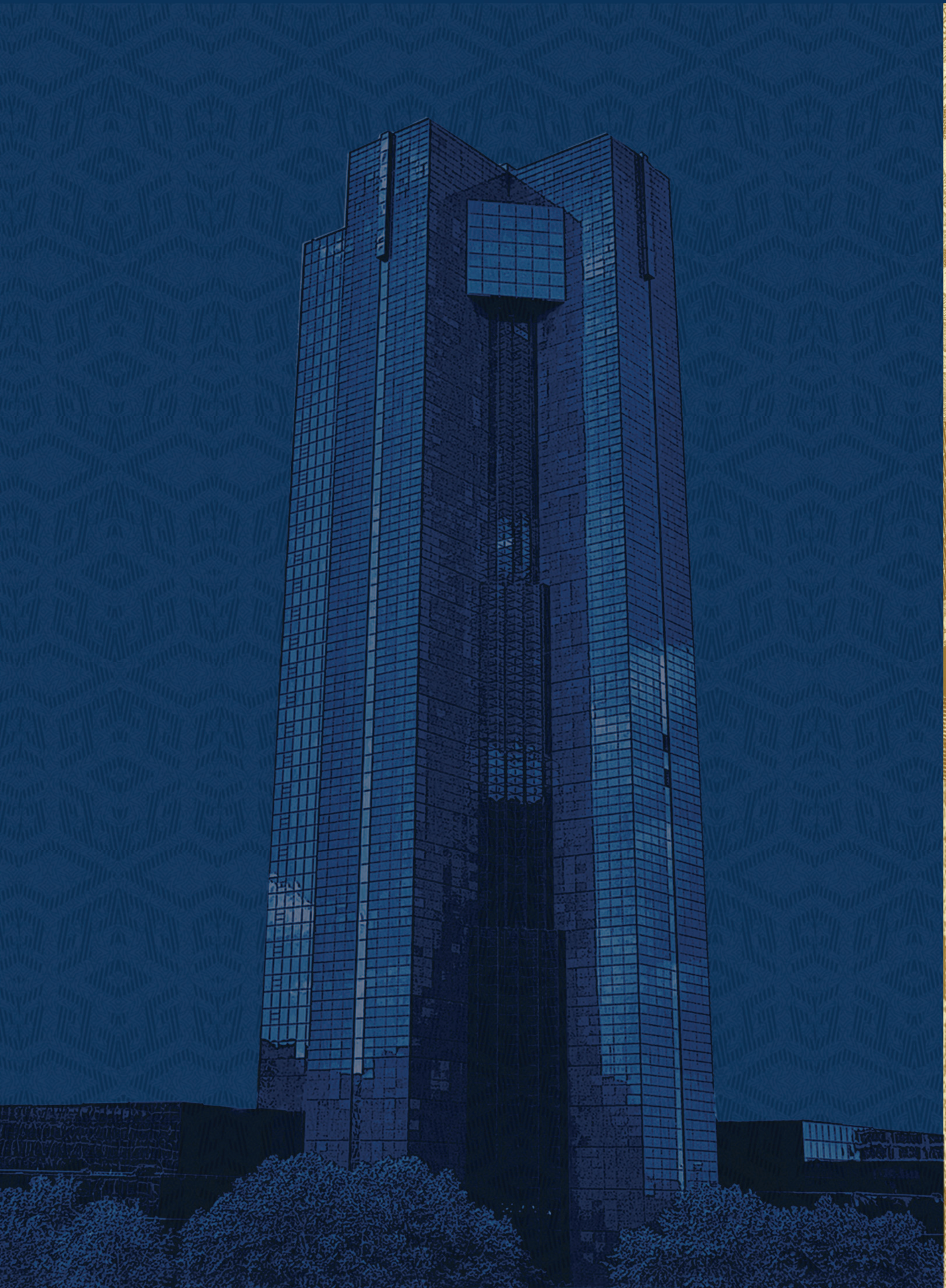
Financial Stability Review

Second edition

2018



South African Reserve Bank

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This issue of the *Financial Stability Review* focuses mainly on the six-month period ending June 2018. However, selected developments up to the date of publication are also reported on. Data may include own calculations made specifically for the purposes of this publication.

Comments and enquiries relating to this *Financial Stability Review* are welcomed and should be addressed to:

Head: Financial Stability Department
South African Reserve Bank
P O Box 427
Pretoria
0001

Tel. +27 12 313 3601
Email: sarbfsr@resbank.co.za
www.resbank.co.za

ISSN: 1811-2226

Purpose of the *Financial Stability Review*

The primary objective of the South African Reserve Bank (SARB) is to protect the value of the local currency in the interest of balanced and sustainable economic growth in South Africa. In addition to this, the SARB's function and mandate of protecting and enhancing financial stability in the Republic of South Africa is affirmed in the Financial Sector Regulation Act 9 of 2017 (FSR Act).

In pursuit of this objective, and to promote a stable financial system, the SARB publishes a semi-annual *Financial Stability Review*. The publication aims to identify and analyse potential risks to financial system stability, communicate such assessments, and stimulate debate on pertinent issues. The SARB recognises that it is not the sole custodian of financial system stability, but that it contributes significantly towards and coordinates a larger effort involving government, other regulators, self-regulatory agencies, and financial market participants.

Defining 'financial stability'

Financial stability is not an end in itself but, like price stability, is generally regarded as an important precondition for sustainable economic growth, development, and employment creation.

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.

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Overview

The South African Reserve Bank (SARB) regularly assesses the risks to financial stability with a view of identifying and mitigating any vulnerabilities that may be present in the domestic financial system. The identified risks, which form part of the SARB's assessment, include: (i) weaker and uneven global economic growth related to increasing risks emanating from escalating trade tensions, generally lower commodity prices, higher bond yields in the United States (US), US dollar appreciation, and spillover effects from economic and market turmoil in Turkey and other vulnerable emerging markets; (ii) unanticipated and faster-than-expected tightening in US monetary policy, an accelerated unwinding of the Federal Reserve's (Fed) balance sheet, further US tax cuts, a misalignment between US fiscal and monetary policy, and continued US dollar liquidity shortages; (iii) low domestic economic growth owing to a possible weaker global economy and policy uncertainty which would give rise to negative domestic sentiment and confidence levels that could spill over to the financial sector and impact on the asset quality and profitability of banks; and (iv) cybersecurity risks related to the disruptive impact of breaches that could result in substantial losses for systemically important financial institutions, especially given the increased level of global interconnectedness.

Other event risks include developments in the investigation of possible accounting irregularities at Steinhoff International Holdings (Steinhoff). Action has already been taken to lower the risk of this event causing systemic instability, including action to strengthen governance, refinance most of the South African subsidiary debt, restructure foreign debt, and dispose of selected assets. The nature and extent of Steinhoff's accounting irregularities has not been fully disclosed, and the company continues to be exposed to significant legal risk.

VBS Mutual Bank (VBS) was placed under curatorship on 11 March 2018 after it experienced increasing liquidity challenges, which culminated in a potential financial stability risk when it failed to settle a payment batch in the South African Multiple Option Settlement (SAMOS) system. A preliminary investigation by the curator revealed evidence of significant fraud and mismanagement by the executive management of VBS and other related parties. The investigator concluded that there is no prospect of resolving VBS and on 29 October 2018, the Prudential Authority (PA) issued on application from the High Court of South Africa, for the final winding-up (liquidation) of VBS.

The Central Bank of Nigeria (CBN) notified MTN Nigeria Communications Limited (MTN Nigeria) that it had to repatriate an amount of US$8.134 billion to the central bank as a result of irregular capital importation certificates issued over the period 2007 to 2015. In addition, the Office of the Nigerian Attorney General had given MTN Nigeria a notice of its intention to recover US$2 billion of taxes relating to the importation of foreign equipment and payments to foreign suppliers since 2008. The CBN also penalised four banks, including the Nigerian banking subsidiary of Standard Bank Group Limited (SBG), relating to MTN Nigeria's foreign exchange remittances and required them to repatriate the funds remitted on MTN Nigeria's behalf. However, the CBN subsequently confirmed that SBG's Nigerian subsidiary would not be debited for the funds remitted on MTN Nigeria's behalf. Any potential impact on the South African financial system arising from this event will depend on the eventual resolution of the matters raised and MTN Group's ability to continue meeting its debt obligations, including those in the South African banking sector. Given the globally interconnected nature of the South African financial system, this could increase systemic risk.

During the reporting period, the SARB conducted another Common Scenario Stress Test to evaluate the resilience of the South African banking sector. Three macroeconomic scenarios, developed by the SARB, were provided to participating banks to perform bottom-up stress tests, while the SARB conducted a top-down stress test to validate the results of the bottom-up stress tests. The SARB concluded that the participating banks were adequately capitalised to withstand several plausible and severe stress scenarios designed to simulate additional credit, market and liquidity risks within the banking sector.

Globally, economic growth has become more uneven, with widening divergences among key advanced economies and increased differentiation among emerging markets. In advanced economies, growth prospects are positive for the US and Japan, but remain fragile in the United Kingdom (UK) and the euro area. Emerging markets have experienced headwinds during the reporting period and are expected to remain vulnerable to an abrupt repricing of assets owing to tighter global financial conditions as well as increased uncertainty in global trade policy. These developments, in addition to the idiosyncratic risks in some emerging markets, could result in persistent currency weakness and portfolio outflows. Given South Africa's high interconnectedness with the global financial system, there could be negative spillovers into the domestic economy and financial system through the trade, financial and investment channels.

South Africa's latest growth forecast, prepared by the SARB, for 2018 has been revised downwards to 0.7% (from 1.2%) and remains unchanged at 1.9% for 2019. Besides being negatively affected by exogenous risks, domestic growth is also vulnerable to internal risks such as structural weaknesses (high unemployment, a low savings rate, and weak governance of state-owned enterprises (SOEs)), fiscal challenges, and uncertainty around policies such as the proposed expropriation of land without compensation. Spillover risk to the financial sector as a whole is evident given the contraction of the manufacturing, trade and government sectors in the second quarter of 2018, as well as the exposure of the banking sector to the real economy.

Like many emerging markets, South Africa was further affected by spillovers from idiosyncratic vulnerabilities emanating from Argentina and Turkey, as concerns over the sovereign debt risk of emerging markets rose. Market losses were particularly severe in those emerging markets with high external funding requirements and weak economic fundamentals. With increased concerns over tighter global financing conditions and US dollar strength, emerging market countries whose debt is mostly denominated in foreign currency with short-term maturities remain relatively more vulnerable. For South Africa, most of its outstanding sovereign debt is denominated in the domestic currency across different maturities. This is in contrast to Argentina, Turkey and others that have high levels of foreign-currency-denominated debt with short-term maturities. Nonetheless, South Africa remains vulnerable to negative sentiment towards emerging markets, given its open and liquid financial markets. This was evident during the sell-offs in global financial markets since April 2018, where the country experienced a widening in its credit default spreads, sharp currency weakness, and substantial portfolio outflows.

In the period under review, the banking sector's capital levels remained well above the minimum regulatory requirement. The increase in impaired advances since January 2018 are largely due to the implementation of International Financial Reporting Standard (IFRS) 9, which requires the implementation of a more forward-looking recognition of credit impairments. There has, however, also been increasing credit stress on the sector's loan portfolios as a result of a strained macroeconomic environment. Furthermore, the sector looks increasingly vulnerable to a repricing of government debt holdings. In the medium term, the sector could also be exposed to new risks depending on whether and how the proposed policy of land expropriation without compensation is implemented.

The affordability of household debt has improved as the debt-service cost for households declined in the second quarter of 2018. However, the household debt-to-income ratio rose to 71.3% during this period. A deterioration in consumer confidence was recorded by the First National Bank / Bureau for Economic Research (FNB/BER) Consumer Confidence Index in the second quarter of 2018, highlighting the increase in value-added tax (VAT) in April 2018 as the main contributing factor.

Annual house price growth continued to moderate as a result of subdued domestic economic conditions and constrained household finances. The FNB/BER Building Confidence Index fell to its lowest level since the third quarter of 2012, and the number of building plans approved for residential buildings in the second quarter of 2018 also recorded a decline.

Rating agencies continue to monitor government debt as a determining factor in fiscal sustainability. Moody's Investors Service (Moody's) recently indicated that the country's weak economic performance in the second quarter of 2018 was expected to aggravate fiscal and monetary challenges. The agency added that the country would need to stabilise its debt levels to prevent a change in its rating outlook from 'stable' to 'negative'. As a percentage of gross domestic product (GDP), government debt has doubled over the past 10 years but remains comfortably below the 70% threshold level identified by the International Monetary Fund (IMF) as high-risk.

The ability of SOEs to roll over their debt and achieve financial consolidation is crucial for financial stability. Government's provision of guarantees to SOE debt remains high, with Eskom being the largest exposure. Eskom has announced, however, that it has met some of its funding requirements for the financial year 2018/19. It remains important to address the remaining governance issues at SOEs as well as the possibility that rising contingent liabilities and the associated liquidity shortfalls could put additional pressure on government finances through the usage of government guarantees.

Despite the weak domestic economic growth and low business confidence levels, corporate profitability improved and growth in corporate deposits accelerated. Credit extended to corporates, however, slowed over the same period. During the period under review, foreign-currency-denominated debt securities held by South African corporates declined to US$8.6 billion in the second quarter of 2018 from US$8.8 billion in the previous quarter, constituting a relatively small portion of total corporate debt securities.

According to the expected default frequency (EDF) measure, over 73% of South African non-financial corporates have a less than 3% probability of not being able to honour their debt obligations in the following year. Despite this relatively positive picture, the distribution of firms' one-year EDFs has shifted since the previous *Financial Stability Review*, with a higher percentage of firms now having higher probabilities of default.

In conclusion, it is clear that both the global and the domestic financial systems have experienced higher levels of economic and financial stress since the publication of the previous edition of the *Financial Stability Review* in May 2018. This view is mainly based on a more uneven recovery in global economic conditions and worsening financial and liquidity conditions, increased emerging market risk aversion, and a challenging domestic economic growth outlook. Despite these challenges, the South African financial system continues to efficiently facilitate financial intermediation and mitigate negative spillovers and disruptions. Overall, the financial sector remains strong and stable, even with some headwinds from a challenging low domestic economic growth environment, persistent fiscal challenges, and increased policy uncertainty. The South African financial sector is also characterised by well-regulated, highly capitalised, liquid and profitable financial institutions, supported by a robust regulatory and financial infrastructure.

Financial stability developments and trends

Economic growth outlook and its potential impact on the financial sector

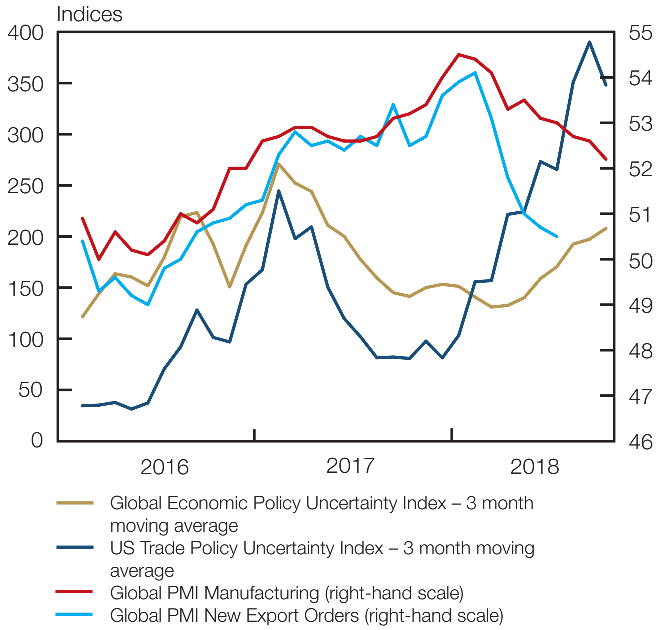
It is generally accepted that a stable financial system provides a foundation for sustainable economic growth. Conversely, developments in the real economy also impact on financial stability. The current low levels of economic growth in South Africa impact on financial stability through higher unemployment and the reduced ability of both households and corporates to service debt, which could affect the profitability of banks and insurers and impact negatively on the asset quality of banks. Extended periods of low economic growth and the associated economic and social hardships adversely impact socio-economic stability and the consensus necessary for effective policymaking, and also place South Africa's sovereign credit rating at risk. It is therefore important to monitor trends in the real economy as well as in the financial sector to assess possible spillovers that may be systemic in nature and could affect the stability of the financial system as a whole.

The global economic outlook remains uncertain, with potential negative spillover effects on South Africa's growth outlook.

Over the six months under review, there were widening growth divergences between the US and the euro area, as well as uneven growth among the emerging markets. These developments have been attributed to international shocks such as higher oil prices, escalating trade tensions, higher US bond yields, tighter global financial conditions and geopolitical tensions. Increased uncertainty about trade policy in the US is expected to weaken business and financial market sentiment. This could undermine investment and trade, ultimately lowering global productivity levels by disrupting global supply chains and slowing the development of new technologies (Figure 1).

In the US, GDP growth is forecast to remain strong at 2.9% and 2.5% for 2018 and 2019 respectively.[1] Fiscal expansion, combined with strong domestic demand, is expected to support economic activity and further lower unemployment in the short term, which in turn could increase inflation at a faster-than-expected pace.

Figure 1 US policy uncertainty indices and manufacturing measures



Source: Bloomberg

1 International Monetary Fund, *World Economic Outlook Update*, October 2018.

Growth prospects in the euro area are fragile as economic activity unexpectedly slowed in the first half of 2018. Policy inaction and political shocks could lead to wider sovereign spreads, worsening public-debt dynamics and weakening banks' balance sheets. After recording robust annual growth of 2.4% in 2017, euro area growth is expected to slow to 2.0% in 2018, mainly due to lower economic growth in Germany and France during the first half of the year. In Italy, persistent political uncertainty is expected to weigh on domestic demand while the sharp depreciation in the lira is making Turkish banks more vulnerable as a result of high levels of foreign-currency exposure.

Despite the rebound in second-quarter GDP growth rates in the US, Japan and the UK, the rise in global economic uncertainty has cast some doubt over the sustainability of the economic recovery in advanced economies.

Emerging markets are expected to record uneven growth based on idiosyncratic factors.

Emerging markets experienced several challenges over the past year and are expected to record uneven growth due to the aforementioned global shocks and idiosyncratic factors. Key downside risks to growth in emerging markets include vulnerability to tighter global financial conditions, a continued stronger US dollar, weaker emerging market currencies, rising debt levels, and portfolio outflows. In China, growth is expected to slow from 6.9% in 2017 to 6.6% and 6.2% in 2018 and 2019 respectively, mainly owing to financial sector regulatory tightening that aims to slow down credit growth as well as weaker external demand.

In sub-Saharan Africa, the recovery in growth is expected to continue on rising commodity prices and improved prospects for Nigeria.

Domestic economic growth remains fragile, with increased vulnerability to internal and external risks.

Domestically, GDP growth contracted by an annualised 0.7% in the second quarter of 2018 following a revised contraction of 2.6% in the first quarter. Growth remains fragile and vulnerable to both internal and external risks. Externally, a slowdown in the global economy could present major challenges that could adversely affect South Africa's economic performance, mainly through trade and investment channels. Unintended Brexit implications and weak euro area growth could also hurt domestic growth. Furthermore, persistently high oil prices and global trade tensions could also hamper the country's economic recovery.

Internally, although a more favourable political environment has emerged since the end of 2017, structural weaknesses and policy uncertainty remain. Uncertainty around policies such as the proposed expropriation of land without compensation raises concerns about property rights and could affect investor sentiment and thus investment in the economy. The SARB's most recent forecast for growth for 2018 has been revised downwards from 1.2% to 0.7% and has remained unchanged at 1.9% for 2019.[2]

Following the release of weak macroeconomic data in the second quarter of 2018, the spillover risk to the financial sector as a whole is evident given the contraction of the manufacturing, trade and government sectors, which collectively account for around 45% of nominal GDP. Adverse spillover effects from the contraction of these sectors to the banking sector could pose a threat. The Purchasing Managers' Index (PMI) gives insight into manufacturing by analysing new orders, inventories, production, supplier deliveries, and employment. The recent weak PMI figures indicate that manufacturing activity could be affected along with credit to the manufacturing sector, ultimately affecting banks' revenues.

2 South African Reserve Bank, *Monetary policy statement*, 20 September 2018

Financial markets

Global financial markets have experienced high levels of volatility and risk aversion, with emerging markets in particular recording losses across different asset classes.

Risk appetite towards the emerging markets deteriorated during the period under review, reflecting a number of shocks to the global financial system that have had negative consequences for emerging markets in particular. Most critical for emerging markets has been the sharp sell-off in equity, fixed-income and currency markets since April 2018 (Figure 2), owing to a faster-than-expected pace of monetary policy tightening by the Federal Open Market Committee (FOMC) that led to US dollar strength and a subsequent US dollar liquidity shortage. Other global shocks that could impact on risk appetite include the new trade protectionist measures (specifically between the US and its trade partners) and their possible impact on global economic growth and commodity prices, as well as higher oil prices.

While financial conditions were relatively loose in a number of Asian countries and largely accommodative in the euro area, tighter conditions were observed in the US and the UK (Figure 3). In the US, a relatively healthy labour market, higher wage growth, firmer inflation as well as improved sentiment led to the FOMC continuing with its course of monetary policy tightening by not only increasing the target policy rate from near-zero to between 1.25% and 1.50% in 2018, but also starting to decrease the size of its balance sheet.

An unexpected but rapid rise in US interest rates would exacerbate the dollar liquidity shortage in the global economy, resulting in a further tightening of financial conditions.

A key risk facing emerging markets is that a faster-than-expected increase in interest rates could trigger a repricing of risk, resulting in substantial capital outflows from riskier assets or even sudden stops in an extreme scenario. This in turn could result in a disorderly adjustment, particularly in those emerging markets with high external-financing needs.

Looking ahead, any unanticipated developments in the Fed's monetary policy stance that are not fully priced in could influence the value of the US dollar, which is perceived to be a barometer for the changing global liquidity conditions.

Idiosyncratic risks in specific emerging markets had spillover effects on others.

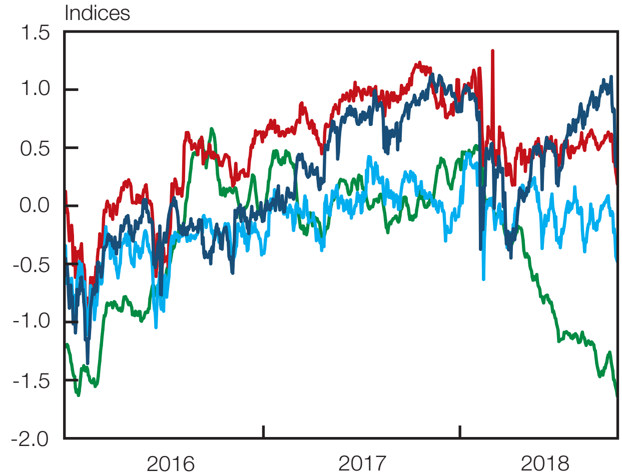
Emerging market financial conditions were further adversely affected by idiosyncratic risks in countries such as Argentina and Turkey. The sell-off in asset markets in Turkey and the sharp depreciation of the Turkish lira in recent months have been driven by political factors as well as a perceived unwillingness or inability of the central bank to address external

Figure 2 Emerging market equity and currency indices and spread

MSCI emerging markets equity index
MSCI emerging markets currency index
JPM EMBI spread (right-hand scale)

Source: Bloomberg

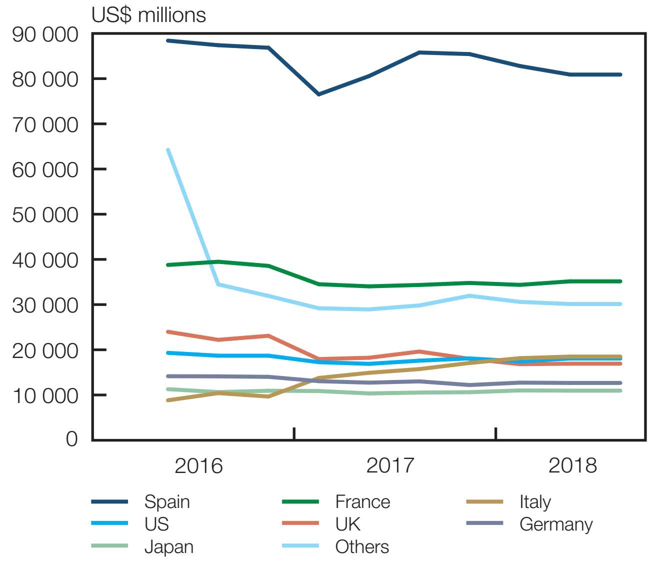
Figure 3 Financial market conditions in the US, Asia, EU and UK



UK Financial Conditions Index
US Financial Conditions Index
EU Financial Conditions Index
Asia, excluding the Japan Financial Conditions Index

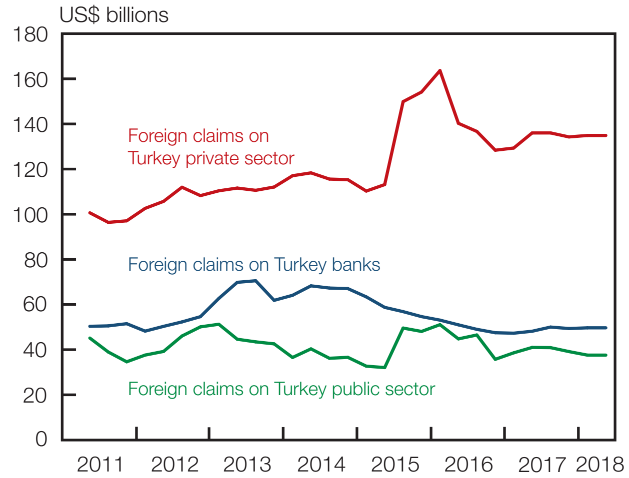
Source: Bloomberg

Figure 4 Total foreign banks' exposure to Turkey's financial system



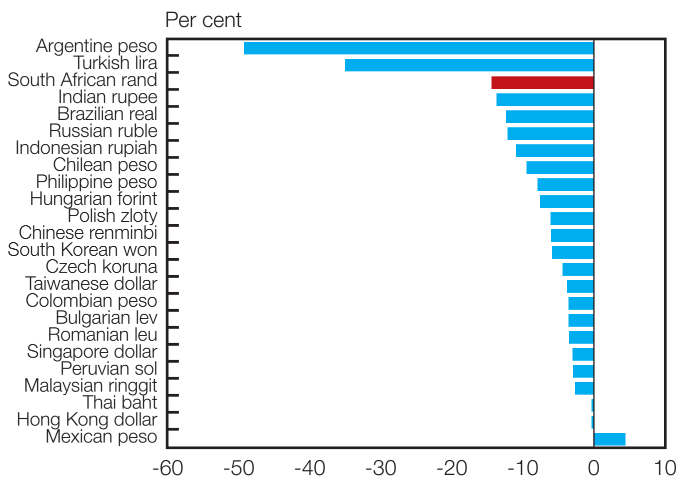
Source: BIS

Figure 5 Sectoral breakdown of foreign claims on Turkey's financial system



Source: BIS

Figure 6 Performance of selected emerging market currencies*



* Emerging market currency spot return percentage (year-to-date) as at 26 September 2018

Source: Bloomberg

vulnerabilities.[3] Similarly, Argentina's central bank was forced to increase its benchmark interest rates three times in 2018 to 60% and sold foreign exchange reserves worth billions in support of the peso, albeit with little success.

The European Central Bank expressed concerns about the risk of Turkish borrowers being exposed to the Turkish lira's weakness and possibly defaulting on foreign-currency loans that make up about 40% of the Turkish banking sector's assets.[4] The sharp depreciation in the lira has also made Turkish banks more vulnerable because of the scale of foreign-currency exposure in Turkey. Total foreign claims on Turkey's financial system stood at US$223 billion in the second quarter of 2018, with Spanish banks having the highest exposure to Turkish debt, equalling US$80 billion worth of claims. Banks in France and Italy have exposures of US$35 billion and US$30 billion respectively (Figure 4).

A sectoral breakdown of the foreign claims on Turkey's financial system indicates that the largest exposure resides in the country's private sector, with a total value of US$136 billion, compared to US$49 billion and US$37 billion for banks and the public sector respectively (Figure 5). From a financial stability perspective, these large exposures have created high default risks to international creditors who have lent to Turkish borrowers.

In the year to 26 September 2018, the Argentine peso, the Brazilian real, the Turkish lira, and the South African rand depreciated the most compared to their emerging market peers (Figure 6). In Argentina, President Macri announced new austerity measures and declared an economic emergency in the hope that the IMF would consider a quicker release of its previously agreed US$50 billion bailout loan. Brazil has been plagued by a contraction in economic growth since 2015, a high debt-to-GDP ratio of 74%, and a budget deficit of 7.8%. Country differentiation is becoming increasingly important as investors assess the economic fundamentals and political circumstances of vulnerable emerging markets against a backdrop of rising global uncertainty and heightened levels of volatility and risk aversion.

The contagion effects have been particularly severe on those emerging markets with high external funding requirements and weak economic fundamentals. This was particularly evident in the credit default swap spreads[5] that widened in most emerging markets (Figure 7) as well as the high levels of portfolio outflows (Figure 8), with South Africa being one of the most affected countries.

3 Why are currency markets so worried about Argentina?, *Financial Times*, August 2018, available at https://www.ft.com/content/2bad9bbc-aca6-11e8-94bd-cba20d67390c?segmentId=b348cbb8-e1d8-c16f-c0bc-d70f5303573e

4 ECB concerns grow over EU banks' Turkey exposure as lira slides, *Financial Times*, August 2010, available at https://www.ft.com/content/51311230-9be7-11e8-9702-5946bae86e6d

5 Credit default swaps (CDSs) are a type of credit derivatives in which the credit exposure of a loan or a fixed income security is transferred to the swap counterparty for a fee. The buyer of the CDS is protected from the risk of the loan defaulting. The fees, or the "spread", is the annual amount that the protection buyer must pay to the protection seller for the entire duration of the CDS contract. The spread is calculated as a percentage of the nominal amount. No payment is made if the reference entity on which the protection was bought does not default or if the CDS expires.

South Africa's US dollar bond yield spread has moved in tandem with Brazil's while those of Argentina and Turkey have widened substantially more in recent months (Figure 9). Argentina and Turkey are facing more serious challenges, given that approximately 66% and 52% respectively of their sovereign debt is denominated in US dollars.[6] This is a significant source of vulnerability for these countries, as the sharp and sustained depreciation in both currencies, in the face of further US dollar strength, has made the repayment of this dollar-denominated debt burdensome. Furthermore, there is a strong likelihood of a worsening in these countries' total debt burdens.

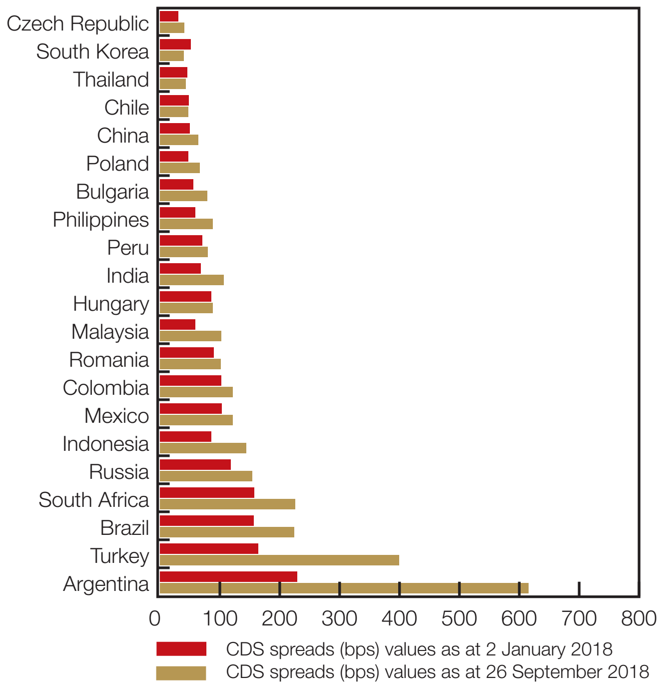
South Africa is less exposed to foreign-currency debt than most other emerging markets.

South Africa's sovereign debt dynamics have deteriorated over the years, owing largely to persistently low GDP growth, persistent spending growth, ever-higher debt-service costs, and lower tax revenue. Public debt has risen from 30% of GDP in 2008 to 53% in the current 2018/19 fiscal year.[7] Both financial and non-financial corporate debt as a percentage of GDP has also increased. Overall, however, South Africa's debt levels have generally been in line with emerging market averages, although they have been increasing at a faster rate in recent years (Figure 10).

South Africa's level of foreign-currency-denominated debt (as a percentage of GDP) has been stable between 2009 and 2018, and is relatively low compared to other emerging markets. Among emerging markets, the country with the highest foreign-currency-denominated sovereign debt (as a percentage of total debt) is Argentina, while China, India, Singapore and Thailand have very low or no foreign-currency-denominated sovereign debt. Turkey's foreign-currency-denominated debt as a percentage of GDP has risen substantially in recent years.

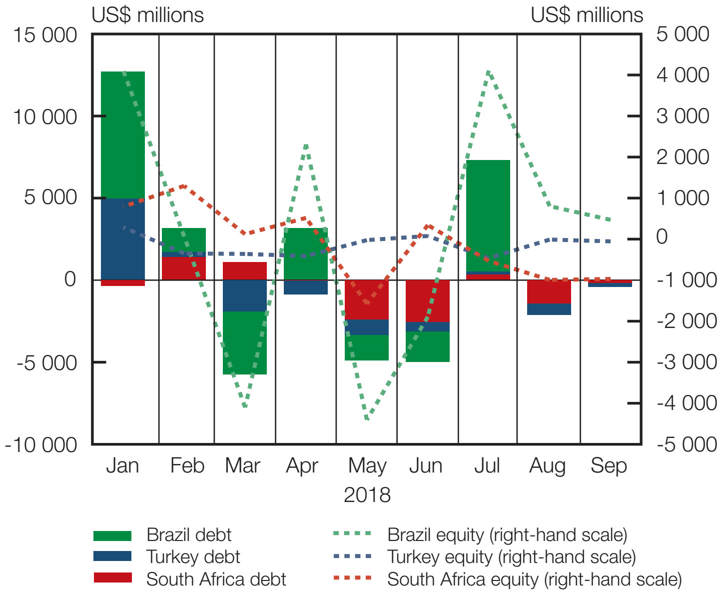
Most of South Africa's total outstanding debt (about 90%) is denominated in the domestic currency across different maturities (Figure 11). This is in contrast to Argentina, Turkey and others, whose debt is mostly foreign-currency-denominated with short-term maturities, making them more susceptible to tighter global financing conditions and US dollar strength. Additionally, South Africa's corporate sector, including the domestic banks, is well-capitalised, with limited foreign-debt exposure. From a financial stability perspective, South Africa's low levels of foreign-currency-denominated debt and long-term maturities pose limited risks to financial stability in terms of debt repayments. However, with its deep and liquid financial markets, South Africa remains vulnerable to spillover effects from negative sentiment towards emerging markets.

Figure 7 Credit default swaps in emerging market countries



Source: Bloomberg

Figure 8 Portfolio flows of selected emerging markets

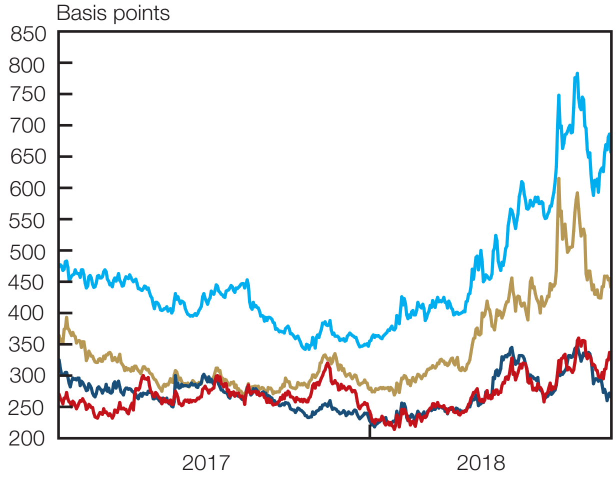


Source: IIF

6 According to data compiled by Bloomberg as at 13 September 2018

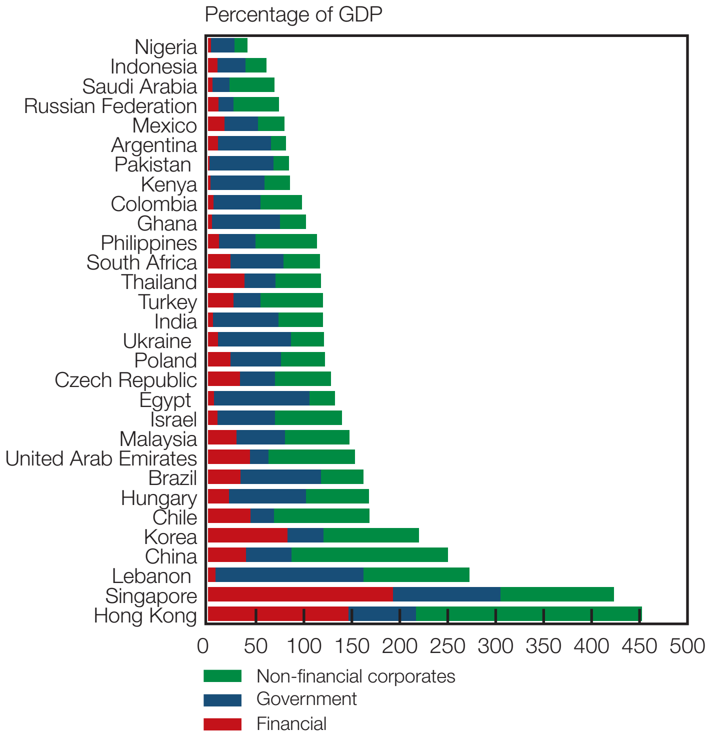
7 National Treasury forecast for the 2018/19 fiscal year

Figure 9 Sovereign bond spreads of selected emerging market countries



Source: Bloomberg

Figure 10 Corporate and sovereign debt of emerging markets



Source: IIF

South Africa's net international investment position compares favourably with most other emerging market peers

Despite South Africa running twin deficits in recent years, the nominal (rand) value of its net international investment position (NIIP)[8] has been positive (over 12% since December 2015), reflecting larger external assets (149% of GDP) than liabilities (137% of GDP). This compares favourably with other emerging markets such as Brazil, Chile, Colombia, Hungary, India, Indonesia, Mexico, Peru, Poland, Thailand and Turkey that have recorded negative NIIPs since 2013 (Figure 12).

According to the IMF, however, positive NIIPs should be interpreted with caution.[9] Despite having a positive NIIP with substantial assets, South Africa relies on a net foreign direct investment position which may be susceptible to sudden valuation changes, given its less liquid nature. The long-term effect of a sustained positive NIIP should support the outlook for the rand.

Financial institutions

Banking sector

The banking sector's preparedness for and implementation of IFRS 9 has been addressed in the Bank Supervision Department (BSD) annual reports for 2016 and 2017, the first editions of the *Financial Stability Review* for 2017 and 2018, and the *Quarterly Bulletin* published in June 2018. A continued analysis of the impact of the implementation is important in light of the significant increase in impaired advances reported by the sector since January 2018, against a challenging macroeconomic environment that is likely to elevate the sector's credit risk.

The continued increase in impaired advances since January 2018 is largely attributable to the implementation of IFRS 9.

A key indicator of credit risk in the banking sector is the ratio of total impaired advances[10] as a percentage of total gross loans and advances. For the South African banking sector, this ratio continued to increase from 2.84% in December 2017 to 3.58% in July 2018. However, the 29% (R31.8 billion) increase in impaired advances since January 2018 could largely be attributable to the implementation of IFRS 9 (Figure 13). This is because IFRS 9 uses an expected credit loss model which requires the forward-looking recognition of credit impairments, as opposed to the International Accounting Standard (IAS) 39

8 Assets and liabilities are recorded in value terms using the exchange rates and market prices at the end of the reporting period. A negative net international investment position (NIIP) indicates that the domestic sectors in South Africa are indebted to non-residents and vice versa, whereas a positive NIIP reflects an external creditor position of South Africa towards the rest of the world.

9 International Monetary Fund (IMF), *Country Report No. 18/247: South Africa selected issues*, July 2018.

10 Impaired advances are advances in respect of which banks have raised a specific impairment and includes any advance or restructured credit exposures subject to amended terms, conditions and/or concessions that are not formalised in writing.

model used previously. It is important to note, however, that the sector's increase in specific credit impairments (or provisions) has been higher than the increase in its impaired advances in order to account for the rise in impaired advances. This is shown by the increase in the coverage ratio[11] from 42.59 times in December 2017 to 43.94 times in July 2018.

There has been a gradual upward trend in default ratios since the beginning of 2018, indicating a marginal increase in credit risk.

An alternative indicator of credit risk in the banking sector, the 90-days-overdue ratio[12], increased marginally from 1.94% in the last quarter of 2017 to 2.07% over the six months to June 2018 (Figure 14). The default ratios for internal ratings-based portfolios[13] also rose from 2.50% in December 2017 to 2.84% in July 2018. This increase in default exposures is indicative of increasing credit stress in the vehicle and asset finance portfolios. There has been no significant upward trend, however, in past due exposures[14] since December 2017. In general, analysis of the indicators is mixed, as the 90-days-overdue and default ratios indicate a marginal increase in credit risk while the past due ratio is not reflective of credit stress.

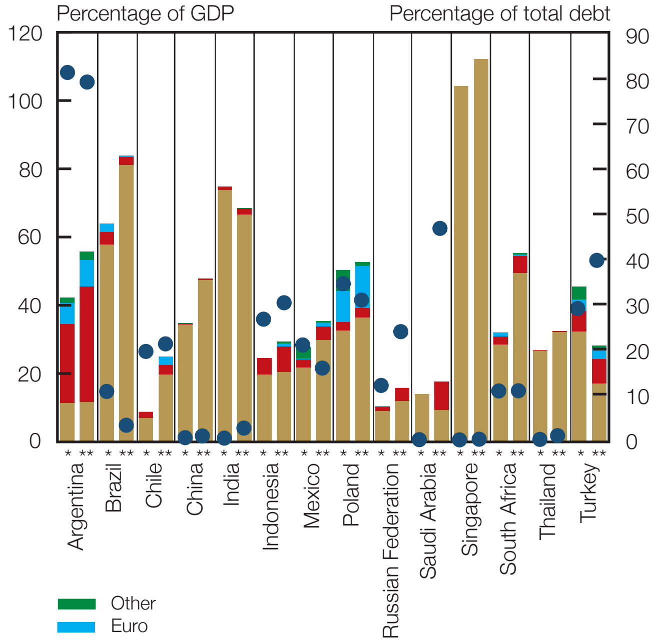
Structure of the banking sector's assets

The majority of the banking sector's assets consists of loans and advances. The sector's loans and advances, as a percentage of total assets, increased gradually from 73.92% in July 2009 to a peak of 76.67% in June 2014 before declining in each subsequent year to reach 72.99% in July 2018.

The composition of the banking sector's assets has changed recently, with declining loans and advances alongside increasing government debt securities, but this is not materially affecting the sector's return on capital.

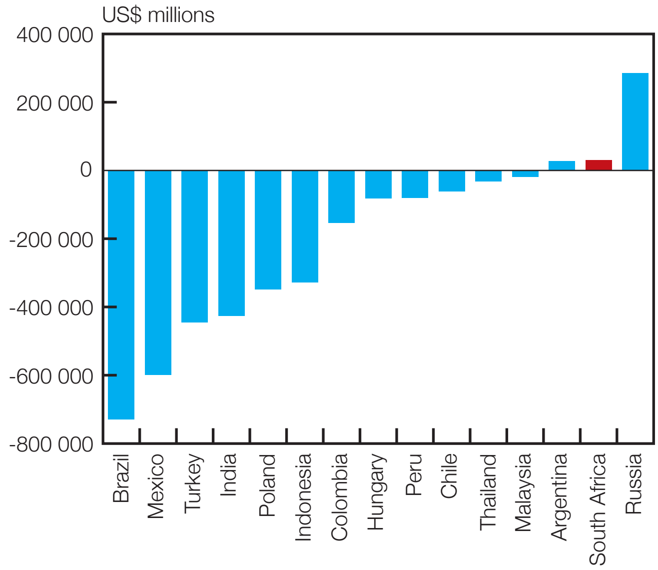
The decline in loans and advances since 2014 is also reflected in the growth rates of total assets as well as loans and advances (Figure 15). For the most part since 2015, total asset growth has exceeded the growth of loans and advances (the largest asset category on the sector's balance sheet). This trend becomes more evident when the volatile effect of derivatives is excluded

Figure 11 Emerging market levels of foreign-denominated sovereign debt



* 2009
** 2018
Source: IIF

Figure 12 South Africa's net international investment position versus other emerging markets



Source: IMF

11 The coverage ratio is the ratio of specific credit impairments as a percentage of impaired advances. This indicates the amount to which impaired advances are provided for by specific credit impairments (or provisions).

12 The 90-days-overdue ratio is all the exposures overdue for more than 90 days as a percentage of on-balance-sheet exposures.

13 Defaulted exposures are reported by the six banks that are authorised to use the internal ratings-based (IRB) approach to calculate their minimum regulatory capital for credit risk. The default ratio is the defaulted exposures as a percentage of total exposure at default.

14 An increase in exposures overdue for more than 60 days but less than 90 days, sometimes referred to as past due, can be an indication of increasing credit risk in a loan portfolio. The past due ratio is calculated as exposures greater than 60 days but less than or equal to 90 days, as a percentage of total on-balance-sheet exposure.

Figure 13 Impaired advances in the South African banking sector

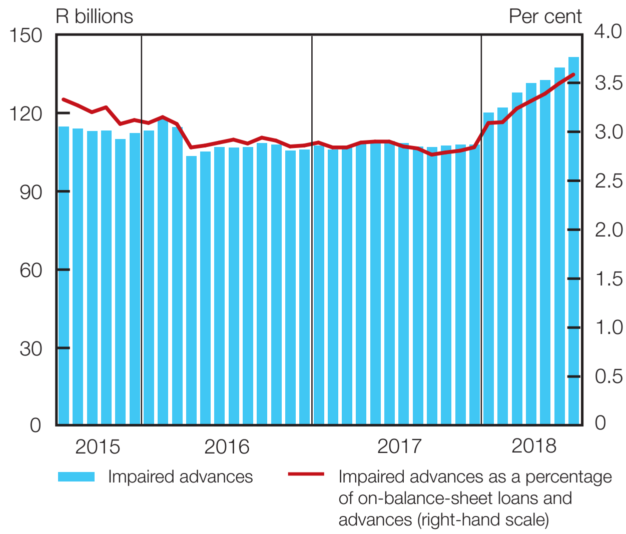


Figure 14 90-days-overdue and past due ratios (all portfolios) and default exposures (IRB portfolios)

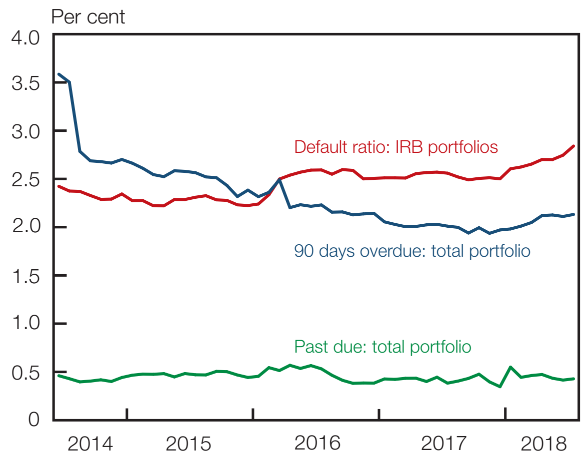
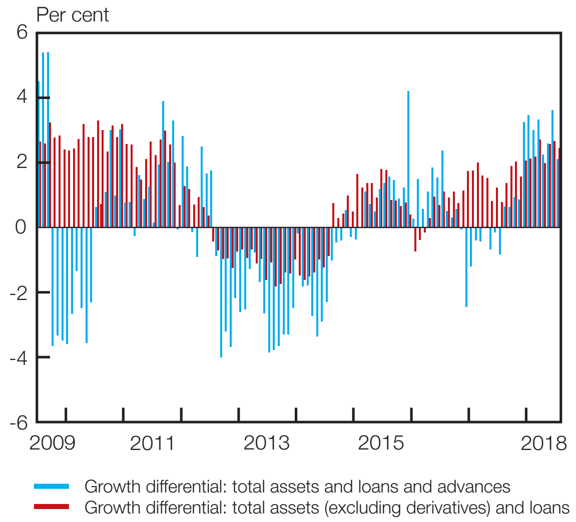


Figure 15 Growth differential between total assets and loans



from total assets. This implies that the sector has a higher rate of investment in assets other than loans and advances. Should this trend continue, it would be indicative of a potential structural shift in the banking sector's balance sheet, such that assets other than loans and advances would now constitute a higher proportion of the banking sector's balance sheet. Such a shift would have implications for the sector's profitability, as the return on other assets is different to that of loans and advances (also see Figure 16).

Furthermore, the asset composition of the banking sector has changed since 2014, with reduced exposure to loans and advances as well as derivatives, but increased exposure to investment and trading securities and other assets (Table 1).

Table 1 Change in the composition of assets, 2014 – 2018

Asset category (as a percentage of total assets)	Average for 12 months to July 2014 %	Average for 12 months to July 2018 %	Difference %
Loans and advances	75.65	73.16	-2.49
Derivatives	5.67	4.41	-1.26
Investment and trading securities	6.85	9.82	2.97
Other assets	3.88	4.53	0.65
Short term negotiable securities	5.43	5.44	0.01
Cash or near cash	2.52	2.64	0.12

With the implementation of the Basel III liquidity coverage ratio (LCR) in January 2015 and the net stable funding ratio (NSFR) in January 2018, the South African banking sector has been increasing its exposure to rand-denominated government debt securities.[15] Government debt securities meet the LCR criteria for high-quality liquid assets (HQLA) of being easily and quickly convertible into cash in private markets to meet a bank's liquidity needs for a 30-day calendar period.[16] Since June 2014, the average return on government debt securities (8.76%)[17] has been slightly higher than the average return on gross loans and advances (8.49%) (Figure 16). This implies that the increased holdings of government debt securities are not materially affecting the sector's return on capital.

15 The first edition of the *Financial Stability Review* of 2018 highlighted the continued increase in unencumbered high-quality liquid assets, specifically rand-denominated government debt securities, held by the banking sector.

16 Basel Committee on Banking Supervision (Bank for International Settlements'). *Guidance for Supervisors on market-Based indicators of liquidity*, January 2014.

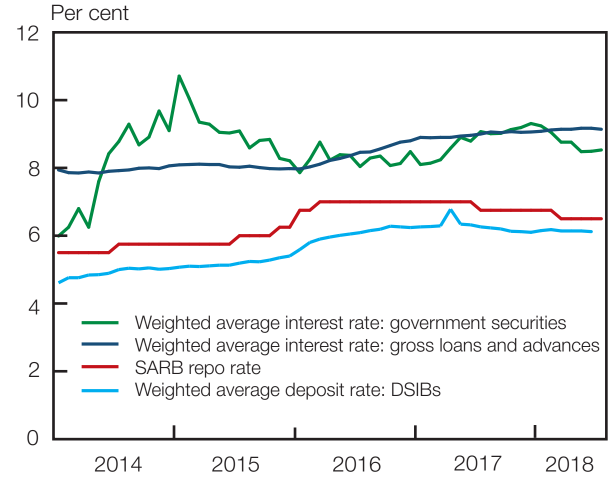
17 The average return on government debt securities is calculated from regulatory data as the sum of interest received from government and other dated securities for the last 12 months as a percentage of the average government and government guaranteed securities held for the last 12 months.

The banking sector's sovereign exposure is increasing after the implementation of Basel III liquidity regulation and could expose the sector to risk in the event of sovereign distress.

From a risk perspective, the increasing interlinkages between the banking sector and government expose the sector to risk due to sovereign distress. Following the European sovereign debt crisis in 2010, there has been increased international recognition of risks to the banking sector emanating from the sovereign.

A potential sovereign shock could give rise to financial stability concerns via increased government debt securities held by the banking sector. The potential shock could be triggered by, for example, negative foreign investor sentiment towards South African sovereign credit risk, resulting in large foreign capital outflows, leading in turn to increased sovereign bond yields and a related decline in the value of the sector's government debt holdings. A severe decline in asset values could result in an impairment in capital. Furthermore, debt securities could be used as collateral in derivative transactions, resulting in increased margin calls between derivative counterparties.

Figure 16 Weighted average interest rate on government securities and gross loans and advances



Exposure to mortgage loans

Mortgages form a large part of the sector's lending portfolio. Although the mortgage market is currently subdued, from a risk perspective, this type of lending exposes the sector to significant credit risk because of its long tenors and the large value of loans. The risk is mitigated by collateral over its underlying property. Depending on whether and how the proposed policy of land expropriation without compensation is implemented, it could weaken the underlying security, thereby increasing the credit risk of this exposure.

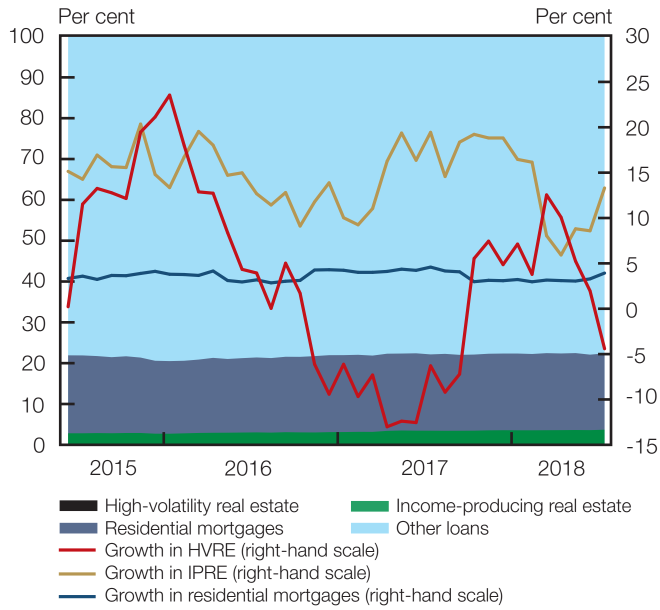
The banking sector has significant total gross credit exposure to residential mortgages.

Gross credit exposure to residential mortgage advances as at July 2018 has remained relatively unchanged at 18.7% of total gross credit exposure since June 2015 (Figure 17). The average growth rate of residential mortgage gross credit exposure during the first seven months of 2018 amounted to 3.24%, slightly less than the average growth rates for 2015 (3.64%), 2016 (3.52%) and 2017 (3.92%).

Gross credit exposure to high-volatility real estate (HVRE) property development for the three years to July 2018 amounted to less than 1% of total gross credit exposure (0.16%). The average gross credit exposure to income-producing real estate (IPRE) increased from 2.67% in 2015 to 3.45% for the first seven months of 2018, although the growth rates have trended downwards (from 16.11% during 2015 to 11.04% during 2018).

During July 2018, the banking sector's gross credit exposure to residential mortgage advances of R1.15 trillion consisted of R959 billion on-balance-sheet exposure and R193 billion off-balance-sheet exposure. The sector's gross credit exposure to HVRE amounted to almost R8 billion and R220 billion to IPRE (which consisted mostly of on-balance-sheet exposure of R199 billion).

Figure 17 Composition and growth in credit exposure to mortgages

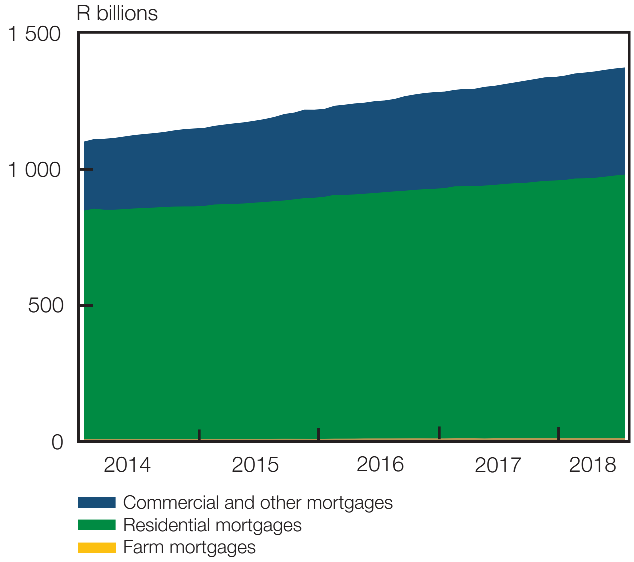


Most mortgages are to the household and commercial sectors

The majority of on-balance-sheet mortgages advanced is residential mortgages to households (Figure 18). Other than household residential mortgages, the sector has significant commercial mortgage exposure to the private non-financial sector as well as residential mortgages to corporates. Most mortgages have been advanced to the domestic residential and commercial sectors.

In summary, the potential risks to financial stability emanating from the banking sector over the next 12 months that form part of the SARB's financial stability monitoring framework include the continued impact of the implementation of IFRS 9 on the sector's regulatory capital and reserves, increasing credit stress on the sector's loan portfolios (as a result of a strained macroeconomic environment), and the sector's vulnerability to a repricing of government debt holdings triggered by exogenous factors such as sudden portfolio outflows or an abrupt repricing of global interest rates. In the medium term, the sector could also be exposed to risk depending on whether and how the proposed policy of land expropriation without compensation is implemented.[18]

Figure 18 Mortgages by type and sector



During 2018, the SARB conducted a Common Scenario Stress Test aimed at evaluating the resilience of the South African banking sector. Three macroeconomic scenarios, developed by the SARB, were provided to participating banks to perform bottom-up stress tests, while the SARB conducted a top-down stress test to validate the results of the bottom-up stress tests. The SARB found that the participating banks were adequately capitalised to withstand several plausible and severe stress scenarios, designed to simulate additional credit, market and liquidity risks within the banking sector (see Article 1: The 2018 Common Scenario Stress Test of South African banks conducted by the South African Reserve Bank, page 42).

Cybersecurity threats to the banking system

Cyberattacks pose a significant risk to the financial system and can result in substantial losses to financial institutions, eroding profits and potentially threatening financial stability by, for example, affecting the solvency and/or reputation of a systemically important financial institution. There were 13 438 online incidents during 2017, amounting to more than R250 million in gross losses. Gross losses increased by 7% during the first eight months of 2018 when compared to the same period in 2017.[19]

Financial institutions are attractive targets because of their crucial role in intermediating funds and their access to capital. A successful cyberattack on one institution could spread rapidly through a highly interconnected financial system such as the South African financial system, where the system is only as strong as its weakest link. Such attacks can have direct material consequences through financial losses as well as

18 See the 'Report on financial stability' in the 2017/18 South African Reserve Bank annual report.

19 See https://www.sabric.co.za/media-and-news/posts/digital-banking-crime-statistics/

indirect costs such as a diminished reputation. Cyberattacks on the financial system often relate to ransomware and those that target critical infrastructure and strategic industries. An ever-increasing world interconnectedness elevates vulnerability to cyberattacks that may cause not only isolated and temporary disruptions, but radical systemic shocks.

The impact of cyberattacks could take the form of corporate security breaches and disruptions of business operating systems, leading to work stoppages and the payment of significant ransoms. Cyberattacks could also compromise crucial financial market infrastructures, such as the national payments system and financial markets trading platforms. Successful cyberattacks result in potentially high replacement costs and falling profitability, with a negative impact on the balance sheets of financial institutions. Therefore, the financial industry should strive to have cybersecurity and cyber-resilience practices and strategies in place that are agile and responsive to emerging cyberspace activities and developments. Concerted efforts are needed to understand how to strengthen the cyber-resilience of financial institutions and infrastructures, both to reduce the odds of a successful cyberattack but also to facilitate a smooth and rapid recovery. A strengthening of the regulatory and supervisory framework for cyber-risk is needed, and efforts should focus on effective supervisory practices, realistic vulnerability and recovery testing, and contingency planning.

Cyber-resilient financial market infrastructures and financial institutions strengthen the resilience of the whole financial system. The SARB continues to encourage a collaborative effort in the financial services industry to address and continually build cyber-resilience. During 2016, the SARB's BSD made cybersecurity a 'flavour of the year' topic for the banking sector to encourage banks' governance structures to focus on cybersecurity. It noted that, although banks had made a concerted effort to improve their cybersecurity governance frameworks, continued vigilance and improvements were required.

In 2017, the BSD requested banks to assess the adequacy and robustness of their current policies, practices and processes against the Committee on Payments and Market Infrastructures–International Organization of Securities Commissions (CPMI-IOSCO) cyber-resilience guidance principles, and noted that it would review banks' processes on a continual basis to assess their appropriateness.[20] The SARB has also hosted two cybersecurity conferences to encourage the financial services industry to create a platform for sharing experiences from both global and local stakeholders, with the objective of creating awareness and a common understanding of fundamental issues. Furthermore, the SARB has established the Financial Sector Contingency Forum (FSCF) in which all the major sector stakeholders are represented and which has the responsibility to put contingency plans in place for cyberattacks.

20 See the South African Reserve Bank's Bank Supervision Department Guidance Note 4 of 2017

Update on financial stability risks

The SARB regularly assesses the risks to financial stability in the next 12 months, with a view to identifying and mitigating any risks and/or vulnerabilities in the domestic financial system. Potential threats to financial stability are identified and rated according to the likelihood of their occurrence as well as their expected impact on the domestic financial system. The identified risks are classified as 'high', 'medium' or 'low' in terms of both the likelihood of each risk materialising and its possible impact on financial stability.

Table 2 Risk assessment matrix*

Nature and source of risk	Expected impact on financial stability in South Africa
Weaker global economic growth	
Likelihood: Medium • Uneven global growth recovery • Interrupted recovery in the US and a slowdown in the euro area • Brexit issues • Emerging markets faced with low commodity prices, higher bond yields in the US and dollar appreciation • Escalating trade tensions • Turmoil in Turkey spreads to other emerging markets	Impact: Medium • Lower external demand for SA exports • Lower domestic economic growth • Weak fundamentals weigh on sovereign and corporate credit ratings • Higher unemployment hamper debt servicing, increasing funding costs and credit risk of financial and non-financial sectors
Faster than expected tightening of global financial conditions	
Likelihood: Medium • Unanticipated tightening in US monetary policy and accelerated unwinding of its balance sheet • Further US tax cuts • Misalignment between US fiscal and monetary policies • Appreciating US dollar • US dollar liquidity shortages • Contagion effects of turmoil in Turkey	Impact: High • Repricing of risk • Capital outflows increase • Exchange rate depreciation, lower investment and domestic growth, slowing credit growth, increasing unemployment, rising debt levels and deteriorating asset quality of banks
Lower domestic economic growth	
Likelihood: High • Weak global economic recovery • Uncertainty about land expropriation raises uncertainty about property rights – could affect investor sentiment • Governance issues in SOEs and possible bail-outs exacerbate fiscal financial burden • Consumption expenditure constrained by VAT increase and high petrol prices	Impact: Medium • Protracted period of low economic growth, deteriorating fiscal position, rising debt levels, ratings downgrade triggering capital outflows, financial institutions could lose collateral, deteriorating asset quality in banks, lower private sector credit extension
Cybersecurity risks	
Likelihood: Medium • Disruptive impact of breaches that relate to ransomware • Targeting of critical infrastructure and strategic industries • Leaks of confidential market relevant information • Increasing world interconnectedness elevates vulnerability	Impact: High • Corporate security breaches and disruption of business operating systems, work stoppages, large ransoms • Crash of crucial financial infrastructure e.g. financial market trading platforms • High replacement costs, falling profitability, negative impact on balance sheets of financial institutions

* Amplification mechanisms and contagion effects are key for the financial risks identified in Table 2 as well as for other risks identified that are not featured in the risk assessment matrix but are discussed in Box 1 (see page 31).

Non-bank financial institutions

Shadow banking activities in South Africa

Although shadow banking activities that had contributed to the global financial crisis have declined, authorities continue to monitor and address emerging financial stability risks.

The Financial Stability Board (FSB) has found that the components of shadow-banking considered to have contributed to the global financial crisis have declined significantly. Furthermore, the FSB has not identified any new financial stability risks from shadow-banking that would warrant additional regulatory action at the global level. However, since shadow-banking evolves over time, the FSB has recommended that authorities continue to monitor and address emerging financial stability risks.[21] To this end, South Africa will continue to participate in the annual shadow-banking exercise.

Banks' share of financial assets has declined in South Africa since the global financial crisis but has remained relatively stable at around 30% since 2015 (Figure 19). The share of financial assets held by other financial intermediaries in South Africa has increased consistently since the global financial crisis but slowed down to 20.5% at the end of June 2018. Pension funds and insurance companies hold a relatively larger share of total financial assets, with combined financial assets of 32% as at the end of June 2018.

Shadow-banking entities or activities comprise money market funds, multi-asset funds, fixed-income funds, hedge funds, funds of funds, participation bond schemes, finance companies, and securitisation schemes. Similarly to the global narrow measure, pooled investment funds made up the largest portion of shadow-banking measures in South Africa (Figure 20).

Figure 19 Distribution of financial assets between financial intermediaries in South Africa

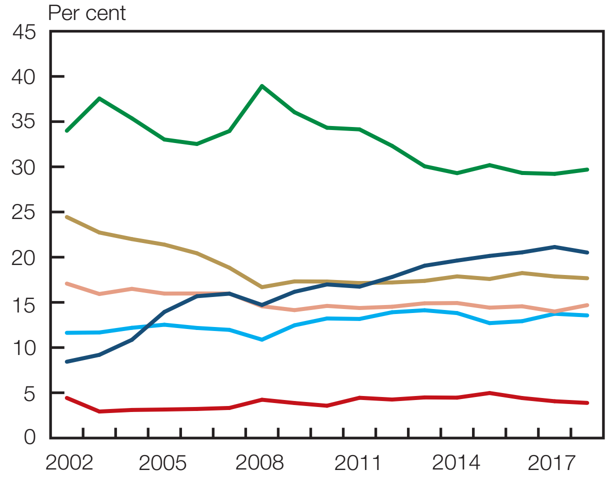
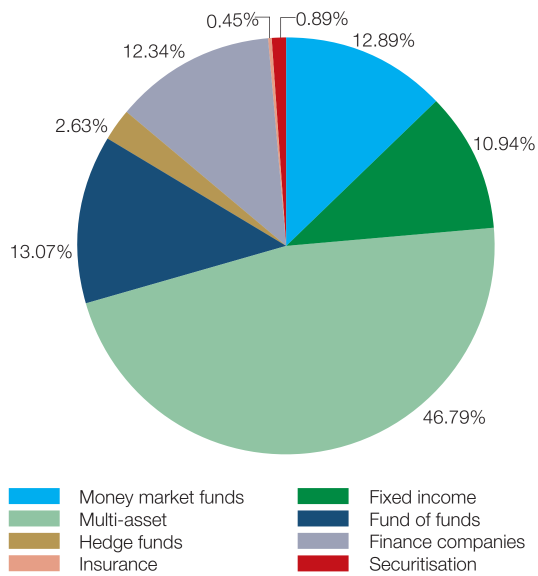


Figure 20 Sub-categories of shadow banking in South Africa in June 2018



Pension and provident funds

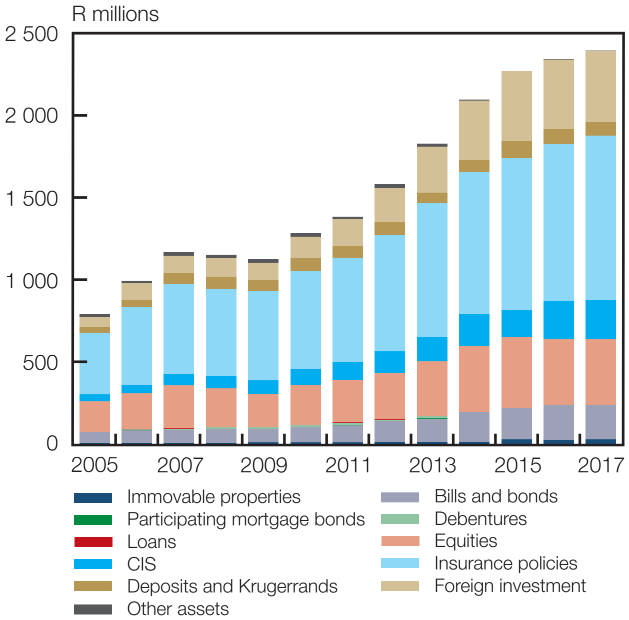
Pension and provident funds play a crucial role in the process of financial intermediation. For example, the holdings of bills and bonds, listed equities, insurance policies and units in collective investment schemes represent an important part of their connectedness with the rest of the financial system and, as such, represent some of the channels through which risks may spread in the system.

The investment allocation of pension funds has remained mostly unchanged. Given the size of its bond holdings, the GEPF could be subject to risks associated with further sovereign credit rating downgrades.

In terms of assets, the size of private self-administered pension funds has been increasing at a slower rate since 2014

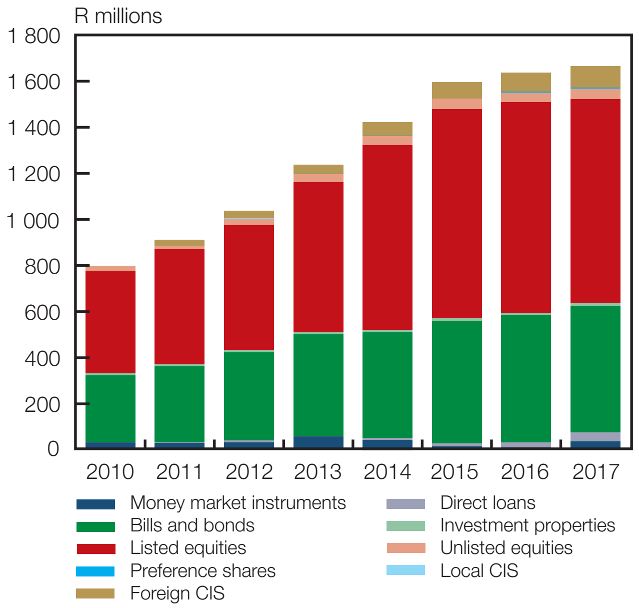
21 See http://www.fsb.org/2017/07/fsb-publishes-assessment-of-shadow-banking-activities-risks-and-the-adequacy-of-policy-tools/

Figure 21 Aggregate assets of private self-administered pension funds



Source: FSCA

Figure 22 Government Employees Pension Fund investment allocation



Source: GEPF

(Figure 21). The biggest share of these funds' investments is held in insurance policies, but this does not represent a financial stability risk as the assets held in terms of these insurance policies are 'marked to market'. In addition, adjustments are made on the liability side of the balance sheets of the defined contribution funds.

The investments of the Government Employees Pension Fund (GEPF) have also been increasing at a slower rate since 2015 (Figure 22). Listed equities and government bonds accounted for the biggest share of the GEPF's investments. Because of the sheer size of their bond holdings, any further sovereign credit rating downgrades to sub-investment grade would result in higher bond yields, which would reduce the asset values of the GEPF. This would imply that a shortfall in the fund would have to be funded by government, adding to its debt burden.

Insurance sector

A well-functioning insurance sector is important for financial stability because insurers are interconnected with financial markets through investment, capital raising and debt-issuance activities. The ability and willingness of insurers to make such investments contributes significantly to the financial soundness of banks and, more broadly, to financial stability. Similarly, insurers also allocate capital to the real economy by investing in the debt securities of industrial companies or through real estate investments. These activities emphasise the importance of a financially sound and stable insurance sector. In turn, investment activities expose insurers to the volatility of the sectors in which they invest.

The operating environment remains challenging, reflected in the decline in premium income growth over the past few years.

Slower economic growth and pressure on consumer spending have constrained the demand for insurance products. This is reflected in the decline in premium income growth over the past few years (Figure 23). A similar trend can be noted in the assets and liabilities of the long-term insurance industry, which is a reflection of a large portion of 'pure linked' business[22] that is underwritten by long-term insurers. Increased financial market volatility, in a context of pressure on emerging markets, heightens the risk to assets and capital of insurers, and places a damper on investment income.

In the six months ended 30 June 2018, there were 73 registered companies in the long-term insurance industry. The financial position of the overall long-term insurance industry continued to be favourable, with its total assets increasing by 7.7% in the six months to June 2018. The asset composition of the overall long-term insurance industry remained mostly unchanged (Figure 24).

The long-term insurance industry's assets exceeded its liabilities by R233.5 billion as at 30 June 2018, which is more than five times the legal reserve buffer required. The legal

22 Linked business is mainly investment business where policyholders are exposed to the investment risks. The liabilities always equal the assets.

reserve buffer, referred to as the industry's capital adequacy requirement, stood at R42.9 billion at the end of June 2018.[23] Overall, the insurance industry has demonstrated financial stability and resilience in a difficult operating environment.

Short-term insurers have a high reliance on investment income, and have had to contend with an increase in extreme weather events.

In the six months to June 2018, the gross premiums written by short-term insurers increased by 5.9% when compared to the six months ending June 2017. At the end of June 2018, motor and property insurance combined made up 74.8% of total gross premiums written in the short-term insurance sector. Underwriting results are volatile and highly dependent on the claims ratio and investment income (Figure 25). The higher-than-usual underwriting profit in June 2018 was as a result of a refund received by one major insurer from its reinsurer.

One of the biggest factors affecting the short-term insurance industry has been an increase in extreme weather events. In South Africa, there were three main catastrophic events over the past 18 months, namely the fires in Knysna, the drought in the Western Cape, and the storms in Gauteng and KwaZulu-Natal. The Knysna fires in June 2017 were the costliest insurance event in South Africa's history, destroying hundreds of homes and resulting in payouts amounting to R3.5 billion (US$275 million).[24]

Extreme weather events may be localised, but events in Europe and the US also impact on the price of insurance in South Africa, since all insurers are required to purchase reinsurance, which reflects global rather than local events. According to Aon's *Weather, Climate & Catastrophe Insight 2017*, there were 330 natural catastrophe events globally in 2017 that generated economic losses of US$353 billion, of which 97% were weather-related. Natural catastrophe losses in 2017 were 93% higher than the 2000-2016 average.

The concentration and interconnectedness of insurers is high and could pose systemic risks.

There is a high concentration in both the long- and the short-term insurance industries. The top five long-term insurers account for 73% of the total market share, and the top five short-term insurers account for 47% of the total market share. From a macroprudential perspective, it is extremely important to monitor the performance of these insurers as they could pose systemic risks to the system given the high levels of interconnectedness in the financial sector.

The Solvency Assessment and Management (SAM) regime, which took effect on 1 July 2018, will make insurers' risk management more sophisticated. In particular, SAM's economic capital framework will provide a more accurate reflection of risk for individual insurers and for the sector as a whole. Furthermore, enhanced group and financial conglomerate supervision will capture a more holistic view of risks and concentrations within diversified insurance and financial services groups.

23 Association for Savings and Investment South Africa, September 2018

24 Aon Benfield, Weather, Climate & Catastrophe Insight 2017 Annual Report

Figure 23 Growth indicators of long-term insurers

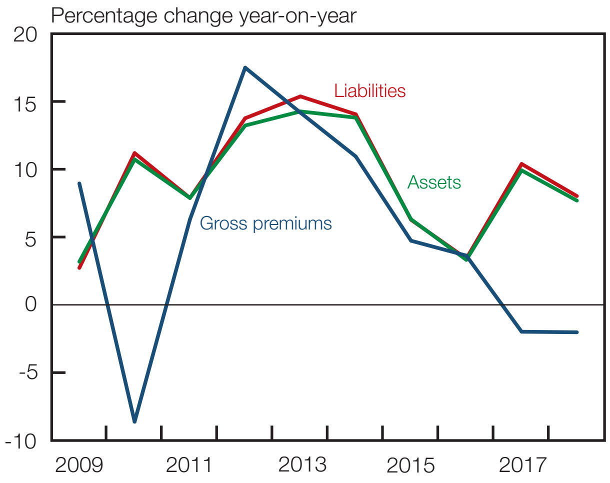


Figure 24 Asset composition of long-term insurers as at 30 June 2018

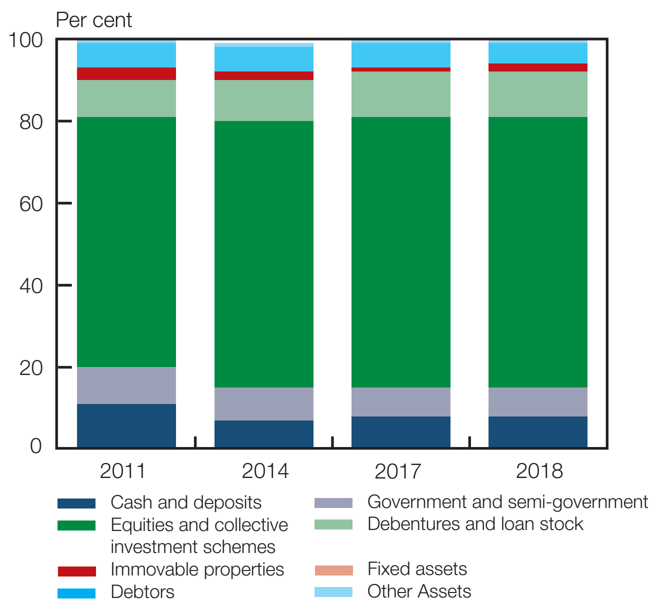
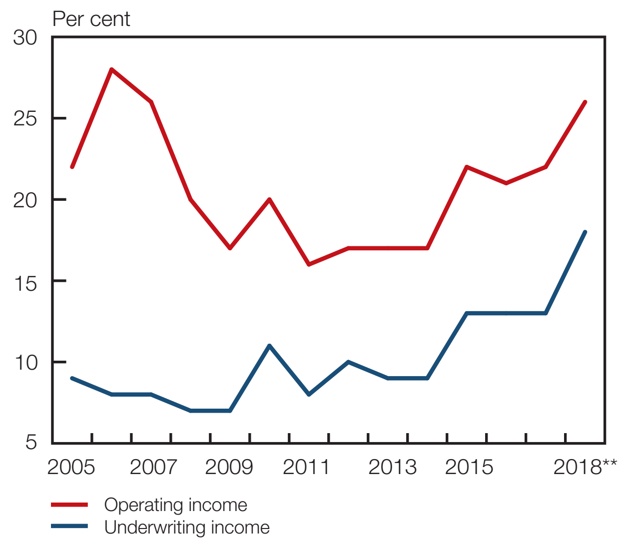


Figure 25 Operating and underwriting results of primary short-term insurers*



* Results expressed as a percentage of net premium
** June 2018

Non-financial corporates

After declining in the second quarter of 2018, business confidence deteriorated further in the third quarter.

After declining in the second quarter of 2018, business confidence deteriorated further in the third quarter (Table 3). This decline in business confidence was largely driven by policy uncertainty, persistent concerns about the country's broad policy direction as well as fears of rising inflation and possible higher interest rates following the recent weakness in emerging market currencies. Wholesale traders' confidence deteriorated the most, to 49 index points from 62 index points. Manufacturers' confidence also deteriorated, owing largely to weakening domestic demand and lower export sales volumes. Given the high correlation between business confidence and investment, an ongoing deterioration in confidence could weigh further on corporate investment in the real economy, with negative implications for economic growth.

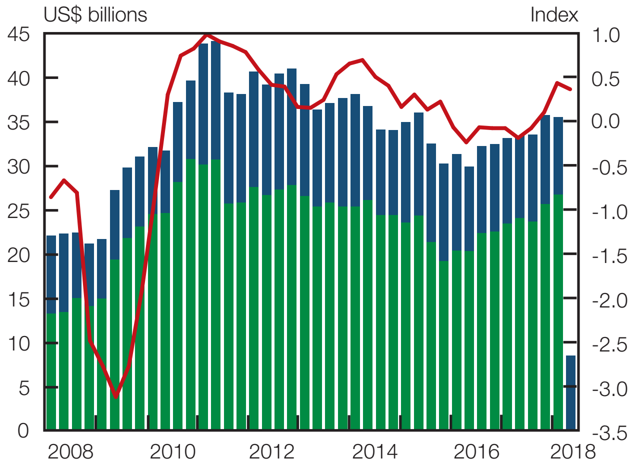
Table 3 Business confidence index*

Indices	2017		2018		
	3rd qr	4th qr	1st qr	2nd qr	3rd qr
Business confidence index	35.0	34.0	45.0	39.0	38.0
New vehicle dealers' confidence	19.0	32.0	52.0	35.0	41.0
Retail traders' confidence	38.0	29.0	42.0	33.0	33.0
Wholesale traders' confidence	48.0	51.0	53.0	62.0	49.0
Building contractors' confidence	44.0	34.0	41.0	37.0	45.0
Manufacturers' confidence	27.0	24.0	37.0	27.0	21.0

* The business confidence index, is measured on a scale of 0 to 100, where 0 indicates an 'extreme lack of confidence', 50 is 'neutral', and 100 signifies 'extreme confidence'.

Source: BER (Stellenbosch University)

Figure 26 Non-financial corporates' domestic debt securities, international debt securities and the Experian Business Debt Index*



* For the Experian Business Debt Index, 0 is the base, >0 indicates improving business conditions and <0 shows deteriorating business conditions.

Sources: BIS (debt securities statistics) and Econometrix

Non-financial corporate profitability improved, despite a weak economic growth and business confidence environment.

Despite the current environment of low economic growth and business confidence, profitability in the sector increased by 6.4% year on year in the second quarter of 2018 from a 3.5% decrease in the previous quarter (Table 4). Growth in corporate deposits accelerated to 5.8% year on year in the second quarter of 2018 from 4.0% in the previous quarter. In line with the acceleration in deposits, gross fixed capital formation rose to 2.5% in the second quarter of 2018 compared to 1.7% in the previous quarter. In contrast, however, the low economic growth and business confidence environment continued to weigh on credit extended to corporates, with growth slowing to 6.6% in the second quarter of 2018 from 7.7% in the first quarter.

Table 4 Selected indicators for the non-financial corporate sector

Annual percentage change, unless indicated otherwise

	2017			2018	
	1st qr	2nd qr	3rd qr	1st qr	2nd qr
Bank credit granted*	9.0	7.5	9.2	7.7	6.6
Gross fixed capital formation**	1.0	2.0	3.5	1.7	2.5
Credit as a percentage of GDP	58.9	60.0	61.1	62.7	62.5
Credit as a percentage of annualised profits***	213.5	227.2	241.8	295.5	245.3
Net operating surplus****	9.5	14.8	9.9	-3.5	6.4
Deposits	0.7	3.1	5.4	4.0	5.8

* Bank credit to the corporate sector includes instalment sale and leasing finance, mortgage advances, overdrafts, credit card debtors, and other loans and advances.

** At current prices (seasonally adjusted)

*** Bank credit to the corporate sector and the net operating surpluses of corporations were used as proxies for corporate debt and corporate profits respectively.

**** Gross operating surplus minus depreciation (seasonally adjusted)

US-dollar-denominated non-financial corporate debt remained negligible.

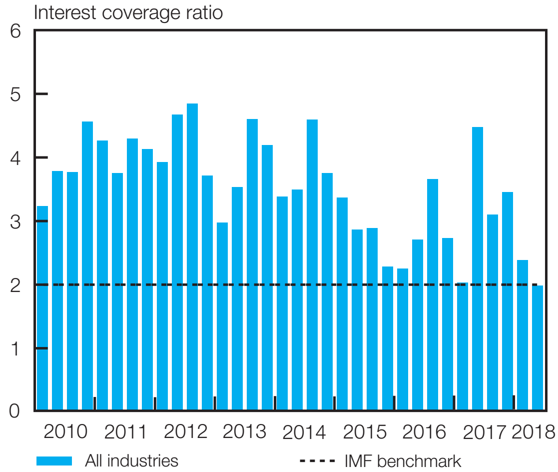
The value of foreign-currency-denominated debt securities issued by domestic corporates declined to US$8.6 billion in the second quarter of 2018 from US$8.8 billion in the previous quarter (Figure 26). The decline was driven by weak investor confidence amid the subdued economic growth environment. US-dollar-denominated debt continued to account for the largest portion of foreign-currency debt by corporates at 76.6% in the second quarter of 2018 (from 74.7% in the previous quarter), followed by euro-denominated debt at 8.7% (from 9.0%). However, this debt continues to constitute a relatively small portion of total corporate debt securities. Additionally, South African corporates tend to use foreign borrowing for offshore expansion. This implies that foreign debt can be serviced using the income generated offshore, creating a natural hedge to currency risk. In this sense, and unlike corporates in some other emerging markets, South African corporates do not appear to be as vulnerable to monetary policy normalisation in the advanced economies.

The non-financial corporate sector's ability to generate cash to service debt has deteriorated.

The interest coverage ratio (ICR) is an estimation of a firm's ability to generate cash flows to finance its interest expenses on outstanding debt by dividing a firm's earnings before interest and taxes (EBIT) by its annual interest expenses. According to the IMF, firms classified as 'weak' are those with incomes that cover interest rate expenses by less than two times (i.e. those with an ICR below 2).

The ICR of the non-financial corporate sector decreased in the second quarter of 2018 to 2.0 from 2.4 in the first quarter of 2018 (Figure 27), owing largely to a decline in EBIT. Business services, electricity, gas and water supply, transport, storage and communications as well as mining and quarrying recorded ICRs below the benchmark of 2 (Figure 28). The electricity, gas and water supply industry continued to be pressured, recording an ICR of less than 1. While South African corporates have managed to generate sufficient cash over the past year to service their

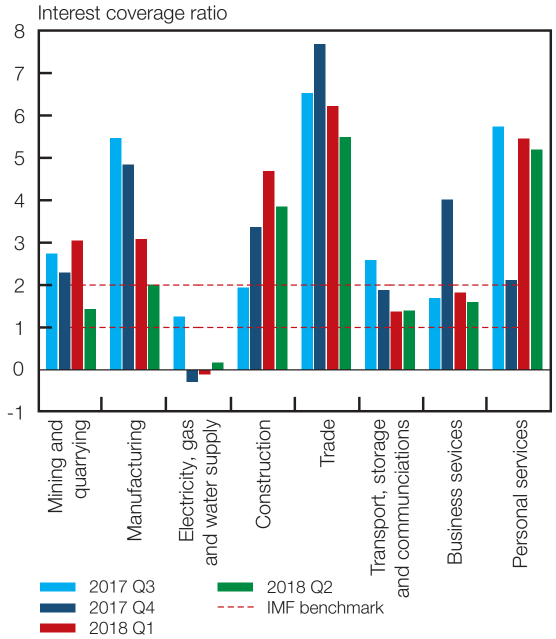
Figure 27 Non-financial corporate sector's aggregate interest coverage ratio*



* Excluding public administration, defence activities and education

Sources: Stats SA, IMF and researchers' computation

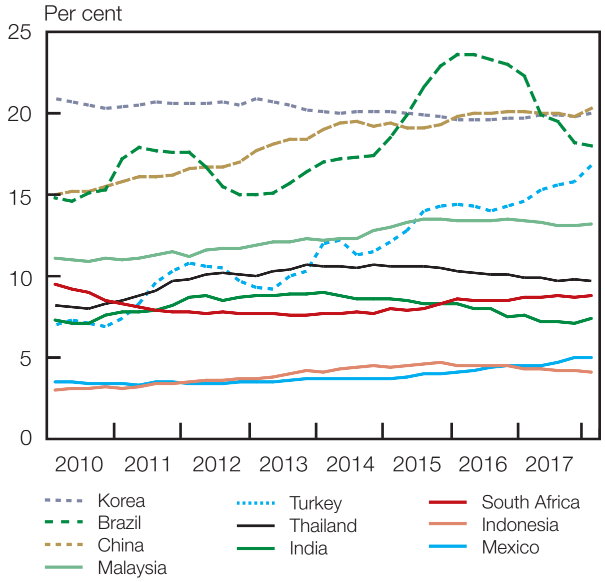
Figure 28 Non-financial corporate sector's interest coverage ratio* disaggregated by industry



* Excluding public administration, defence activities and education

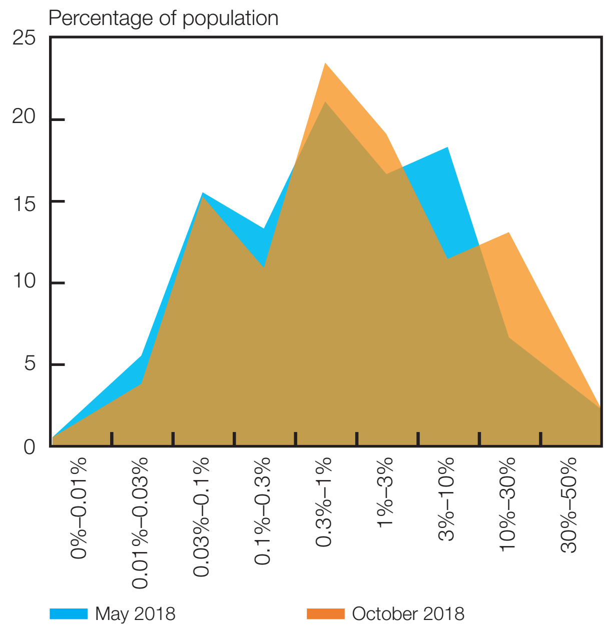
Sources: Stats SA, IMF and researchers' computation

Figure 29 Non-financial corporates' debt-service cost ratio



Source: Bank for International Settlements

Figure 30 EDF distribution of South African incorporated firms



debt, their ability to service this debt has deteriorated. This was further shown in the Experian Business Debt Index (BDI), which fell to 0.360 index points in the previous quarter, indicating deterioration in corporate debt conditions (Figure 26).

South African corporates remain under pressure amid rising debt service costs and persistent tail-end default concerns.

Non-financial corporates' debt-service cost ratio remained lower than that in other emerging market economies, but it has been increasing since the second quarter of 2015 (Figure 29). This raises concerns about the indebtedness of corporates amid the current low economic growth and business confidence environment. Additionally, there are other signs of deterioration in the non-financial corporate sector. The EDF[25] has shifted marginally to the right since the previous *Financial Stability Review*, indicating that more corporates have a probability of defaulting within the next year (Figure 30).

Of some concern is the fact that 24 non-financial corporates recorded EDFs between 10% and 30% in September 2018 (compared to 22 firms in September 2018), while four non-financial corporates recorded EDFs of higher than 30%. However, more than 73% of South African non-financial corporates recorded EDFs below 3% in October 2018, implying that there is a less than 3% probability that these corporates will be unable to honour their debt obligations in the following year.

Overall, non-financial corporates recorded an average one-year EDF of 3.9% as at 12 October 2018 compared to 3.1% at the time of the previous *Financial Stability Review*. This implies an unchanged debt rating for domestic non-financial corporates of Caa2[26], indicating the still-elevated credit risk profile of non-financial corporates.

Households

A highly indebted household sector is a cause for concern as it could be particularly sensitive to shocks in the economy. High levels of debt could decrease households' ability to service their debt, increasing the probability of defaults. Should households default on their debt, this could cause a deterioration in banks' asset quality as they are the main lenders to the household sector. This, in turn, could ultimately lead to financial stability concerns.

Households' financial position recovered somewhat despite higher debt levels and a tough macroeconomic environment.

Growth in households' disposable income decelerated further, from 7.2% year on year in the first quarter of 2018 to 5.9% year on year in the second quarter (Table 5). This was in line with BankservAfrica's Disposable Salary Index, which indicated that seasonally adjusted take-home pay decreased by 2.4% year on year in June 2018. The decrease was largely

25 The expected default frequency of a firm measures the probability that the firm's future market value could be insufficient to meet its future debt obligations.

26 This is based on the correlation between the implied ratings by Standard & Poor's and the expected default frequency credit measures.

attributed to rising inflation, delayed public-sector annual salary adjustments, and backpay.[27] Despite the decline in the growth rate, disposable income has generally been increasing at a faster pace than inflation since the beginning of 2017. This trend is expected to continue, as backdated salary adjustments and back payments in the public sector are expected to increase disposable income.

Table 5 Selected indicators for the household sector

Annual percentage change, unless indicated otherwise

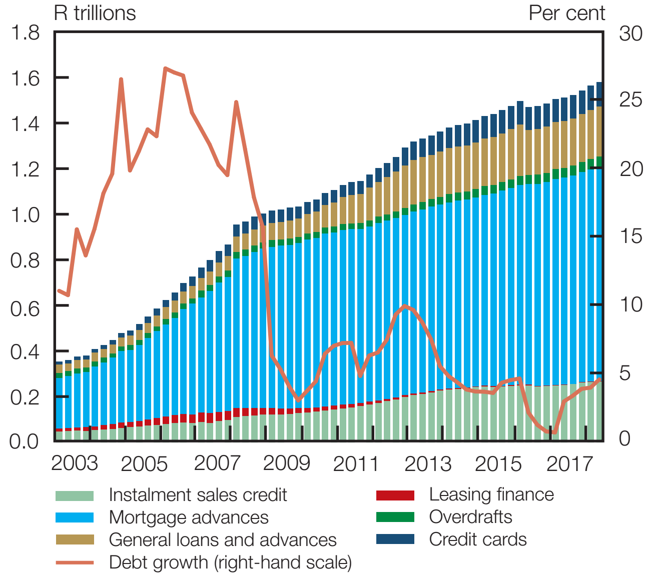
	2017			2018	
	2nd qr	3rd qr	4th qr	1st qr	2nd qr
Disposable income	7.3	7.2	7.6	7.2	5.9
Financial assets	2.8	7.2	12.5	7.0	8.4
Total assets	3.5	6.6	10.1	6.5	7.4
Net wealth*	3.5	6.9	11.1	6.9	7.8
Consumption expenditure	3.8	2.4	3.6	1.0	-1.3
Consumption expenditure to GDP	59.3	59.2	59.4	60.2	58.6
Capital gearing**	16.4	16.1	15.8	16.1	16.1
Credit extension	2.9	3.3	3.8	3.9	4.5
Mortgage advances extended to households	3.1	3.0	3.5	3.1	3.6
Mortgage debt as percentage of household disposable income	35.2	34.9	34.4	34.3	34.4
Savings as a percentage of disposable income	0.3	0.4	0.4	0.3	0.4
Debt as a percentage of disposable income	71.7	71.9	70.8	70.9	71.3
Debt to GDP	42.7	42.7	42.2	42.8	42.0
Debt-service cost of household debt	3.3	3.8	4.0	3.7	2.5
Debt-service cost as a percentage of disposable income	9.3	9.2	9.0	9.0	9.0
Debt	3.5	5.1	5.1	4.8	5.3
FNB Household Debt-Service Risk Index	5.1	5.2	5.2	5.3	5.5

* Household net wealth is defined as total assets of households less total financial liabilities
** Capital gearing' refers to household debt as a percentage of total assets of households. Data are preliminary

Sources: FNB and SARB

On the liabilities side, growth in total household debt increased to 5.3% year on year in the second quarter of 2018 compared to 4.8% in the previous quarter (Table 5). In addition, growth in the credit extended to households has been increasing since the second quarter of 2017, as mortgage advances, instalment sale credit and credit card advances increased at a faster pace (Figure 31). Debt-to-income ratio also rose in the second quarter of 2018, increasing to 71.3% from 70.9% in the previous quarter as household debt rose at a faster pace than disposable income. The rise in these household debt measures implies that households have become somewhat more vulnerable, raising some concerns about their ability to service this debt in the future.

Figure 31 Composition of household debt



27 BankservAfrica Disposable Salary Index, July 2018

Figure 32 Household debt cost and affordability

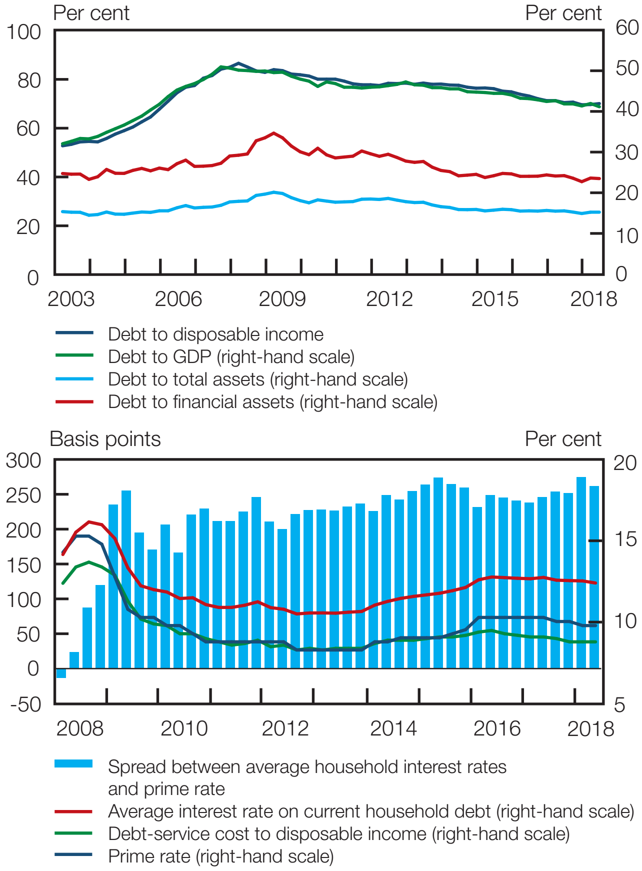
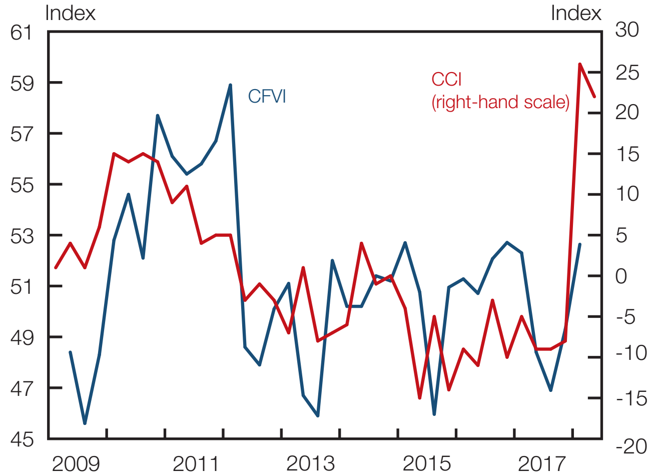


Figure 33 Consumer Financial Vulnerability Index* and Consumer Confidence Index**



* 10–20 means 'financially very vulnerable', 20–39.9 'financially vulnerable', 40–49.9 'financially very exposed', 50–59.9 'financially mildly exposed', 60–79.9 'financially secure' and 80–100 'financially very secure'.

** The Consumer Confidence Index (CCI) is expressed as a net balance between optimistic and pessimistic consumers. According to the Bureau for Economic Research (BER) at the University of Stellenbosch, the index can vary between -100 for 'extreme pessimism' and 100 for 'extreme optimism', with 0 being 'neutral'.

Sources: MBD Credit Solutions and Bureau of Market Research (Unisa), FNB, and BER (Stellenbosch University)

The affordability of household debt improved amid decreasing credit spreads, with some improvement in the ability to obtain financial resources for expenditure purposes.

Despite its rise, the affordability of household debt improved during the period under review. The year-on-year growth in the debt-service cost of households declined notably, from 3.7% in the first quarter of 2018 to 2.5% in the second quarter. In addition, the spread between the average interest rates paid by South African households and the prime lending rate declined in the second quarter of 2018, as the average interest rate charged to households decreased from 12.96% in the second quarter of 2017 to 12.62% in the second quarter of 2018 (Figure 32). While the cost of household debt improved, financial institutions' willingness to extend loans to households deteriorated, as indicated by the credit application rejection rate that rose to 50.06% in the second quarter of 2018 from 48.5% in the first quarter.

A decline in consumer confidence was recorded by the FNB/BER Consumer Confidence Index in the second quarter of 2018. It fell to 22 index points from 26 index points in the first quarter of 2018 (Figure 33). The decline was mainly due to the deterioration in consumers' rating of the appropriateness of buying durable goods, possibly impacted by the recent increase in VAT. The economic and financial position sub-indices declined moderately as consumers took a cautious stance on the outlook for their finances and the domestic economy over the next 12 months. The economic outlook sub-index was recorded at 33 index points in the first quarter of 2018 from 34 index points in the fourth quarter of 2017, while the financial outlook sub-index recorded readings of 31 points in both quarters.

The MBD Credit Solutions / Bureau of Market Research (MBD/BMR) Consumer Financial Vulnerability Index (CFVI) continued to improve, from 49.3 index points in the fourth quarter of 2017 to 52.6 index points in the first quarter of 2018 (Figure 33). All sub-indices – namely savings, income, expenditure and debt servicing – rose in the first quarter of 2018. The increase in the index was mainly driven by the income and expenditure sub-indices, as the majority of consumers felt more confident about their ability to obtain financial resources for expenditure purposes. The improvement in the CFVI was also in line with the Household Economic Stress Index (HESI) (see Box 3 on page 34), which has been declining since the beginning of 2016, indicating a slight improvement in South African households' financial conditions.

Possible implications of the National Credit Act Amendment Bill of 2017 for the household and financial sectors

In early 2017, a parliamentary committee proposed changes to the National Credit Act 34 of 2005 (NCA). The National Credit Act Amendment Bill of 2017 (NCAAB) was then proposed to make explicit provision for a debt relief measure.[28] The National

28 For further discussions of the National Credit Amendment Bill of 2017 and its possible consequences for households and the financial sector, see the section titled "The robustness of the domestic financial infrastructure" on page 36 of this *Financial Stability Review*

Credit Regulator (NCR) currently makes provision for debt review, which in some way can be considered a measure of debt relief, but it is mainly provided to consumers through loan restructuring (as a means of reducing instalments), lowering interest rates to predetermined levels, and waiving credit provider fees.[29] According to the Department of Trade and Industry (2017)[30], debt review has previously assisted in alleviating the financial pressure on some consumers. However, over-indebtedness remains a challenge for many South African households, particularly those households that cannot afford debt review. The proposed NCAAB would allow credit-active consumers with a gross monthly income of R7 500 or less, and with unsecured debt of R50 000 or less, to apply for debt relief and possibly have their debt written off.

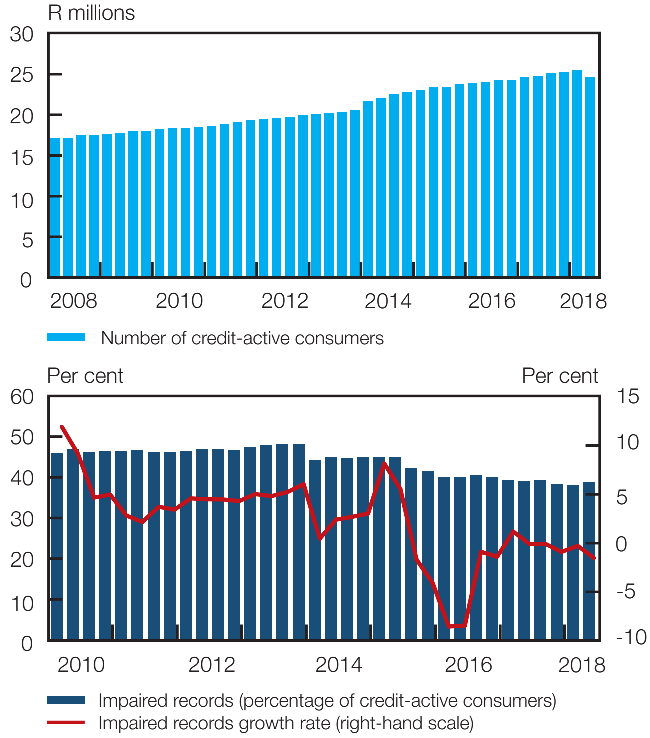
According to the NCR, there were 24.59 million credit-active consumers in the second quarter of 2018 (Figure 34). Of these 24.59 million credit-active consumers, 9.57 million had impaired records.[31] Despite a declining trend since 2016, impaired records as a percentage of total credit-active consumers remained high at about 38.9% in the second quarter of 2018.

At 77.2%, banks still accounted for the largest portion of credit granted to consumers as at the second quarter of 2018 (Figure 35), while other credit providers (10.5%), vehicle financiers (7.9%) and retailers (4.4%) provided relatively small portions. This implies that banks had the largest exposure to consumers and were vulnerable to high levels of household indebtedness.

Despite banks' exposure to consumers and concerns that the sector could be most impacted by the NCAAB, the distribution of credit granted is skewed towards higher-income consumers. The majority of the credit granted has been to consumers with a gross monthly income exceeding R15 000 (Figure 36). In fact, in the second quarter of 2018, consumers with a gross monthly income exceeding R15 000 accounted for 82.9% of the total credit granted. A breakdown of the credit granted to consumers according to the proposed requirements indicates that only 6.1% of the total credit granted in the second quarter of 2018 (approximately R7.9 million) was granted to consumers with a gross monthly income of R7 500 or less.

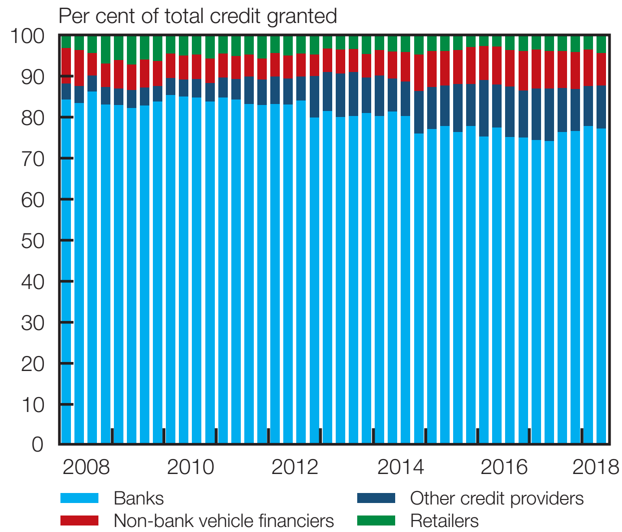
While the percentage of credit-active consumers who meet the proposed debt relief requirements accounts for a relatively small portion of the total credit market, concerns remain about the way in which debt relief may affect household over-indebtedness in the short and long term. The NCAAB has the potential to alleviate the financial pressure on vulnerable consumers. However, if it is not implemented judiciously, this could have negative implications for both the household and the banking sectors, and consequently the financial sector.

Figure 34 Number of credit-active consumers and consumers with impaired records



Source: NCR

Figure 35 Credit granted by industry



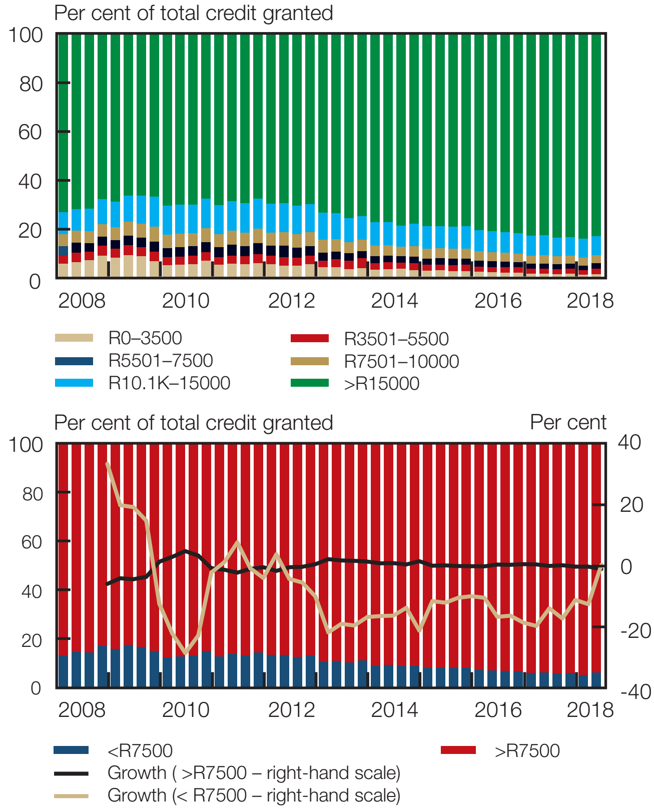
Source: NCR

29 Department of Trade and Industry, *Presentation to Portfolio Committee on the proposed draft national credit policy review for debt relief and the National Credit Act Amendment Bill*, May 2017

30 Department of Trade and Industry, *Presentation to Portfolio Committee on the proposed draft national credit policy review for debt relief and the National Credit Act Amendment Bill*, May 2017

31 This is defined by the National Credit Regulator as debt that is more than 3 months in arrears, has an adverse listing, or has judgement and administration orders

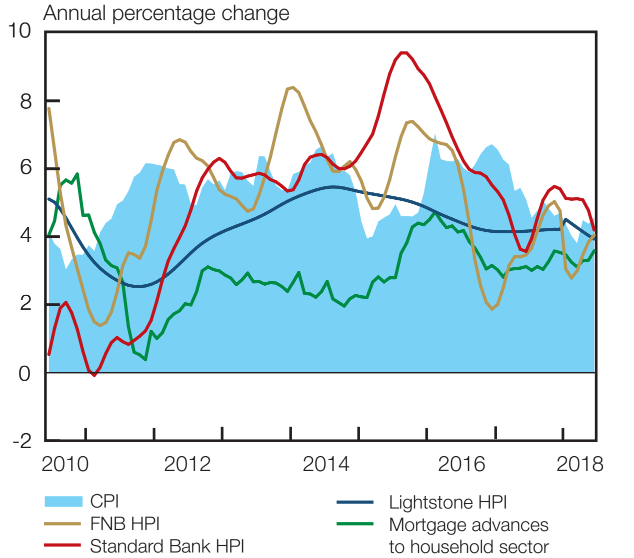
Figure 36 Credit granted – split by NCA maximum income condition*



* The National Credit Act Amendment bill of 2017 proposes debt relief for consumers with a gross monthly income of R7 500 or less.

Source: NCR

Figure 37 House price indices, mortgage advances and inflation



Sources: Standard Bank Limited, FNB, Lightstone, Stats SA and SARB

Residential real estate

Housing market trends and developments are important from a financial stability perspective as they serve as indicators of financial system health and confidence in the economy. Housing markets have been directly implicated in many of the gravest financial crises around the world. Property values are important to consider in the assessment of the fundamental vulnerabilities in the financial system, since a sudden fall in property prices could have a destabilising effect on the economy. This phenomenon occurs especially where assets are widely held and their value is supported by high leverage, as is often the case with the real estate sector.

House price growth remained negative in real terms.

Annual house price growth has been trending downwards since the second half of 2015 (Figure 37), with a seemingly temporary upswing towards the end of 2017.[32] The moderation in house price growth was mainly driven by subdued domestic economic conditions and constrained household finances. Mortgage loan growth has been persistently low since 2011, which also contributed to the moderate house price growth.[33] According to the various house price indices (HPIs), house prices increased at 4.2% (Standard Bank HPI) and 4.0% (FNB HPI) in June 2018. Lightstone estimated house price growth at 3.9% in June 2018. Generally, real house price growth has been negative since 2016.

The FNB/BER Building Confidence Index fell to 29 index points in the second quarter of 2018. This marked the lowest confidence level since the third quarter of 2012. While the fall in sentiment was largely due to lower confidence among hardware retailers and manufacturers of building material, underlying activity in the sector was also weaker. Furthermore, the number of building plans approved in the second quarter of 2018 for residential buildings decreased by 0.9% year- on-year in the second quarter of 2018.

Government finances

Government finances and the sustainability of government debt are important for overall financial stability. South Africa's fiscal position has persistently been under pressure as domestic growth remains low and expenditure remains high due to increased spending and higher contingent liabilities in the form of government guarantees to SOEs. Revenue shortfalls, which have mainly been caused by persistently low economic growth and weak areas of governance, have further weighed on government finances. These developments triggered a significant increase in the financing needs of government.

32 Note that all the house price time series data displayed in Figure 37 have their limitations. The two indices produced by banks only include those properties that they extended mortgages for, while the Lightstone house price index is subject to a propriety-smoothing technique.

33 This has mainly been driven by demand-side issues.

Government debt has increased in recent years, putting pressure on South Africa's fiscal position and increasing sovereign risk.

Government debt has been on a consistent upward trend since 2009, rising to R2 608 billion in June 2018 (Figure 38). As a percentage of GDP, government debt has doubled over the past 10 years. It increased from 52.7% in March 2018 to 54.2% in June 2018 but remains comfortably below the 70% threshold level that the IMF has identified as a high-risk threshold in a debt sustainability analysis.[34]

High levels of government debt could have a negative impact on international investors' views on a sovereign's creditworthiness, which could result in refinancing difficulties and ultimately trigger wider financial system instability. If the belief exists that public finances are unsustainable and/or vulnerable to shocks, the risk premium on debt could rise and lead to higher interest rates, higher debt-service costs, and increased rollover risk. Higher public debt stocks could also increase the probability that the prices of other financial assets decrease, thus impacting on the soundness of financial sector balance sheets.[35]

South Africa's general government debt-to-GDP ratio is currently below Brazil's and India's, and is projected to be below China's as well from 2020 (Figure 39). South Africa's general government debt-to-GDP ratio is projected to stabilise at 56% from 2019 onwards.

Contingent liabilities are larger than South Africa's foreign-currency-denominated debt.

SOE contingent liabilities are an important component to consider when analysing South African government debt. At present, SOE contingent liabilities are larger than South Africa's foreign-currency-denominated debt (Figure 40), having risen consistently since 2008. Amid already weak balance sheets in some SOEs, rising contingent liabilities could further weaken public-sector balance sheets should they be realised.

Government provision of guarantees to SOE debt has increased consistently, with Eskom having the largest exposure at an estimated 6.5% of GDP.[36] More recently, Eskom has indicated that it has met some of its funding requirements for the financial year 2018/19. In July 2018, the company signed a US$2.5 billion loan facility agreement with the China Development Bank, which will enable it to draw down on the facility up to a period of five years. Furthermore, in August 2018, Eskom issued a US$1 billion 10-year bond guaranteed by the South African government at a yield of 6.35%.[37] While these measures are expected to stabilise Eskom's liquidity

34 International Monetary Fund (IMF) *IMF Country Report No.16/217: South Africa*, July 2016

35 Das, U.S., Papapioannou, M., Pedras, G., Ahmed, F., and Surti, J. 2010. Managing public debt and its financial stability implications, *IMF Working Paper 10/280*

36 Moody's Investor Service. *Government of South Africa fiscal slippage likely this year, but medium-term targets remain within reach.* 15 August 2018.

37 See https://m.fin24.com/Opinion/why-eskom-bonds-should-be-considered-government-debt-20180915-2.

Figure 38 Domestic government debt

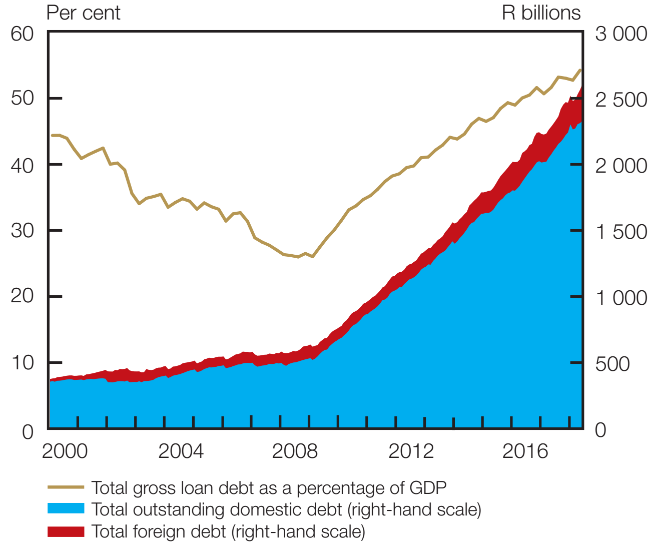
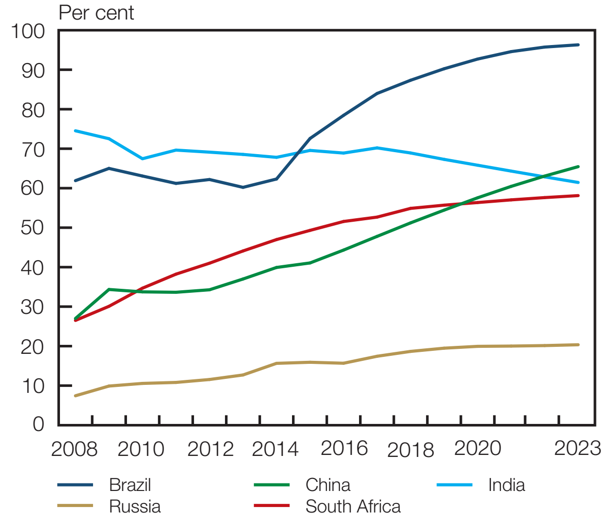
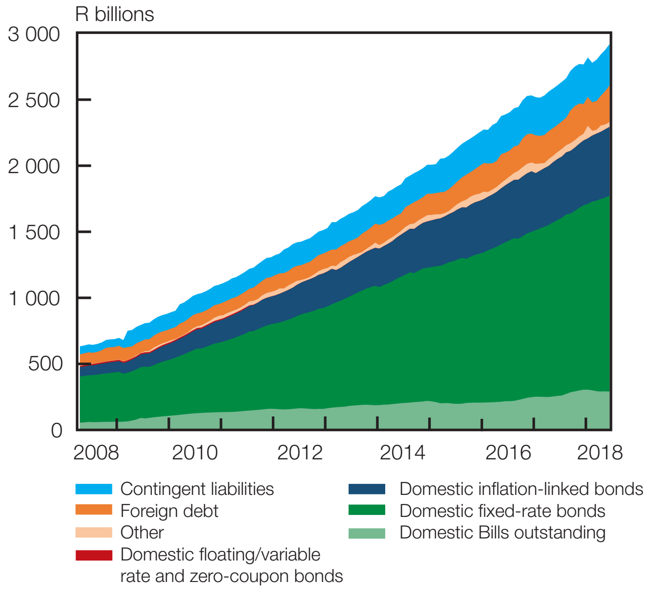


Figure 39 General government debt-to-GDP ratios* of BRICS countries



Source: IMF

Figure 40 Government debt, including SOE guarantees



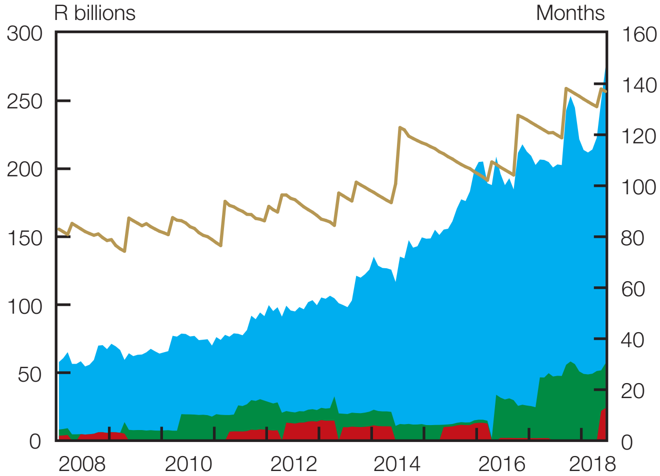
Sources: National Treasury and SARB

position, it could worsen again in the event of higher interest rates and a rise in government bond yields. An SOE default would result in government taking over all debt and all debt-servicing costs associated with it. This could possibly increase the pressure on the domestic fiscal framework and government expenditure could increase, which could reinforce a negative feedback loop by inducing further sovereign credit rating downgrades. SOE debt therefore remains at the forefront of government's challenges, as defaults could trigger certain cross-defaults on other government bonds.

The low level of foreign-currency-denominated debt and longer-term maturities helped to mitigate risks in the current global environment.

High levels of foreign-currency-denominated debt expose a country to exchange rate risk as exchange rate depreciation could raise debt-service costs and lead to an upward revaluation of debt stock. Additionally, debt structures that rely heavily on short-term instruments could also be a source of vulnerability, because short-term average maturities mean high rollover and refinancing risks.

Figure 41 Maturity of foreign-denominated debt



Foreign national government bonds: maturity intervals not exceeding 1 year
Foreign national government bonds: maturity intervals exceeding 1 year but not 3 years
Foreign national government bonds: maturity intervals exceeding 3 years
Marketable foreign national government bonds: average maturity (right-hand scale)

In South Africa, however, foreign-currency-denominated debt is generally low, with issuance residing mostly in long-term maturities (Figure 41), helping to mitigate these risks.

On the other hand, South Africa's large foreign holdings of domestic bonds (40%) raise the risk of large capital outflows in the event of a shock. For example, a local-currency sovereign credit rating downgrade to sub-investment grade by Moody's would result in the country exiting the Citigroup World Government Bond Index (WGBI) and investors being mandated to sell South African bonds. There was a forced selling of bonds after rating agencies Fitch and Standard & Poor's had downgraded the country's local-currency rating to sub-investment grade in 2017. However, an IMF study[38] indicates that the remaining investment-grade-sensitive investors appeared to be the only ones tracking the WGBI. The IMF has estimated that, as at March 2018, about 2.0% of domestic bonds were held by investment-grade-sensitive investors, compared to 20.0% held in 2016. This is a mitigating factor, notwithstanding the fact that, in the event of a WGBI exit, the country could still face the prospect of actual portfolio outflows exceeding the forced selling of South African bonds.

Rating agencies continue to monitor government debt as a determining factor in rating reviews. In March 2016, Moody's changed the country's outlook from 'negative' to 'stable', somewhat decreasing the probability of a sovereign credit rating downgrade to sub-investment this year. More recently, Moody's has indicated that the country's weak economic performance in the second quarter of 2018 is expected to aggravate fiscal and monetary challenges in an environment of inflationary pressures, owing to currency weakness and higher oil and petroleum prices. The agency added that, while it had not 'drastically' changed its view on South Africa's economic outlook, the country would need to stabilise its debt levels to prevent a change in its rating outlook from 'stable' to 'negative'.[39]

38 *IMF Country Report No. 16/217: South Africa*, July 2016

39 See https://m.fin24.com/Economy/stable-sa-outlook-means-slim-chance-of-cut-moodys-says-20180913

Adequacy of nominal reserves

High net external financing requirements make a country vulnerable to the possibility of market volatility. Countries therefore need to strengthen or increase their buffers to combat vulnerability. A significant fall in reserve holdings could lead to policy concerns regarding inflation and/or disrupt balance sheets and real economic activity.[40]

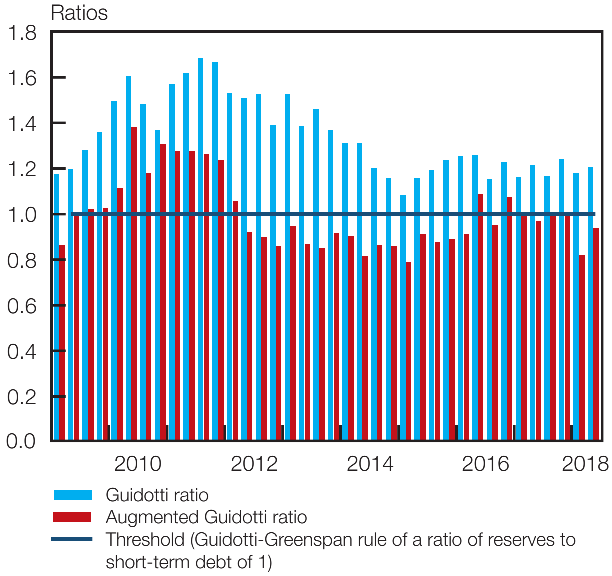
The adequacy of nominal reserves increased, and the Guidotti ratio suggests that sufficient funds are available to service the country's short-term external debt due within the next year.

The Guidotti ratio[41] (GR) increased to 1.21 in the second quarter of 2018 after recording a decrease during the first quarter (Figure 42). This increase can be attributed to an increase in gross gold and other foreign exchange reserves as well as a decrease in short-term foreign debt. Nonetheless, the GR suggests that, should access to the foreign exchange market be reduced suddenly, there would still be sufficient funding available to service the country's short-term external debt due within the next year.

The augmented Guidotti ratio (AGR), which takes into account the current account (as a proxy for total external financing needs), increased from 0.82 in the first quarter of 2018 to 0.94 in the second quarter. The main reason for the improvement in the AGR was a noteworthy narrowing of the current-account deficit. This improved level is still below the Guidotti–Greenspan rule level of 1, indicating that there might be a shortfall of 6 percentage points in funding should an unexpected capital flight situation arise. It should be noted that the metrics used in this report are merely a subset of a number of analytics tools that can be used to measure the adequacy of foreign exchange reserves.

Since the previous edition of the *Financial Stability Review*, the official gross gold and foreign exchange reserves[42] have decreased marginally, from US$50.5 billion (January 2018) to US$50.4 billion (September 2018). Foreign reserve holdings are important to, among other things, maintain liquidity and investor confidence.

Figure 42 Adequacy of nominal reserves



Sources: IMF and SARB

40 International Monetary Fund, *Global Financial Stability Report*, April 2016.

41 The Guidotti-Greenspan rule states that a country's reserves should equal its short-term external debt (with maturity of one year or less), implying a ratio of reserves to short-term debt of 1.

42 Official gross reserves include gold reserves, special drawing right (SDR) holdings and foreign exchange reserves, with the last-mentioned including foreign-currency deposits received (FDR).

Financial stability risks and outlook

Update on the financial cycle

The financial cycle continues its downward phase.

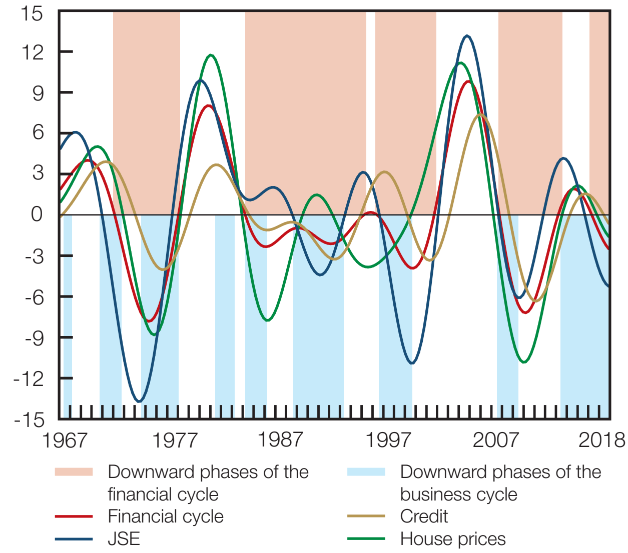
The financial cycle provides a broad indication of the change in risks to financial stability and, as such, provides a useful monitoring tool for policymakers. These cycles are generally measured by the co-movement of a broad set of financial variables.[43]

In Figure 43, medium-term cycles[44] in credit, equity prices and house prices have been extracted and averaged to obtain an estimate of the financial cycle (the red line). For the purposes of comparison, the downward phases of the business cycle, as calculated by the SARB and published in the *Quarterly Bulletin*, are shown by the grey shaded areas.

The current downward phase of the financial cycle began in the fourth quarter of 2016 (see the pink shaded area in Figure 43. It is occurring against a backdrop of a downward phase of the business cycle, which has been shown to be more severe when accompanied by a contractionary phase in the financial cycle.[45] Since the fourth quarter of 2017, the cycles of credit, equity prices and house prices have all been in downward phases.

Figure 43 The financial cycle, its components and downward phases of the business cycle

Per cent, four-quarter changes



43 Bank for International Settlements 85th Annual Report, 2014/15. June 2015.

44 These cycles are extracted using Christiano-Fitzgerald band-pass filters on constant price growth data. These filters allow frequencies of 32-120 quarters and attenuate all other frequencies. (Christiano L and Fitzerald T. 2003. 'The band-pass filter' *International Economic Review* 44(2): 435-465.)

45 Drehmann, M. Borio, C and Tsatsaronis, K. 2012. 'Characterising the Financial Cycle: don't lose sight of the medium term!', 2012. *Bank for International Settlements BIS Working Paper No. 380.*

Assessing the application of the countercyclical capital buffer for banks

The total credit-to-GDP gap remained below its long-term trend.

The countercyclical capital buffer (CCB) framework provides macroprudential supervisors with a tool to change the capital requirements for banks in order to protect the financial system from the boom and bust phases of the financial cycle. The Financial Stability Committee (FSC) of the SARB is responsible for setting the CCB rate, which forms an integral part of the internationally agreed-upon standards for risk-based capital requirements. The credit-to-GDP gap is designed to take the macro-financial environment in which banks operate into account, and is the main indicator informing the activation of the CCB.[46]

The credit-to-GDP gap (Figure 44) remains well below any likely calibration of the lower threshold of the countercyclical capital add-on for South African banks. In fact, the credit-to-GDP gap has been negative since 2011, and continued its declining trend in 2018. This reflects the fact that the total credit extended to the private sector remained below its long-term trend, mainly driven by credit extension by banks to households. The credit-to-GDP gap for credit extended to households widened from -4.14 percentage points in the first quarter of 2018 to -4.96 percentage points in the second quarter. The gap for credit extended to corporates also widened during this period, from -0.01 percentage points to -1.27 percentage points.

Considering the different subcategories of credit, not all the gaps decreased during 2018. The gaps of leasing finance and overdrafts remained above zero and increased further, albeit marginally, during the year. Nevertheless, the most significant negative gaps in the second quarter of 2018 were in the credit-to-GDP gaps for other loans and advances as well as mortgages, which reached -0.51 and -5.45 percentage points respectively (Figure 45).

Figure 44 Private sector credit-to-GDP gaps: Total, households and corporates

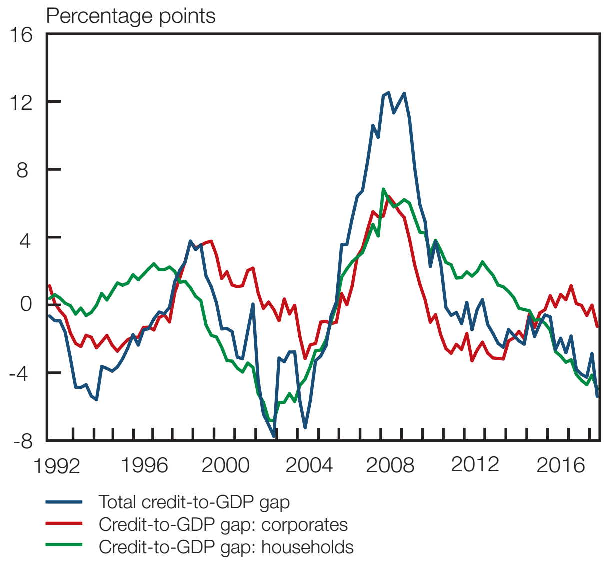
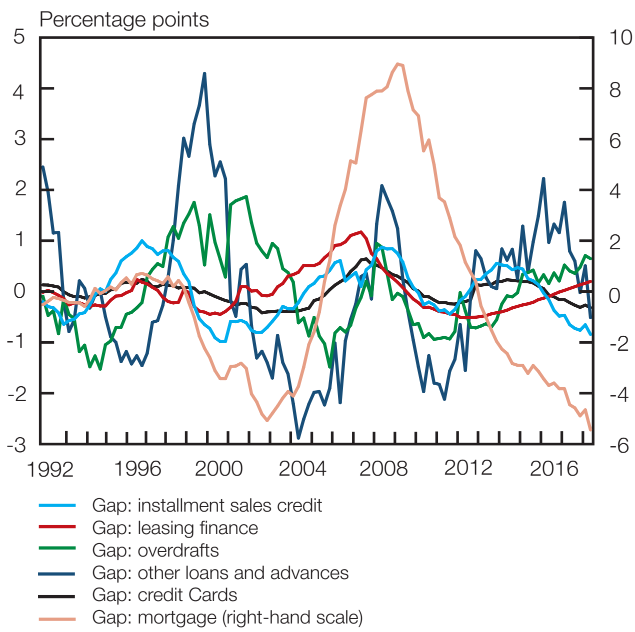
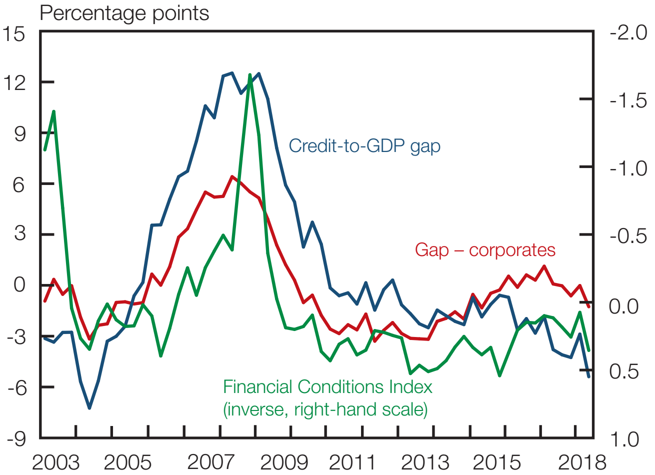


Figure 45 Selected private sector credit-to-GDP gaps according to asset class



46 In 2010, the Basel Committee on Banking Supervision suggested in its guidance to national authorities that the credit-to-GDP gap be used as a guide for deploying Basel III countercyclical capital buffers (CCBs). The CCB regime has been phased in from January 2016 and will become fully effective on 1 January 2019. According to the phase-in arrangements for the minimum requirements of Basel III, banks in South Africa could be required to hold a CCB.

Figure 46 Financial Conditions Index and credit-to-GDP gaps



It is recognised that the CCB should not be anchored mechanistically on only the credit-to-GDP gap, given that no indicator is infallible and that policymaking requires discretion. The Financial Conditions Index (FCI)47 is an additional indicator that can be used when making CCB decisions. As can be seen in Figure 46, while the total credit extension by banks remains subdued, the more favourable financial conditions (relative to an historical average) are reflected in the trend in the corporate credit-to-GDP gap.

Consideration for the activation of the countercyclical capital buffer for banks

According to the arrangements for the minimum requirements of Basel III, the CCB could be applied to banks from 2016 if required. However, at a recent meeting of the FSC, it was decided, after taking all the relevant information into account, not to activate the CCB add-on for banks at this stage and to keep the rate at 0%.

47 Kabundi, A. and Mbelu, A. 2017. Estimating a time-varying financial conditions index for South Africa. Working Papers Series WP/17/02. South African Reserve Bank.

Box 1: Other risk events and their possible effects on financial stability

Update on the previous risk events reported

Steinhoff International Holdings

As was disclosed in the first edition of the *Financial Stability Review* for 2018, a potential default by Steinhoff International Holdings (Steinhoff) on its debt obligations is unlikely to result in systemic risk. Subsequent actions taken to, among other things, strengthen governance, refinance most of the South African subsidiary debt, restructure foreign debt, and dispose of selected assets have lowered the risk of this event causing systemic instability to South Africa by addressing short-term liquidity needs and providing time for management to support ongoing operations. It should, however, be noted that the nature and extent of Steinhoff's accounting irregularities had not been disclosed as at 25 September 2018. Furthermore, Steinhoff continues to be exposed to significant legal risk resulting from the event.

Capitec Bank

Following the short-selling event related to Capitec Bank that was disclosed in the first edition of the *Financial Stability Review* for 2018, Business Leadership South Africa commissioned Intellidex (Pty) Limited to produce a report on short-selling activities.[1] This report made recommendations for various market role players, including the media, regulators, short-side investors, and the listed companies too. The recommendations included that the media take their responsibility of interpreting and assisting the public in understanding research information seriously. The report also suggested that regulators consider the effect of information asymmetry being caused by the limited information available about short positions in equities in South African markets. The Johannesburg Stock Exchange Limited (JSE) issued a consultation paper[2] on 19 September 2018 inviting public comment on the possible regulatory responses to the recent events surrounding listed issuers and trading in their shares. The purpose of the paper is to consider the submissions received when making future enhancements to the manner in which the JSE regulates new and existing listings. Concerns over the impact of short-selling are included among the various considerations. In order to strengthen the regulatory framework relating to short-selling, the Financial Sector Conduct Authority (FSCA) has decided to implement a short-sale disclosure mechanism to provide information on the short sales of listed securities to the investing public and regulators.

The curatorship of VBS Mutual Bank

The failure of any bank, even if it is a small one, could pose potential risks for financial stability. There are a number of channels through which the failure of a bank could affect financial stability:

- Banks participate in a network of payment, clearing and settlement services, and the failure of even one participant could cause a deadlock in the whole network. Furthermore, the failure of one bank could have contagion effects on the rest of the financial system.
- The business of banking involves obtaining short-term funding which is channelled into longer-term loans or investments. As soon as the sources of the funding lose confidence in the safety of a bank, they can withdraw their funding on a large scale, and the bank can face liquidity problems.
- Banks fulfil critical functions in the economy. A disruption of any of these services could have real economic costs and cause hardship and losses for banks' clients.

'Normal' corporate insolvency arrangements are inadequate to deal with the potential financial system instability caused by the failure of a bank because of their inability to effectively deal with the contagion effects of a bank failure on the broader economy. This is why special legislation has to be in place to allow the authorities to resolve bank failures in an orderly manner. Curatorship is one such tool that is currently available in South Africa through the Banks Act 94 of 1990 and the Mutual Banks Act 124 of 1993. Curatorship was successfully applied to resolve African Bank in 2013, and was used in an effort to resolve VBS Mutual Bank (VBS).

The resolution of African Bank, although not without costs, seems to have achieved its objectives. Since its launch on 4 April 2016, the new African Bank has implemented significant changes to deliver on its strategic focus of becoming a successful retail bank. The more notable improvements made by the bank include a change in the business model in an effort to diversify product and service offerings, the implementation of more conservative risk management processes, widening the customer base, and broadening the distribution channels. The initiatives implemented have already contributed to improved financial results. The process of turning the bank around is ongoing as it aims to deliver a more sustainable, more diversified business that will boost investor confidence.

VBS had been experiencing increasing liquidity challenges in the 18 months prior to it being placed under curatorship. These problems had mainly resulted from the failure by the Board of Directors and executive management to manage the mutual bank's rapid growth, an over-reliance on municipal deposits, high operational costs, weak risk management practices, and a deficient compliance culture – issues that had been raised by the Prudential Authority (PA) for some time. However, the extent of these deficiencies, and the fact that they had caused more than just liquidity problems, only became evident after the mutual bank had been placed under curatorship.

In February 2018, the liquidity problems at VBS culminated in its failure to settle a payment batch in the South African Multiple Option Settlement (SAMOS) system, which required immediate intervention by the South African Reserve Bank (SARB). The mutual bank was by that time also in breach of its regulatory minimum cash reserves and liquid asset requirements. It became evident that, without an injection of additional funding, the mutual bank would be unable to meet the financial obligations towards its depositors. VBS failed in its attempts to obtain funding from its clients and major shareholders in an effort to correct its liquidity distress position. At this stage, the Chief Executive Officer (CEO) of the PA (then the Registrar of Banks) recommended to the Minister of Finance that VBS be placed under curatorship, which was done with effect from 11 March 2018.

The preliminary investigation by the curator revealed evidence of significant fraud and mismanagement by the executive management of VBS and other related parties, which in turn prompted an investigation into the affairs of VBS prior to its curatorship. The final forensic investigation report published in October 2018 confirmed that the business of VBS was conducted in a fraudulent manner that resulted in the impoverishment of depositors. The report has been provided to law enforcement authorities for further investigation. The investigator concluded that there is no prospect of resolving VBS and on 29 October 2018 the PA issued an application from the High Court of South Africa for the final winding-up (liquidation) of VBS.

In order to relieve some of the hardship experienced by VBS clients as a result of its failure, the SARB agreed, after consultation with the Minister of

Box 1: Other risk events and their possible effects on financial stability (continued)

Finance, to fund the repayment of retail depositors up to a limit of R100 000 per depositor. These depositors comprised individuals, stokvels, and burial societies. The SARB selected Nedbank as the most appropriate channel through which to make these repayments.

Even though VBS did not pose a systemic risk to the financial system, its interconnectedness resulted in the curatorship impacting on other domestic financial institutions (such as Bophelo Life Insurance Ltd, Nzalo Insurance Ltd[3], the Bophelo Beneficiary Fund and Bophelo Benefits Services[4]) as well as non-financial institutions (local government).[5]

The curatorships of both African Bank and VBS have underscored the need to strengthen South Africa's resolution framework in line with international best practice. Both African Bank and VBS were small banks relative to the size of the total banking sector, and they both had fairly simple business models. As a result, an orderly resolution could be achieved through the curatorship process. However, curatorship would not be adequate to deal with the failure of a systemically important, more complex banking group that may also have material cross-border operations. In such cases, the magnitude of losses, the degree of operational complexity, the reach of interconnections to other financial institutions, and the impact of contagion to the rest of the financial system would require a full set of resolution tools, as prescribed in the Financial Stability Board's *Key attributes for effective resolution regimes*.[6]

In addition, while the size of African Bank's and VBS's retail depositor books made it possible for the SARB to fund (and for government to underwrite) the repayment of retail deposits, this may be far too expensive to do if a larger bank were to fail or if a number of smaller banks should fail simultaneously. Therefore, a key component of South Africa's strengthened resolution framework will be the establishment of an explicit, privately funded deposit insurance scheme. This will reduce the reliance on National Treasury and the use of taxpayer money to reimburse the depositors of a failed bank.

The curatorship of VBS, following that of African Bank a few years earlier, raised some questions about the difference between a mutual bank (such as VBS) and a 'normal' bank, whether they are regulated and supervised differently, and whether they pose different kinds of risk to bank customers. Box 2 (see page 33) explains the structure of the South African banking system, why there are different types of banks, and how these banks are regulated and supervised.

MTN/Stanbic IBTC

On 29 August 2018, MTN Nigeria Communications Limited (MTN Nigeria)[54] received a notification from the Central Bank of Nigeria (CBN) to repatriate an amount of US$8.134 billion to the CBN as a result of irregular capital importation certificates issued over the period 2007 to 2015.[7] In addition to the CBN's claim for repatriation, during September 2018, MTN Nigeria was given notice of the Office of the Nigerian Attorney General's intention to recover US$2 billion of taxes relating to the importation of foreign equipment and payments to foreign suppliers since 2008.[8]

Any potential impact on the South African financial system arising from this event will depend on the eventual resolution of the matters raised[9] but it could be systemic in nature considering that the repatriation claim, together with the US$2 billion for underpayment of taxes, amounts to approximately 100% of MTN Group Limited's (MTN Group) market capitalisation.[10] The immediate, or at least near-term, repatriation of the funds to the Nigerian authorities could affect MTN Group's ability to continue meeting its debt obligations, including those in the South African banking sector, which, given the interconnected nature of the financial system, could increase systemic risk.

A potential worst-case scenario would be for the MTN Group to disinvest from Nigeria as a result of this event, which, *ceteris paribus*, would increase the MTN Group's exposure level to reputational risk.

The event highlights the importance of market conduct for financial stability and, specifically, finding a balance between sustaining systemic stability (including maintaining the safety and soundness of financial institutions) and enforcing measured wholesale market conduct.[11]

1 See http://www.intellidex.co.za/wp-content/uploads/2018/07/Intellidex-Report_Investment-Research-in-the-Era-of-Fake-News.pdf.

2 See https://www.jse.co.za/content/JSEAnnouncementItems/JSE%20 Regulatory% 20Review%20Consultation%20paper%20FINAL_19%20 September.pdf.

3 See https://www.pic.gov.za/wp-content/uploads/2018/07/PIC-addresses-City-Press-and-UDM-claims.pdf.

4 See https://mg.co.za/article/2018-07-13-00-vbs-widows-and-orphans-may-lose-out.

5 See http://www.treasury.gov.za/publications/other/MinAnsw/2018/PQ%20812%20-%20Mileham%20-%20NW897E.pdf.

6 See http://www.fsb.org/what-we-do/policy-development/effective-resolution-regimes-and-policies/key-attributes-of-effective-resolution-regimes-for-financial-institutions/.

7 Some 78% of MTN Nigeria Communications Limited's shares are owned by MTN Group Limited, a company with a primary listing on the Johannesburg Stock Exchange.

8 See https://www.mtn.com/Documents/SENS%203008.pdf.

9 See http://irhosted.profiledata.co.za/mtngroup/archive/317678.htm.

10 These are the developments relating to the event documented as of 20 September 2018. The event had not been resolved at this date and continued to evolve.

11 This is based on the share price as of 20 September 2018.

12 Also see the 2018 joint review of financial markets and wholesale market conduct in South Africa, including recommendations to reinforce conduct standards (available at http://www.resbank.co.za/).

Box 2: The structure of the South African banking system

The South African legislative framework determines that, for any person to conduct the business of a bank, that person must be registered and licensed as a bank. The business of a bank is defined as the acceptance of deposits as a regular feature of its business. The legislative framework makes provision for three types of bank licences, each administered under a separate Act, namely:

- a bank licence as provided for in terms of the Banks Act 94 of 1990 (Banks Act);
- a mutual bank licence as provided for in terms of the Mutual Banks Act 124 of 1993 (Mutual Banks Act); and
- a cooperative bank licence, for registered cooperative financial institutions, as provided for in terms of the Cooperative Banks Act 40 of 2007 (Cooperative Banks Act).

The distinction between a bank, a mutual bank, and a cooperative bank is based on the differences in the corporate structure of the entities and the regulatory requirements that apply to these entities (see Table 1A).

A bank is a public company owned by its shareholders who are not necessarily depositors or customers of the bank.

A mutual bank is a juristic person that is, in essence, owned by its depositors who qualify as members by virtue of them being shareholders in that juristic person and who are entitled to participate in the exercise of control in a general meeting of that mutual bank.

A cooperative bank is a cooperative organisation whose members are employed by a common employer or who are employed within the same business district, have common membership in an association or organisation (including a religious, social, cooperative, labour or educational group) and/or reside within the same defined community or geographical area.

Given the differences in these banks, their regulation and supervision also differ.

Table 1A Banking entities registered in South Africa (as at June 2018)

Registered banks and local branches	2017	2018
Registered banks	17	19
Local branches of foreign banks	15	15
Total banks	**32**	**34**
Mutual banks (total assets: R3 billion)	3	3
Cooperative banks (total assets: R158 million)	2	3
Representative offices	31	31

The objective of bank regulation and supervision is to ensure that banks manage their risks appropriately in order to protect the interests of bank clients. In this regard, regulation and supervision also contribute significantly to financial stability, by ensuring that banks are well managed, that they provide critical functions to the economy, and that the public maintains confidence in the integrity of the banking system. The Prudential Authority (PA), a juristic person operating within the administration of the South African Reserve Bank (SARB), is responsible for the registration and licensing, ongoing supervision, supervisory intervention (including enforcement) and resolution (in collaboration with the SARB's Financial Stability Department) of banks. With the enactment of the resolution chapter of the Financial Sector Regulation Act 12 of 2017 (FSR Act) and the Financial Sector Laws Amendment Bill of 2018 (FSL Amendment Bill), the resolution of designated institutions will be the responsibility of the SARB as the resolution authority.

The regulatory requirements pertaining to mutual banks and cooperative banks are generally less onerous than those applicable to registered banks. This is because of the difference in the nature, scale, complexity, and risk profile of these banks. The regulatory requirements are intended to support the development of an inclusive banking sector through proportionate and appropriate regulation. It balances the need to lower the regulatory barriers to entry with the need to ensure that there is appropriate and sufficient regulation and supervision in place to protect customers against the risk that those banks may fail to meet their obligations.

The PA's ongoing supervisory approach is risk-based and proportional, forward-looking (pre-emptive), outcomes-focused and integrated. The main focus and outcome of the ongoing supervision approach is for the PA to ensure that each bank complies with the legislative framework and related prudential requirements. All ongoing supervisory interventions are based on the outcome of a risk assessment which is done so that the PA identifies the material risks to which each bank may be exposed. This ensures that the respective risks identified are adequately managed and appropriately mitigated, and that the PA is able to intervene on a timely and proportionate basis.

The risk-based approach to prudential supervision necessarily implies that the PA has a tolerance for risk. Since supervisors operate in an imperfect world, one in which they cannot anticipate every possible outcome, it is impossible to remove the risk of failure completely. Attempting to do so would impose a cost on the financial system in terms of effectiveness and efficiency, and on customers in terms of affordability. Furthermore, allowing the orderly failure of weak banks in the financial system is a valuable form of market discipline that promotes good governance, proper risk management and competition in the banking system, which minimises moral hazard.

Box 3: An updated Household Economic Stress Index measure for South Africa

Given the elevated levels of household debt, low disposable income, high unemployment, stagnant wealth growth in South Africa may have exacerbated the household sector's financial stress. In order to quantify and monitor this stress in the South African household sector, a modification of the Pittsburgh National Corporation's (PNC) Household Economic Stress Index (HESI) has been developed.

The HESI was introduced as an expansion to the Misery Index (MI) that had been developed by Okun (Nessen, 2008).[1] Dye and Sutherland (2009)[2] have argued that the MI is an inadequate measure of household economic stress as much of the economic stress experienced by households stems from changes in house prices and the effect that this has on household wealth. Lower wealth in the form of declining or stagnant house prices and income can affect consumer sentiment and the spending behaviour of individuals. Therefore, to take this into account, the index developed by the PNC amended the MI to include real estate values.

While the HESI in its original form is applicable to the United States (US), given the structure of its economy and the large impact that the real estate market has on the economy, South Africa's economy is somewhat different. In South Africa, the majority of households do not own houses and depend solely on income as a source of wealth. Therefore, as an amendment to the original HESI, two indicators of wealth have been included for South Africa, namely the house price and economic growth.[3]

Additional variables include interest rates, the unemployment rate, and inflation as key determinants of households' economic stress. While both unemployment and inflation have negative effects on households' economic position, changes in interest rates have both negative and positive effects. While higher interest rates may increase wealth through interest earned on savings and investments, South African households generally have a low savings rate and relatively high levels of debt. Therefore, the net effect of higher interest rates on South African households' economic stress is negative as interest rate movements have an impact on households' debt-servicing ability and purchasing power.

One of the challenges with the HESI is that it is simply an unweighted summation of variables and does not take into account that changes in one variable could have a relatively larger impact on household stress.[4] For example, many studies have shown that unemployment has a much larger effect on consumer sentiment than inflation.[5] To eliminate this issue of over-weighting in some variables, weights have been assigned to each variable.

With the help of principal components analysis (PCA)[6], subjective weights have been chosen and assigned to the variables (Table 2A). The subjective components of the weights are based on research by Di Tella, MacCulloch and Oswald (2001, 2003)[7], Welsch (2007)[8] and Setterfield (2009)[9] that regress variables included in the augmented MI against life satisfaction data.

Table 2A Weights

Variable	Weights
Year-on-year percentage change in the house price index (HPI)	5.8%
Year-on-year percentage change in annualised GDP (GDP)	9.8%
Inflation rate (CPI)	27.7%
Average household interest rates (INT)	28.7%
Unemployment rate (UNEM)	28.1%

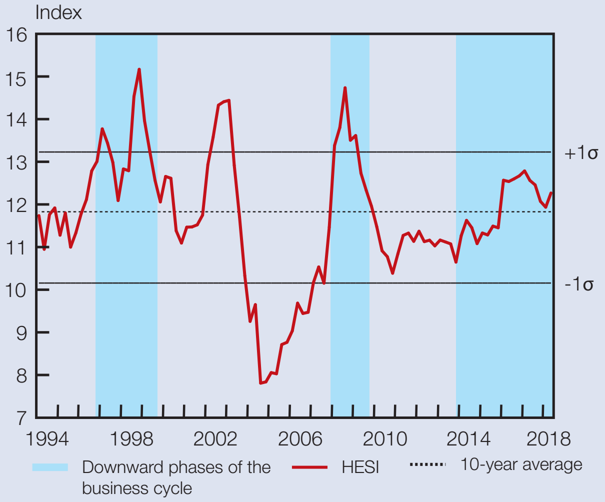
As expected, the weights show that income growth is more important to household economic stress than house price growth and the unemployment rate is more important than inflation. Given its high weighting, the interest rate appears to be the most important component in the HESI.

The weighted HESI for South Africa can therefore be constructed as follows:

$$\text{HESI} = w_1\,\text{CPI} + w_2\,\text{INT} + w_3\,\text{UNEM} - w_4\,\text{HPI} - w_5\,\text{GDP}^{10} \tag{1}$$

The HESI is analysed in a similar way as the MI[11], in that an increase in the HESI is an indication of increased stress in the household sector.

Figure 1A Household Economic Stress Index for South Africa



Box 3: An updated Household Economic Stress Index measure for South Africa (continue)

As expected, the HESI picks up on three main events that took place during the sample period (Figure 1A). Firstly, it shows the effects of the Asian financial crisis and the subsequent Russian ruble crisis in 1998 on income growth and interest rates. Secondly, the HESI spikes in 2002 and 2003, which is in reaction to the 2001 rand crisis and its effect on inflation and interest rates that caused a deterioration in households' economic positions. Lastly, the effects of the 2008 global financial crisis on income and wealth growth are also detected by the HESI.

The sharp increase experienced at the beginning of 2014 is in line with the start of the downward phase of the business cycle. More recently, however, the HESI has been on a downward trend, mainly driven by a moderation in inflation, a fall in interest rates and the marginal effect of the improvement in house price growth (and thus wealth). There was a marginal increase in the HESI in the second quarter of 2018 as a result of an increase in the unemployment and inflation rate and a decrease in economic growth (and thus wealth). Despite this increase, the trend of the HESI in the last two years implies that households are experiencing an improvement in their financial conditions and are thus less vulnerable to negative external shocks. Therefore, according to the index, the household sector does not currently pose a major risk to financial stability.

The HESI should be monitored as it is an important indicator for assessing the financial health of the household sector. A simple correlation analysis shows that, on average, there is a positive relationship between household economic stress and the growth of impaired advances in the banking sector. Therefore, not only can the HESI be used to determine the level of stability in the household sector, but it can also be used as a credit risk indicator to assess the loan quality of the South African banking sector.[12]

1 Nessen, R. 2008. *The Brookings Institute's Arthur Okun - father of the "Misery Index"*. Brookings Institute. Available at: https://www.brookings.edu/opinions/the-brookings-institutions-arthur-okun-father-of-the-misery-index.

2 Dye, R.A. and Sutherland, C. 2009. A new metric to gauge household economic stress: improving on the misery index. *Business Economics*, 44(2): 109-113.

3 Economic growth can be used as a proxy for income because higher GDP generally leads to higher disposable income.

4 Nordhaus, W.D., Alesina, A. and Schultze, C.L. 1989. Alternative approaches to the political business cycle. *Brookings papers on economic activity*, 1989(2):1-68. Also Conover, P.J., Feldman, S. and Knight, K. 1986. Judging inflation and unemployment: The origins of retrospective evaluations. *The Journal of Politics*, 48(3): 565-588.

5 A study by Nordhaus, Alesina and Schultze (1989) concluded that a one percentage point increase in the unemployment rate resulted in four times the misery of an equal increase in the inflation rate. Further, Conover, Feldman, and Knight (1986) find that individuals are more responsive to changes in unemployment than inflation.

6 This analysis has the ability to determine the relative importance of the individual variables and weights can be assigned accordingly.

7 Di Tella, R., MacCulloch, R.J. and Oswald, A.J. 2001. Preferences over inflation and unemployment: evidence from surveys of happiness, American economic review, 91(1): 335-341. Also Di Tella, R., MacCulloch, R.J. and Oswald, A.J. 2003. The macroeconomics of happiness, *Review of Economics and Statistics*, 85(4): 809-827.

8 Welsch, H. 2007. Macroeconomics and life satisfaction: revisiting the "misery index". *Journal of Applied Economics*, 10(2): 237-251.

9 Setterfield, M. 2009. An index of macroeconomic performance, *International Review of Applied Economics*, 23(5): 625-649.

10 Where: wi are the weights assigned based on Table 1.

11 Hanke, S.H. 2011. *Misery in MENA*. Cato Institute: appeared in Globe Asia.

12 The data show a moderate correlation of 0.49 between the HESI and growth in impaired advances. Furthermore, the correlation increases to 0.80 after 2008.

The robustness of the domestic financial infrastructure

This section reviews domestic legislative developments as well as some international regulatory developments in the banking sector, insurance sector, and financial markets. The section begins with an update on the NCAAB and the Financial Sector Laws Amendment Bill of 2018 (FSL Amendment Bill) before moving on to more recent developments that have a direct impact on the South African banking system, including a summary of the quantitative impact study (QIS) results for IFRS 9. An update on the insurance prudential legislative framework is provided, as well as a number of developments related to the financial markets, including an overview of a discussion paper on payroll deductions.

Update on the National Credit Act Amendment Bill of 2017

Proposals regarding the NCAAB were discussed in the first edition of the *Financial Stability Review* of 2018. This followed the establishment of the Committee Bill by National Assembly's Portfolio Committee on Trade and Industry (Committee).[48]

The Committee adopted the NCAAB on 29 August 2018. The current draft of the NCAAB includes some new provisions prescribing over-indebtedness as a requirement to qualify for debt intervention. The NCR, through an amendment to section 15A of the NCA, is envisioned to act as a facilitator of the debt intervention process by assisting affected consumers through the process of being declared over-indebted. It is envisaged that the NCR will use the industry Task Team Agreement to renegotiate the repayments of the debt intervention applicant. This debt may be suspended in part or in full for up to 24 months, and may be extinguished altogether if the financial circumstances of the applicant do not improve. According to the NCR, task team agreements are voluntary non-statutory measures put in place to address any operational and/or procedural weaknesses that may arise from the implementation of the debt review provisions of the NCA.[49]

Another provision of the NCAAB is that magistrate courts, through an amendment of section 87 of the NCA, will be empowered to set maximum interest rates, fees, and other charges on credit agreements, as prescribed by the Task Team Agreement, distinguishing between secured and unsecured credit. Finally, the latest draft of the NCAAB also removes the extensive debt prescription interventions that were available to the Minister of Trade and Industry in the initial draft Bill.

The potential unintended consequences due to the implementation of the new debt review proposals could include the following:

- The NCAAB could have varying effects on lenders, depending on their exposure to the low-income groups targeted by the intervention. Micro-lenders in particular, whose loan books are smaller than banks' but more skewed towards low-income borrowers, are more likely to see write-downs affect their overall balance sheets than banks.
- The NCAAB may adversely affect the supply of credit to the affected borrowers. This may lead to the disruption of access to credit, not only for over-indebted households but for low-income consumers as well and this could have negative implications for financial inclusion.
- There may be an increase in moral hazard on the part of some borrowers who may enter into further credit arrangements in anticipation of debt being written off. However credit providers would still be required to apply strict affordability criteria on all credit applications.

Update on the Financial Sector Laws Amendment Bill of 2018

The Financial Sector Regulation Act 9 of 2017 (FSR Act) expanded the mandate of the SARB to include the monitoring and mitigation of systemic risk in the South African market. The FSL Amendment Bill, which includes amendments to the FSR Act to cater for the resolution of financial institutions and the establishment of an explicit depositor insurance scheme, was published on 25 September 2018. This Bill gives effect to the proposals contained in the discussion document titled 'Strengthening South Africa's resolution framework for financial institutions' released on 13 August 2015 and the deposit insurance policy document titled 'Designing a deposit insurance scheme for South Africa released on 30 May 2017.

These amendments to the FSR Act will strengthen the ability of the SARB to manage the orderly resolution or winding down of a failing financial institution with minimum disruption to the broader economy. In addition, the amendments will ensure that depositors' funds are protected in the event of a bank failure, and that depositors' funds will be paid out speedily to protect the most vulnerable customers, by means of a deposit insurance scheme which will be funded by the banking industry. These amendments apply to all South African banks, including mutual banks and cooperative banks, as well as other systemically important non-bank financial institutions.

48 The National Credit Act Amendment Bill of 2017 can be accessed at https://www.parliament.gov.za/storage/app/media/Docs/bill/b2dbb7bc-b06a-48d8-9f91-263ed9533264.pdf

49 The circular can be accessed at https://www.ncr.org.za/documents/pages/circulars/jan2015/Debt%20Review%20Task%20Team%20Agreements.pdf

The amendments aim to meet their objectives by ensuring that:

- Critical functions are maintained, even through the failure of financial institutions.
- Private creditors who benefit from taking greater risks during good times also fully internalise the costs of failure where their risk taking results in the failure of those financial institutions.
- 'Ordinary' depositors are protected by guaranteeing covered deposits, as defined by the FSL Amendment Bill, up to the amount of R100 000 per individual depositor.

Regulatory developments affecting the domestic banking sector

Release of South Africa's retail banking diagnostic report for public comment

On 4 September 2018, National Treasury and the Financial Sector Conduct Authority (FSCA) published for public comment a diagnostic report by the World Bank on the South African retail banking sector. The report, titled 'South Africa retail banking diagnostic: treating customers fairly in relation to transactional accounts and fixed deposits', was commissioned by National Treasury to provide independent research on identifying the extent to which South African banks treat their retail customers fairly in relation to transactional accounts and fixed deposits. The study's recommendations will inform the FSCA's approach to implementing the provisions of its Treating Customers Fairly (TCF) market conduct initiative in the banking sector.[50] The March 2014 and March 2015 editions of the *Financial Stability Review* provided updates on the TCF initiative that the Financial Services Board (now the FSCA) had embarked on since 2011.

The report focuses on product design, product offer and sale, product operation and administration, and product closure and mobility. It also identifies potential shortcomings in the conduct of banks. Some of its high-level findings include:

- complex product design (that makes it difficult for customers to compare products);
- potentially unfair terms and conditions;
- potentially unfair fees;
- wide variation in information disclosure about product features and pricing;
- gaps in regulation; and
- inconsistencies in how regulation is applied.

The report makes recommendations to address the issues identified, and it is envisaged that this will contribute to a stronger market conduct regulatory framework in the financial sector. The closing date for comments on the report was 16 October 2018.

50 The study can be accessed at http://www.treasury.gov.a/publications/other/SA%20Retail%20Banking%20Diagnostic%20Report.pdf

Impact of IFRS 9

The first edition of the *Financial Stability Review* of 2018 reported on IFRS 9. In that edition, it was pointed out that IFRS 9 introduced a fundamental change in the manner and timing of calculating credit losses, and that there was an expectation that credit impairments would trend upwards, with the quantum of that movement dependent on a number of related factors. The focus in this edition of the *Financial Stability Review* is on some of the quantitative dimensions of IFRS 9 in the domestic banking sector based on available data.

Towards the end of 2017, the Prudential Authority (PA) (then called BSD), conducted a QIS to assess the expected impact of IFRS 9 on impairments and capital adequacy ratios (CARs) in the banking sector. For the QIS, all banks were requested to submit an estimate of the impact of IFRS 9 on their credit impairments, regulatory capital, and CARs. From the responses to the QIS, the SARB expected a 'day one' increase in total impairments of about 38% for the four largest South African banks and no breaches of CARs. As at 1 July 2018, all four of these banks had adopted IFRS 9, and this adoption resulted in an actual increase in impairments of 39% (R22.7 billion), i.e. the actual increase in impairments was higher than the QIS results by only 1 percentage point (Table 6). No breaches of CARs were reported in the actual data.

Table 6 Comparison between QIS and the actual IFRS 9 impairments results for the four biggest South African banks

	IAS 39 ('000)	IFRS 9 ('000)	Per cent difference
QIS (as at November 2017).......	R57 760 115	R79 482 233	38%
Actual (as at 1 July 2018).............	R57 589 790	R80 280 829	39%

There has been a general upward trend in impairments, with an aggregate increase in impairments, in the total banking sector from December 2017 to July 2018 of around R29.0 billion. However, disaggregated data for the banking sector (compared to those of the four biggest banks) present a more complex and nuanced picture. Actual results received to date indicate that the percentage of increases in impairments varies among the smaller banks in the banking sector, with a few of these banks reporting a small or no increase in impairments and others reporting higher impairments than under IAS 39.

Regulatory developments affecting the domestic insurance sector

Prudential legislative framework developments

The second half of 2018 saw the commencement of the Insurance Act 18 of 2017 (Insurance Act) and the Prudential Standards necessary for the effective implementation of this

Insurance Act. The Insurance Act, the 42 Financial Soundness Standards, and the Governance and Operational Prudential Standards for insurers, micro-insurers, the branches of foreign reinsurers, Lloyd's and insurance groups took effect on 1 July 2018. These provide a consolidated legal framework for the prudential supervision of insurers, and enhance:

a) access, through the introduction of a micro-insurance regulatory framework;
b) transformation, through the supervision and monitoring of the Financial Sector Code as well as proportionality and progressive realisation;
c) the financial soundness of insurers and the financial services sector;
d) the protection of policyholders; and
e) alignment with international standards in accordance with South Africa's Group of Twenty (G20) commitments.

The implementation of the Insurance Act has resulted in the separation of the prudential legislative framework and the conduct-of-business legislative framework. The Insurance Act and the Prudential Standards constitute the prudential component of the domestic regulatory framework, for which the PA is responsible. The remaining provisions of the Long-term Insurance Act 52 of 1998 (LTI Act) and the Short-term Insurance Act 53 of 1998 (STI Act) that have not been repealed by the Insurance Act constitute the conduct-of-business component of the regulatory framework, until the proposed Conduct of Financial Institutions Bill is enacted. The FSCA is responsible for the conduct regulatory framework.

The separation does not affect the continued cooperation and collaboration between the PA and the FSCA to secure overall policyholder protection. Mechanisms are in place to facilitate close cooperation and collaboration between the regulators, beyond what is required under the FSR Act. Consideration is currently being given to the possibility of developing joint standards on a range of matters to ensure a more harmonised and a more consistent regulatory and supervisory approach, where practically possible.

Because the insurance regulatory framework is an integrated prudential and conduct model, and as a result of the implementation of the Insurance Act and the Prudential Standards, amendments are required to the subordinate conduct-related legislative framework (Regulations and Policyholder Protection Rules) made under the LTI Act and the STI Act to avoid any regulatory gaps that could undermine a coordinated and harmonised approach to insurance regulation and supervision.

In the coming years, the PA will focus on the progressive implementation of the Insurance Act and will continue to issue communiqués to the industry to assist all affected parties with the implementation of the Insurance Act and the Prudential Standards. It is envisaged that the necessary amendments to the subordinate conduct-related legislative framework will take effect before the end of 2018.

Regulatory developments affecting the domestic financial markets

Domestic Financial Markets Review

Cases of misconduct in certain international financial markets have focused the attention of financial authorities and regulators on measures to strengthen the standards of market practice. In South Africa, there was a review of the Johannesburg Interbank Agreed Rate (Jibar)-setting process in 2012, which was followed by the Foreign Exchange Review in 2015. While no evidence of widespread misconduct in the domestic wholesale financial markets was found, room for improvement was identified in both reviews. South Africa's financial sector authorities – namely National Treasury, the FSCA and the SARB – have established the Financial Markets Review Committee (FMRC) to develop recommendations aimed at reinforcing conduct standards in wholesale financial markets.

The mandate of the FMRC is fairly comprehensive with regards to financial markets. It has already established the Financial Markets Review (FMR) project. This project focused on tools to strengthen the implementation and governance of conduct standards by market participants as well as on areas where changes to financial markets legislation and associated subordinate legislation are needed to support a new conduct framework for wholesale financial markets. The review and its outcomes have the potential to support confidence in South African markets, thereby increasing the resilience of the financial system. The project commenced in May 2017, and the report was published on the websites of all three agencies for public consultation. The comments received from the public consultation process will be incorporated into the final FMR report.

The draft report offers forty-three recommendations that can be arranged under six themes, namely governance, market conduct, market structure, trading venues and technology, the regulatory framework, and the finalisation of the 2015 Foreign Exchange Review. The recommendations under 'the regulatory framework' theme are far-reaching, especially with regard to their critique of the proposed legislation, and it will be interesting to see how the financial sector authorities respond to these.

Financial Markets Act Regulations

The first edition of the *Financial Stability Review* for 2018 reported on the finalisation of the Financial Markets Act of 2012 (FMA) Regulations. The finalisation of these FMA Regulations brings regulatory certainty to aspects of over-the-counter (OTC) derivatives trading and other financial market infrastructures. The FMA Regulations address a number of other issues as well, including external Central Securities Depository (CSD) participation and the licensing of central counterparties (CCPs).

Furthermore, the FSCA has issued a joint standard[51] which prescribes the requirements and additional duties of a trade repository as per the applicable sections of the FMA.

In the South African context, the FMA Regulations are a step in the right direction towards the full implementation of the CPMI-IOSCO Principles for Financial Market Infrastructures (PFMIs). The PFMI aim to limit systemic risk, foster financial stability, and enhance the safety and efficiency of payment, clearing, settlement and recording arrangements.

In July 2018, the CPMI and IOSCO published the fifth update to the Level 1 assessments of implementation monitoring of the PFMI.[52] The fifth update report is based on self-assessments by individual jurisdictions of how they have adopted the 24 Principles for Financial Market Infrastructures (PFMIs) and the 4 Responsibilities for Authorities. South Africa reported achieving full implementation[53] of the payment system, CSD, and securities settlement systems as well as the CCPs. However, it currently has a rating of 2 for trade repositories. In order for South Africa to report a rating of 4 (i.e. full adoption of the PFMI), final implementation measures for trade repositories will have to be in force.

South Africa has also committed to undergo a CPMI-IOSCO Level 2 assessment, which aims to determine whether the legislation, regulations and policies that have been implemented are complete and consistent with the 24 PFMIs and the 4 Responsibilities for Authorities. FMIs are critical to maintaining financial system stability, and the regulatory authorities continue to strive towards ensuring the resilience and robustness of these infrastructures.

Launch of the electronic trading platform for government bonds

In 2012, National Treasury formed the Bond Market Development Committee – an industry-wide committee whose mandate was to consider the developmental issues facing the South African bond market. The Committee comprises representatives of key industry stakeholders, including the Johannesburg Stock Exchange Limited (JSE), Strate, the Association for Savings and Investments South Africa, the FSCA, the Primary Dealer Association, and the SARB.

On 29 August 2018, National Treasury and the JSE launched the electronic trading platform (ETP) for government bonds. This was a culmination of efforts to enhance transparency in the South African bond market and to enable National Treasury to more accurately monitor the activities of primary dealers in government bonds. The platform went live on 18 July 2018, with the full spectrum of bonds phased in and all nine primary dealers commencing trading on the platform on 22 August 2018.

An ETP Market Committee, chaired by National Treasury, has been established as the frontline governance structure of the market. It is responsible for the ETP, for determining the operating model for this market, and for defining the core functional and other requirements of the ETP.

As was noted in the March 2015 edition of the *Financial Stability Review*, the ETP is aligned with the European model and with IOSCO's Objectives and Principles of Securities Regulation (OPSRs). As they relate to the secondary market, these OPSRs mandate, among other things, that the systems for the clearing and settlement of securities transactions should be subject to regulatory oversight and reduce systemic risk.

Regulatory proposals on payroll deductions

Background

Payroll deductions can be defined as the holding or withdrawal of an amount by an employer from an employee's earnings for payment to a third party or to discharge an obligation to the employer.[54] These deductions are made prior to the employee receiving their salary, and in some instances financial intermediaries offer employers incentives to persuade their employees to take up products which will result in salary deductions.

In the context of high indebtedness, the Minister of Finance released a draft National Treasury regulation on government payroll deductions, prohibiting discretionary deductions on the personnel salary system (the PERSAL System) in the year 2000. After the initial draft, a consultative process between the Minister and stakeholders resulted in the current regulation for government payroll deductions being capped at 40% of the state employee's salary.

In 2003, as a result of the abuses perpetrated by certain parties in the national payment system, the SARB facilitated the establishment of a collection forum to examine and formulate a solution to the problem of preferential treatment, and in 2006 the Early Debit Order (EDO) System was launched. This system allowed all EDO payment instructions to be randomised, thus enabling all EDO users to have an equal opportunity to collect the funds owed to them. Furthermore, the SARB directive allowed for EDO deductions to be processed after the bulk credits had been posted.

Developments in the payroll deduction landscape

The SARB has become aware of an escalation in the number of entities offering payroll deduction services which are made with prior agreements between the employee and the employer, and in some instances are made by institutions and/or financial intermediaries.

51 The joint standard is available at https://www.fsca.co.za/Notices/FMA%20Joint%20Standard%201%20of%202018%20-%20Requirements%20and%20Additional%20Duties%20of%20a%20Trade%20Repository.pdf

52 The CPMI-IOSCO Fifth update Level 1 report is available at https://www.bis.org/cpmi/publ/d179.pdf

53 Full implementation implies receiving a rating of 4 which means that the final implementation measures have been approved /adopted.

54 As defined in the paper titled Regulatory proposals on payroll deductions available at https://www.resbank.co.za/Lists/News%20and%20Publications/Attachments/8302/1PAYROLL%20DEDUCTION%202018.pdf

The SARB, together with National Treasury and other stakeholders, established a steering committee[55] and a working group[56] to address the issue of discretionary and/or voluntary payroll deductions. The collaboration between the various stakeholders in government and the financial sector culminated in the release of a joint consultation paper, titled 'Regulatory proposals on payroll deductions'. The paper aims to address the issues relating to discretionary and/or voluntary payroll deductions in both the public and the private sectors, excluding deductions from social grants as well as payments of contributions to benefit funds that are regulated by section 34A of the Basic Conditions of Employment Amendment Act 11 of 2002.

The objectives and principles of the proposed regulatory framework aim to achieve a stable and effective payroll deduction system that works to benefit employees and enhances their socio-economic welfare.[57] The National Payment System Act 78 of 1998 (NPS Act) aims to 'provide for the management, administration, operation, regulation and supervision of the payment, clearing and settlement systems'[58] and for related matters in South Africa. The authority to perform these functions within the SARB has been assigned to the National Payment System Department.

Due to their preferential nature, payroll deduction services create a closed-loop payment system that limits access and constraints competition as preferential treatment is given to the payment instructions already in the system. If the payroll system is allowed to expand to include more types of non-statutory deductions, this will negatively affect the general payment system through the preferential treatment of non-statutory deductions over those that are prescribed by law.

The benefits and challenges of a payroll deduction system

The consultation paper highlighted fewer benefits than challenges. However, at the time of going to print, the consultative process was still underway. The following benefits and challenges were noted.

Benefits

- If the payroll deduction agreement is used for the repayment of a loan the consumer can be regarded as less of a credit risk to the lender and may be subjected to lower costs of borrowing.
- When using credit for acquiring assets or saving for the acquisition of wealth, payroll deductions can foster financial inclusion and improve the quality of life for the consumer.

Challenges

- Payroll deduction services create a closed-loop payment system that limits access and constrains competition where preferential treatment is given to the payment instructions already in the system. However, the preferential treatment of payment instructions is allowed if it is prescribed by law (such as the NPS Act and the SARB Directive 1 of 2017).
- There is the risk that the employee may be exploited in the absence of an appropriate regulatory framework, in particular for discretionary and/or non-voluntary payroll deductions, thereby leaving employees with little or no legal protection.
- No principles are applied to ensure the safety, efficiency and integrity of the payroll deduction system from a national payment system perspective.
- The lack of regulations and principles governing the payroll deduction arrangements means that there is no guarantee of the proposed socio-economic benefits.

Since payroll deductions have recently come under scrutiny, the SARB, as an initial regulatory intervention, issued a notice to the stakeholders in the national payment system, financial institutions, and other relevant stakeholders (non-bank institutions) in July 2016.

This notice aims to advise the participants and stakeholders of the national payment system to refrain from executing and/or entering into non-statutory commercial arrangements for payroll services which could potentially contravene the national payment system's regulatory framework. They were also informed of the current collaboration between National Treasury and the SARB in the form of an investigation into payroll deductions.

55 The steering committee comprises representatives from National Treasury (the Financial Sector Policy Unit and the Office of the Accountant-General), Department of Labour, Department of Trade and Industry (the dti), National Credit Regulator (NCR), Department of Public Service and Administration, the National Financial Board and the South African Reserve Bank.

56 The working group consists of representatives from the National Treasury, the NCR, the dti and the SARB.

57 A review of payroll deductions was conducted in 2015 in order to address the over-indebtedness of public sector employees.

58 See https://www.resbank.co.za/RegulationAndSupervision/NationalPaymentSystem(NPS)/Documents/Oversight/NPS%20Oversight%20framework%202016.pdf.

Box 4: Project Khokha

The overall objective of Project Khokha[1] is to help the South African Reserve Bank (SARB) gain deeper insights into the impact of distributed ledger technology (DLT) on its mandate and the financial institutions it is responsible for. Phase 1 of Project Khokha was a collaborative project led by the SARB, and involved a consortium of seven South African settlement banks (Absa, Capitec, Discovery Bank, FirstRand, Investec, Nedbank and Standard Bank) as well as technical (ConsenSys) and support (PricewaterhouseCoopers (PwC)) partners. The goal of Phase 1 was to build a proof-of-concept (PoC) wholesale payment system for interbank settlement using a tokenised South African rand on DLT. Initial planning started late in 2017. The project commenced in January 2018 and ran for 14 weeks.

Potential benefits of distributed ledger technology

From a central bank perspective, some of the benefits considered include greater resilience of the real-time gross settlement (RTGS) system, the potential of DLT to support multiple asset types and currencies, and transaction privacy while enabling regulatory access. From a commercial bank perspective, benefits could include possible cost reduction through the removal of duplication, the removal of reconciliation processes, and the fact that there would be only one system to maintain and support.

The Project Khokha report referenced the use of the Committee on Payments and Market Infrastructures' analytical framework for DLT in payment clearing and settlement, which looks at functionality (understanding the scope of the arrangement), efficiency implications, safety implications, and broader financial market implications. Such a framework could be used in greater detail on subsequent phases to assess the business case of taking a DLT arrangement to production.

Table 3A Hypotheses and Outcomes of Project Khokha

Hypothesis	Hypothesis outcome
RTGS transactions can be executed using standard payment message formats (leveraging the ISO 20022 format).	Proven. The PoC was designed in compliance with ISO 20022.
Messages can be processed at sufficient scale in line with the current system-processing times.	Proven. Various test runs were conducted for different iterations of the Project Khokha PoC. The third test run, for iteration 3 resulted in 90 000 transactions being processed in 1 hour and 16 minutes. Iteration 4 (the final iteration) processed 70 000 transactions in just over 1 hour and 30 minutes. This was better than the target of 70 000 transactions in 2 hours.
Blocks should be propagated within 1 second to a 95% confidence level and within 2 seconds to a 99% confidence level.	Proven. System latency was within the targeted times for the writing of blocks, with 99% of the blocks propagated through the network in 1 second and 100% in 1.25 seconds.
The confidentiality and privacy of transactions between commercial banks is maintained.	Proven. The Quorum solution used Whisper for private messaging Pedersen commitments and range proofs were used for transaction privacy and confidentiality. This ensured that the solution provided robust confidentiality while enabling the transaction throughput required.
The visibility of the system for the SARB is sufficient for regulatory oversight and operational management.	Proven. The SARB node gave the SARB full visibility of all the transactions.

This initial phase, at a high level, investigated whether confidentiality could be achieved at scale, and whether multiple node types, each configured by a participating bank, could be accommodated. The results showed that the typical daily volume of the South African payments system could be processed in less than 2 hours with full confidentiality of transactions and settlement finality. This was done using ISO 20022 standard messages, propagated within 2 seconds, across a network of geographically distributed nodes, with distributed consensus providing the requisite resilience.

Project management

The overall project management was performed by the Financial Technology (FinTech) Unit within the SARB, while the project consisted of two parts, namely the PoC and then the reporting. Standard Bank provided a project manager for the PoC leg while ConsenSys was responsible for delivering the technical solution. The reporting leg was managed jointly between PwC and the SARB. A collaborative and agile process was followed in order to meet the project deadlines.

The establishment of communities of learning within the regulators (e.g. the Intergovernmental FinTech Working Group) and industry created conducive learning environments, reflecting a willingness to learn more about and explore further the South African financial services landscape. The SARB's interest to gain deeper insight into DLT, not only as a regulator but also as a participant in the financial system, was important.

Conclusion

Phase 1 of Project Khokha brought about an opportunity to broaden the DLT skills base, explore collaborative innovation concepts, and contribute to the global body of knowledge on DLT. In addition, the project aimed to specifically highlight the ability of a distributed ledger to adhere to the globally recognised Principles for Financial Market Infrastructures (PFMI), specifically settlement finality, money settlements, and operational risk. It should be noted that more work needs to be done in relation to compliance with the PFMI. DLT is not yet considered mature enough for production, but the technology is maturing fast, and future work on DLT will consider in more detail what the business case and requirements are to take DLT into the production environment. While still in its early stages, Project Khokha obtained the inaugural 'Best DLT Initiative' award from Central Banking Publication in September 2018.

1 The Project Khokha report is available at https://www.resbank.co.za/Lists/News%20and%20Publications/Attachments/8491/SARB_ProjectKhokha%2020180605.pdf.

Article 1: The 2018 Common Scenario Stress Test of South African banks conducted by the South African Reserve Bank

Introduction

During the course of 2018, the South African Reserve Bank (SARB) conducted a Common Scenario Stress Test intended to assess the resilience of the South African banking sector to a selection of hypothetical, plausible but severe macroeconomic shocks. The SARB developed three detailed macroeconomic scenarios that were provided to participating banks, who in turn were requested to conduct a bottom-up stress test based on their respective latest year-end data. Simultaneously, the SARB conducted a complementary top-down stress test to validate and benchmark the results of the bottom-up stress tests.

Scope of the exercise

The 2018 Common Scenario Stress Test exercise covered six major South African banks, with a combined contribution of nearly 93% to total banking sector assets. The stress-testing exercise was structured to concentrate on all domestic banking operations – including foreign exposures origination within South Africa – and assessed the impact of various stress scenarios on the solvency position (credit risk, counterparty credit risk and market risk) and liquidity profile of the South African banking sector.

The stress test was conducted over a three-year stress horizon following a constrained dynamic balance-sheet approach which did not allow for any potential mitigating action from banks' management to be taken into account. Banks were not expected to use the macro-financial scenarios to calculate future impairments, as prescribed by International Financial Reporting Standard (IFRS) 9.

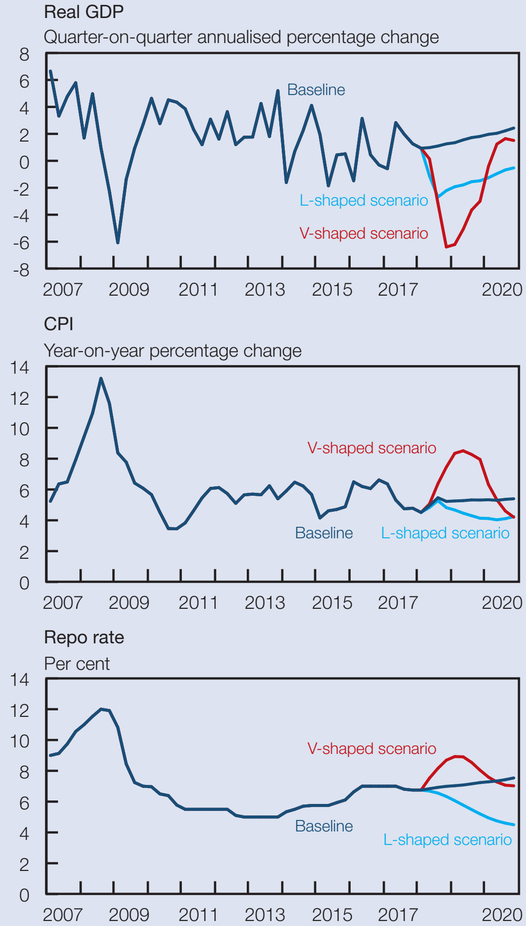
Risk identification and scenario design

The SARB made use of a Risk assessment matrix (RAM) to ensure a formal approach to risk identification and scenario design in the development of the stress scenarios. Once the respective shocks were identified, the SARB's Core Econometric Model was utilised to obtain globally and domestically consistent macro-financial scenarios, spanning over a three-year forecast horizon. These included a baseline and two adverse scenarios, namely a severe yet relatively short-lived V-shaped recession and a less severe but more protracted L-shaped recession. The January 2018 Monetary Policy Committee (MPC) forecast was used as a basis for the baseline scenario, extended to 2020.

The first adverse scenario is a severe but short-lived V-shaped recession that is triggered by a sharp decline in global growth and characterised by a significant contraction in domestic real gross domestic product (GDP), similar to the experience of the financial crisis in 2008/9 (Figure 2A). The contraction in global growth is accompanied by a rapid decline in commodity prices and lower oil prices, resulting in lower global inflation. Furthermore, declining commodity prices and a generally negative sentiment towards emerging market assets redirects capital towards safer-haven advanced economy bonds and equities, resulting in a depreciation of the rand. Despite the contraction in real GDP, the domestic economy experiences inflationary pass-through effects from the depreciated rand, which overrides the declines in commodity and oil prices as well as the widening output gap. The repurchase rate (repo rate) initially increases to dampen the acceleration in inflation (and inflation expectations) before decreasing to support the negative output gap as inflationary pressures subside.

In the L-shaped scenario, domestic real GDP contracts and growth remains in negative territory over the three-year stress-testing horizon (Figure 2A), signifying a moderate but drawn-out recession. This scenario is based on an amalgamation of idiosyncratic shocks which originate in the domestic economy, while global economic conditions remain generally benign. The domestic shocks include low consumer and business confidence as well as a reduction in the domestic economy's potential growth as production factors are destroyed due to the severity of the recession. The prolonged weakness in the domestic economy has a detrimental effect on business, resulting in further job losses, lower investment, falling disposable incomes, and a self-reinforcing cycle of further weakness in consumer and business confidence. The contraction in domestic real GDP causes tighter financial conditions, more restrictive bank lending criteria, and slower credit growth. Meanwhile, slower economic activity and benign global conditions also cause a deceleration in inflation, leading to a gradual easing of monetary policy.

Figure 2A 2018 Common Scenario Stress Test Scenarios

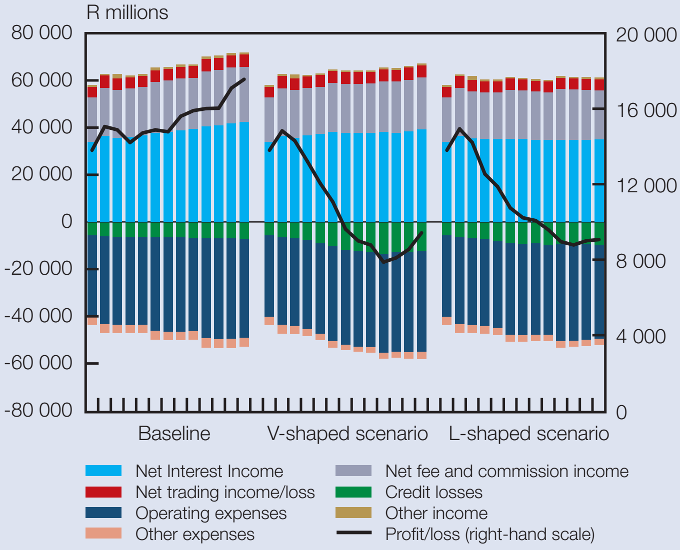


Results

Credit risk

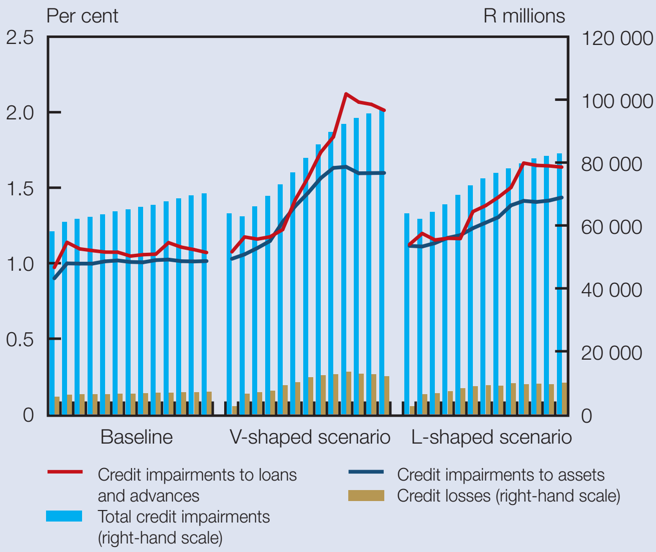
In line with expectations, a steady increase in net interest income is observed in the baseline while the increase is more moderate in the V-shaped scenario as increased impairments partially offset the benefit of initially higher interest rates. Meanwhile, net interest income remains almost constant throughout the three-year horizon in the L-shaped scenario, as declining interest rates reduce bank income through the endowment effect (Figure 2B). The increase in credit losses and operating expenses is more pronounced in the V-shaped scenario compared to the L-shaped recession, which is consistent with the severity of the recession and the interest rate environment in the former. However, credit losses continue to be offset by the substantial net fee and commission income that banks earn in both scenarios. While overall profits decline relative to the baseline in both adverse scenarios, banks remain profitable throughout the stress-test horizon. (In fact, profits begin to accelerate in the V-shaped scenario as the domestic economy starts to recover towards the end of the forecast period.)

Figure 2B Profit/loss composition and growth



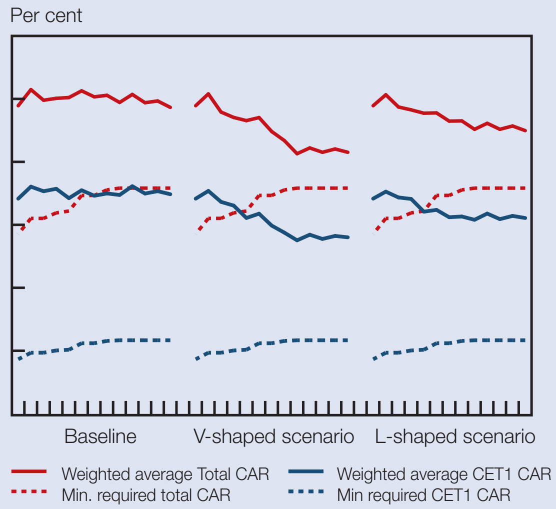
An analysis of the evolution of participating banks' asset quality shows that the V-shaped scenario was, on aggregate, more severe than the L-shaped scenario. Total credit impairments increase by a significant margin in the former compared to the latter (Figure 2C). This is also mirrored by the pattern for credit losses and credit impairment ratios.

Figure 2C Credit impairment ratios



However, despite the lower profits and increased impairments, the stress test confirmed that banks' capital levels were adequate to withstand credit losses under the two severe scenarios, in large part as a consequence of the high capital buffers in the banking system. The weighted average total capital adequacy ratio (CAR) decreases in both scenarios, with a more pronounced decline in the V-shaped scenario, but stays above the minimum regulatory total CAR (Figure 2D).[1] The common equity Tier 1 (CET1) CAR also stays comfortably above the minimum prudential requirement.

Figure 2D Capital adequacy ratios and minimum capital requirements



In order to analyse the concentration and counterparty risks that could be significant in the highly concentrated and interconnected financial system, a complementary sensitivity test was conducted to focus on the default of the largest non-financial borrowers. Given the level of exposure that banks have to state-owned enterprises (SOEs) and the latter's implied fragile financial position, these tests concentrated on the probability of SOE defaults. Banks were requested to report the potential credit losses that could be incurred if the SOEs defaulted, i.e. the unsecured portions of banks' exposures to SOEs. It was found that the impact of any single SOE default on the CARs of the respective banks would be negligible.

Market risk sensitivity analysis

Relative to previous exercises, the scope of the 2018 Common Scenario Stress Test was extended to include market risk through a sensitivity analysis. Participating banks were requested to perform single-factor sensitivity tests on their respective trading books with a range of severe shocks (with respect to both level and volatility) to domestic interest rates, equity prices, foreign exchange rates, commodity prices as well as traded credit shocks.

The results indicated that the aggregated impact of single-factor sensitivity shocks on the CET1 CAR was negligible. This result was, however, in line with expectations, as banks tend to hedge exposures to market risk in the trading books.

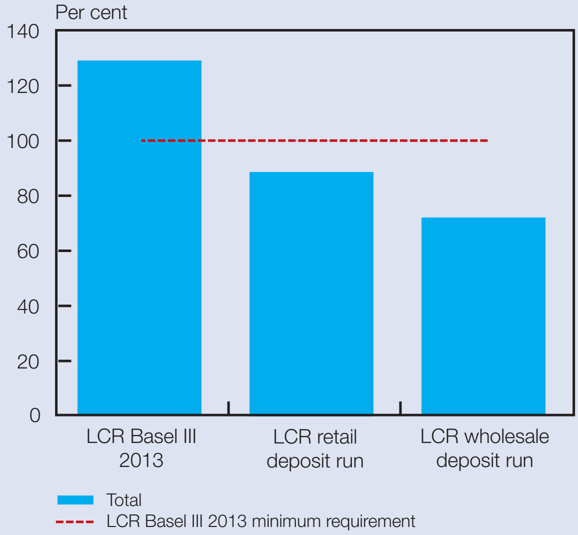
Liquidity risk

The 2018 Common Scenario Stress Test exercise included two liquidity stress tests. The first stress test, the Liquidity coverage ratio (LCR), addressed the liquidity positions of banks by considering the stresses applied to bank outflows. The Net stable funding ratio (NSFR) of banks was evaluated for the period January to July (2018).

In the LCR test, three specific stress scenarios were considered: a baseline scenario (as set out in the 2013 Basel III guidance), a secured funding and retail stress scenario (aimed at replicating a retail deposit run), and a wholesale funding stress scenario (aimed at replicating a wholesale deposit run coupled with a complete freeze of wholesale funding on the interbank market).

For the baseline scenario, the LCR was above the 2013 Basel III minimum requirement at 129% (Figure 2E). In the deposit run case, the LCR for the banking sector declined to 89% and was below the minimum prudential requirement. For the wholesale deposit run, the aggregated LCR dropped further to 72%. Bearing in mind that banks are allowed to use their high-quality liquid assets (HQLA) during periods of stress and temporarily dip below the LCR threshold with the consent of the SARB, the breach was not a major cause for concern but a good indication of the effect that either of the adverse scenarios would have on the aggregated liquidity position.

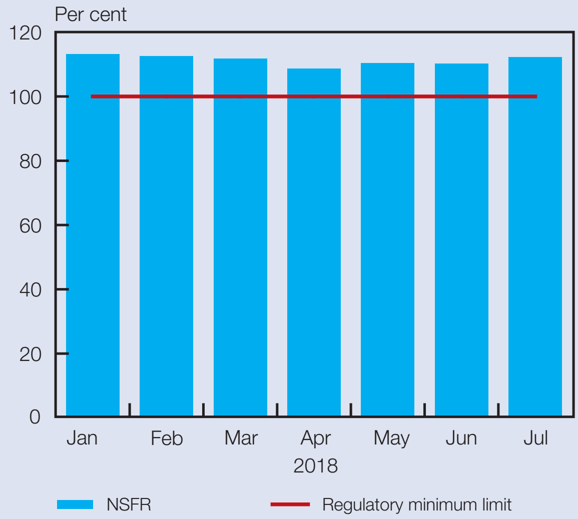
Figure 2E Liquidity coverage ratio



The NSFR stress test of a bank considers its funding profile in relation to its on- and off-balance-sheet activities. The aim of the indicator is to highlight and reduce the likelihood that any disruptions to the bank's regular sources of funding will erode its liquidity position in a way that could increase the risk of its failure and potentially lead to broader systemic stress.[2]

Overall, banks were found to be fulfilling the requirements for the prescribed minimum regulatory requirements, as set out by the SARB (Figure 2F).

Figure 2F Net stable funding ratio



Conclusion

The outcome of the 2018 Common Scenario Stress Test suggests that, in aggregate terms, the South African banking sector is resilient to the possible materialisation of what are currently considered to be the main financial stability risks. With respect to solvency, the significant banking institutions were found to maintain their minimum required CARs above the average capital requirements under the considered adverse macroeconomic scenarios. Furthermore, the SARB discovered no material risks emanating from the liquidity or funding positions of banks, nor from banks' trading books.

1 Both the total CAR and the CET1 CAR were weighted by risk-weighted assets.

2 Bank for International Settlements. 2014. 'Basel III: the net stable funding ratio'. Available at https://www.bis.org/bcbs/publ/d295.htm.

Appendix 1

Selected indicators of the South African banking sector*

Per cent, unless indicated otherwise

	2018					
	Feb	Mar	Apr	May	Jun	Jul
Market share (top five banks)	90.26	90.21	90.08	90.25	90.07	90.15
Gini concentration index	83.26	83.28	83.09	83.23	83.16	83.15
Herfindahl–Hirschman Index (H-index)	0.178	0.178	0.177	0.178	0.178	0.178
Banks' share prices (year-on-year percentage change)	32.09	33.13	37.78	27.54	25.75	23.99
Balance sheet						
Total assets (R billions)	5 195	5 201	5 202	5 165	5 295	5 243
year-on-year percentage change	5.8	5.3	5.8	4.7	7.0	4.5
Total loans and advances (R billions)	3 860	3 874	3 893	3 862	3 922	3 926
year-on-year percentage change	3.2	2.4	4.1	2.7	3.9	3.2
Capital adequacy						
Total capital adequacy ratio	16.2	16.3	16.6	16.7	16.6	16.7
Tier 1 capital adequacy ratio	13.3	13.4	13.4	13.4	13.4	13.5
Common equity Tier 1 capital adequacy ratio	12.8	12.9	12.9	12.9	12.9	13.0
Credit risk						
Impaired advances (R billions)**	120	125	129	131	137	141
Impaired advances to gross loans and advances	3.1	3.2	3.3	3.4	3.5	3.6
Specific credit impairments (R billions)	52	54	56	58	59	62
Specific credit impairments to impaired advances	43.3	43.1	43.7	44.3	42.7	43.9
Specific credit impairments to gross loans and advances	1.3	1.4	1.5	1.5	1.5	1.6
Profitability						
Return on assets (smoothed)	1.3	1.3	1.3	1.3	1.4	1.3
Return on equity (smoothed)	15.7	15.8	15.9	15.9	16.2	15.8
Interest margin to gross income (smoothed)	56.8	56.7	56.5	56.5	56.4	56.7
Operating expenses to gross income (smoothed)	57.1	57.2	57.0	57.0	56.8	57.3
Liquidity						
Liquid assets to total assets (liquid asset ratio)	9.9	10.1	10.3	10.6	10.2	9.8
Liquid assets to short-term liabilities	19.6	20.0	20.5	21.4	20.6	19.7
Liquidity coverage ratio (LCR)	117.0	123.9	119.4	124.6	122.8	124.9

* Data were updated on 14 September 2018

** Impaired advances are advances in respect of which a bank has raised a specific impairment and include any advance or restructured credit exposures subject to amended terms, conditions or concessions that are not formalised in writing.

Sources: JSE (data on share prices) and SARB

Abbreviations

AGR	augmented Guidotti ratio
Banks Act	Banks Act 94 of 1990
BCBS	Basel Committee on Banking Supervision
BDI	Business Debt Index
BER	Bureau for Economic Research (Stellenbosch University)
BIS	Bank for International Settlements
BMR	Bureau of Market Research
BRICS	Brazil, Russia, India, China, South Africa
BSD	Bank Supervision Department
CAR	capital adequacy ratio
CBN	Central Bank of Nigeria
CCB	countercyclical capital buffer
CCI	Consumer Confidence Index
CCP	central counterparty
CDS	credit default swap
CEO	Chief Executive Officer
CET1	common equity Tier 1
CFVI	Consumer Financial Vulnerability Index
Cooperative Banks Act	Cooperative Banks Act 40 of 2007
CPMI	Committee on Payments and Market Infrastructures
CSD	Central Securities Depository
DLT	distributed ledger technology
DSIB	domestic systemically important bank
EBIT	earnings before interest and taxes
ECB	European Central Bank
EDF	expected default frequency
EDO	Early Debit Order
EMBI	Emerging Markets Bond Index
ETP	electronic trading platform
EU	European Union
FCI	Financial Conditions Index
FDR	foreign-currency deposits received
Fed	United States Federal Reserve
FinTech	Financial Technology
FMA	Financial Markets Act
FMR	Financial Markets Review
FMRC	Financial Markets Review Committee
FNB	First National Bank
FOMC	Federal Open Market Committee
FSB	Financial Stability Board
FSC	Financial Stability Committee
FSCA	Financial Sector Conduct Authority
FSCF	Financial Sector Contingency Forum
FSL Amendment Bill	Financial Sector Laws Amendment Bill of 2018
FSR Act	Financial Sector Regulation Act 12 of 2017
G20	Group of Twenty
GDP	gross domestic product
GEPF	Government Employees Pension Fund
GR	Guidotti ratio
HESI	Household Economic Stress Index
H-index	Herfindahl–Hirschman Index
HPI	House Price Index
HQLA	high-quality liquid assets
HVRE	high-volatility real estate
IAS	International Accounting Standard
ICR	interest coverage ratio
IFRS	International Financial Reporting Standard
IIF	Institute of International Finance
IMF	International Monetary Fund

Insurance Act	Insurance Act 18 of 2017
IOSCO	International Organization of Securities Commissions
IPRE	income-producing real estate
IRB (approach)	internal ratings-based (approach)
ISO	International Organization for Standardization
ISSN	International Standard Serial Number
Jibar	Johannesburg Interbank Agreed Rate
JPM	JPMorgan
JSE	Johannesburg Stock Exchange Limited
LCR	liquidity coverage ratio
LTI Act	Long-term Insurance Act 52 of 1998
MBD	MBD Credit Solutions
MI	Misery Index
MMF	money market fund
Moody's	Moody's Investors Service
MPC	Monetary Policy Committee
MSCI	Morgan Stanley Capital International
MTN Group	MTN Group Limited
MTN Nigeria	MTN Nigeria Communications Limited
Mutual Banks Act	Mutual Banks Act 124 of 1993
NCA	National Credit Act 34 of 2005
NCAAB	National Credit Act Amendment Bill of 2017
NCR	National Credit Regulator
NIIP	net international investment position
NPS Act	National Payment System Act 78 of 1998
NSFR	net stable funding ratio
OFI	other financial intermediary
OPSRs	Objectives and Principles of Securities Regulation
OTC	over the counter
PA	Prudential Authority
PCA	principal components analysis
PFMI	Principles for Financial Market Infrastructures
PMI	Purchasing Managers' Index
PNC	Pittsburgh National Corporation
PoC	proof of concept
PwC	PricewaterhouseCoopers
QIS	quantitative impact study
RAM	Risk assessment matrix
repo (rate)	repurchase (rate)
RTGS (system)	real-time gross settlement (system)
SAM	Solvency Assessment and Management
SAMOS (system)	South African Multiple Option Settlement (system)
SARB	South African Reserve Bank
SDR	special drawing right
SOE	state-owned enterprise
Stats SA	Statistics South Africa
Steinhoff	Steinhoff International Holdings
STI Act	Short-term Insurance Act 53 of 1998
TCF	Treating Customers Fairly
the dti	Department of Trade and Industry
UK	United Kingdom
US	United States
VAT	value-added tax
VBS	VBS Mutual Bank
WGBI	World Government Bond Index