South Africa's Debt Sustainability: A Multi-factor Approach

By Lyle Begbie[1]

University of Cape Town

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Abstract

An increasing debt-GDP ratio, slow growth, high debt costs and declining credit ratings call into question the sustainability of South Africa's public debt. However, some commentators have drawn on Modern Monetary Theory in arguing that increasing debt can be tolerated for states that have a level of monetary sovereignty. This paper concludes that South Africa has a high degree of monetary sovereignty due to factors including its flexible exchange rate, independent and credible central bank, high level of financial development and private wealth and limited liquidity risk. However, the scope for increasing debt is not unlimited, the risks associated with rising inflation cannot be ignored and the national treasury's fiscal consolidation plan should not be abandoned. South Africa's comparatively strong financial institutions and persistently low global real interest rates allow the fiscal consolidation programme to be implemented gradually without undue disruption to the growth recovery, while avoiding the risk of a debt crisis, hyperinflation, and a sovereign default.

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Table of Contents

Chapter 1: Introduction 1

1.1. Background 1

1.2. Research Objective and Structure 4

Chapter 2: The Literature on Debt Sustainability, The Causes of a Sovereign Debt Default, and The Structure of South Africa's Debt 6

2.1. Introduction 6

2.2. Why is Debt Needed 6

2.3. Debt Overhang 7

2.4. Sovereign Debt Default 8

2.5. Assessing Sustainability 10

2.6. Structure of South Africa's Debt 11

2.7. Conclusion 14

Chapter 3: Inflation, Modern Monetary Theory, Wealth, Interest Rates and Hyperinflation 16

3.1. Introduction 16

3.2. Theories of Inflation 16

3.3. Modern Monetary Theory: A New View of Functional Finance 17

3.4. Monetary Sovereignty and Wealth 19

3.5. Sectoral Balances and Ricardian Equivalence 20

3.6. The Global Decline in Interest Rates- This Time is Different 22

3.7. Hyperinflation- The Cost of Institutional Failure 25

3.8. Conclusion 27

Chapter 4: South Africa's Private Wealth, Public Wealth and Financial development 29

4.1. Introduction 29

4.2. South Africa's Private Wealth. 29

4.3. South Africa's Public Wealth 35

4.4. South Africa's Institutions and Financial Development 37

4.5. Conclusion 41

Chapter 5: Austerity, South Africa's Fiscal Policy Plans and Yield Curve Control 42

5.1. Introduction 42

5.2. Austerity 42

5.3. South Africa's Fiscal Policy Plans 44

5.4. Quantitative Easing and Yield Curve Control 48

5.5. Conclusion 50

Chapter 6: Conclusion 52

Appendix 55

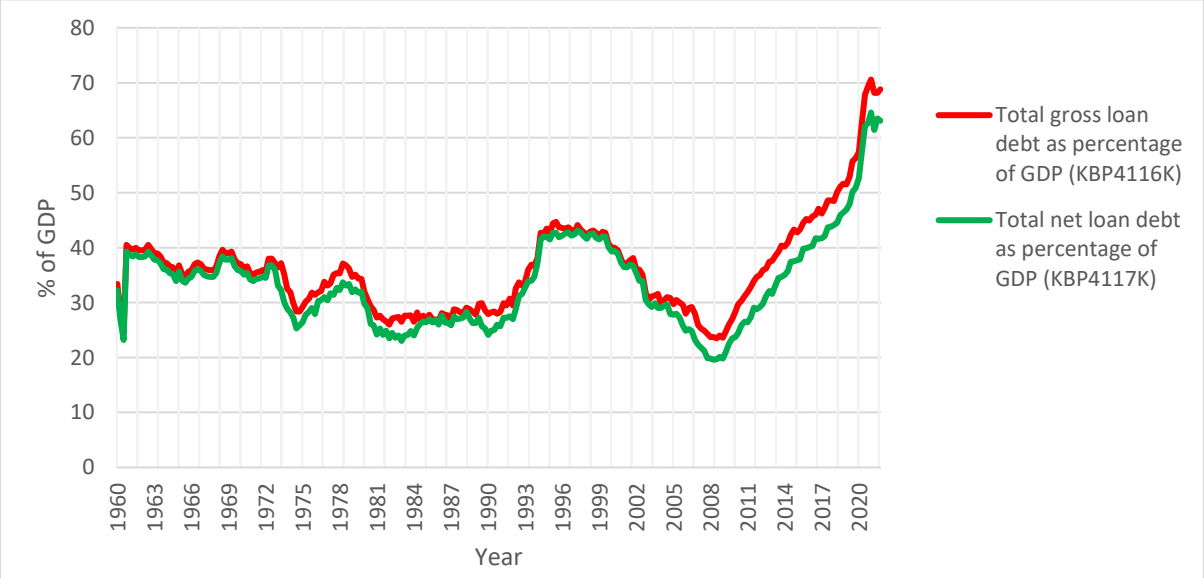
Reference List 64

Chapter 1: Introduction

1.1. Background

As shown in figure 1.1, South Africa's public debt[1] has increased to unprecedented levels in modern times, with the sustainability of this debt increasingly coming into question. Also in modern times, global interest rates have declined to very low levels. This decline has correlated with the increased prominence of Modern Monetary Theory, which suggests that increasing debt can be tolerated. In South Africa, several commentators have taken a similar view (Gqubule, 2021).

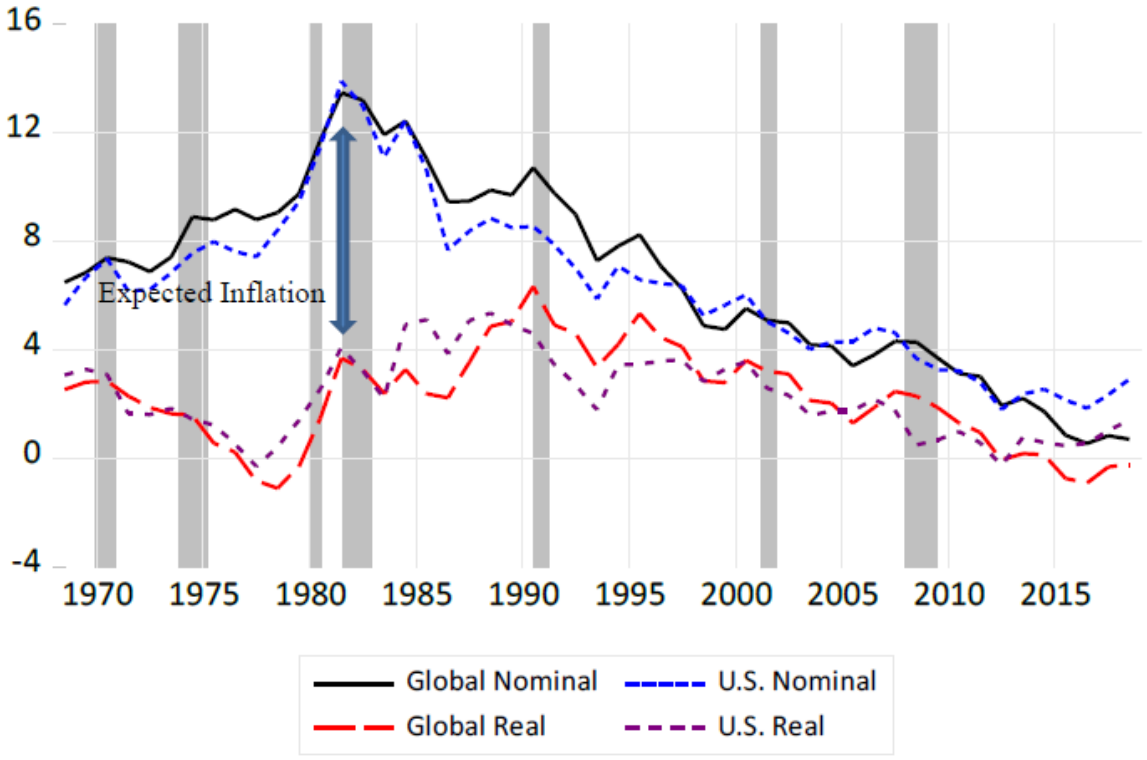
Figure 1.1: Total Gross and Net loan debt[2] as % of GDP, 1960-2021



(SARB, 2021)

Figure 1.2: Nominal and Real Interest Rates[3] of the Globe[4] and the United States, 1968 to 2018

[1] Total net loan debt of the national government which accounts for national government cash balances.
[2] Net loan debt accounts for government cash balances (KBP4115)
[3] 10-year government bond rate
[4] Average of OECD countries used as a proxy for global rates.

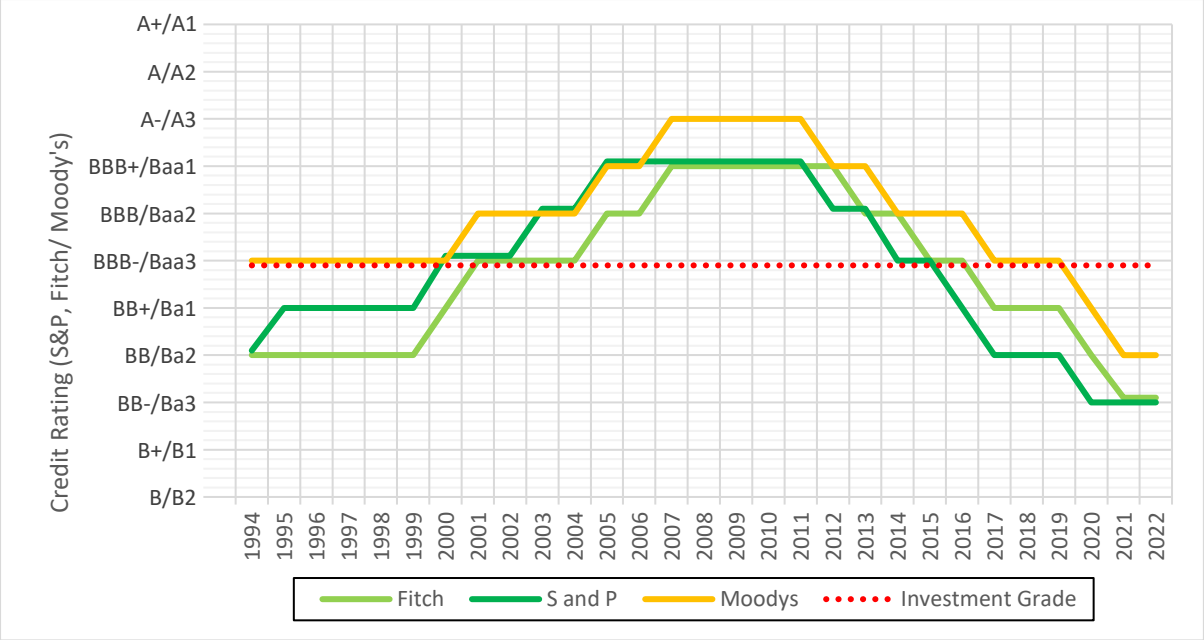


(Gamber, 2020)

As figure 1.2. shows, low global real interest rates are not new, similarly low rates occurred in the late 1970s. These, however, were ended by the "Volcker shock" which increased US and global interest rates in the early 1980s (Reichart, 2015). The responses to the increased cost of government debt varied between countries in Europe and South America. In Europe, several countries introduced austerity measures, with some suffering recessions and others not (Abbas *et al*.,2013). In South America, several countries[1] made use of central bank funding, resulting in hyperinflation (Reinhart & Savastaro, 2003; Edwards,2019).).

Figure 1.2: Credit rating of South Africa of the three largest rating agencies.

[1] Argentina, Bolivia, Brazil and Peru all suffered through hyperinflation episodes in the late 1980s (Reinhart & Savastaro, 2003)



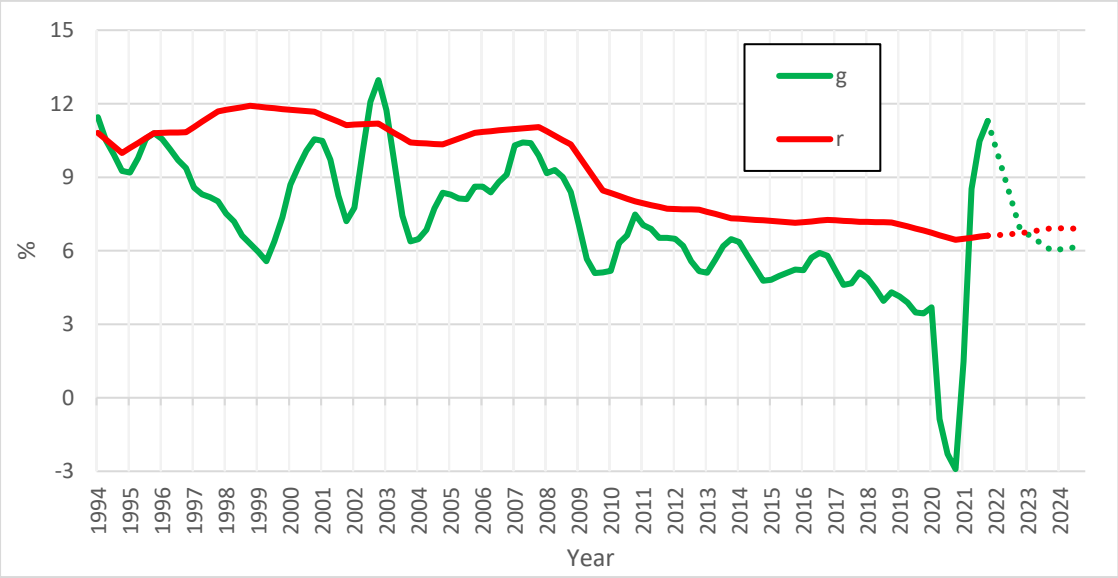
(Trading Economics, 2022)

Figure 1.2 shows the credit rating of South Africa of the three largest rating agencies. A rating equal to or above BBB-/Baa3 represents an investment grade. Moody's have rated South Africa at Ba2, while S&P and Fitch have rated South Africa at BB-, both a speculative grade. South Africa is currently at the lowest grade since 1994 for all three of the rating agencies.

A positive difference between a countries nominal growth rate (g) and its long-term debt costs (r) ensures that its debt to GDP ratio declines if its primary balance[1] is zero. A large negative g-r differential is a concern as it can "generate large economic costs and lead to sovereign debt distress (Lian *et al.*, 2020). Figure 1.3 shows the g-r differential for South Africa. The recent increase in the nominal growth rate is a result of base effects and is not sustainable. South Africa's forecasted nominal GDP growth[2] in the next few years is forecasted to be about 6% (National Treasury,2022). This is lower than the general trend of the effective cost of debt which has been just below 7%. Thus, South Africa's nominal growth rate is persistently below its long-term borrowing costs, resulting in increasing debt costs and debt to GDP ratio.

[1] A primary balance is the fiscal balance excluding interest payments.
[2] This is the sum of real GDP growth (1,8%) and inflation (4,5%) (National Treasury, 2022). Higher inflation increases the nominal growth rate, but also increases the marginal cost of debt.

Figure 1.3: South Africa's nominal growth rate[1] (g) and effective debt costs[2] (r) in percentages including the forecasted values from the 2022 Budget Review.



(SARB, 2022; National Treasury, 2022)

An increasing debt to GDP ratio, declining credit ratings and a negative g-r differential suggests that South Africa's debt trend is not sustainable. As a result of this, South Africa's national treasury has already made a commitment to achieve a primary surplus[3] and to stabilise the public debt to GDP ratio in 2025 (National Treasury, 2021).

1.2. Research Objective and Structure

The primary objective of this paper is to evaluate the sustainability of South Africa's debt path using a broad range of factors including assessing longer term dynamics and risk considerations. As such, this paper will take the methodology of a qualitative literature review which includes reviewing relevant theories, aspects of South Africa's economy policy, statements by South Africa's National Treasury and supported by descriptive statistics. This approach differs from the standard econometric approach of timeseries stationarity tests of indicators of solvency or estimating a fiscal response model. The paper is structured as follows: Chapter 2 focuses on the literature on debt sustainability, various causes of sovereign default

[1] "g" represents the 12-month percentage change of the four-period sum of nominal quarterly GDP (KBP6006L) (SARB, 2022).
[2] "r" represents the effective debt costs which is the debt service costs (KBP4599F) divided by the total net loan debt (KBP4113F) (SARB, 2022).
[3] A primary surplus is a positive fiscal balance excluding interest payments on debt.

and the structure of South Africa's debt. Chapter 3 focuses on the theory of inflation, Modern Monetary Theory, the role of wealth, why the current low real global interest rates are likely persistent and the risks of hyperinflation. Chapter 4 focuses on various long-term characteristics of South Africa's economy that might impact its debt sustainability such as its private and public wealth and its institutions. Finally, Chapter 5 focuses on austerity, the way in which the South African National Treasury plans to conduct its fiscal consolidation plans and the role of increased central bank coordination.

Chapter 2: The Literature on Debt Sustainability, The Causes of a Sovereign Debt Default, and The Structure of South Africa's Debt

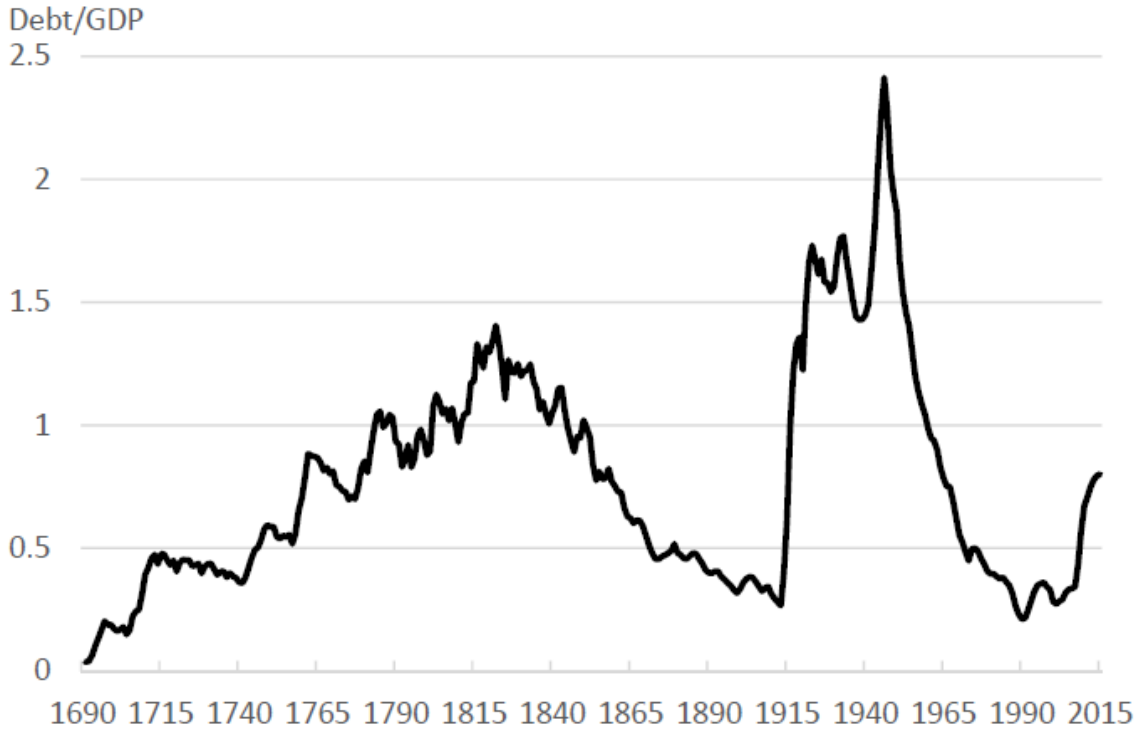
2.1. Introduction

The literature on debt sustainability is extensive. However, the approach taken varies from simple univariate analysis of the debt to GDP ratio, to complex models and to considering various institutional and political factors. There are both benefits and risks to taking on sovereign debt, with the clearest risk involving increasing debt service costs and a potential sovereign default. Thus chapter 2 focuses on how debt could be useful, the risk of debt, the various causes of sovereign default and the indicators of debt sustainability in the literature. This chapter also provides an overview of South Africa's debt.

2.2. Why is Debt Needed

Sovereign debt is useful as it enables the state to fund expenditure without the need to increase taxes, this could be useful as an economic stabiliser in an economic downturn, to fund infrastructure or to fund wars. Historically, the primary driver of rising sovereign debt was for the funding of wars (Bohn, 2005). Steinsson (2020) argues that Britain's financial development, which supported its ability to finance wars "by issuing large amounts of debts", was a key factor in "its emergence as a dominant naval power and major empire".

Figure 2.1: Government debt to GDP for Britain from 1691 to 2015.



(Steinsson, 2020)

Figure 2.1 shows that Britain's debt levels peaked during the Napoleonic wars[1] and the second world war for the period. The current increase in debt in advanced countries following the 2009 financial crisis is at the highest level for a peacetime period, but most peacetime periods have resulted in a decline in the debt to GDP ratio (Bohn, 2005). This current increase is the result of debt also being used to fund social welfare programmes and to invest in long term infrastructure.

2.3. Debt Overhang

While debt can be useful, excessive levels of public debt can become a constraint to economic growth. Chudik *et al*. (2015) views public debt as contributing to output in the short run but crowding out "private capital spending" and reducing "output in the long run". However, Chudik *et al*. (2015) finds no clear evidence for a debt limit or tipping point for public indebtedness.

[1] Piketty (2014) argues that this increase in debt was financed by a large increase in private saving and significantly increased wealth inequality in 19th century Britain.

Reinhart and Rogoff (2010) outline the point at which debt starts to affect growth at 90% of GDP for advanced countries, 60% if the debt is external and in a foreign denominated currency and as low as 20% for very debt intolerant countries. Panizza & Prehitero (2012) find a similar negative relationship between debt and growth, however this relationship disappears once "foreign currency debt and exchange rate volatility" are accounted for. Thus, the effect of debt on growth is non-linear and varies between countries. Herndon *et al*. (2013) find that the 90% level defined by Reinhart and Rogoff (2010) was an error due to "coding", "selective exclusion of available data, and unconventional weighting of summary statistics" and that the true figure is not clear.

It is also not clear as to what is the direction of causality between debt and low growth (Panizza & Prehitero,2012). It is possible that the channel of high debt leading to low growth is through "the channel that high levels of debt lead to contractionary fiscal policies" or high real interest rates (Panizza & Prehitero,2012; Goldstein,2003). There is likely a debt limit for most countries. As the level of debt approaches this point, the cost of debt increases until a point in which the country loses "market access and is unable to rollover its debt" and may be forced to default (Ghosh *et al*., 2011; Reinhart & Rogoff, 2010). Thus, there is a risk of a self-fulfilling debt trap in which the increased expectation of a default increases interest rates and results in an actual default (Roubini, 2001). However, the exact debt limit for each country in terms of the debt to GDP ratio is not exactly clear and it likely varies between countries.

2.4. Sovereign Debt Default

There are multiple reasons why a country might default on its sovereign debt. Political and economic institutions play a role as cause of sovereign defaults. Countries that have defaulted in the past are likely to do so again as defaults weaken institutions and make further defaults more likely (Reinhart *et al*.,2003). Weak institutions combined with political instability and short time horizons result in external borrowing being a useful way to avoid hard decisions on spending and taxing. As a result, countries are often quick to releverage when debt is restructured and are more likely to default (Reinhart & Rogoff, 2011; Cuadra & Sapriza ,2007). Gennaioli *et al*. (2010) find that countries that have more developed financial systems and where banks hold more public debt have a higher debt intolerance level. However, when these countries do default, there is a much larger decline in private credit. Borensztein and Panizza

(2008) conclude that sovereign debt defaults are usually "a consequence of some economic shocks, such as terms of trade shocks, sudden stops, currency crises" when the domestic economy is weak and tend to be widely anticipated.

External Debt

Another factor is the components of the debt, with a large external debt default more likely to hurt foreign agents, making a default more politically probable. Eichengreen & Hausmann (1999) describes foreign denominated external debt as the "original sin" of emerging markets. The risk is that a currency depreciation would increase the debt levels in domestic currency terms (Goldstein, 2003; Roubini, 2001). Thus, the option of reducing foreign denominated external debt through inflation is not available (Reinhart *et al*., 2015). Manasse *et al*. (2003) finds that countries with external debt of more than 50% of GDP are more likely to default. For low-income countries, there is a clear debt overhang risk for external debt.

Domestic Economy

The assumption that governments always honour domestic debt is not true. Usually when domestic debt defaults do occur, it is the result of a significant decline in output (Reinhart & Rogoff, 2008). One reason for sovereign defaults is the political and economic costs of inflation which results when attempting to inflate[1] away domestic debt. This becomes harder when debt is short term or indexed. Reinhart and Rogoff (2010) conclude that "overt domestic default tends to occur only in times of severe macroeconomic distress".

Debt Reversals

Many countries have survived high debt levels without defaulting or falling into a hyperinflation episode. Abbas *et al*. (2013) analysed 26 large debt reversals in 20 advanced countries between 1980 and 2011.The primary drivers were high growth rates and a positive primary balance. This was supported by strong external demand and an accommodating monetary policy which offset the economic costs of fiscal consolidation. Privatisation also provides proceeds to pay debts while structural reforms are often necessary to increase long

[1] Inflation could be seen as another form of default, in that domestic debt is not honoured in real terms.

run growth. Thus "for countries with good financial market access, the answer is to consolidate gradually with a credible medium-term strategy" and support by strong budget institutions (Abbas *et al*., 2013). South Africa reversed its increasing debt to GDP trend from 1996 to 2000 through fiscal consolidation driven by declines in real expenditure (Sachs, 2021).

2.5. Assessing Sustainability

While there are no "universally accepted" indicators of fiscal sustainability, there are various ways of assessing it that have been attempted (Mauro *et al*., 2013). One way is to assume that governments have an "intertemporal budget constraint" which can be defined as the "expected present value of future fiscal surpluses" equal to the current value of public debt (Mauro *et al*., 2013; Bohn, 2005). Thus, public debt is eventually assumed to converge to zero. Roubini (2001) sees this as too restrictive and that a more practical measure is that the debt to GDP ratio or some other measure of solvency "should not increase forever".

Thus, a test for fiscal sustainability is using stationarity tests on univariate timeseries measures of solvency such as the debt to GDP ratio or cointegration tests of the combined government revenue and expenditure timeseries (Ruxandra,2011). The problem with these two measures is that they don't consider various external shocks (Mauro *et al*., 2013). The approach used by Bohn (2005) is to regress a timeseries of the fiscal balance on public debt and other potential controls. As mentioned in chapter 1, this paper explores South Africa's fiscal and other policy responses considering its debt structure and other institutional circumstances and will not take the approach of stationarity tests or estimating a fiscal response model. South Africa's national treasury has already made a commitment to achieve a primary surplus and South Africa's nominal growth rate is structurally below its long-term borrowing costs. Mauro *et al*. (2013) finds that it is "increases in sovereign borrowing costs" that lead to the most significant fiscal "policy response to rising debt".

The debt sustainability literature does include various indicators of debt sustainability that are of interest. Countries with a track record of generating revenue and managing expenditure are more likely to do so in the future (Perotti,2007). Countries with a high level of domestic savings and positive current account balance have a "reduced probability of entering a crisis", this is

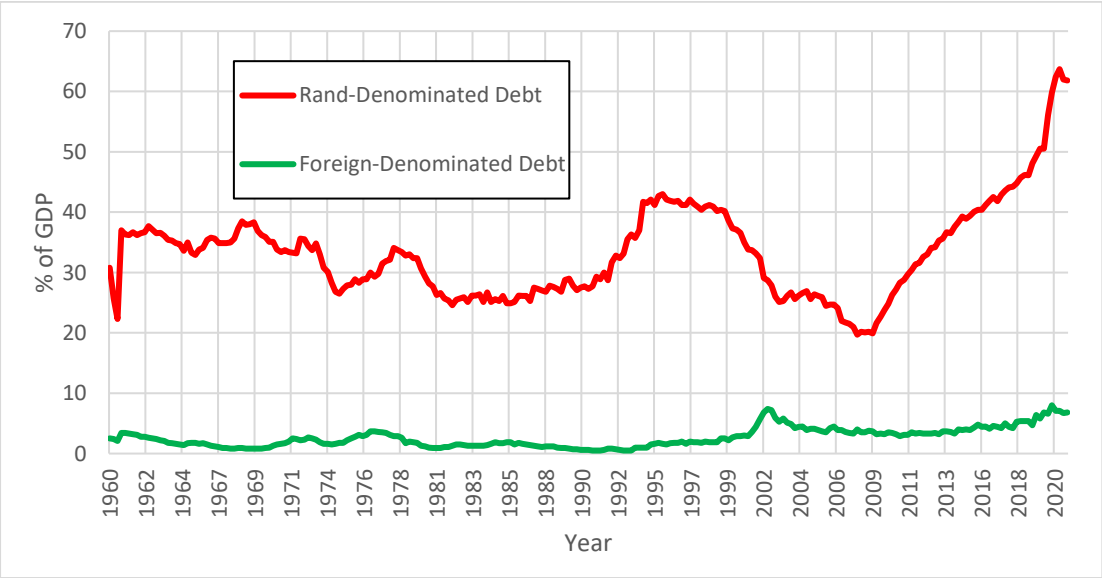
also true for "positive external developments" such as a commodity boom (Manasse *et al*., 2003). A large amount of short-term debt can result in "debt servicing difficulties" and result in a liquidity crisis rather than a solvency issue (Manasse *et al*., 2003). While a high foreign denominated debt to GDP could be a signal of insolvency due to exchange rate risk, a high level of trade openness reduces the exchange rate risk of foreign denominated debt (Goldstein, 2003). Assuming a decline in the real exchange rate, any increase in the cost of foreign denominated debt can be offset by a likely improvement in the trade balance.

2.6. Structure of South Africa's Debt

Denomination

As discussed, the structure of the public debt is vital for debt sustainability. Figure 2.2 shows the total gross debt to GDP disaggregated between foreign-denominated debt and domestic currency denominated over time. Both have increased, and domestic debt is at its highest level recorded.

Figure 2.2: Total Foreign-denominated (KBP4108R) and Rand-denominated debt (KBP4105R) as % of GDP, 1960-2021.



(SARB, 2021)

Table 2.3 shows South Africa's public debt disaggregated into foreign-denominated and domestic-currency denominated debt and marketable and non-marketable debt for selected

years[1]. There has been a large increase in non-marketable foreign-denominated debt, a result of "concessional financing from international financial institutions and development banks" (National Treasury, 2022). However, most of the increase for the period is driven by marketable domestic debt.

Table 2.3: Domestic and foreign debt in selected years according to the public finance accounts. Amounts are in millions of Rand.

Code		2021 Nov	2020 Dec	2019 Dec	2021-2019
KBP4105M	**Domestic Debt**	3 784 174	3 443 003	2 829 323	954 851
KBP4088M	Marketable	3 764 257	3 409 299	2 789 185	975 072
KBP4104M	Non marketable	19 917	33 704	40 138	- 20 221
KBP4108M	**Foreign debt**	414 208	391 245	326 493	87 715
KBP4106M	Marketable	313 085	307 006	325 844	- 12 759
KBP4107M	Non marketable	101 123	84 239	649	100 474
KBP4114M	**Gross Debt**	4 198 382	3 834 248	3 155 816	1 042 566
KBP4113M	**Net Debt**	3 920 335	3 459 351	2 850 657	1 069 678

(SARB, 2021)

Table 2.4 focuses on the denomination of debt in March 2020 according to the 2021 budget review by the National Treasury. Thus, a vast majority of public debt in South Africa is denominated in the domestic currency. There is however a significant exposure in public sector debt in the form of foreign denominated debt of Eskom. Future debt accumulation by the National Treasury is expected to be primarily in the domestic currency[2].

Table 2.4: Domestic and foreign denominated debt in March 2020 according to Eskom AFS, Transnet AFS and 2021 Budget Review.

	Domestic	Foreign debt	Foreign Debt %	Total
Treasury	2 874 100	387 200	12%	3 261 300
Eskom	299 119	184 563	38%	483 682
Transnet	82 895	33 620	29%	116 515
Sum	3 256 114	605 383	16%	3 861 497

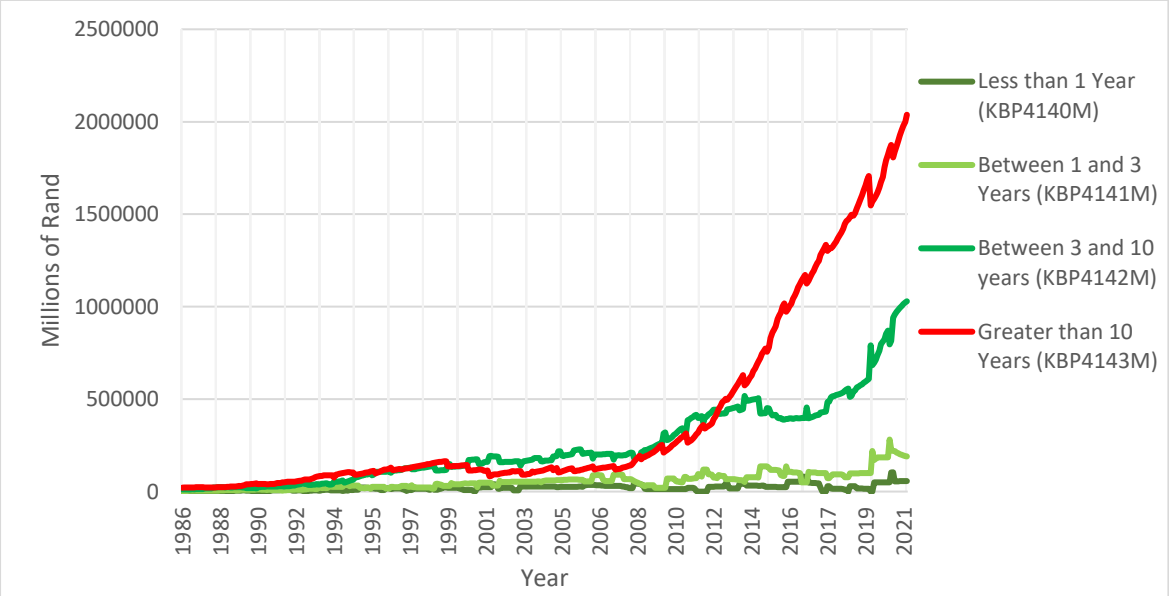
(Transnet, 2021; Eskom, 2020; National Treasury, 2021)

[1] The years selected of 2019 to 2021 are when the debt-to-GDP ratio has seen its sharpest increase.
[2] See appendix figure 7.1.

Maturity

As shown by figure 2.5, South Africa's debt is mostly of a longer maturity period. This reduces the risk of the weighted debt yield rising rapidly in the event of a sudden stop[1]. If necessary, debt of a long maturity is also easier to reduce with inflation. While the average maturity has declined slightly after 2018, it remains relatively high at the end of 2021 at about 14 years[2].

Figure 2.5: Marketable Rand denominated debt maturities in Millions of Rand, 1986-2021.



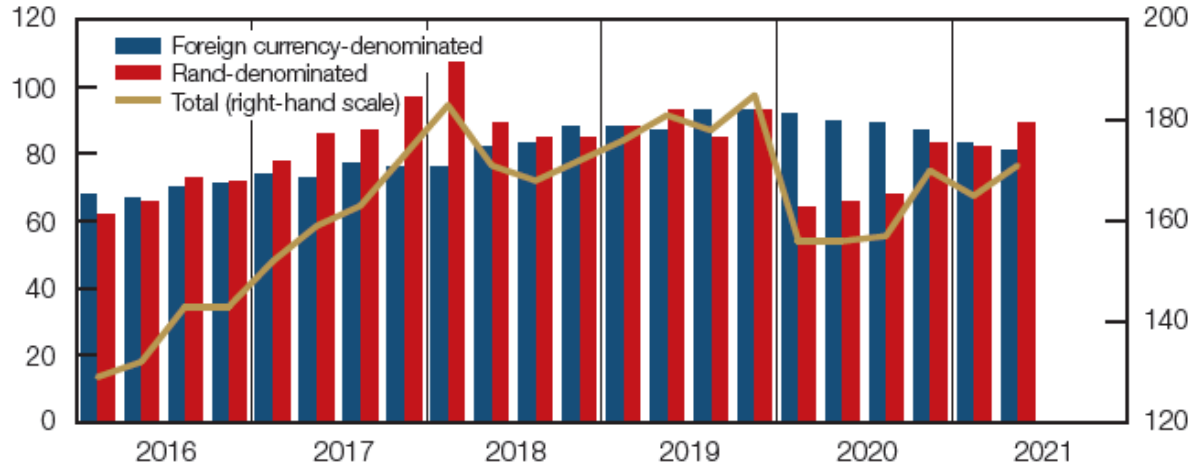
(SARB, 2021)

External Debt

Figure 2.6 shows that the US dollar value of South Africa's foreign denominated external debt has had a slight decline after 2019 and that external debt is primarily rand denominated in the last available quarter. While South Africa's external debt has increased to 50% of GDP in 2016 from below 30% in 2008[3], it has held steady at about 50% of GDP since 2016 (IMF, 2020; SARB, 2021). The trend of increasing external debt to GDP up to 2016 was driven by public debt, with very small change in private external debt to GDP[4] (IMF, 2020).

[1] A sudden stop is defined as "a sudden and large decline in capital flows" (Makrelov et al., 2019)
[2] See appendix figure 7.2.
[3] See Appendix Figure 7.3.
[4] See Appendix Figure 7.4.

Figure 2.6: South Africa's external debt by denomination in billions of US$



(SARB, 2021)

2.7. Conclusion

Roubini (2001) sees assessing the level of solvency of a country and subsequently its debt sustainability as an "art" form which requires a consideration of "a very broad range of indicators, factors, forecasts about likely future policy events and shocks in a country". The level of debt sustainability and solvency are also "dynamic concepts", a country which may seem solvent today might not be so in the future (Roubini, 2001). One also needs to consider not only the borrower which in this case is the country, but also factors relating to the lender (Arnone *et al.,* 2005). Thus "different assumptions about lenders" can "lead to different conclusion about the set of sustainable policies" (Bohn, 1995).

In conclusion this chapter has overviewed various useful indicators of sustainability. Several are related to the structure of the debt itself, these include the debt denomination, maturity of debt and level of external debt. For South Africa's case, its growing public debt has largely been of a longer maturity and mostly denominated in the domestic currency. However, the stock of foreign denominated debt has been increasing and the debt of the state-owned Eskom includes large amount of foreign debt. South Africa's external debt to GDP has stabilised and is mostly rand denominated.

Macroeconomic factors outside of debt also matter. These include the size of the state relative to GDP and the level of trade openness. What is clear is that institutions such as a developed financial system and an independent central bank both increase the debt intolerance level and limit the likelihood of high inflation episodes. While sovereign defaults tend to be highly anticipated and likely the result of an economic shock. The next two chapters will proceed with accounting for factors outside of debt, including the role of inflation and interest rates, wealth and institutions including the South Africa case.

Chapter 3: Inflation, Modern Monetary Theory, Wealth, Interest Rates and Hyperinflation

3.1. Introduction

South Africa has an open economy, thus various global developments influence its ability to sustain its debt. These developments include the increased coordination between monetary and fiscal policy in advanced economies and the changing nature of global capital markets and interest rates. Some ideas that assist in understanding these developments include theories of inflation, modern monetary theory, the role of wealth and the literature of hyperinflation.

3.2. Theories of Inflation

Quantity Theory of Money

The earliest theory of inflation was the quantity theory of money which was first formulated in a relatively complete form by Jean Bodin in the context of a debate about the causes of the "Price Revolution" in the 16th century (Steinsson, 2021). The theory states that the price level (P) is proportional to the quantity of money (M), with the "price revolution" caused by the increased quantity of gold and silver from the Americas (Steinsson, 2021). Irving Fisher formalised this relationship with the equation:

$$PT=MV$$

Where V represents the velocity of money and T the real output (Vaggi & Groenewegen, 2003). The quantity theory of money fell out of favour after the great depression. Friedman (1956) states that its failure was its "unduly" simple form and its assumption of constant velocity of money. Keynes (1930) in "A Treatise on Money" argued that the velocity of money was highly variable, the focus of Keynesian economics was on the role of aggregate demand and supply on output and inflation.

Monetarism, which itself was a response to Keynesian economics, repopularised the quantity theory of money. In the book "A monetary history of the United States, 1867-1960" Freidman and Schwartz (1971) studied the role of money in determining output and inflation and concluded that it significantly influenced both, with output in the short-run and inflation in the

long-run. This prompted Friedman to declare that "inflation is always and everywhere a monetary phenomenon''.

The Phillips Curve and Expectations

In relating the level of inflation to unemployment, Friedman (1968) and Phelps (1967) introduced the idea of the natural rate of unemployment which is the level of output above which any increases in output would be inflationary. This idea has its origins in Phillips (1958) study of unemployment and changes in wages in the United Kingdom from 1861 to 1957. Phillips concluded that there was an inverse relationship. Even though the study makes no mention of the relationship between unemployment and inflation, Friedman and Phelps made use of it to produce the Phillips curve.

The role of expectations in inflation is related to the Phillips curve and the quantity theory of money. Suppose inflation increases due to an expansionary monetary policy producing rising prices and "let the public come to expect that prices will continue to rise", "lenders will then demand higher interest rates" (Friedman, 1968). This "price expectation effect is slow to develop and slow to disappear" (Friedman, 1968).

Increasing prices also influences the labour market as workers enter the "wage bargain with a concern over anticipated real wages" (Rudd, 2021). Thus, the price expectations effect alters the Phillips curve as "Phillips wrote his article for a world in which everyone anticipated that nominal prices would be stable" (Friedman, 1968). As a result, the Phillips curve "will not be well defined" (Friedman, 1968). However, restating the Phillips curve in terms of real wages or "anticipated" real wages and "it all falls into place" (Friedman, 1968). After Friedman's (1968) analysis, the use of inflation expectations and the Phillips curve relation were increasingly used in macroeconomic models to define inflation (Rudd, 2021).

3.3. Modern Monetary Theory: A New View of Functional Finance

Lerner's (1951) functional finance approach, which builds on Keynesian economics, distinguishes between two types of unemployment, deflationary unemployment, and frictional

unemployment. Lerner (1951) defines frictional unemployment as "a result of workers having wrong skills or being located in the wrong place", while deflationary unemployment is a result of a lack of demand. Getting to a state of full employment which Lerner (1951) defines as "those who want to work at the prevailing pay can find work without difficulty'' requires the elimination of deflationary unemployment. Functional finance hopes to achieve this using the 6 instruments of the state, shown in table 3.1, to avoid the prospect of deflation and the risks of inflation. With money being seen as a "creature" of the state, the amount of money needed to fund these instruments is not a restriction.

Table 3.1. The six instruments of the state

Inflationary	**Deflationary**
Government Asset Purchases	Government Asset Sales
Grants	Taxes
Lending/Printing	Borrowing (Bonds)

(Lerner, 1951)

There are multiple policy implications of this, including a move away from 'sound' finance to one that is more functional towards the purpose of controlling inflation. An example of this "functional' understanding is that taxes and government borrowing would not be seen as state revenue but as "money being withdrawn from public circulation when taxes are paid and when government bonds are purchased by private individuals" (Sawyer,2019). Other factors regarding "sound" finance could be ignored such as growing debt or the printing of money if inflation remains limited. Thus, the focus of functional finance is the coordination of monetary and fiscal policy to avoid both inflation or deflation while pursuing full employment.

Modern monetary theory (MMT) borrows a lot from functional finance, such as seeing the money resources of the state as unlimited, using fiscal policy to limit inflation and the pursuit of full employment. Where MMT is novel is the use of a job guarantee paid for by the state or using the state as an employee of last resort (ELR). MMT economists state that this could achieve full employment without the expected inflationary pressures (Wray,1998;

Mosler,1997; Mitchel,1998). The job guarantee would be at a wage equal to or below the minimum wage as to not complete with the private market and limit rising wage pressures and would act as a "counter cyclical fiscal stabilizer" (Wray,2012). The idea is that a job guarantee would increase the capacity of the real economy by increasing aggregate supply, hence the cost of paying for it would not be inflationary.

The money resources of the state being unlimited requires several qualifications such as that it is only true for states that have monetary sovereignty. To obtain monetary sovereignty, Bonizzi *et al*. (2019) cites three main elements:

"

1) Government issues the national currency and imposes tax liabilities in that currency
2) The currency is floating and non-convertible to any other currency or commodity
3) There is no foreign denominated debt."

These factors are in fact not binary and there is an argument to be made that monetary sovereignty lies on a spectrum (Bonizzi *et al*., 2019). More is needed to figure out where countries lie on this spectrum. This is especially true for developing states as there are other binding constraints which limit the degree of policy autonomy such as the willingness of both the private sector and foreigners to hold bonds in the domestic currency (Bonizzi *et al.*, 2019).

3.4. Monetary Sovereignty and Wealth

In "A Skeptic's Guide to Modern Monetary Theory", Mankiw (2019) agreed that "a currency-issuing government can always print more money when a bill comes due". However, he did not agree that "a country that issues its own currency" "can never become insolvent in its own currency" (Mankiw, 2019). This is a result of "our current monetary system with interest paid on reserves", government printing of money will "end up in the banking system as reserves, and the government will need to pay interest on those reserves" (Mankiw, 2019). Thus, government printing of money is a form of borrowing from the banking system. The cost of interest could be paid "by printing yet more money" or simply ignored, either of which would

increase inflation[1] (Mankiw, 2019). Mankiw (2019) thus argues that a default of sovereign debt in a domestic-denominated currency could occur to avoid the prospect of hyperinflation.

To ensure that government printing of money does not significantly increase the cost of borrowing from the banking system or risk increasing inflation, interest rates need to be relatively low. Thus, a low interest rate on bank reserves is required for a country to monetise its debts and obtain monetary sovereignty[2]. Friedman (1956) defines the rate of interest as "expressing the relation between the stock which is wealth and the flow which is income" and can be represented by:

$$r = \frac{Y}{W}$$

Where Y is output, W is all wealth including human capital and r represents the general real interest rate including the market rate and risk-free rate (Friedman, 1956). This relation shows that a larger wealth stock relative to income results in lower real interest rates. There are limits to this relation given that the value of human capital is unobservable, and output and wealth are endogenous to each other (Friedman, 1956).

Thus, an additional requirement to obtaining monetary sovereignty is having some level of domestic savings. Deep and liquid financial markets can then leverage these savings and facilitate funding for private individuals and the state and result in lower interest rates (Gennaioli *et al*. ,2010). Therefore, it could be argued that the level of wealth and its effect on real interest rates plays a role in terms of defining the level of monetary sovereignty and the state's ability to borrow and monetise its debts.

3.5. Sectoral Balances and Ricardian Equivalence

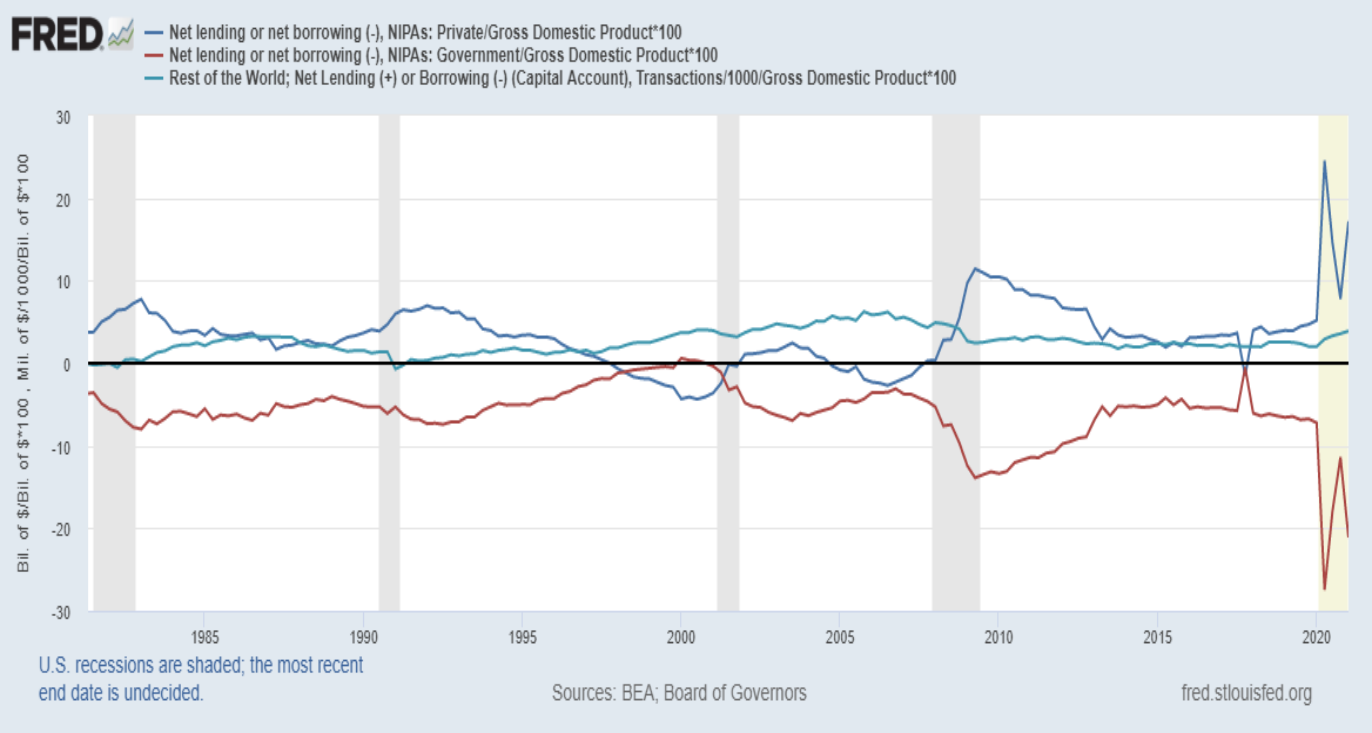
The channel by which the flow of domestic or foreign saving can support state borrowing can be found by observing the sectoral balances of the economy. Private wealth tends to flow towards government debt due that fact that government "bonds are an essential financial

[1] Directly through the quantity theory of money, or indirectly by increases in aggregate demand due to the "wealth effect" (Mankiw, 2019).

[2] Included with having limited foreign denominated debt, a flexible exchange rate and issuing in the domestic currency.

instrument in which the private sector can park its surplus savings" (Shipman,2019). Sectoral balances are useful given that it "provides insight that increases in" the stock of "government debt must result in surplus in the non-government sector which includes household saving, firm saving and the foreign sector. The balance of the four sectors must sum to zero" (Godley, 1996). Another way of seeing this is that an "excess of private saving over investment can only be offset by a fiscal deficit or current account surplus" (Shipman,2019). Countries with persistently high private savings tend to have either "endless" fiscal deficits without the expected inflationary pressures, or current account surpluses (Shipman,2019).

Figure 3.3: Graph of sectoral balances of the United States



Source: U.S. Bureau of Economic Analysis (2021)

Figure 3.3 shows that in the United States, net government spending as largely mirrored net private saving, with most of the increased saving in the 2020 Coronavirus pandemic driven by the highest earners (Chetty *et al*. 2020).

"Ricardian Equivalence" is one of the theories that is consistent with sectoral balances. In the book "Capital in the Twenty-First Century", Piketty (2014) defines "Ricardian Equivalence"

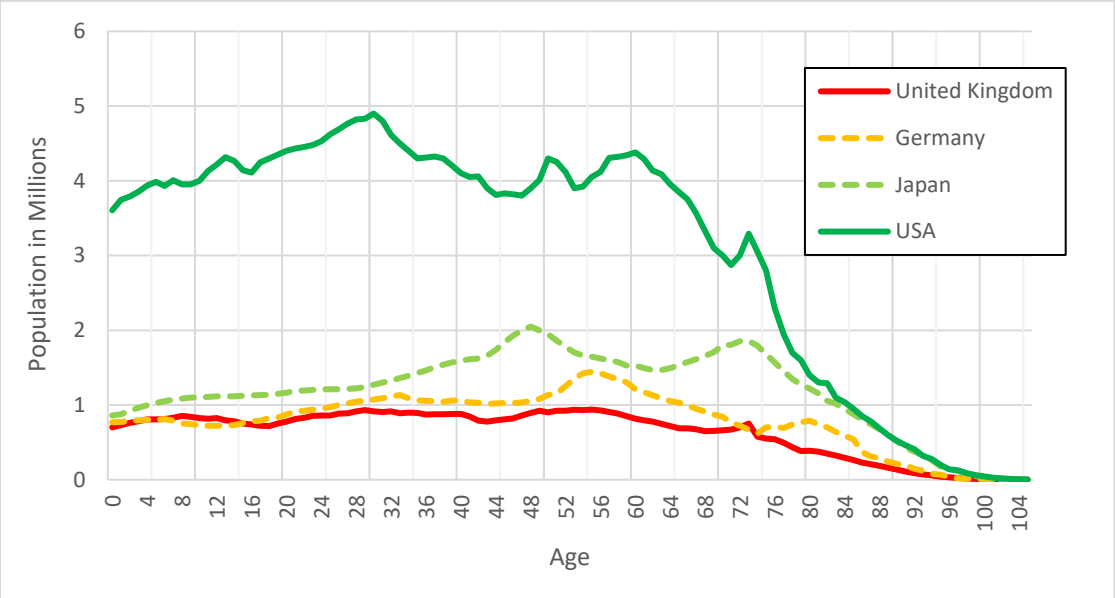
as "under certain conditions, public debt has no effect on the accumulation of national capital"[1]. Thus, public sector deficits are offset by private sector surpluses and the overall national wealth remains constant, assuming no external sector. Piketty (2014) further defines the circumstances by which "Ricardian Equivalence" holds: "it is dependent on the prosperity of the social group lending, the rate of interest/inflation and on the confidence of the government". Thus, for public deficits to be offset by private sector surpluses requires some degree of private wealth, some level of financial development, institutional strengths to limit inflation and financial repression, and for there to be credibility in the state.

3.6. The Global Decline in Interest Rates- This Time is Different

The life cycle hypothesis developed by Modigliani and Ando (1957) states that individuals smooth their consumption over their lifetimes, thus saving in periods of high income and borrowing in periods of low income. This suggests that the stock of savings will build up during working age and peak at retirement, then decline after. This can be aggregated to entire countries, thus countries with an older average age have a larger pool of savings. This does not last though. As the average age moves beyond retirement age, the life cycle hypothesis suggests that the pool of savings declines and government borrowing costs potentially increase. However, the desire to save increases as health and life expectancy have increased over time and limited the decline in savings and potential increases in real interest rates (Gagnon *et al*., 2016). Expectations also plays a role as lower expected future population growth reduces investment and lowers real interest rates (Liu & Westelius, 2016).

[1] Piketty (2014) states that this is the original interpretation of "Ricardian Equivalence" and differs from the modern interpretation by Barro (1984) which relates to tax policy.

Figure 3.4: Graph of population by age group of the four largest advanced economies in 2020.

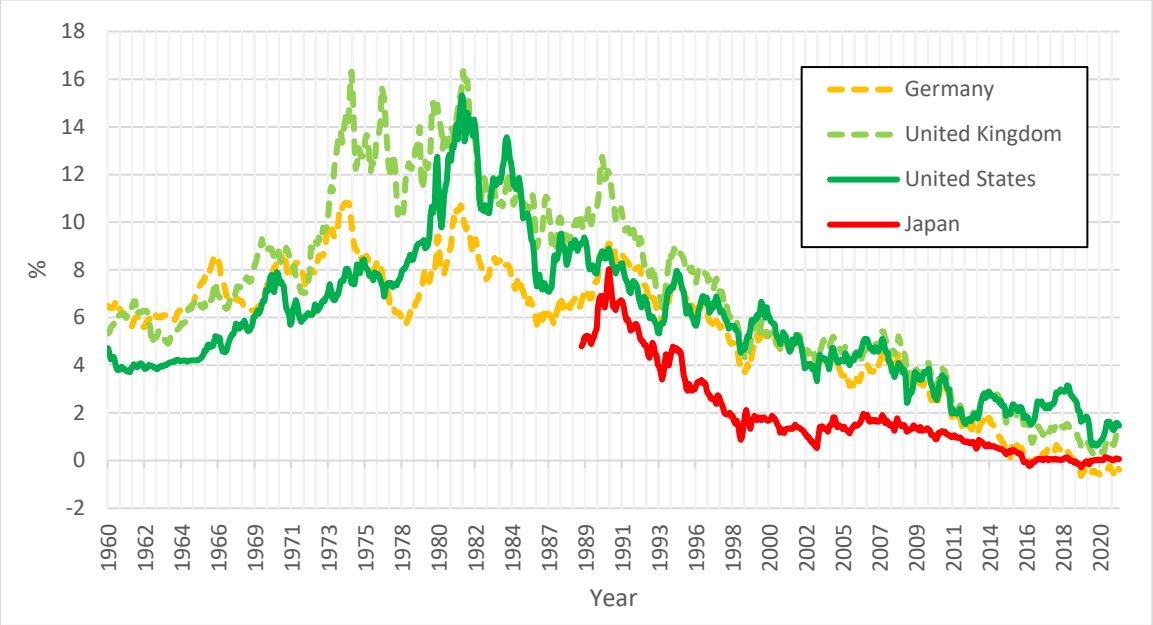


(Statista, 2021)

Figure 3.4 shows the population by age group of the four largest advanced economies in 2020. With the combined most common age of the four countries being 50, there is a clear trend of declining populations in younger generations. Japan is the furthest ahead in the demographic transition – of which the possible results have been persistent deflation and interest rates near zero (IMF,2020; Faruqee & Muhleisen,2001).

Japan reveals the future of many advanced economies in which the decline in the growth rate of the population partly results in a decline in real interest rates because of increased savings and declining investments (Gagnon *et al*.,2016; Faruqee & Muhleisen, 2001; de Albuquerque *et al*, 2020; Liu & Westelius, 2016; Ichiue & Shimizu, 2012). Thus, advanced economies have reached a "new normal" of "low interest rates, low output growth, and low investment rates" and these results have implications for "assessing fiscal sustainability" in advanced economies (Gagnon *et al*., 2016).

Figure 3.6: 10-Year government bond rates in the four largest advanced economies, 1960-2021.



(FRED, 2022)

Figure 3.6. shows the decline in nominal interest rates proxied by the 10-year government bond of the four largest advanced economies. The high nominal interest rates in the episodes of the 1970s and 80s were driven by high inflation, after the "Volcker shock" in the 1980s, most developed countries have mostly avoided high levels of inflation[1]. There are several other factors driving down the rate of nominal interest rates and inflation including improvements in technology reducing energy and supply costs, increased trade and financial flows and the shift of supply chains to cheaper emerging economies (Bobeica *et al.*,2017; Bandinger,2008; Forbes,2019).

Other views from Summers (2014) and Eggertsson & Mehrotra (2014) see the decline of interest rates due to "secular stagnation" in which the decline in technology breakthroughs leads to weak long-term growth prospects and lower investment. Others such as Lo & Rogoff (2015) see it as the result of deleveraging after the financial crisis. Mian *et al.* (2021) suggest that is driven by rising income inequality, increasing the savings of the highest earners.

[1] Inflation in advanced economies is at its highest level in decades in 2021 and 2022.
See appendix Figure 7.5 for a further discussion of inflation.

Schmelzing (2020) reconstructed real interest rates from 1311 to 2018 in multiple assets classes and found a "persistent downward trend[1] over the past five centuries", except for the relatively brief periods of 1550-1640, 1820-1850 and 1950-1980. Schmelzing (2020) found that the cause of this decline was not related to "growth or demographic drivers", but that it may be due to increased "capital accumulation" over time. Schmelzing (2020) concludes that the current negative "sovereign" real interest rates in advanced economies is in line with the "historical trend" and have entered a "permanently negative territory".

Trends in demographics could change in the future, but if so, are unlikely to change very quickly. Thus, the effect of structural factors—such as demographics, technology, and increased wealth—on the trend of declining real interest rates are likely to persist throughout the developed world. Although real interest rates are increasing in the current period in advanced economies, this is a cyclical increase and a repeat of the "Volcker shock" is unlikely.

Alper *et al*. (2009) define the uncovered interest rate parity (UIP) as the "no-arbitrage condition between investing in a domestic currency asset and a foreign currency denominated asset" accounting for nominal exchange rate and expected nominal exchange rate. The result of this is that lower interest rates in advanced economies should influence rates in less advanced economies. The evidence for this is split, as there is a significant deviation from the UIP in emerging markets (Alper *et al*., 2009). This is partly due to expected capital controls, risk premium and exchange rate volatility and shorter average maturities in emerging markets (Alper *et al*., 2009).

3.7. Hyperinflation- The Cost of Institutional Failure

For a country with a debt level that has gone beyond its debt limit, has lost market access and is unable to rollover its debt, the likely result is a sovereign default. The alternative to a default is to rely on central bank financing, the result of which is a rapid increase in the money supply and accelerating inflation (Smith, 2021). Bouts of hyperinflation[2] in the 20th century can be

[1] Schmelzing (2020) found a decline of 0.9 basis points per annum for "sovereign" interest rates and 1.59 basis points per annum for "global" interest rates. This is equivalent to a decline of 0.9 and 1.59 percentage points per century.

[2] Cagan (1956) defines hyperinflation as periods of inflation above 50% per month.

divided into two parts, post-war Europe and in the 1980s and 90s mostly in Latin America. Between 1946 and 1986, there were no periods of hyperinflation anywhere which can be likely explained by the Bretton Woods system of fixed exchange rates and the financial repression required to maintain it.

The seminal paper on hyperinflation is Sargent's (1982) study of four inflation episodes in Europe in the 1920s after the first world war, these were Austria, Hungary, Germany, and Poland. Each of these countries faced large budget deficits which were funded by central bank monetised debt and all four faced episodes of hyperinflation. The hyperinflation rapidly increased the deficit, this is due to spending being current while lagged tax revenues are based on a lower price level. The inflation episodes ended after "the establishment of an independent central bank and a move toward a balanced government budget" (Sargent,1982). Similar conclusions were made by Dornbusch and Fisher (1986) in the role of decreasing the budget deficit and establishing an independent central bank that bind the government to place its debt with private parties and foreign governments. Episodes of hyperinflation after WW1 were rapid in both their start and end, with the demand for domestic money rapidly recovering (Reinhart & Savastaro,2003).

Modern episodes of hyperinflation have not been short and often preceded by long periods of a high level of inflation. Reinhart and Savastaro (2003) studied modern hyperinflation episodes in the late 80s and early 90s in Argentina, Bolivia, Brazil, Peru, and Ukraine. The episodes in South America were related to "a worsening international economic environment" related to the "Volcker shock" (Sachs,1987). Modern increases in inflation and eventual hyperinflation were driven by expansionary fiscal policy supported by a dependent central bank (Edwards,2019). The cost of modern hyperinflation includes "reducing the size of the financial sector and eroding the efficiency of the price system and domestic money as a store of value, unit of account and medium of exchange and pushing the economy to barter", it also reduces the credibility of the central bank and inflates away previous savings (Reinhart & Savastaro, 2003).

The end of all modern episodes of hyperinflation required a consolidation in fiscal policy. However, both monetary and exchange rate policy were tools relied on to limit inflation such as the implementation of fixed exchange rates (Sachs,1987). Inflation stabilization steps typically resulted in increases in unemployment and the real interest rate. Unlike previous bouts of hyperinflation, the end of modern hyperinflation does not result in an increase in demand for the domestic money, as the reduced credibility of the central banks leaves a legacy of dollarization and financial indexation.

3.8. Conclusion

This chapter has gone over potential causes of inflation. This includes the quantity theory of money in which inflation is related to the money supply. Other potential causes include aggregate demand and expectations of the future. This chapter has also provided an overview of Functional Finance and MMT type policies of coordinating fiscal and monetary policy. The MMT qualification for obtaining "monetary sovereignty", which requires a country to issue its own currency, have no foreign denominated debt and a flexible exchange rate, is incomplete as it ignores the role of domestic wealth and institutions. For public sector deficits to be offset by private sector surpluses requires Ricardian equivalence to hold and for there to be no external sector. Ricardian equivalence requires some degree of private wealth, financial development, institutional strengths regarding inflation and interest rates and for there to be credibility in the state (Piketty, 2014).

In advanced economies, there has been a general decline in real interest rates, the causes of which include demographics, accumulated savings, declining investment, trade, and technology. These structural factors are likely to persist throughout the developed world and a repeat of the "Volcker shock" is unlikely. The results of the general decline in interest rates in advanced economies is a liquidity trap in which central bank policy rates cannot decline any further. As an alternative, monetary authorities have increasingly had to make use of unconventional monetary policies such as direct purchases of government debt (Krugman, 1998). Thus, there is a greater role for Functional Finance and MMT type policies of coordinating fiscal and monetary policy.

This chapter also studied modern episodes of hyperinflation. What is clear is that institutions such as a developed financial system and an independent central bank both limit the likelihood of high inflation episodes. Modern episodes of hyperinflation tend to be preceded by long periods of high level of inflation and are thus somewhat anticipated. And finally, a consolidation in fiscal policy is required to end hyperinflation episodes.

Chapter 4: South Africa's Private Wealth, Public Wealth and Financial development

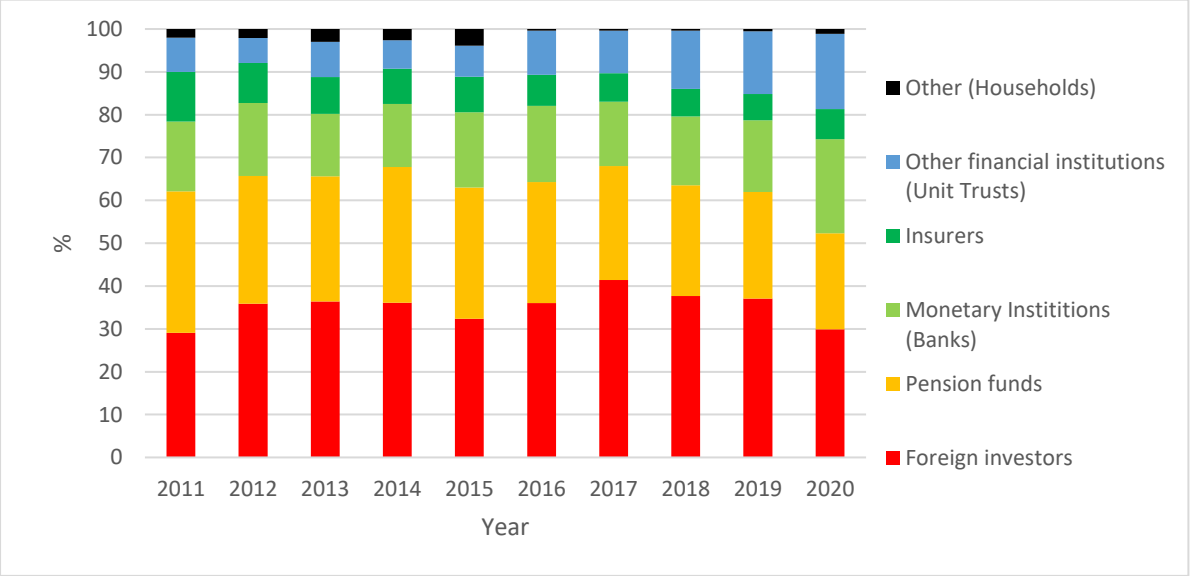
4.1. Introduction

Chapter 3 discussed the declining real interest rates around the world because of increased savings and capital accumulation. This chapter will focus on wealth in South Africa and the role it has in ensuring debt sustainability. The focus will then be on South Africa's institutions, its financial development, independent and credible central bank, and the role of the carry trade.

4.2. South Africa's Private Wealth.

Ownership of South Africa's debt

Figure 4.1: The ownership of domestic government bonds.



(National Treasury, 2021)

Andritzky (2012) found that increased foreign ownership of debt is "associated with lower but more volatile bond yields". Foreign ownership of domestic bonds has increased from R449 Billion in 2014 to R800 Billion in 2020 (National Treasury, 2021). While the nominal amount has increased, the percentage of total domestic bonds has remained at about 29%. After 2011, foreign investors have replaced domestic pension funds as the largest owner category of South Africa's public debt. However South Africa's public debt continues to be primarily owned by domestic banks and financial institutions, despite the level of debt

increasing rapidly over the most recent years. This is a testament to South Africa's financial development and private wealth.

Private Wealth

A more detailed approach for viewing changes in private wealth is to investigate the aggregate balance sheets of the household sector provided in the national accounts. Figure 4.2 shows South Africa's wealth to total income ratio from 1975 to 2014 according to Orthofer (2015). Unlike the trend in most advanced economies which is seen an increase in the private wealth to income ratio, South Africa's wealth-income ratio has remained relatively constant with a noticeable decline in the 1990s (Piketty,2014; Orthofer,2015).

Figure 4.2: Private Wealth to Income ratio for South Africa, 1975-2014

(Orthofer,2015)

Table 4.3 shows South Africa's household wealth in 2010 according to Orthofer (2015) and as a percentage of national income. Unlike most advanced economies in which wealth is driven by residential housing at about "180-380 percent" of income, housing wealth in South Africa only accounts for 75% of income. Wealth in South Africa is primarily comprised of financial assets, comprising approximately 70% of private assets. In which financial assets include stocks, bonds and cash and cash equivalents owned directly, or owned indirectly through financial institutions such as pension funds and life insurance funds. In theory, a greater share of financial assets should provide a greater source of funds for government borrowing. Piketty (2014) suggests that there might be a causal relationship between public

borrowing and private wealth, with increased state borrowing increasing private financial assets and wealth inequality.

Table 4.3: South Africa's household wealth in 2010 as percentage of GDP

	South Africa	8 Advanced Economies
Residential buildings	74	235
Other non-financial Assets	18	31
Total non-financial assets	91	267
Pension funds and life insurance	103	107
Equities and fund shares	61	91
Currency, deposits, bonds and loans	34	119
Total Financial Assets	198	316
Total assets	289	583
Mortgage advances	33	
Other liabilities	25	
Total liabilities	58	109
Household Wealth	231	474

(Orthofer ,2015)

The single largest asset category amounting to 103% of national income is "pension funds and long-term insurers". Orthofer (2015) suggests that this is driven by South Africa's lack of a public pension system, with the private pension system being well capitalised. This differs from many advanced economies which have public pension systems which are not fully capitalised and "function on a pay-as-you-go basis" (Orthofer ,2015).

Table 4.4: South African Household Wealth estimates by Chatterjee and in 2018 including percentage of GDP. Figures are in millions of Rands.

	2018	% of GDP
Non-financial assets	4 504	111
Owner-occupied housing	3 020	75
Tenant-occupied housing	988	24
Business assets	497	12
Financial assets	8 294	205
Pension assets	2 944	73
Life insurance assets	1 412	35
Bonds and interest deposits	1 798	45
Currency, notes, and coins	87	2
Corporate shares	2 053	51
Total Household Assets	12 798	316
Total liabilities	2 170	54
Mortgage debt	1 022	25
Non-mortgage debt	1 148	28
Net household wealth	10 629	263
Offshore wealth	575	14
Net wealth incl. offshore wealth	11 204	277
GDP at market prices	5358	100

(Chatterjee *et al*, 2020)

Table 4.4 shows how Chatterjee *et al*. (2020) has further disaggregated South African household wealth to show that owner-occupied housing as the primary asset category and pension assets a close second. Both the estimates by Chatterjee *et al*. (2020) and most recent household wealth data in the national accounts[1] reveal that financial assets are the primary form of wealth in South Africa, partially driven by pension funds.

Changes in the growth of pension funds and private wealth is evident in South Africa's single largest pension fund and asset manager which is the Government Employees Pension Fund (GEPF). This fund has 1.2 million active members benefiting 312 thousand pensioners and 160 thousand spouses (Government Employees Pension Fund, 2021).

[1] See appendix Table 7.7.

Table 4.5: Changes in the market value of selected assets categories of Government Employees Pension Fund

	2021	2020	Movement	%
	R'000	R'000	R'000	Change
Domestic bills and bonds	644 625 023	540 044 466	104 580 557	19%
Foreign bill and bonds	25 887 481	28 721 291	-2 833 810	-10%
Listed equities	1 099 693 762	763 017 302	336 676 460	44%
Unlisted equities	67 065 190	70 411 694	-3 346 504	-5%
Foreign investment instruments	146 589 905	117 829 856	28 760 049	24%

(Government Employees Pension Fund, 2021)

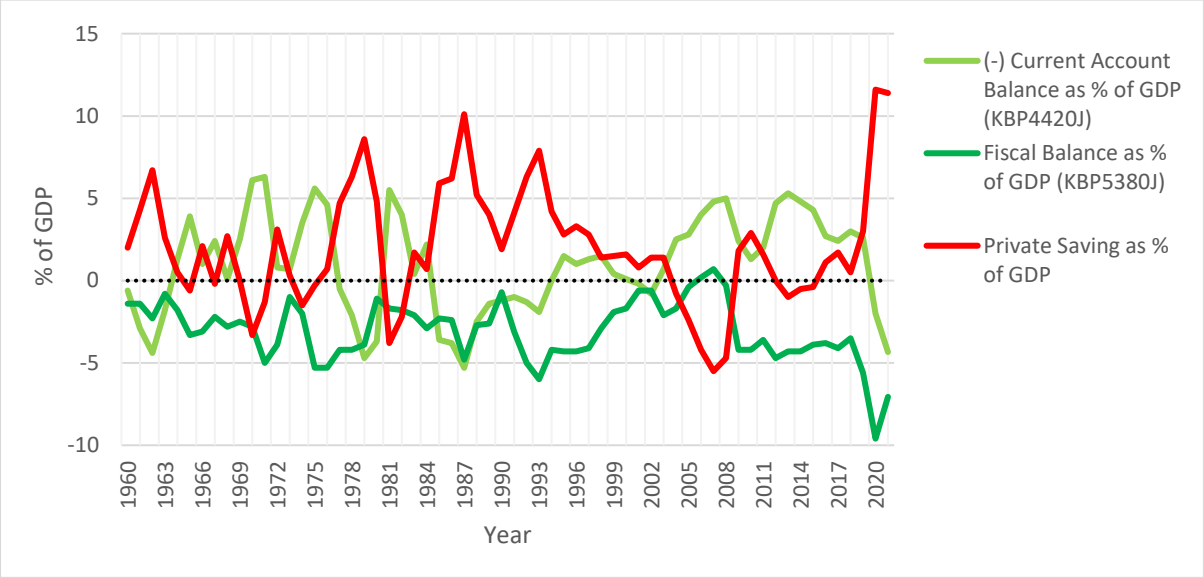
The market value of the GEPF investment portfolio in billions of Rands has grown to above R2 trillion in 2021[1], table 4.5 shows that this increase has been driven by increases in domestic bills and bonds and listed equities. Thus, it can be concluded that South Africa's absolute private wealth has increased, driven by asset appreciation, and increased private savings.

Sectoral Balances of South Africa

Given South Africa's weakening economy and changed demand due to the pandemic, the current account has increased and is correlated with an increase in the private savings rate. Another factor is the increased exports because of a global increase in the price of commodities (National Treasury, 2021). As a result of these two factors, South Africa's "structurally low levels of domestic savings" seems to have temporarily reversed and private savings has increased to its highest rate and driven by corporate savings[2] (Makrelov *et al.*,2019; SARB, 2021). This increase is shown in figure 4.6 which shows the sectoral balances of South Africa.

[1] See appendix Figure 7.8.
[2] See Appendix 7.9: Gross nominal savings by sector (SARB, 2021).

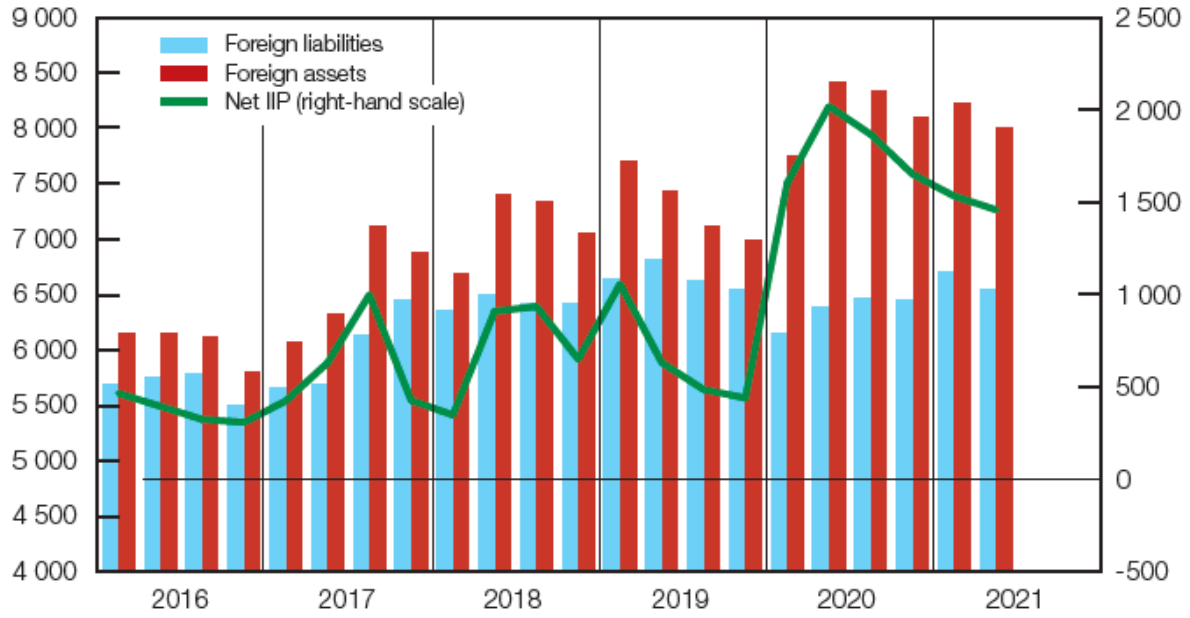
Figure 4.6: Sectoral Balances of South Africa as % of GDP[1]



(SARB, 2021)

Figure 4.7 shows South Africa's international investment position. The net position which is the difference of foreign assets and foreign liabilities (inward investment) rose to over R2 trillion Rand in the second quarter of 2020 and has declined to under R1.5 trillion at the end of June 2021 (SARB, 2021).

Figure 4.7: South Africa's International Investment Position in Billions of Rand



[1] Private Savings obtained as the sum of the negatives of the current account and fiscal balance.

(SARB, 2021)

4.3. South Africa's Public Wealth

The South African state owns multiple state-owned enterprises (SOEs)[1] (National Government of South Africa, 2022). Eskom and Transnet are the two largest SOEs in terms of liabilities and revenue and will be the focus of the analysis of South Africa's public wealth. The South African government's largest "contingent" asset is the "Gold and Foreign Exchange Contingency Reserve Account" and is shown in table 4.12 (National Treasury, 2022). This is held by the South African Reserve Bank (SARB) and "reflects profits and losses on gold and foreign exchange reserves" with the purpose of maintaining "liquidity in the presence of external shocks" (National Treasury, 2022). These three institutions are considered and are the most relevant for South Africa's debt sustainability.

Eskom and Transnet

Table 4.10 shows the plant, property and equipment assets of Eskom and Transnet and comprises most of the total assets for both. The primary asset of Eskom is its "generating plant". However, these are mostly over 40 years old, closer to the end of its usable life and "failing more often" (Kenny, 2015).

While the assets under "Work under Construction" are the two new power plants of Medupi and Kusile. These two power plants have been beset by multiple issues with significant "cost and schedule overruns" which were related to a lack of "management and organisation expertise" (Tshidavhu & Khatleli, 2020). Thus, while Eskom and Transnet are the primary sources of the states non-financial marketable assets, these assets have been beset by multiple problems given that Eskom and Transnet were the "primary vehicles for managing state capture" and "looting of state resources" (Bhorat *et al.*, 2017).

[1] See appendix Figure7.10.

Table 4.10: Eskom and Transnet Plant, Property and Equipment. Value in Millions

Eskom Plant, Property and Equipment	Land and Buildings	Generating Plant	Transmitting Plant	Distributing Plant	Spares	Equipment and Vehicles	Work under Construction	Total
Carrying Value	8 521	263 914	42 363	74 323	13 929	6 278	241 112	650 440
Cost	10 532	367 897	60 599	123 542	15 589	17 897	242 645	838 701
Accumulated Depreciation	-2 011	-103 983	-18 236	-49 219	-1 660	-11 619	-1 533	-188 261
Transnet Plant, Property and Equipment	**Land, buildings**	**Machinery, furniture**	**Pipeline networks**	**Port facilities**	**Rail infrastruc**	**Rolling stock and**	**Capital work-in-progress**	**Total**
Carrying Value	20 900	10 148	37 764	57 409	46 462	87 756	25 438	285 877

(Eskom, 2020; Transnet, 2021)

South African Reserve Bank

Table 4.12: Total gold and foreign exchange reserves and SARBs balance due to the SA government[1].

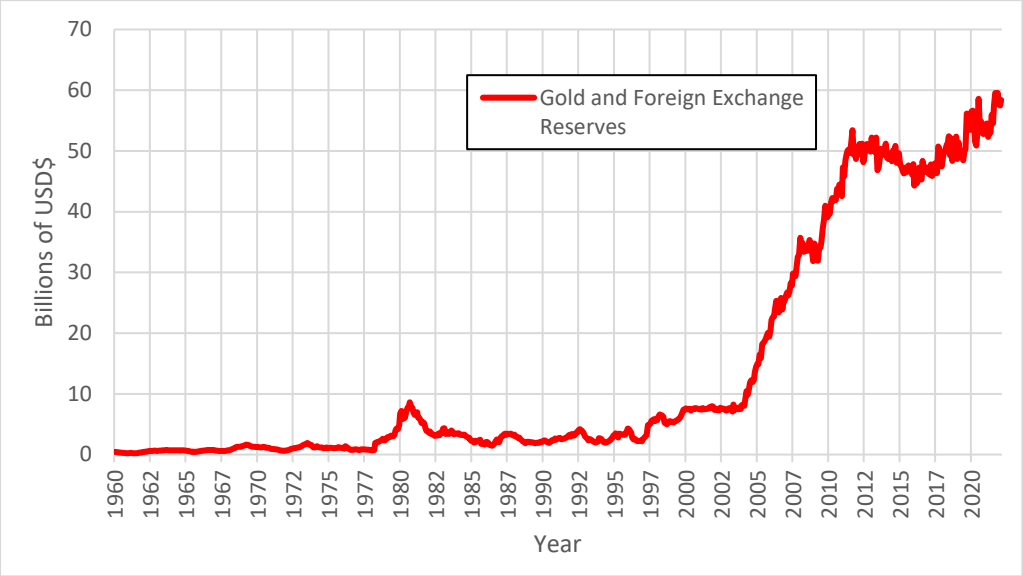
	2021	2020
Foreign Reserve Securities	633 018 537	764 075 483
Derivatives	169 438	- 459 606
Gold	100 472 034	115 360 360
IMF SDR reserves	45 277 652	53 003 575
Total	778 937 661	931 979 812
Due to SA government	323 408 239	434 358 575

(SARB, 2021)

The foreign reserve securities include foreign government bonds, mutual funds, and mortgage-backed securities. While there was a large decline in the amount of total foreign reserves from 2020 to 2021, as figure 4.13 shows, this was driven by changes in the exchange rate rather than changes in the value of the reserves. This has then reduced SARBs liabilities to the government.

[1] See appendix figure 7.11 for a more detailed extract of the "Gold and Foreign Exchange Contingency Reserve Account" from the SARB's Annual Financial Statements.

Figure 4.13: Gold and Foreign Exchange Reserves in USD[1], 1960-2021.



(SARB, 2021)

4.4. South Africa's Institutions and Financial Development

Financial development indicators

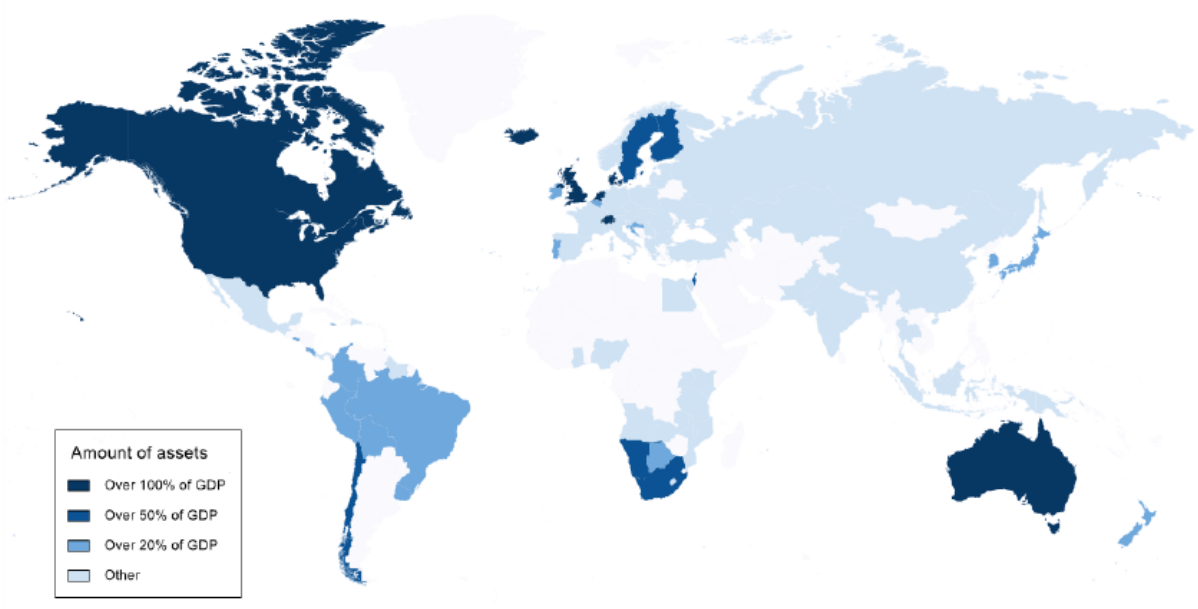
In multiple measures of financial development[2] from market structure to financial products, South Africa has a very high level (Gelbard & Leite, 1999). Two proxies of financial development include stock market capitalisation and pension assets as a percentage of GDP. For both measures, South Africa has one of the highest ratios in the world, this is shown in figure 4.14 (OECD, 2021; World Bank, 2021).

Figure 4.14: Retirement savings assets to GDP in 2019[3]

[1] Constructed by dividing the Gold and Foreign Exchange Reserves (KBP5273M) by the nominal US dollar/ Rand Exchange rate (KBP5339M)

[2] These include market structure, financial products, financial liberalisation, institutional environment, financial openness, and monetary policy instruments (Gelbard & Leite, 1999)

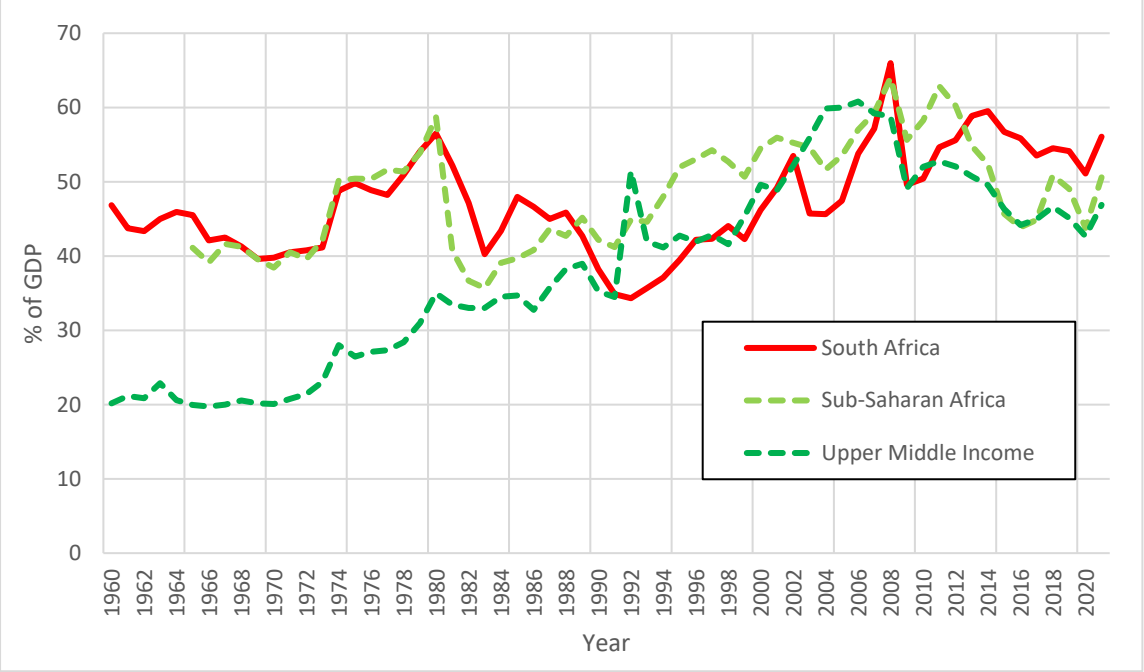
[3] South Africa's pension assets as % of GDP is the second highest outside of the OECD after Singapore (OECD,2021).



(OECD, 2021)

South Africa has a high level of trade openness when compared to Sub -Saharan Africa and other upper middle-income countries as shown by figure 4.15. This relatively high level of trade openness reduces the risk of South Africa's foreign denominated public debt.

Figure 4.15: South Africa's trade openness which is the sum of exports and imports to GDP

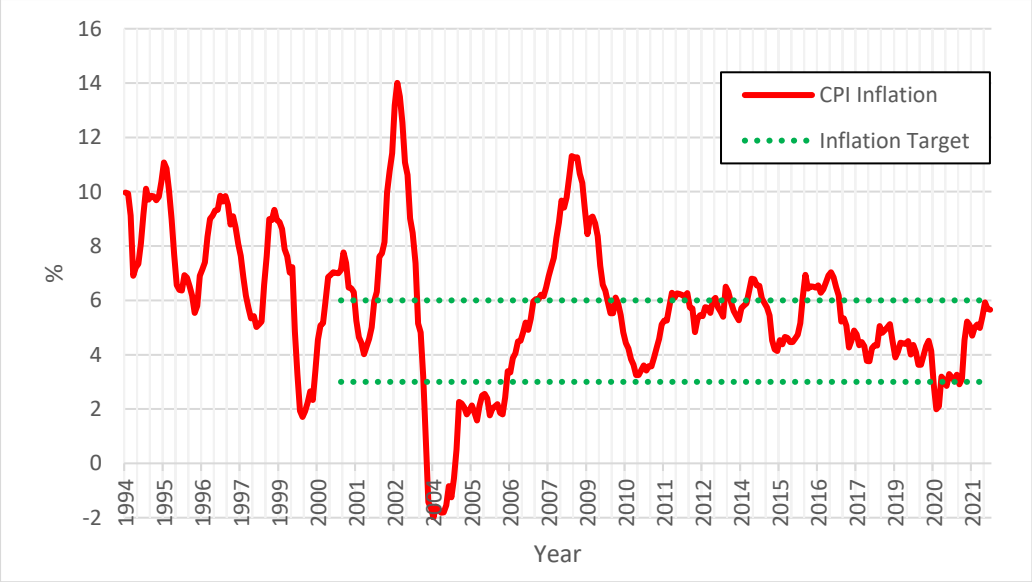


(World Bank, 2022)

Central bank independence

Aluko & Ibrahim (2019) found inflation as the most significant determinant of financial institutions development and that financial institutions "are less developed in high-inflation countries". The institutional strength of the central bank can be proxied by the price level. Figure 4.16 shows changes in South Africa's consumer price level, a measure of inflation, and the SARBs inflation target which is between 3 and 6 percent. Since 2009, inflation has largely remained within the target band, with only temporary periods of inflation just above 6 percent. One can conclude from this is that the SARB's inflation targeting policy is credible and has served as an anchor for inflation expectations.

Figure 4.16: South Africa's CPI Inflation[1] including the inflation target band, January 1994 to February 2022.

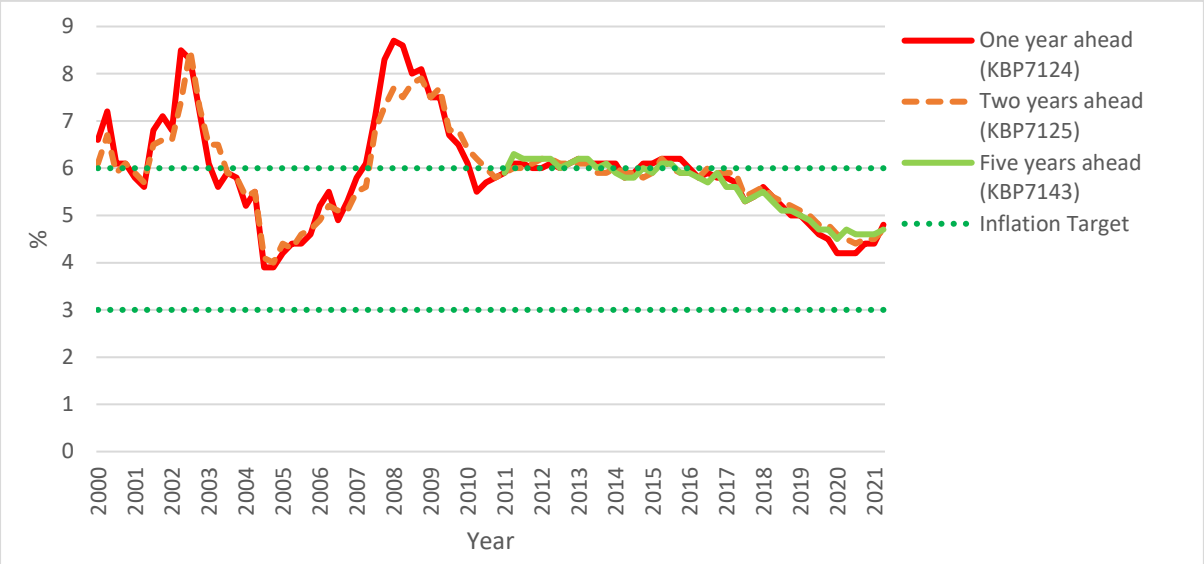


(FRED,2022)

The anchoring of inflation expectations is evident in figure 4.17 which shows the inflation expectations for multiple years. The five-year ahead inflation expectation has trended towards the midpoint of the inflation target of 3% to 6%.

[1] Yearly percentage change of the monthly Consumer Price Index (FRED, 2021)

Figure 4.17: Inflation expectations for all surveyed participants including upper inflation target limit, 3rd Quarter 2000 to 4th Quarter 2021.



(SARB, 2021)

Multiple measures of South Africa's money supply[1] have not seen a large increase since 2020, while South Africa's unemployment level[2] is at its highest level recorded. Thus, for multiple measures and theories of inflation[3], South Africa's inflation rate has not significantly increased or expected to increase by a large amount in the near future. The lack of persistent high inflation also reduces the likelihood of a hyperinflation episode in South Africa.

Carry Trade

The carry trade which is a movement of capital from low interest rate currencies to that of high interest rate is due to the "empirical failure of UIP" (Hassan and Smith ,2012). Using the rand as a carry trade target has high returns but comes at a great risk due to currency movement. (Hassan and Smith ,2012). Thus, Hassan and Smith (2012) see the South Africa's large interest rate premium as the "compensation for the infrequent occurrence of very large losses".

[1] See appendix figure 7.12.
[2] See appendix figure 7.13. This increase is likely cyclical, but could also be structural.
[3] Quantity theory of money, expectations, and the Phillips curve.

The risk of the carry trade and on relying on external funding creates the risk of a sudden stop[1]. However, the rand's "risk-return profile" is most attractive after a depreciation (Hassan, 2015). Thus, if a sudden stop does take place and South Africa's institutional strengths[2] remain, the effect of a sudden stop would only be temporary.

4.5. Conclusion

This chapter has shown some long-term characteristics of the South African economy that would influence its ability to sustain debt. South Africa has a high degree of financial development which is supported by a large amount of private wealth driven by financial assets. There is also a large amount of public wealth in the form of assets of state-owned enterprises and the reserve bank. There are however limits to the quality of the assets of some state-owned enterprises. Recently many SOEs have made multiple losses for many years, acting as a liability to the state rather than an asset.

Finally South Africa has several institutional strengths including an independent central bank which reduces the risk of high inflation and increases the likelihood of external funding for South Africa's public debt. While foreign investors are the primary owner category of South Africa's public debt, most of the debt is domestically owned and mostly driven by pension funds and banks. This then reduces the likelihood of a sovereign default. Large foreign ownership of debt increases the risk of a sudden stop. However, South Africa's flexible exchange, trade openness, deep capital markets and independent central bank reduce the risk of temporary capital outflows.

[1] A sudden stop is defined as "a sudden and large decline in capital flows" (Makrelov *et al*., 2019)
[2] Private wealth, financial development, floating exchange rate, trade openness and low inflation.

Chapter 5: Austerity, South Africa's Fiscal Policy Plans and Yield Curve Control

5.1. Introduction

A part of debt sustainability in the short term depends on the credibility of the government's plans and commitments in terms of raising taxes and cutting spending and avoiding the use of inflation and financial repression. When a country is on an unstable debt path and the rate of interest is greater than the nominal growth rate, it must somehow engage in fiscal consolidation. This chapter looks at the literature of austerity, South Africa's future fiscal plans and the role of increased treasury and central bank coordination to support the austerity plans.

5.2. Austerity

Austerity involves either increasing taxes, reducing public spending or a combination of both to achieve a primary surplus and reduce the burden of debt (Alesina *et al*., 2019). There is a risk to austerity as increasing taxes or decreasing spending can have a negative effect on output with the net effect of increasing the debt to GDP ratio. Fatas and Summers (2016) argue that this occurred in several European countries after the global financial crisis, with potential output declining. Blyth (2013) reasons that austerity in the 1920s and 1930s, combined with a return to some sort of gold standard[1] and a weak external sector, drove a "post-war recession" into "the Great Depression".

The effect of austerity on economic output is based on the fiscal multiplier, which can range from less than zero to above 2.5 in recessions (Blanchard & Leigh,2013). Very low multipliers are due to the crowding out of private investment and consumption (Barro,1984). However, during a downturn, "an increase in government spending is less likely to crowd out private consumption or investment" (Barro, 1984). Thus, austerity is very damaging during recessions. Austerity plans however are usually multiyear plans and as a result, are hard to time.

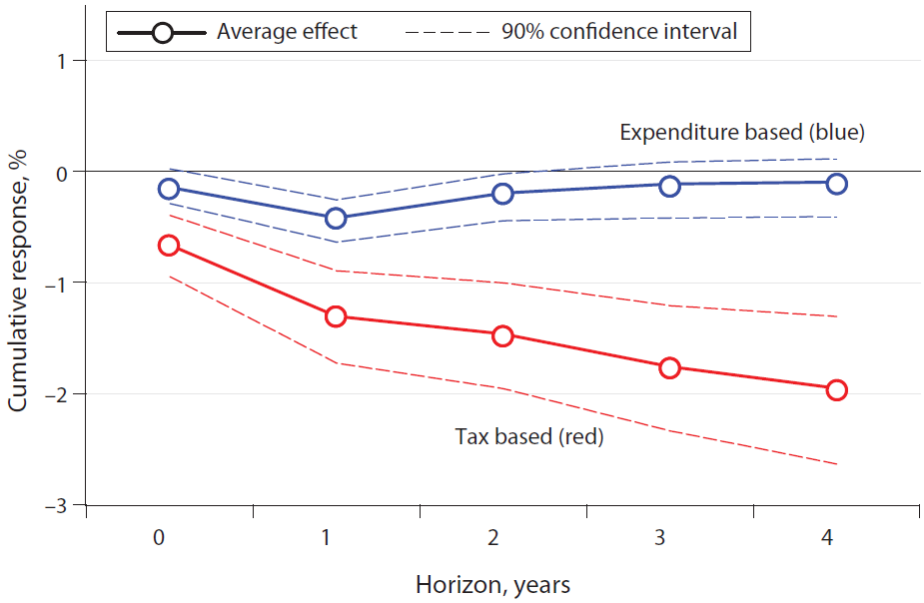
While Keynesian economics suggest that austerity should result in a decline in output, austerity can potentially have a positive effect on growth. One channel is that austerity reduces inflation

[1] Blyth (2013) further argues that the constrained fiscal policy options required to maintain a gold standard are mirrored in the Eurozone after the global financial crisis.

which then lowers the interest rate "further for the rest of the credit markets" and promotes investment and consumption (Giavazzi & Pagano, 1990). Austerity can lead to economic growth when debt levels are very high, the logic is that when debt is rapidly rising, an "immediate tax hike that rules out an even larger tax hike in the future can induce a positive response to consumption" (Alesina *et al*., 2019; Perotti,1999).

In the book "Austerity: When It Works and When It Doesn't", Alesina *et al*. (2019) studied 16 countries and 184 austerity plans, including that of several European countries in response to rising debt costs due to the "Volcker shock" in the 1980s. Alesina *et al*. (2019) find that austerity based on increasing taxes likely results in large recessions, while "austerity based on reductions in government expenditures does not". The results of different scenarios are shown in figure 5.1. and in which the austerity plan is assumed to be a 1% of GDP reduction in the primary deficit.

Figure 5.1: The effect of austerity plans[1] on GDP in different scenarios.



(Alesina *et al*.,2019)

[1] Austerity is assumed to have "multiyear policy packages involving policy changes, announcements of the future, and implementation of past announcements" (Alesina *et al*., 2019). Thus, the changes are anticipated, and the results of the different scenarios are driven by expectations.

The differences between the effect of austerity of expenditure and taxes are driven by expectations and the effect it has on private investment. Investor confidence or expectations of the future reacts positively to expenditure-based austerity plans and negatively to tax based plans (Alesina *et al*.,2019). This is especially true when debt is rising rapidly rather than when it is stable. This is due to austerity reducing the risk of "fiscal collapse" which has a positive effect of on the confidence of consumers and investors by making them "more optimistic about the future". The difference between the effect of austerity of expenditure and taxes vanishes when austerity plans occur during an expansionary period and is greatest when there is a recession (Alesina *et al*.,2019).

There are also differences in the effect based on the type of expenditure. Current spending does not affect private incentives, while declines in capital spending likely reduce long run growth. Alesina and Ardagna (2010) find that cuts in current spending are "associated with higher GDP growth" when compared to cuts in capital spending. Multiple factors in explaining the effectiveness of austerity to promote or reduce growth include the timing, the level of debt, the type of austerity and the actions of trading partners and the role of monetary policy (Alesina *et al*., 2019).

Blyth (2013) argues that the cases of 'expansionary austerity' in Europe in the 1980s were the result of external factors[1] and that there is limited evidence for the expectations channel. Instead, austerity results in economic decline except for episodes where they are "supported by external demand," currency "devaluations, and cooperative domestic labour organizations" and when a country is in "a position of high growth" (Blyth, 2013).

5.3. South Africa's Fiscal Policy Plans

South Africa is on an unstable debt path and the rate of interest is greater than the nominal growth rate, thus it must somehow engage in fiscal consolidation. South Africa's national treasury has already made a commitment to achieve a primary surplus (National Treasury,

[1] These were "improved exports" and increased "transfers from the European Union" (Blyth, 2013).

2021). The 2021 budget review provides information on the commitments of South Africa's national treasury. This is shown by figure 5.2.

Figure 5.2: Consolidated fiscal framework from the 2021 budget review.

	2017/18	2018/19	2019/20	2020/21	2021/22	2022/23	2023/24
R billion/percentage of GDP	**Outcome**			**Revised Estimate**	**Medium-term Estimate**		
Revenue	**1 350**	**1 448**	**1 531**	**1 363**	**1 520**	**1 635**	**1 717**
	28,7%	29,4%	29,7%	27,7%	28,4%	28,9%	28,6%
Expenditure	**1 541**	**1 644**	**1 822**	**2 053**	**2 020**	**2 050**	**2 095**
	32,8%	33,4%	35,4%	41,7%	37,7%	36,2%	34,9%
Non-interest expenditure	**1 368**	**1 452**	**1 609**	**1 811**	**1 742**	**1 733**	**1 748**
	29,1%	29,5%	31,2%	36,8%	32,5%	30,6%	29,1%
Primary Balance	**-18**	**-4**	**-78**	**-448**	**-222**	**-98**	**-31**
	-0,4%	-0,1%	-1,5%	-9,1%	-4,1%	-1,7%	-0,5%
Budget Balance	**-191**	**-196**	**-292**	**-690**	**-500**	**-414**	**-378**
	-4,1%	-4,0%	-5,7%	-14,0%	-9,3%	-7,3%	-6,3%

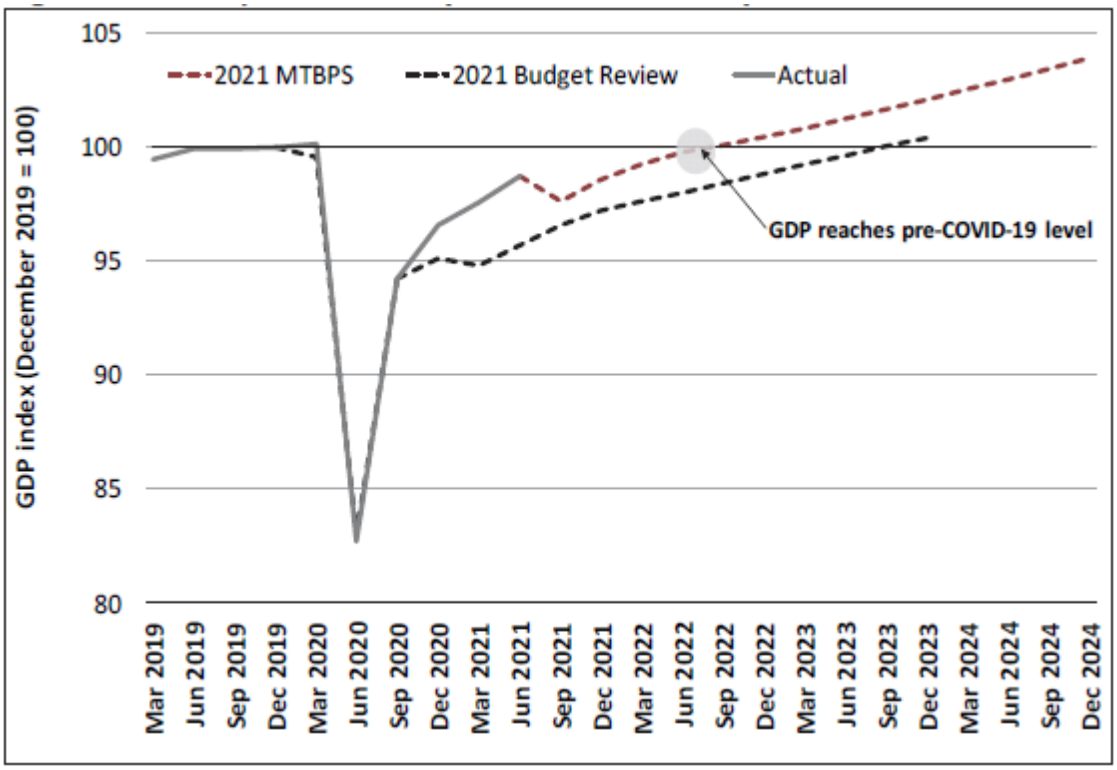
(National Treasury, 2021)

The period from 2022 to 2024 would involve R1.3 trillion rand in borrowings. The stable nominal expenditure would be driven by reductions in "the wage bill and the share of spending on wage, while sustaining real spending increases on capital payments for building and other fixed structures" (National Treasury, 2021). Given that inflation has averaged about 4.5%, the relatively stable nominal expenditure would result in a real decline and would be a form of austerity. The plan is for the debt ratio to be stabilised at 80.5% of GDP in 2026. The 2021 budget review makes no indication of any additional tax increases, with the only change a small 8% increase in "alcohol and tobacco excise duties" and a rebate for "above-inflation increase in personal income tax brackets" which would provide some personal income tax relief (National Treasury, 2021). Thus, the 2021 budget review fiscal consolidation plan will be driven by declines in real expenditure[1], specifically in wages and not driven by tax increases. The intention is to achieve a primary fiscal surplus in 2025[2].

[1] See appendix figure 7.14.
[2] See appendix figure 7.15.

South Africa's growth prospects have improved since the 2021 budget review was tabled. Figure 5.3 shows the economic output forecasts in the Treasury's 2021 Medium Term Budget Policy Statement (MTBPS). South Africa's output is expected to recover to the pre-pandemic level in June 2022, earlier than expected in the 2021 budget review. This path is confirmed in the 2022 budget review (National Treasury, 2022).

Figure 5.3: Anticipated recovery in economic activity.



(National Treasury, 2021)

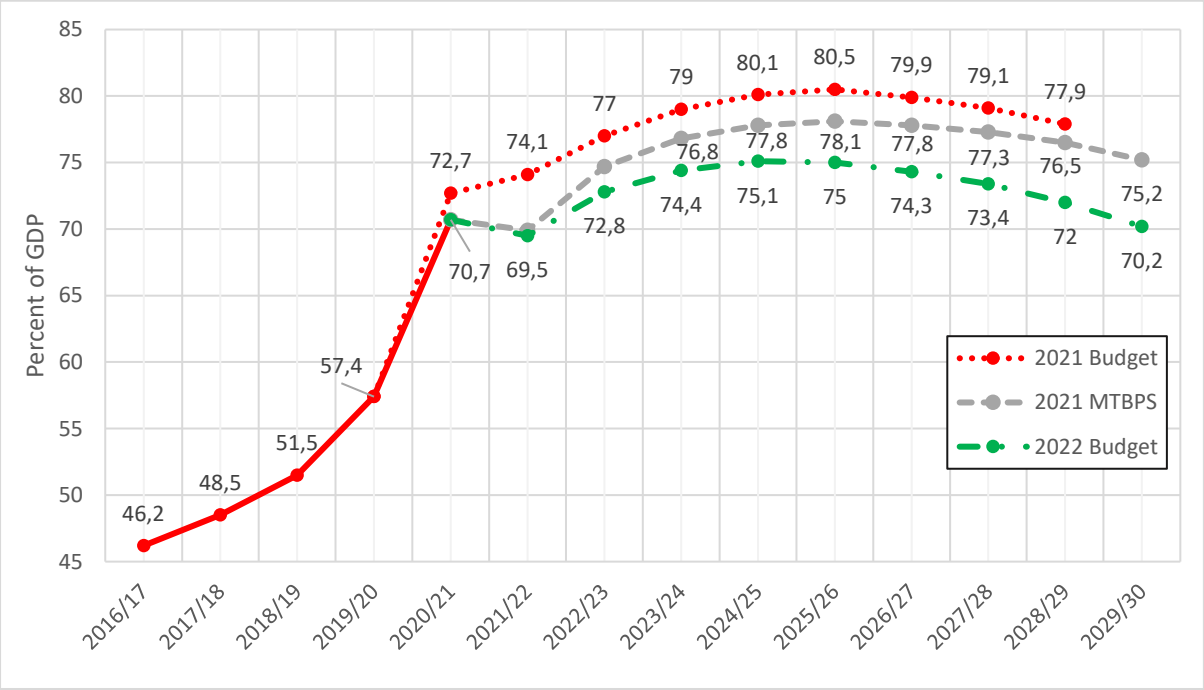
This economic recovery in 2021 was driven by increased household expenditure and increased corporate revenues due to higher commodity prices. This has resulted in a higher revenue for the state driven by increases in corporate tax revenue of R105 billion[1] and income tax revenue of R37 billion when compared to the estimates of the 2021 budget review (National Treasury, 2022). However, expenditure has also increased due to "additional resources to support low-income households" and renegotiated wages. (National Treasury, 2021). The two drivers of increases in expenditure include wage bill adjustments amounting to R20 billion and allocations for the COVID-19 fiscal relief package amounting to R32.9 billion. This additional

[1] For the "2021/22" period.

revenue in the “2021/22” period is used to “accelerate debt stabilisation” (National Treasury, 2022).

Thus the 2022 budget review confirms the fiscal consolidation strategy of the 2021 budget review, but with a primary surplus obtained a year earlier than previously predicted. The gross debt-to-GDP ratio is expected to peak at 75.1% in 2025, a year earlier and at a lower level than predicted in the 2021 budget review and the 2021 MTBPS. This is shown in figure 5.4.

Figure 5.4: Gross debt-to-GDP outlook



(National Treasury, 2021; National Treasury, 2022)

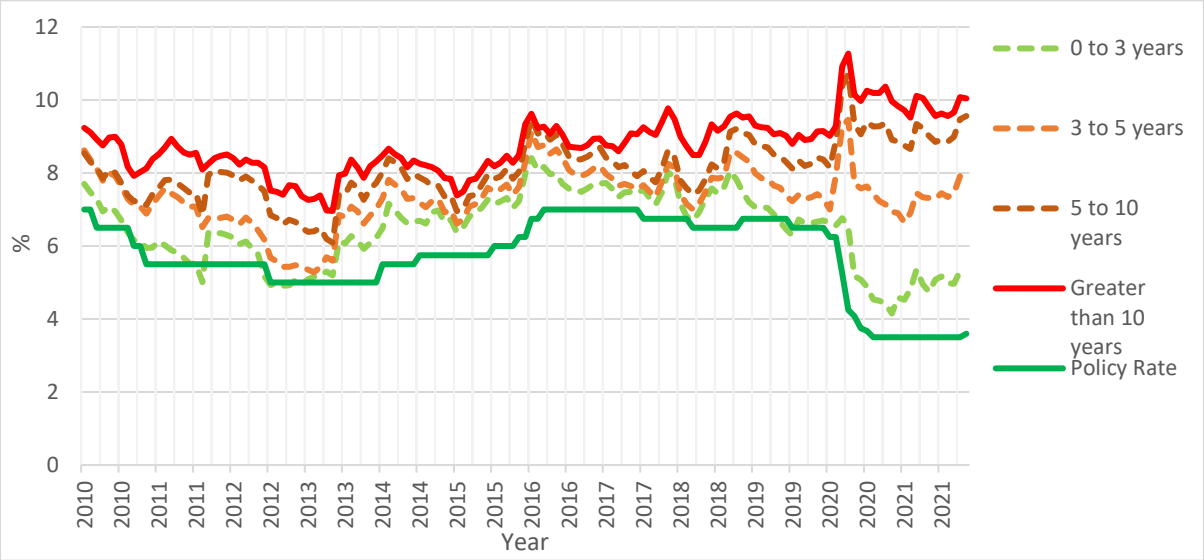
These forecasts are reliant on several assumptions. Risks includes the “legal process associated with public-service compensation, and future wage negotiations”, the continued pandemic, external shocks and weakening state owned enterprises requiring support (National Treasury, 2021). The overall success of this strategy is based on the state’s commitment and credibility to constrain expenditure. And as the austerity literature has shown, fiscal policy is not exogenous to output. There are potential positive economic effects of austerity, it could improve creditworthiness and lower long term interest rates for the private sector leading to greater economic growth (National Treasury, 2021).

5.4. Quantitative Easing and Yield Curve Control

Fedderke (2020) in finding the determinants of South Africa's sovereign bond spread with the United States, finds that a lower public debt to GDP ratio has the strongest impact on reducing this spread. As such, finding ways to decrease the rate at which debt is increasing is important. However, having a more excessive austerity plan is risky. One possible way to support South Africa's National Treasury's austerity programme is through greater coordination with the central bank.

As South Africa's economic output declined due to the 2020 pandemic, the central bank responded with a reduction in the policy rate and short-term bond yields declined accordingly. This is shown in figure 5.5 which shows the yields of bonds of different maturities. As the amount of public debt has risen, the yield of this debt has not increased proportionally. However long-term debt yields are above 10% for the first time in a decade. One could assume that if inflation levels were maintained and that the confidence in the state remained, that there is an upper limit to which debt yields can rise to, as further increasing yields would attract more external and domestic investors. Shorter term yields have decreased to their lowest level, this has entirely been driven my monetary policy by the SARB and is a response to a weaker economy.

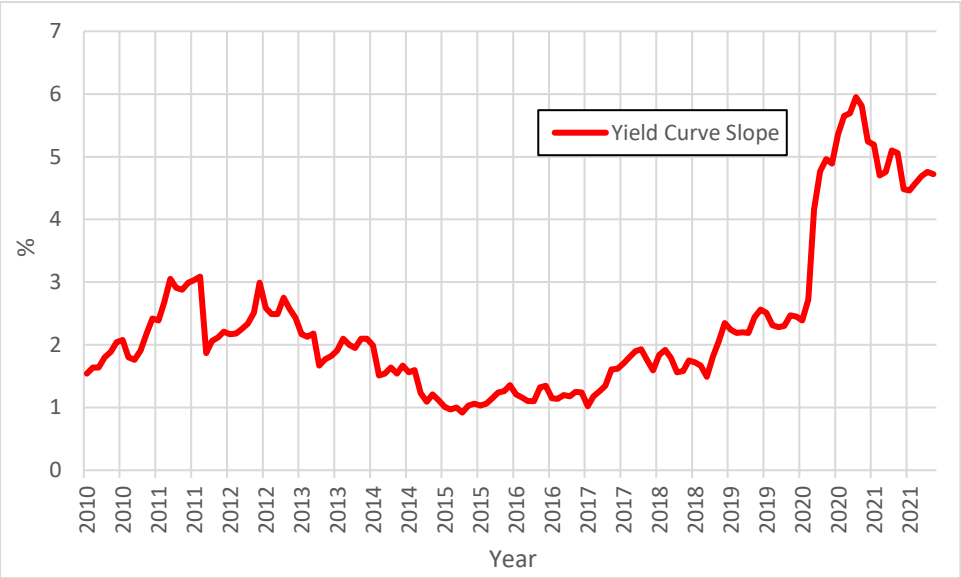
Figure 5.5: Yields for bond of different levels of maturity including the policy rate, 2010-2021.



(SARB, 2021; FRED, 2022)

The declining short-term rates and increasing longer term rates have resulted in an increasingly steep yield curve. Thus, this would make things increasingly tempting for the state to borrow in shorter maturity given the lower costs.

Figure 5.6: The yield curve slope showing the difference of bonds of maturity of greater than 10 years and bonds of maturity between 0 and 3 years, 2010-2021.

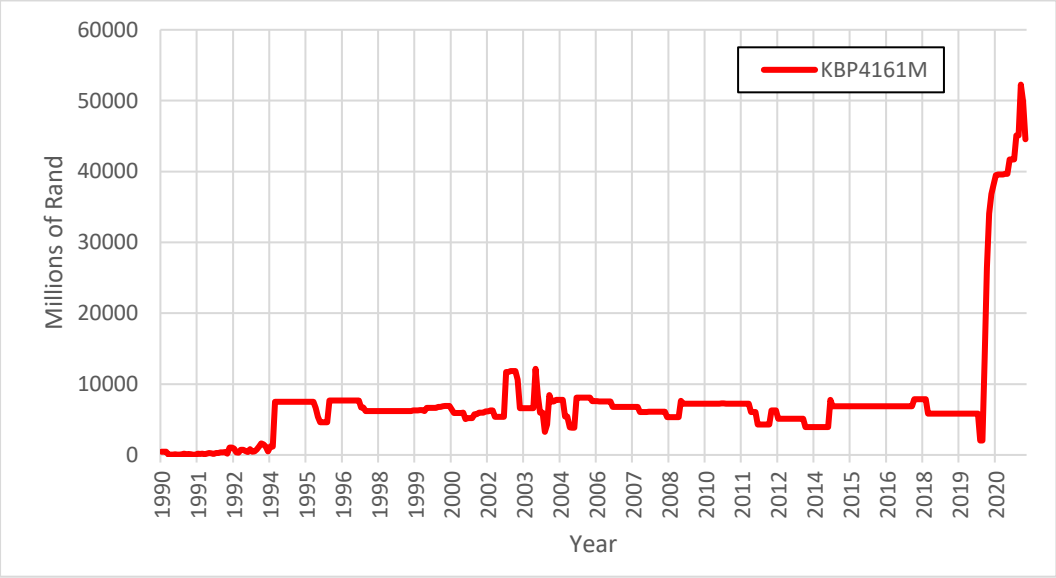


(SARB,2021)

Quantitative easing (QE) includes the purchase of long-term assets to increase the money supply (Fawley *et al*.,2013). The result of the purchase of long-term bonds in the market is to reduce the supply and the term premium, resulting in a decline in the yield curve (Gagnon, 2016). Often it is not the actual purchases that reduces bond yields but merely the announcement by the central bank of the intention to purchase (Gagnon, 2016). South Africa is not at the zero bound for short term interest rates; however, purchases of long-term yields could be used as an equivalent to cutting short term rates. Churm *et al*. (2015) found that the Bank of England's bond purchases equivalent to 25% of GDP were the equivalent to reducing short term rates by 1.5 to 3 percentage points.

As shown in figure 5.5, the SARB has recently taken part in a form of QE to "manage liquidity during the COVID-19 pandemic" when the SARB purchased R29.1 billion in long-term South African government debt from the secondary market (SARB, 2021). This purchase has a yield of 13.96%, which is much higher than the recent trend of the yield at about 10%[1]. Yield curve control differs from QE in that explicit long-term rates are targeted rather than specific quantities of assets (Amamiya, 2017). There is a trade-off to central bank assets purchases paid with increased bank reserves, as it potentially can be inflationary and result in increased short-term rates. Thus, it could lower the cost of long-term borrowing and assist with the national treasury's fiscal consolidation plan.

Figure 5.7: Long term debt held by the SARB in millions of Rand (KBP4161M)



(SARB, 2021)

5.5. Conclusion

The trend of South Africa's debt trajectory after the 2020 Covid-19 pandemic is unsustainable. Thus, South Africa must engage in some sort of austerity programme to avoid a default or a debt crisis. The risk of an austerity programme is its effect on output, with the risk that it could decrease output and lead to increases in the public-debt to GDP ratio.

[1] See appendix figure 7.16.

The review of the austerity literature by Alesina *et al*. (2019) suggests that programmes based on tax increases and during economic downturns will have the highest risk. Alesina and Ardagna (2010) find that cuts in current spending have the lowest output effect when compared to cuts in capital spending. The South African national treasury seems to have taken this into account with a fiscal consolidation programme that focuses on shifting spending away from "consumption and crisis response" and towards capital investment and having no significant tax increases (National Treasury, 2021). The planned decline in real spending is also gradual with no nominal decline, with most of the work being done by inflation and thus limiting the risk to the economic recovery. The South African Reserve Bank could assist with this fiscal consolidation programme by focusing on reducing the yield curve rather than simply reducing the short-term rate. There are risks to this such as if the South African government defaults on its debt, the central bank would then have depreciated assets in its balance sheet. It could also reduce the pressure for fiscal consolidation. Thus, the sustainability of South Africa's debt path is dependent on the credibility and commitment of the National Treasury to its plan.

Chapter 6: Conclusion

Structure of debt

Debt sustainability is complex involving multiple factors. A country such as Japan can sustain public debt levels above 270% of GDP, while several developing countries have defaulted at far lower debt levels. A variety of country specific factors matter including the structure of debt. A high level of foreign denominated debt and debt of a short maturity increases the risk of a liquidity crisis, while a high level of trade openness and foreign exchange reserves reduces this risk (Manasse & Roubini, 2005). South Africa's public debt characteristics are of a long maturity and mostly domestically denominated, along with a relatively low short-term debt to foreign exchange reserves ratio, a relatively high level of trade openness and a flexible exchange rate. These factors reduce the likelihood of liquidity crises.

South Africa's institutions

South Africa has a high level of financial development, including its market structure, financial institutions, and its fiscal and monetary authorities (Gelbard & Leite, 1999). Countries that have more developed financial systems and where banks hold more public debt have a higher debt intolerance level (Gennaioli *et al.*,2010). South Africa's domestic banks own a large portion of its public debt; however, the primary owner categories are foreign investors and pension funds. Large foreign ownership of debt increases the risk of a sudden stop. However, South Africa's institutional strengths including an independent central bank and deep capital markets reduce the risk of temporary capital outflows. For "Ricardian Equivalence" to hold requires some level of financial development, institutional strengths to limit inflation and financial repression, the "confidence of the government" and finally some level of private wealth (Piketty,2014). These are factors that enhance the sustainability of South Africa's debt, though not to an unlimited extent.

Wealth

South Africa has extensive private wealth, largely held in pension funds, with the highest pension fund assets to GDP ratio in the developing world, and large amount of overseas assets with a positive net international investment position. South Africa's private wealth has recently

increased, driven by increased private savings and an appreciation in the value of listed equities. Assessing solvency also accounts for public wealth. South Africa's public wealth includes its extensive income-generating public assets including rail, ports, and electricity generation. However South Africa's state-owned enterprises have also been beset by problems relating to management, increasing debt, and declining profitability which have increased the risk of South Africa's solvency.

Fiscal policy

Manasse & Roubini (2005) found that the primary causes of a sovereign default are factors related to "liquidity or insolvency with a credible fiscal consolidation". South Africa's National Treasury has made the commitment to achieve the fiscal consolidation needed to stabilise the debt to GDP ratio. The review of the austerity literature by Alesina *et al*. (2019) suggests that the best way to approach this is to reduce public expenditure without reducing capital investment. South Africa's National Treasury seems to have taken this into account. However, the risks to the fiscal consolidation plan includes future wage negotiations, support for state owned enterprises, pressure for increased social spending and possible external shocks.

Monetary and fiscal policy coordination

Monetary policy could play a role in supporting South Africa's fiscal consolidation plan by reducing the cost of long-term debt. This has been the case in advanced economies as short-term rates have reached the zero lower bound. The very low level of real interest rates in advanced economies has been due to increased saving partially driven by demographics. Although nominal interest rates are likely to rise in the period ahead, a repeat of a "Volcker shock" is unlikely. These comparatively low real interest rates affect developing economies due to open international capital flows and provide potential support for South Africa's fiscal consolidation plan.

Hyperinflation

While increased treasury and central bank coordination might contribute lowering the cost of long-term borrowing to the government, this could be perceived as a reduced independence of

the central bank. The international literature on inflation suggests that reducing central bank independence and increases in the money supply are the primary causes of hyperinflation episodes, which are often preceded by periods of high inflation. South Africa's central bank has recently managed to anchor inflation expectations and thus has a high level of credibility and independence, but it has nonetheless not intervened to flatten the yield curve or lower government's long-term borrowing costs.

Conclusion

Economic growth is vital for debt sustainability, and so it is important to limit the possible negative impact of austerity policies on investment and growth. This paper explores a range of financial and institutional factors that should be taken in account in assessing South Africa's fiscal consolidation path. There are several favourable factors to take into account in considering South Africa's debt path. These include a high degree of central bank independence, increasing private wealth and high level of financial development, persistently low global real interest rates, limited liquidity risk and a credible fiscal consolidation commitment. These factors allow the National Treasury's fiscal consolidation plan to be more gradual than it otherwise would be, with no planned decline in nominal expenditure, thus limiting the risk to the economic recovery and providing scope for other growth enhancing measures.

Appendix

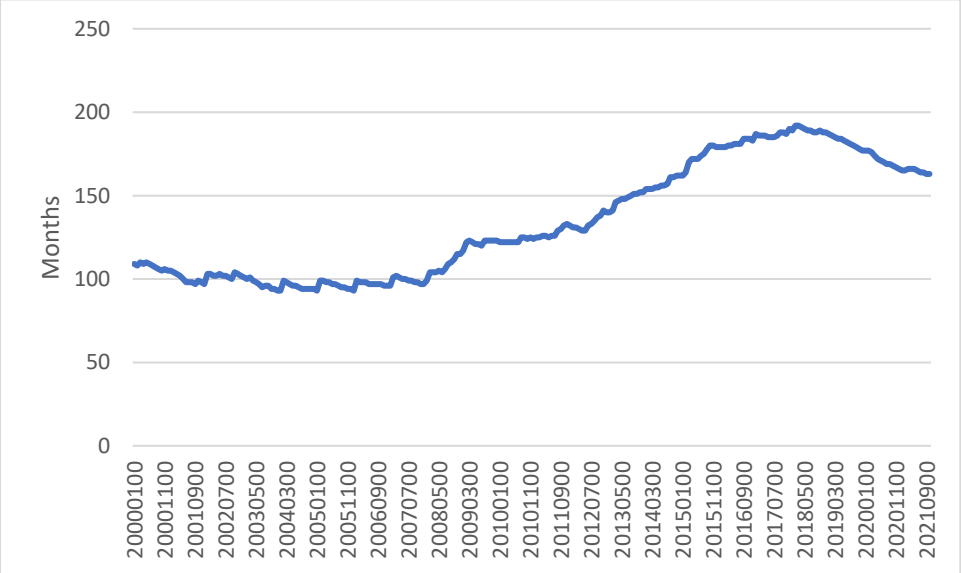
Chapter 2 Appendix:

Figure 7.1: Extract of table 7.7 (Total National Government Debt) in the National Treasury's budget review of 2021.

End of period R billion	2019/20 Outcome	2020/21 Estimate	2021/22	2022/23	2023/24
			Medium-term estimates		
Domestic loans[2]	**2 874.1**	**3 529.1**	**3 916.7**	**4 322.3**	**4 707.8**
Short-term	360.7	457.9	466.9	518.9	574.9
Long-term	2 513.4	3 071.2	3 449.8	3 803.4	4 132.9
Fixed-rate	*1 863.2*	*2 287.6*	*2 615.0*	*2 845.1*	*3 161.5*
Inflation-linked	*650.2*	*783.6*	*834.8*	*958.3*	*971.4*
Foreign loans[2]	**387.2**	**420.6**	**466.1**	**497.6**	**526.7**
Gross loan debt	**3 261.3**	**3 949.7**	**4 382.8**	**4 819.9**	**5 234.5**
Less: National Revenue Fund bank balances[2]	-263.6	-292.0	-180.3	-162.1	-142.9
Net loan debt	**2 997.7**	**3 657.7**	**4 202.5**	**4 657.8**	**5 091.6**
As percentage of GDP:					
Gross loan debt	*63.3*	*80.3*	*81.9*	*85.1*	*87.3*
Net loan debt	*58.2*	*74.3*	*78.5*	*82.2*	*84.9*

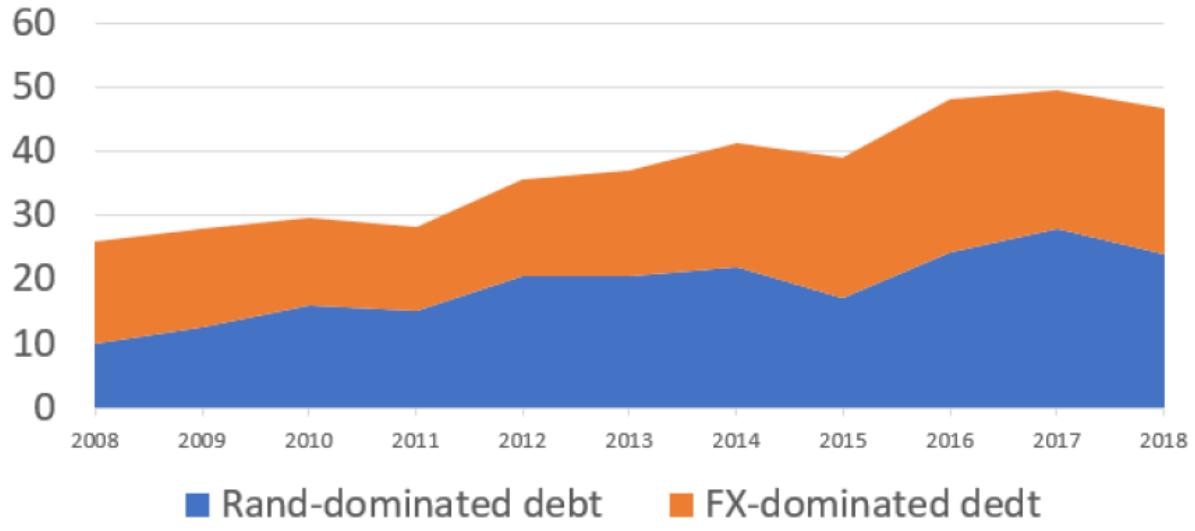
(National Treasury,2021)

Figure 7.2: Domestic Marketable Bonds Average Maturity in Months (KBP4144M), 2000-2021.



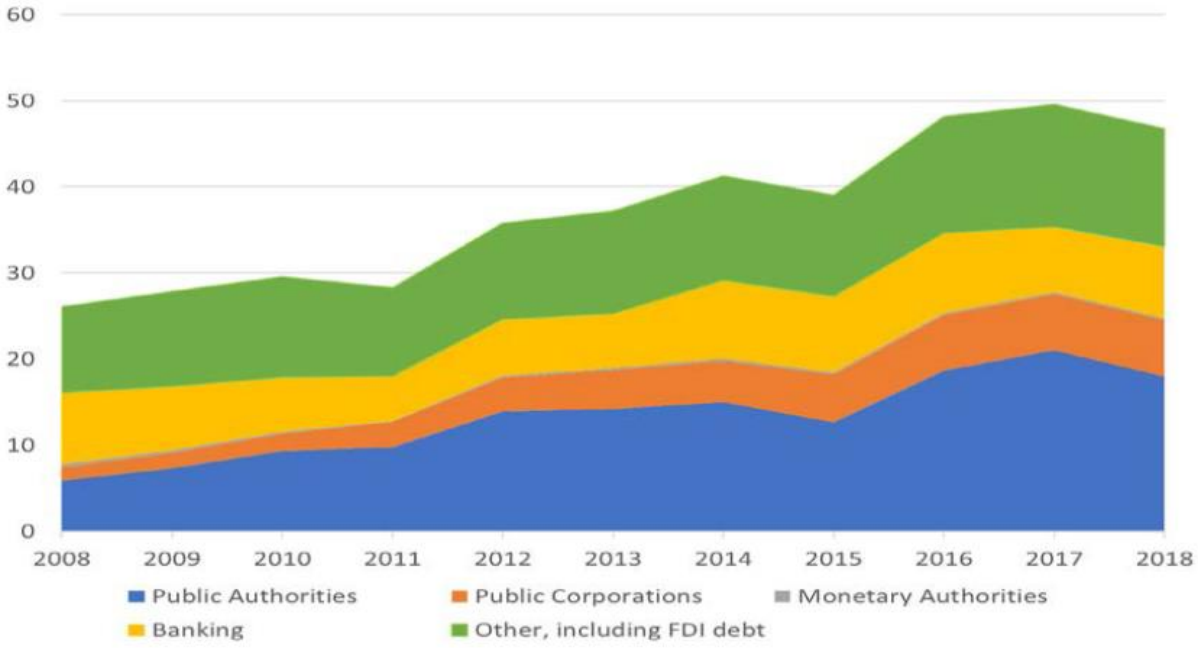
(SARB, 2021)

Figure 7.3: South Africa's External Debt as a percentage of GDP.



(IMF, 2020)

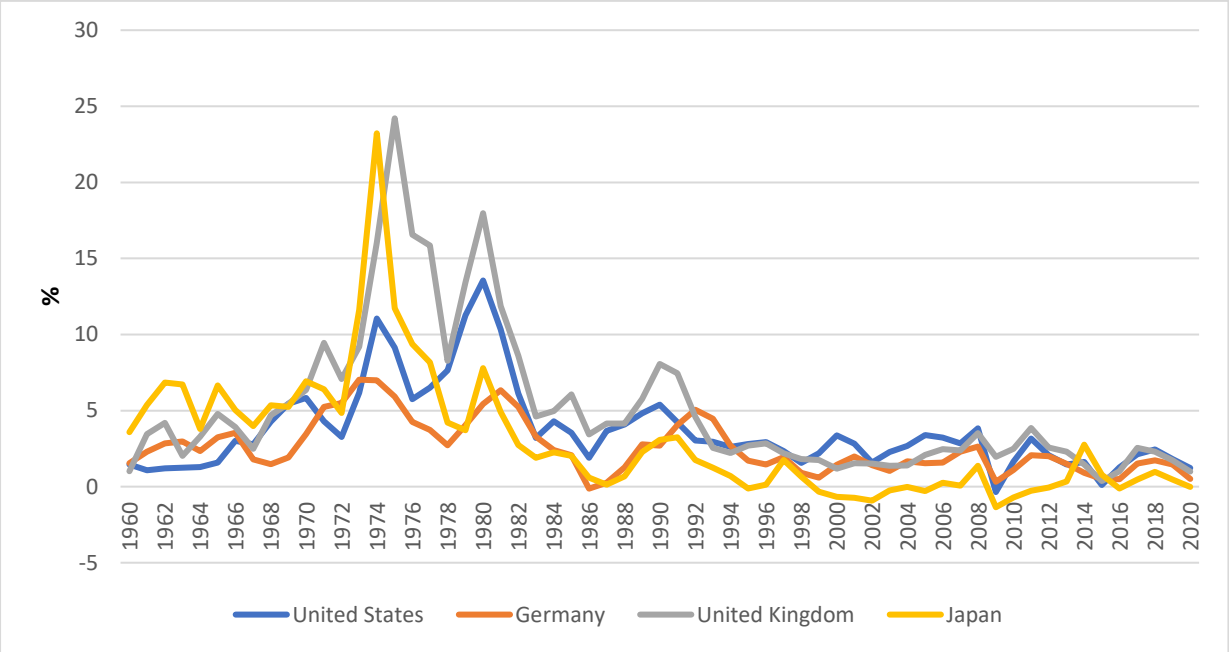
Figure 7.4: South Africa's External Debt as a percentage of GDP by sector.



(IMF, 2020)

Chapter 3 Appendix:

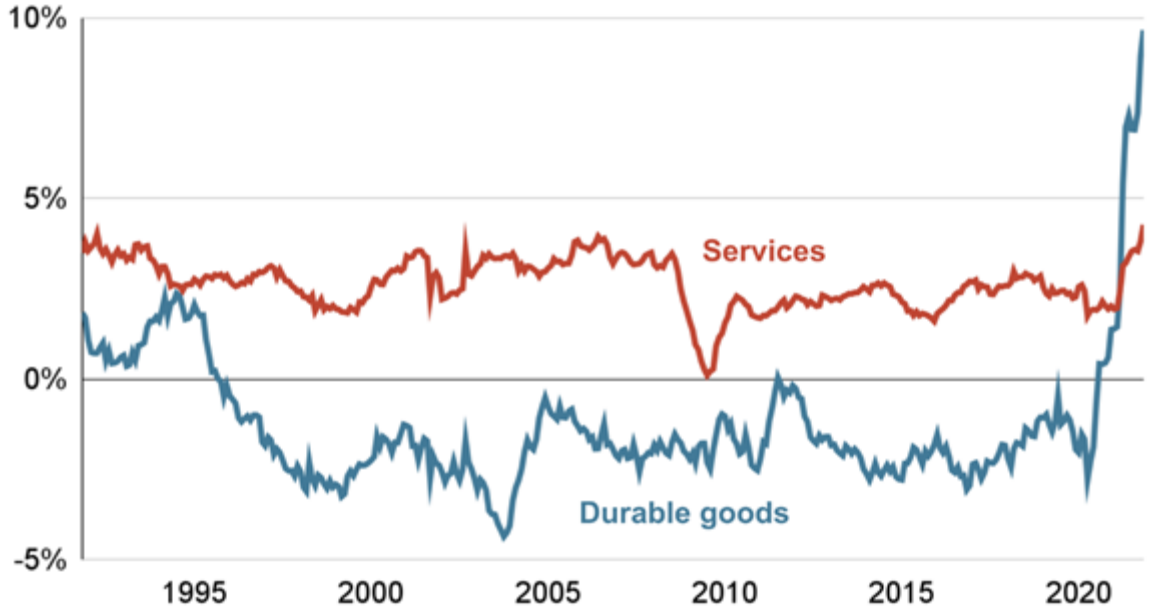
Figure 7.5: Annual Consumer Price Inflation in the four largest advanced economies, 1960-2020



Source: World Bank (2021)

Inflation in the United States, Germany and the United Kingdom has increased to its highest in decades in 2021 and 2022. The figure 7.4. which disaggregates inflation in the United States between goods and services shows that inflation has been driven by durable goods, a result of supply shocks and changes in demand. Thus, the role of decades of increased trade and reduced supply costs, identified by Bandinger (2008) and Forbes (2019) for helping to reduce inflation, has reversed. These trade and demand changes are driven by the shock of the pandemic and are likely to be temporary. Cyclical expansionary monetary and fiscal policy in advanced economies has also played a role in driving inflation. This will likely reverse in the period ahead.

Figure 7.6: US inflation disaggregated into goods and services.



(Lee, 2022)

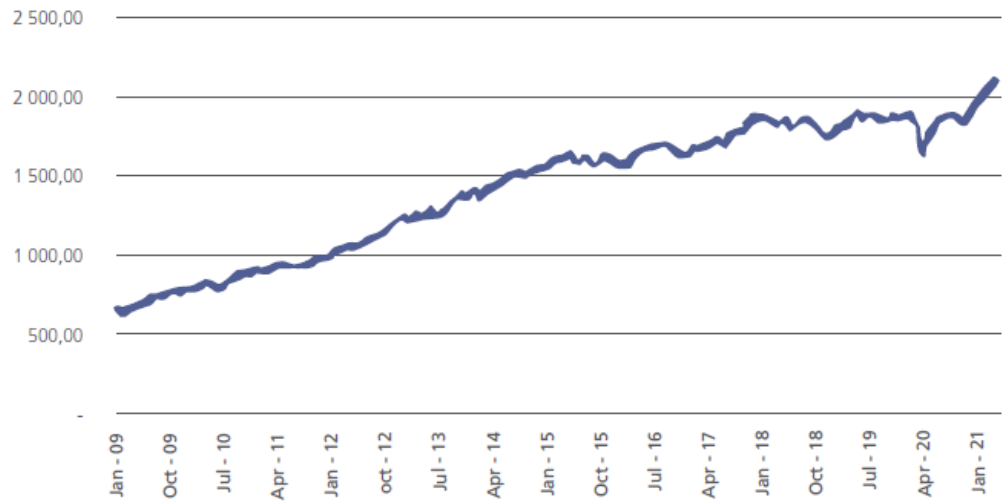
Chapter 4 Appendix:

Table 7.7: South African Household Wealth estimates by SARB in 2020 including percentage of GDP. Figures are in millions of Rands.

	SARB Code	2020	% of GDP
Non Financial Assets	**6920**	5 135	93
Residential Buildings	**6921**	2 894	52
Other Non financial assets	**6922**	2 240	41
Financial Assets	**6923**	10 554	191
Interest in Pension funds and long term insurers	**6925**	5 842	106
Assets with monetary institutions	**6924**	1 516	27
Other financial Assets	**6926**	3 196	58
Total Household Assets	**6927**	15 688	284
Liabilities	**6928**	2 434	44
Mortgage advances	**6929**	1 109	20
Other debt	**6930**	1 325	24
Net Wealth	**6931**	13 254	240
GDP at market prices	**6006**	5 521	100

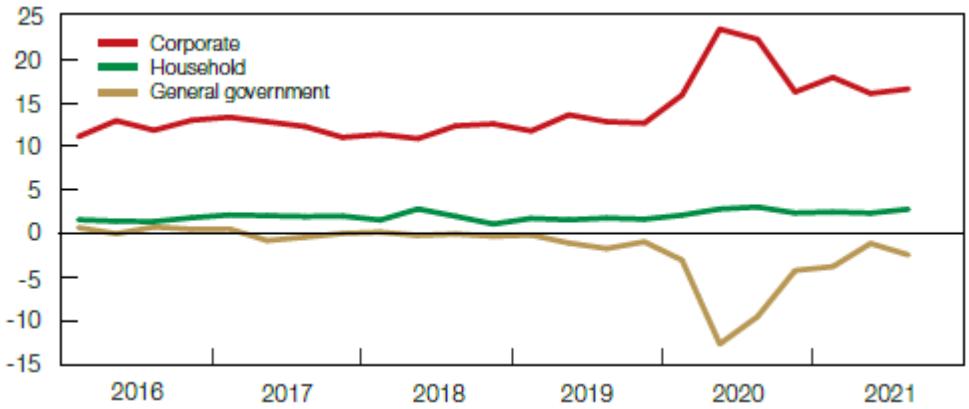
(SARB, 2021)

Figure 7.8: Market value of GEPF investment portfolio in billions of Rands



(Government Employees Pension Fund, 2021)

Figure 7.9: Gross nominal saving as a percentage of GDP by sector



(SARB, 2021)

Table 7.10: Summary of most recent audited financial statement of selected state-owned enterprises. Values are in billions of rands.

Most Recent Audit Outcome	Qualified	Disclaimer	Clean Audit	Financially Unqualified	Qualified	Qualified	Financially Unqualified	
Year End	2020	2020	2020	2020	2017	2020	2020	
SOE	Eskom	Prasa	DBSA	IDC	SAA	TRANSNET	SANRAL	Sum
Balance Sheet								
Current Assets	116	27	n/a	n/a	9	18	n/a	171
Non-Current Assets	698	55	n/a	n/a	7	318	n/a	1078
Total Assets	823	82	100	110	16	336	462	1929
Current Liabilities	133	6	n/a	n/a	22	37	n/a	199
Non-Current Liabilities	503	52	n/a	n/a	11	169	n/a	735
Total Liabilities	637	58	63	49	34	206	131	1178
Total Net Assets	186	24	38	60	- 18	130	331	752
Income Statement								
Total Revenue	208	16	10	20	31	76	53	413
Total Expenditure	228	14	9	23	36	72	-15	-399
Surplus/(Deficit) for Year	-21	2	1	-4	-6	4	38	15

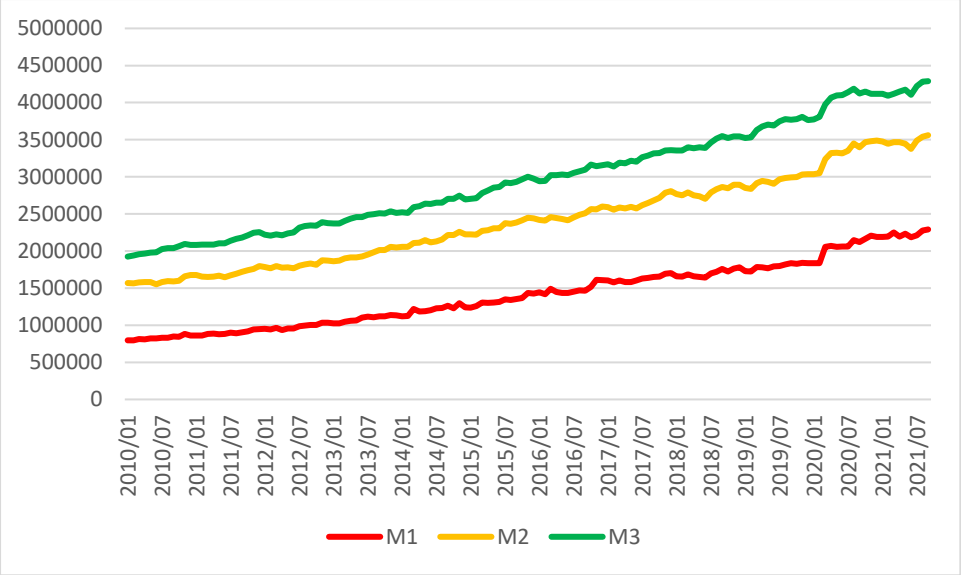
(National Government of South Africa, 2022)

Figure 7.11: Extract of Note 21 (Gold and Foreign Exchange Contingency Reserve Account) in the SARB's Annual Financial Statements.

	Notes	2021 R'000	2020 R'000
Measured in terms of the SARB Act			
Opening balance		436 062 044	285 829 289
(Loss)/profit on gold price adjustment account		(14 894 338)	39 658 966
Profit/(loss) on FEC adjustment account		22 437 286	(33 478 372)
(Loss)/profit on foreign exchange adjustment account		(118 604 003)	142 316 096
Movement in unrealised gains on FECs		(9 527 447)	1 604 942
		315 473 542	435 930 921
Payments from the SA government		110 718	131 123
Closing balance		315 584 260	436 062 044
Balance composition			
Balance currently due to SA government		323 408 239	434 358 575
Unrealised (losses)/gains on FECs	8	(7 823 979)	1 703 469
		315 584 260	436 062 044

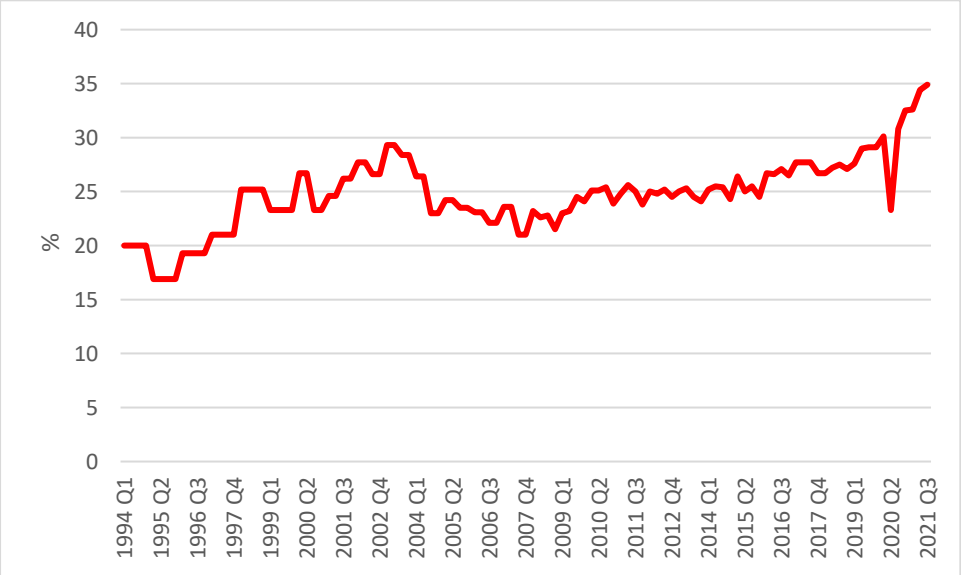
(SARB, 2021)

Figure 7.12: Money Supply in South Africa



(SARB, 2021)

Figure 7.13: Official unemployment rate in South Africa, 1994-2021



(SARB, 2021)

Chapter 5 Appendix:

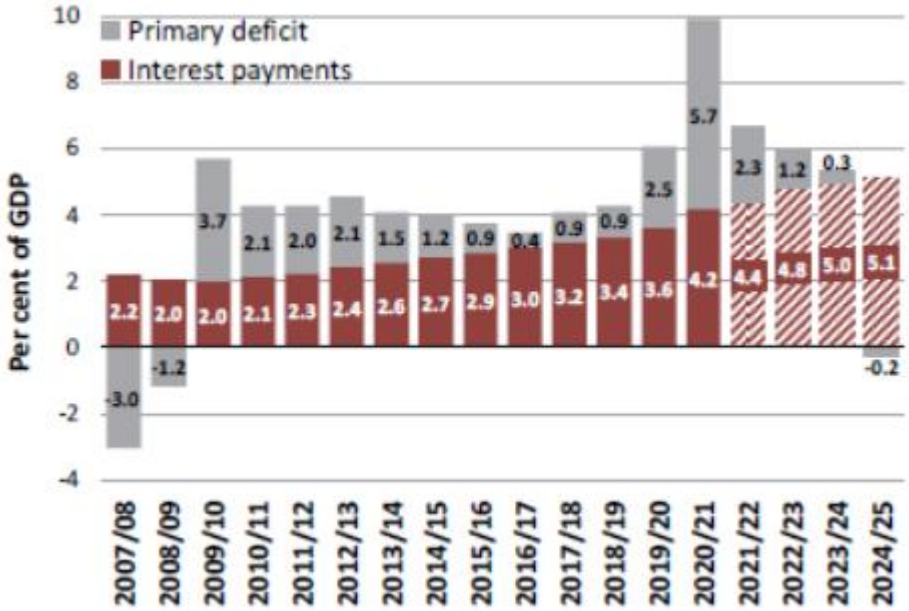
Figure 7.14: Extract of Table 4.5 (Consolidated Expenditure by Economic Classification) in the National Treasury's budget review of 2021.

R billion	2020/21 Outcome	2021/22 Revised	2022/23 Medium-term estimates	2023/24	2024/25	Average annual growth 2021/22 – 2024/25
Current payments	**1 121.5**	**1 234.1**	**1 258.5**	**1 281.2**	**1 354.6**	**3.2%**
Compensation of employees	635.4	665.7	665.2	656.0	685.1	1.0%
Goods and services	246.0	290.3	281.4	281.6	294.2	0.4%
Interest and rent on land	240.1	278.1	311.9	343.6	375.3	10.5%
of which: debt-service costs	*232.6*	*269.2*	*303.1*	*334.6*	*365.8*	*10.8%*
Transfers and subsidies	**694.3**	**736.4**	**669.5**	**681.1**	**712.9**	**-1.1%**
Provinces and municipalities	149.1	147.6	159.5	161.5	167.8	4.4%
Departmental agencies and accounts	29.8	25.0	24.0	24.8	24.5	-0.6%
Higher education institutions	46.9	47.2	51.1	51.4	53.5	4.3%
Foreign governments and international organisations	2.4	3.5	3.0	3.0	3.4	-1.4%
Public corporations and private enterprises	30.1	38.7	41.2	45.4	51.8	10.3%
Non-profit institutions	45.4	41.3	42.1	42.7	45.2	3.1%
Households	390.7	433.1	348.7	352.3	366.6	-5.4%
Payments for capital assets	**65.0**	**89.7**	**99.4**	**105.1**	**112.9**	**8.0%**
Buildings and other capital assets	47.2	65.3	75.9	80.0	84.9	9.1%
Machinery and equipment	17.9	24.3	23.5	25.1	28.0	4.8%
Payments for financial assets	**90.9**	**68.4**	**27.5**	**25.1**	**25.2**	–
Total	**1 971.8**	**2 128.5**	**2 055.0**	**2 092.5**	**2 205.6**	**1.2%**
Unallocated reserve	–	–	15.1	28.8	29.3	
Contingency reserve[2]	–	–	5.0	5.0	5.0	–
Consolidated expenditure	**1 971.8**	**2 128.5**	**2 075.0**	**2 126.3**	**2 239.8**	**1.7%**

(National Treasury, 2021)

Figure 7.14 shows the changes in expenditure in the National Treasury's 2021 budget review in terms of economic classification and until the year ending in 2025. The changes in expenditure seem to be driven by small increases in current payments (3,2%) mostly driven by increased debt service costs (10,8%), which are expected to be higher than the budget report. While compensation to employees is expected to increase slightly at 1% per year. Transfers and subsidies are expected to significantly decline (-1.1%), driven by reduced subsidies to households (-5.3%). Payments for capital assets are expected to increase from a low base at 8% a year, at higher level higher than expected compared to the budget review. Non-interest expenditure is expected to increase by 1,2% per year, with overall expenditure increasing by 1.7%. Given that inflation is expected to be at 4.5% for the period until 2025, most of the expected changes would represent real declines in spending.

Figure 7.15: The Primary balance and net balance % of GDP from the National Treasury's Medium Term Budget Policy Statement:



(National Treasury, 2021)

Figure 7.15 shows that the primary balance is expected to be positive in 2024, with the budget balance continuing to be in deficit but driven entirely by interest payments.

Figure 7.16: Extract of Note 10 (South African Government Bonds) in the SARB's Annual Financial Statements.

	2021 R'000	2020 R'000
Designated at FVPL		
Listed bonds: Interest-bearing	37 784 160	8 736 601
Fair value adjustments	1 482 315	499 867
Total SA government bonds	39 266 475	9 236 468
Effective interest rate	13.96%	7.75%

(SARB, 2021)

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