, monetary policy is ill-equipped to combat financial instability and its policy objectives can conflict with the promotion of financial stability. For example, if monetary policy responds to heightened credit risk indicators by raising its policy rate, the reduction in inflation below anchored expectations will erode real incomes and raise real debt burdens. This rise in the cost of servicing debt can reduce financial stability through a rise in nonperforming loans and risk-taking. Second, independent decision-making bodies separate accountability for achieving their respective goals. For example, this independence mitigates the spillover of credibility erosion on both monetary policy, in the event of a financial crisis, and financial stability, in the event of a recession or temporary inflation.

The second caveat is that MaPP should be subordinate to monetary policy when conflicts arise between their objectives. The simple reason is that the practice of MaPP is still in its infancy to that of monetary policy: its mandate is difficult to measure and/or define, and the transmission mechanisms of its instruments are not well-understood. For example, consider a sharp and persistent rise in inflation above the monetary authority's objective that requires an increase in the monetary policy instrument (the policy rate). This monetary policy response can reduce the yield curve on Government debt (which can create a maturity mismatch on bank balance sheets) or tighten the net interest rate margin of financial institutions (which reduces effective profits). A reactionary response of MaPP to loosen financial conditions can reverse monetary policy's restraint on inflation. The net effect will result in policy ineffectiveness, undue volatility of financial and economic variables, which may result in a ratchetting effect by which the level of the policy instruments become distortionary for prolonged periods. MaPP therefore cannot be seen as a

panacea to all financial instability woes and must, in particular, coordinate with monetary policy decision-making and be subordinate to monetary policy in achieving its target. Given the structure, size, and international integration of South Africa's financial sector, it is clear that the rules and guidelines for crisis management and resolution must be efficient and effective.

5. Conclusion

In conclusion, it seems appropriate to use the current implementation protocol adopted by the SARB in applying macroprudential policies as a baseline for evaluation. As previously discussed, the SARB uses a three-step procedure, which bears some likeness to the structure imposed in determining how to effectively conduct monetary policy. In the first step the governing authority attempts to identify the nature of the systemic risk in question. This might be the most important, and often overlooked, consideration for the regulating body. Applying the incorrect tool could potentially exacerbate distortions and generate a type of government failure that deepens the financial imbalance in the economy. Problems along this dimension are exacerbated by the fact that measurement of financial instability and stress testing is difficult to perform. In South Africa, the development of tools to identify sources of risk are still in their infancy, which makes it difficult for policymakers to prepare for potential perturbations. This has prompted authorities to take more of a watchful stance to policymaking at present and thus providing the appropriate buffers against shocks.

The second step is to explore the case for macroprudential intervention once the source of risk has been identified. This ties into the central theme of this paper, which centers on the extent to which policymakers need to intervene (given they can correctly identify the source of systemic risk). The firefighters analogy points to the fact that while intervention might equilibrate the economy in the short-run it could come at the cost of longer run instability. Some argue that only when financial procyclicality is considered excessive or increased interconnections between systemic institutions can produce catastrophic failure should prudential authorities intervene. We argue that policymakers should realize that their actions are inherently distortionary. In this regard they should only intervene in key areas that they find to be of utmost importance and not to micromanage each individual institution in a financial sector. In this regard, the SARB has been successful. They have thus far met the minimum criteria for the Basel III accords while not imposing too many restrictive measures.

Finally, selecting and applying relevant macroprudential instruments to achieve the stated goal of decreasing the buildup of systemic risk. The range of tools available to policymakers is ever expanding after the crisis, however only a few tools have been implemented across a wide spectrum of countries. The reason for this is that while selection of the instrument is considered vital for the task at hand, misuse can lead to worse outcomes than abstaining from implementation (or using only a limited subset of tools available). South Africa has been particularly restrained in the active usage of tools to combat the potential build-up of systemic risk or any realized financial distress (which have so far been contained to smaller institutions). We regard this as productive approach that could potentially foster growth in the medium to long run. The reason being that

using a barrage of policy tools to address a singular problem can lead to conflicting results and coordination problems. Finally, we stress the importance of taking the whole economy in consideration before implementing policy intervention. This requires subordinating *active* macroprudential policy (to monetary, fiscal, and other structural policies) in favour of *preventative* measures (such as the Special Resolution Bill, a well-capitalized banking sector, and accountable supervision) that build financial system resiliency.

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