QUCEH WORKING PAPER SERIES
http://www.quceh.org.uk/working-papers

THE FUEL OF UNPARALLELED RECOVERY: MONETARY POLICY IN SOUTH AFRICA BETWEEN 1925 AND 1936

Christie Swanepoel (University of the Western Cape)
Philip T. Fliers (Queen's University Belfast)

Working Paper 21-05

QUEEN'S UNIVERSITY CENTRE FOR ECONOMIC HISTORY
Queen's University Belfast
185 Stranmillis Road
Belfast BT9 5EE

June 2021

The Fuel of Unparalleled Recovery: Monetary Policy in South Africa between 1925 and 1936

Christie Swanepoel[‡] Philip T. Fliers[†]

June 2021

Abstract

The newly established South African Reserve Bank (SARB) was tasked to protect the currency by navigating the interwar gold standard, and, from March 1933, maintaining parity with the Pound Sterling. We find that South Africa's exit from gold secured an unparalleled and rapid recovery from the Great Depression. South Africa's exit was accompanied by an inextricable link of the SARB's policy rate to the interest rate set by the Bank of England (BoE). This sacrifice of independent monetary policy allowed the SARB to fix the country's exchange rate without impeding the flow of gold to London. The SARB fuelled the economy by reducing its policy rates and accumulating gold. Had South Africa not devalued, the country would have suffered a severe depression and persistent deflation. An alternative to the devaluation, was for the SARB to pursue a cheap money strategy. By setting interest rates historically low, we find that South Africa could have achieved higher levels of economic growth, at the cost of higher inflation. Ultimately, South Africa's unparalleled recovery can be ascribed to the devaluation, however the change in the SARB monetary policy and the bank's control over the gold markets were of paramount importance.

Keywords: monetary policy management, interwar gold standard, South Africa

JEL Classification: N14, N20, E42, E52, E58, F33.

---

* Acknowledgements: We are grateful for comments and suggestions made by the following people: Chris Colvin, Kara Dimitruk, Johan Fourie, Leigh Gardner, Bradley Bordiss, Jannie Rossouw, participants at the EHDR Reserve Bank workshop (2020) and two anonymous referees. We also wish to thank Margaret Atsango and other librarians from the Cullen Library at WITS University and Anita Landman at the Reserve Bank for valuable help with reports.

‡ Faculty of Economic and Management Sciences, University of the Western Cape. Email: cswanepoel@uwc.ac.za.

† Queen's University Belfast. Email: p.fliers@qub.ac.uk.

1. Introduction

In the aftermath of World War I, many countries across the world made it their objective to return to the international gold standard and peg their currency at pre-war parity. Little did policy makers know that the 'interwar standard' would fail to bring much-needed global financial stability (e.g. Temin 1976; Eichengreen 1992; Officer 2010). The lack of international coordination resulted in an inability for central banks to solve time inconsistency problems (Kindleberger 1986; Eichengreen 1984; Eichengreen 1992; Bordo and Kydland 1995; Obstfeld and Taylor 2003; Colvin and Fliers 2019). While many countries were debating their return to gold, and amidst international political squabbling, South Africa began to modernize its monetary institutions by establishing its central bank, the South African Reserve Bank (henceforth SARB). During the interwar period, the SARB was tasked to navigate the interwar gold standard, and, from March 1933, maintain parity with the Pound Sterling as part of the Sterling area.

Eichengreen (2021) points out that, at first glance, South Africa's gold standard experience sits uneasily with the conventional wisdom – that abandoning the gold standard and depreciating the currency were instrumental to an early recovery from the Great Depression. The reason South Africa's experience sits uneasily with conventional wisdom is that despite South Africa's relatively late exit from gold, the country still performed well during the Great Depression (e.g. Feinstein 2005; Minnaar 2011). However, Eichengreen (2021) concludes that the country prospered after the exit from gold by relying on gold exports. His conclusion was drawn from three perspectives. Firstly, from a review of the literature, South Africa should have left the standard earlier. Secondly, an international comparison shows that, while South Africa did not leave the standard early, the country still outperformed its peers. And thirdly, the country did not leave the standard early because there was only a small minority (mainly academics) that advocated in favour of abandoning convertibility and depreciation.

However, the role of the SARB remains unclear in the new narrative offered by Eichengreen's (2021) since he utilised the Select Committee on the Gold Standard for his analysis. We add a new perspective by examining how the monetary policy was executed by the SARB. This perspective allows us to answer two interrelated questions. Firstly, how much did South Africa benefit from leaving gold in favour of Sterling? Secondly, how did the SARB change its monetary policy during this period of turmoil?

We answer these questions by using a hand-collected dataset comprised of the SARB's weekly balance sheet as published in its Quarterly Bulletins. Additionally, we sourced macroeconomic aggregates from Albers (2018) for South Africa and the UK. From the Centre

for Financial Stability and League of Nations Statistical Yearbook we obtained the most important central bank policy rates. This combined dataset allows us to: (a) show how the SARB changed its monetary policy during the period; (b) construct a simulation analysis to explore the consequences had South Africa not changed its monetary policy and the South African Pound remained pegged to gold and (c) explore the consequences of different policy paths that were available to the SARB's central bankers. It therefore provides a quantitative assessment of the country's fixed exchange rate regime choice, the policies conducted by the SARB and the benefit of abandoning gold (i.e. the devaluation).

South Africa's experience during the interwar period offers an interesting case study for a number of reasons. South Africa is a small open economy and was traditionally considered a peripheral country during the interwar gold standard. However, on the eve of the global return to gold by countries such as the UK and the Netherlands (April 1925), gold production by South African mining companies amounted to about 55% of global production. Theoretically, for a small and open economy the macroeconomic trilemma suggested that a country can only fix its exchange rates with another currency if the country either sacrifices its independent monetary policy or chooses to limit capital mobility. South Africa's position on the international gold markets raises the question of how South Africa managed its currency: whether it sacrificed its independent monetary policy or limited the flow of gold.

The SARB was only established in 1921 and had yet to experience a fixed exchange rate regime or any period of economic turmoil. During the interwar period, it had to first navigate the gold standard regime (May 1925 – December 1932), and as of March 1933, the Sterling area (Rossouw and Padayachee 2011). During the interwar gold standard, the SARB had two governors: William Henry Clegg (in office between 17 December 1920 and 31 December 1931) and Dr Johannes Postmus (in office between 1 January 1932 and 30 June 1945). This change in leadership was neither related to the macroeconomic situation at the time, nor was it related to the monetary policy. The change in SARB governors thus allows us to identify whether the SARB changed its monetary policy – specifically its policy rate setting – after the exit from gold. Then using a simulation of four different policy paths, we assess what would have happened if South Africa had not devalued and remained on gold independently from the UK. This allows us to examine by how much the SARB would have needed to disconnect its policy rate from the BoE to reach the same economic outcome as under the observed path of devaluation.

Previous studies on South Africa for this period focused on topics such as currency developments (Arndt 1928); a narrative history of the SARB (De Kock 1954); the narrative

history of monetary policy (Kantor 1971; Gelb 1984); the relationship between South Africa and the UK (Dalgaard 1981); the role of (geo)-politics and mining corporations (Ally 1994; Breckenridge 1995; Padayachee and Bordiss 2015) and the institutional history of the SARB (Rossouw 2009). These studies all provide a narrative historical perspective on South Africa's monetary developments during the period before, during and after the interwar period. Most recently, Eichengreen (2021) showed how South Africa's outperformance can be put in an international context that fits with the conventional wisdom about the recovery from the Great Depression. The objective of our study is to provide a quantitative analysis of South Africa's economic outperformance during the interwar period and, by using time-series data, to assess how the SARB navigated the waters of the interwar.[1]

Our empirical strategy is as follows. We start off by following Shambaugh (2004) and Obstfeld et al. (2005) and use the monetary policy trilemma to ascertain the independence of SARB's monetary policy relative to the most important central banks during the gold standard. Using autoregressive distributed-lag (ARDL) estimations, we examine how dependent SARB's policy rate was on key foreign interest rates. Then, inspired by Karau (2020), we estimate vector autoregressive (VAR) models that consider both international and domestic policy concerns and policy instruments for the period prior to the UK's exit from gold. This approach allows us to simulate the evolution of the South African economy as if the country had not devalued its currency, not joined the Sterling Area and stayed on gold. In these simulations we distinguish four different policy paths after August 1931. The first path is where the SARB continues its independent monetary policy. This is the same as remaining on gold independent from the UK. In the second path, the bank uses contractionary monetary policy. The third path assumes the SARB to be more accommodating to lenders and exporters. This is achieved by setting interest rates substantially lower than observed prior to sterling's devaluation. For the last policy alternative we assume that the SARB follows a cheap money strategy and set interest rates at historically low levels – well below the minimum that was previously observed during the interwar period.

Our analysis reveals that the SARB's policy changes were instrumental in South Africa's recovery from the Great Depression. Following the exit from gold and the devaluation of the currency, the SARB inextricably linked its policy rates to the rates set by BoE. This enabled the SARB to reduce its policy rates, import inflation from the UK and stimulate exports. We conclude that, consistent with Eichengreen (2021), the South African state in

[1] Although we recognise the importance of the domestic and geo-political situation that might have shaped the SARB's monetary policy, this is not the prime focus of this study. These aspects are covered by other papers, and we will draw up those studies where needed.

conjunction with the SARB exercised dominance over domestic and global gold markets. The SARB's ability to monopolize gold exports allowed the central bank to offset imbalances in the exchange rates using its gold reserves. This was facilitated by substantial investments in the mining industry (2.3% of net national income, 23% of total investments). The devaluation following South Africa's exit from gold was accompanied by a remarkable switch in monetary policy. Postmus – who previously advocated to stay on gold – directed the SARB to use its gold reserve to offset any exchange rate fluctuations and inextricably link its policy rate to that of the BoE.

However, what would have happened if South Africa did not devalue the exchange rate and continued with its independent monetary policy remains unclear. To answer this, we run out-of-sample simulations using four different policy paths for the SARB to follow. The exercise reveals that if the country remained on gold, it would have suffered a severe depression. An alternative strategy would have been for the SARB to follow a cheap money strategy. To execute this strategy the SARB would have set interest rates very low. Following this policy path, would have brought South Africa levels of economic growth similar to those experienced under the devaluation, but at the cost of significantly higher inflation. Ultimately, we conclude that South Africa's outperformance during the interwar period can be ascribed to the devaluation experienced after leaving the gold standard, the country's dominance over gold markets and the dramatic change in the SARB's monetary policy.

2. The Interwar Gold Standard

Under the gold standard a country's money supply is linked to gold through the price of gold. When two countries are on a gold standard, the nominal exchange rate between their currencies is fixed and the terms of trade are defined as the relative price of gold in those two countries.[2] It is therefore a fixed exchange rate regime, and when trade imbalances occur, the exchange rate can be stabilized in two ways. The first option for a central bank is to artificially sacrifice its independent monetary policy and link its policy rate to the foreign country. This will enable the quantity of gold in the respective countries to adjust and to restore the equilibrium. The country in deficit will experience a gold outflow and deflation. The country in surplus will experience an increase in gold reserves and an increase in price levels. The deflation in the deficit country will push the terms of trade in its favour and see a rise in exports, correcting the initial imbalance.

[2] For a broader and more theoretical description we refer to Eichengreen (1984), Eichengreen et al. (1997) and Wandschneider (2008).

Alternatively, a central bank can choose to retain its independent monetary policy and use its policy rate to stabilize the exchange rate between the two countries. However, for exchange rates to remain stable, the flow of gold between the countries must be controlled through capital controls. These aspects comply with the macroeconomic trilemma. The trilemma states that if a small open economy wishes to fix its exchange rate to the currency of its major trading partner, it needs to sacrifice either its ability to set monetary policy independently or the freedom to move capital across borders. The theory's origin is typically attributed to Keynes (1936), Hicks (1937), Hansen (1953), Mundell (1960, 1961) and Fleming (1962).

In the words of Bazot et al. (2019), these are the 'rules of the game'. During the interwar period, and specifically with the Great Depression, there were many concurrent economic events that contributed to the economic depression. This includes countercyclical wages, debt deflation, protectionism from international trade, and slow fiscal and monetary policy responses.[3] Eichengreen (1992, 18) argues that policymakers were unable to prevent the collapse of domestic financial systems because of the gold standard. He states that policymakers could not act on the turmoil in the financial markets because "the gold standard posed an insurmountable obstacle to unilateral actions". During this period, central banks chose to follow tight monetary policies and hoarded gold. This was in reaction to the fixed exchange rates under the gold standard and central banks looking to obtain more flexibility in their monetary policy.[4] The absence of a monetary hegemon, prompted a lack of international coordination (Eichengreen 1985), and monetary policy became dominated by politically induced objectives (Bordo and Kydland 1995). [5] Countries were unable to solve the time-inconsistent policies they had pursued (see Simmons 1996).[6] It is within this theoretical context that we study the case of South Africa.

3. South Africa's experience with the interwar gold standard

Before establishing the central bank in South Africa, the local currency was the responsibility of the local banks and was effectively pegged against the sterling. These banks had an obligation to convert note and deposit liabilities to gold and to avoid lack of gold supply to the

[3] See Eichengreen (2021) for a summary of the concurrent economic events and the scholars who study these events and their contribution to the Great Depression in greater detail.
[4] This behaviour was largely induced by the lack of international coordination that resulted in an inability of central banks to solve time inconsistency problems (Kindleberger 1986; Bordo and Kydland 1995; Obstfeld and Taylor 2003; Colvin and Fliers 2019)
[5] The role of monetary hegemon was traditionally fulfilled by the UK.
[6] Nurkse (1944) asserted that countries failed to synchronize their policies. More broadly, the eventual collapse of the standard has been ascribed to different factors in different countries, determined by the domestic political economy (Wandschneider 2008) and the pressures of currency speculation (Wolf 2008).

local banks.[7] In 1917, under war conditions, an embargo on the export of gold was passed by parliament to protect the value of the South African currency. At the same time, the sterling became inconvertible and depreciated against the gold price. These simultaneous events caused South Africa to have a favourable balance of payments, but the increased global turmoil meant the international gold price rose. The consequences of these events were significant surges in illegal gold exports. The illegal exports in combination with the policy to convert notes and deposits to gold, placed the local banks under pressure. The banks appealed to the government to make notes inconvertible. The banks found support in the Treasury and mining companies that were losing out on international gold sales. The South African government was forced to organise a conference on gold in 1919, known as the Gold Conference, where it discussed a uniform banking act for South Africa (Kantor 1971). It was in the aftermath of the Gold Conference that the Select Committee on the Embargo on the Export of Specie (S.C. 2 of 1920, henceforth S.C.20) was formed. It had three main objectives to investigate: (a) the effect of the export ban on inflation, (b) whether the Currency and Banking Act of 1914 should be modified and, (c) whether a central bank should be established.

In June 1920, the S.C.20 concluded its investigation and reported that the embargo on gold would be maintained, banks would issue inconvertible gold certificates, and a central bank would be established in South Africa (De Kock 1954). Without much resistance, the Currency and Banking Act of 1920 (Act No. 31 of 1920) was passed by Parliament. The Banking Act made provision for establishing the SARB that would become the sole provider of coin and note in the Union. The Currency and Banking Act of 1920 was designed to '(a) conserve the specie supplies of the Union by providing for the issue of gold certificates; (b) to provide for establishing a central reserve bank for the Union; (c) to regulate the issue of bank notes, and the keeping of reserves with a view to securing greater stability in the monetary system of the Union and (d) to make provision for matters incidental thereto' (De Kock 1954; The Currency and Banking Act No. 31 of 1920).[8] Ultimately, the key policies for the SARB were designed to protect the stability of the country's exchange rate (Kantor 1971).[9]

[7] The banking sector in South Africa is, and was since unification in 1910, highly concentrated. During the last decade of the nineteenth century, and until 1925, there was a strong tendency of consolidation and absorptions of local banks into imperial banks, which later became private banks (Arndt 1928). At the inception of the gold standard, there were only six banking institutions – National Bank of South Africa, Standard Bank, Bank of Africa, the African Banking Corporation, Natal Bank and the Netherlands Bank of South Africa. This consolidation and absorptions meant that "the money supply was expanding from a decreasing base for issuance of notes and loans" (Dalgaard 1954, 40).
[8] That is, prior to the establishment of the SARB, the concentrated banking sector in South Africa was characterized by currency competition.
[9] De Kock (1954, 42) concludes that the Banking and Currency Act of 1920 closely resembled the Federal Reserve Act of the United States. This fact is not surprising, given that the legislation was largely written by Henry Strakosch, a strong proponent of the establishment of a central bank as a centralized gold selling organisation.

The South African Government then set out to appoint the first governor of the SARB.[10] Prime Minister Smuts put together the hiring committee for selecting the first SARB governor. He invited Messrs Frederick Goodenough from Barclays Bank, bankers Arthur Gilled, Henry Strakosch, and John Maynard Keynes. As these panel members were solely based in London, most of the hiring processes occurred in the UK, giving Montagu Norman (Governor of the BoE) significant power over the process. The first ranked candidate was Sir Ernest Harvey (Chief Cashier of the BoE) - he declined the appointment. Second on the list was William Henry Clegg, at the time Chief Accountant at the BoE. Ultimately, the panel agreed, and Clegg accepted the appointment.

Clegg's career started as a clerk at the Craven Bank in Nelson, England. Shortly after he would move to the BoE in 1886. He would regularly move up the ranks to Chief Accountant until he accepted the position as first governor at the SARB. While he had no formal education in either banking or economics, he was well-respected in the field. He served two five-year terms as governor of the SARB and upon his retirement in 1932, returned to England where he joined Directors of the BoE (Botha 2002). His tenure at the SARB was extended by a year. Franszen (1983) offers three reasons for the extension: (a) Clegg was to serve as mentor to De Kock who would become the third governor, (b) he had to oversee the completion of the building of the new SARB headquarters and (c) his successor, Johannes Postmus - a Dutch banker - was on holiday at the time.

In 1921, under the leadership of Clegg, a Currency Conference was organized to discuss re-establishing the gold standard in South Africa as soon as possible and to maintain a stable exchange rate with Great Britain, South Africa's major trading partner at the time. The recommendations of the Conference were to re-join the gold standard, which resulted in the Amendment Act of 1923 that extended the inconvertibility of gold certificates. This was followed by the Kemmerer-Vissering Commission that investigated South Africa's return to the gold standard independent of the United Kingdom. When the UK returned to gold on 27 April 1925, the stage was set for South Africa to return to the standard, and it did so on 18 May 1925.

The young central bank was now tasked with navigating a fixed exchange rate regime. During the gold standard the SARB had one overarching policy objective: to maintain parity with gold to achieve exchange rate stability. Figure 1 shows that the SARB was successful in

[10] Keynes was quoted in a letter to Jan Smuts, then prime minister of South Africa, to have said that it was 'a difficult post to fill and well-qualified candidates are scarce' (quoted in Parsons 1994, 414). Smuts and Keynes met at the Treaty of Versailles and became friends afterward. Smuts asked Keynes for advice on the establishment of the SARB and who to appoint as first governor.

maintaining exchange rate stability. However, throughout the period there was a continuous debate as to whether South Africa should continue the peg with gold. This debate intensified when the UK left the standard in 1931 causing significant political upheaval.[11]

Given newness of the central bank, Clegg tended to rely heavily on advice and information provided to him by Norman at the BoE. As quoted in Bordiss et al. (2019), Clegg asked Norman advice on the large sterling balances held by the SARB and the global economic situation. The discussion between the two central bank governors continued, but, despite a seemingly cordial relationship, Norman did not inform Clegg of the BoE's intention to leave the gold standard. They describe Clegg as 'thunderstruck' when he received the telegram. In December 1931, shortly after these events, Clegg retired as the first governor and Postmus was appointed as his successor. It was then that the debate whether to remain on the gold standard independent of Britain intensified (Rossouw 2009, 7-8).

[INSERT FIGURE 1 HERE]

Postmus assumed the position of governor of the SARB on 1 January 1932. He had been a great proponent of the early adoption of a central bank and lifting the embargo on gold.[12] He argued that a central bank should be a private institution rather than a state-owned bank, but that its functions and regulations are rooted firmly in laws.[13] After he had become governor, Postmus issued a special statement in January 1932 that supported South Africa remaining on gold, because, he argued, no natural depreciation would take place if South Africa severed its link with gold – a statement largely supported by economic conditions (De Kock 1954; Dalgaard 1954). The abandonment of gold by the British government came as a shock to the South African monetary authorities. Feinstein (2005, 94-95) suggests that 'South Africa stood resolutely alone, offering various objections to any suggestion that it too should leave gold'. He continues that the main economic argument to remain on gold was to avoid inflation, but that general prices in South Africa were continually declining at the time. Indeed, the risk of inflation was limited, as by the start of the 1930s wholesale prices were still more than 20% below their 1925 levels.[14]

The South African government, under Hertzog, was the main proponent of remaining

[11] The crisis in the international financial system during the interwar years started with the collapse of the Creditanstalt Bank in Austria and was followed by various runs on banks and banking crises around the world. These banking crises had large negative effects on global output, collapse in global trade and led to the Great Depression (Bernanke and James 1995). There are two main reasons for the United Kingdom leaving the interwar gold standard: 1) it was no longer seen or trusted as the international leader in financial markets and 2) the sterling was overvalued when the United Kingdom returned to the gold standard after World War 1 (Eichengreen 1992).

[12] As inspector of the Netherlands Bank, he argued to the Minister of Finance, Mr Henry Burton, that the embargo on gold should be lifted as there would be no incentive to export gold under such conditions, and that there was no risk of deflation (De Kock 1954).

[13] On this view, he wrote a lecture 'Something about Bankers and Banks' in 1912 in which he cited both cases of Java and the United States.

[14] See Figure 1 in Appendix A (henceforth Figure A.1).

on the gold standard. It argued that the circumstances that forced Britain off gold, the continual drain of its reserves and a deep economic depression, was absent from the South African economy. The South African balance of payment's position was favourable at the time and the Reserve Bank had large reserves of gold – 60% in January of 1932 and 52% in February. The budget deficit was small enough to not warrant concerns about rising inflation, and there were no significant maturities on foreign government debt that was due (De Kock 1954). The government stated that 'the abandonment of the gold standard would not increase our national wealth by one penny' (S.C.32, liv), an opinion shared by the SARB. Clegg, still governor at the time, came out in support of the Minister of Finance, while Postmus supported the position even more strongly than he did before.[15] The final argument for remaining on gold was 'alleged moral inexpediency of currency depreciation as a voluntary positive act of policy' (De Kock 1954, 157). This related to South Africa's ability to repay its debt to foreign debtors, a key aspect to the mining sector at the time. The proponents of remaining on the gold standard stated that remaining on gold would convince South Africa's foreign investors of its ability to repay its obligations.

The main opponents of the abandonment of the gold standard raised two main arguments: (a) depreciation of the South African pound and (b) the rebalancing of relationships between debtors and creditors. They argued that, apart from the gold producers, most South African exporters suffered greatly from the fall in commodity prices. This was especially true of export farmers who had high mortgage debts and was now facing worse terms when these farms were sold. They argued that the best way to rebalance this and achieve higher prices was through a depreciation of the South African pound. Eichengreen (2021) notes this too. He refers to Australia, South Africa's main competitor of agricultural commodities that had left the gold standard in 1929.

All sectors of the South African economy, except the mining corporations, suffered from the continued adherence to gold (Rossouw and Padayachee 2011). This changed into a political matter – as it started to affect the income of the electorate. On 21 December 1932, the political opposition suggested the establishment of a political party with the sole purpose to leave gold. The government expected the new political party to unseat the government and abolish the gold standard.[16] As a consequence a domestic run- on gold emerged (Rossouw and

[15] Echoing the views of the Minister, Postmus stated to the Select Committee that 'interference with the measure can never make your cloth longer or the surface of your table greater' (S.C.32, 13). He argued that gold prices would not increase just because South Africa left gold, even if South Africa was the largest producer of gold at the time.

[16] Eichengreen (2021) describes how in December 1932 Tielman Roos, an important leader within the National Party (and serving on the Supreme Court) announced his intention to return to politics and to form a party solely focussed on the abandonment of gold. It was this move that presumably caused the subsequent capital flight that forced South Africa off gold.

Padayachee 2011). This forced the government to abolish the gold standard (and therefore the convertibility of currency into gold) on 28 December 1932 (SA Reserve Bank 1971, 37).[17] This is echoed by De Kock (1954) who states that 'South Africa was "forced off" gold by a wild scramble for gold coin induced by a sudden internal political upheaval.' This contrasts with the economic conditions that forced other countries off gold.[18]

3.1 Monetary reform

The political situation that dominated South Africa's decision to leave the gold standard continued. The Finance Emergency Regulations Act of 1931 severed the South African pound's link with gold. The uncertainty of economic and political conditions meant the SARB relinquished the power to determine monetary policy to Parliament. Because Parliament only re-assembled weeks after South Africa left gold, the SARB decided to temporarily 'withdraw from the exchange market with a view to leave the South African pound to find its own level' (De Kock 1954, 192). When Parliament re-assembled, it issued the Currency and Exchanges Act that linked the South African pound to the Sterling Area. There were significant advantages for South Africa to join this Area. Firstly, De Kock (1954) argues that, by joining the Sterling Area, South Africa would have a favourable balance of payments position with the repatriation of funds and an influx of new capital. A second advantage came from the government's promise to buy back surplus sterling from commercial banks, while banks agreed to quote prices close to the prices in London.[19]

The Currency and Exchanges Act had two other elements that affected monetary policy. It reduced the minimum gold reserve for the SARB from 40% to 30% and reduced the requirement that 75% of gold must be kept in South Africa to 50%. These changes were required to enhance the freedom and elasticity in the functioning of the Bank, and it anticipated the repatriation of funds and influx of capital (De Kock 1954). A drawback of the Act and joining the Sterling Area was that any exchanges with other countries would be subject to control, but that funds could flow freely between member countries (Franszen 1983). However, despite this, South Africa enjoyed a favourable balance of payments between 1933 and 1939,

[17] Inconvertibility was seen as a temporary measure at the time. (Rossouw and Padayachee, 2011; Van Rensburg 2003, 295).
[18] Schumann (1938) suggests that unlike Australia and the United Kingdom, the depression in South Africa was not as deep as to necessitate a depreciation and that like France and the Netherlands, the SARB had enough gold reserves to survive an internal drain with the help of foreign exchange controls. He continues that this, however, became politically impossible due to both the psychological and economic impact for the fear of capital flight.
[19] Franszen (1983) argues that this left the exchange market in South Africa as an administered market rather than a free market.

partly explained by the additions in gold and foreign reserves.[20]

The SARB's significant role in the exchange market continued. While the pound sterling and the South African pound were kept on par, the spread between the buying and selling rates were reduced from 1% to 0.75% in 1934. However, the exchange rate with the other centres of the world such as New York and Amsterdam fluctuated frequently, mainly because of the sterling's fluctuations with these centres rather than changes in the domestic economic conditions. The SARB, under the governance of Postmus, significantly revised its monetary policy strategy to facilitate the peg with sterling and to protect domestic interests. Ultimately, South Africa's departure from gold brought about a significant devaluation and change in monetary policy with a governor at the helm who had previously advocated to stay on gold. We now turn to the empirical evidence to support the discussion on South Africa's abandonment of the gold standard.

4. Monetary policy of the SARB

In the section below, we discuss the most important monetary policies and instruments used by the SARB to peg the country's currency to gold or sterling. We identify three pillars of the SARB's monetary policy: (1) Interest rate policy; (2) Gold and capital control policies and (3) Credit policies.[21] Further, we separate the policies between the two eras as discussed above. We discuss the local conditions of these instruments before the establishment of the SARB in an Online Appendix.

4.1 Interest rate and independent monetary policy

Establishing the SARB effectively enabled: (a) central coordinated money supply; (b) interbank lending in the Union through establishing a short-term money market; (c) lowered sensitivity to the London market and (d) better control over the balance of payments. With the Union's commercial banks fully subscribed to the SARB's policies, the policy rate was the most important instrument to influence the domestic credit provision and bank reserves held at the SARB. To facilitate the rapid adjustment of exchange rates and to offset and short-run monetary shocks, the SARB held earmarked gold in the vaults at the BoE. Combined with SARB's control over the flow of gold and capital, the traditional macroeconomic trilemma suggests that the SARB was left free to independently pursue any monetary policy it desired

[20] In the first year of joining the Sterling Area, the repatriation of funds and influx of new capital meant the Bank's reserves increased by £30 million, but this was supported by increased merchandise exports. These increased exports exceeded even the increased imports to South Africa (De Kock 1954).
[21] Most of this section is based on the description and analysis provided in De Kock (1954).

(Mundell 1960, 1961; Fleming 1962).

We test this hypothesis by examining the degree to which the SARB was able to drive local interest rates away from the world rate.[22] To test the hypothesis, we obtained policy rates for SARB ($R_{d,t}$), the UK, US, France and the Netherlands (where each country can be used as a benchmark country ($R_{f,t}$). Figure 2 depicts these series. Following Shambaugh (2004) and Obstfeld et al. (2005), we estimate autoregressive distributed-lag (ARDL) models and examine the co-integration of the SARB's policy rate ($R_{d,t}$) and foreign policy rates ($R_{f,t}$). Our models capture the co-movement of policy rates correcting for time series properties such as auto-correlation and non-stationarity.[23] Below we provide the base specification for testing the co-integration of central bank policy rates:

$$\Delta R_{d,t} = \theta\left(\mathrm{c} + R_{d,t-1} - \beta R_{f,i,t-1}\right) + \lambda \Delta R_{f,i,t} + u_{i,t} \qquad (1)$$

This empirical setup allows us to assess the short-run response of SARB's interest rate policy in response to changes in (for example) the UK's policy rate (λ), assess the speed of adjustment back from any deviation from the long-run relationship between the respective policy rates (θ) and the degree of co-integration between the rates (β). If β=1, monetary policy is fully dependent on foreign policy. Alternatively, if the SARB would have significant freedom in setting policy, we would expect $\beta \neq 1$ and/or the long-run relation to be unstable. The results presented are: (1) for the period when South Africa was under Clegg's supervision during the *Gold Standard Regime* (April 1925 – December 1931); and (2) after Postmus took over the governance of the SARB during the *Sterling Area Regime* (January 1932 – September 1936). Using monthly data our sample contains 138 observations, with the Gold Standard Regime having 78 observations and the *Sterling Area Regime* having 60 observations.[24] [25] In

[22] Typically, the world rate is the policy rate of the monetary benchmark or hegemon.

[23] Our models are equivalent to an error-correction model (Engle and Granger, 1987; Hassler and Wolters, 2006), with an appropriate lag structure where needed. We estimate similar models as used by Bordo and MacDonald (2003, 2005) and Colvin and Fliers (2019).

[24] The sample split on December 1931/January 1932 was inspired by the fact that the change in leadership of the SARB was fully exogenous to the economic and monetary situation at the time. Essentially, South Africa abandoned the gold standard in favour of another fixed exchange rate regime, sterling. However, splitting the sample in March 1933 would be problematic for two reasons. Firstly, any observed differences in policy rate cointegration (β_{gold} vs $\beta_{sterling}$) could be caused by changes in the global monetary situation, rather than an observed change in policies followed by the SARB. Secondly, it would yield insufficient observations to estimate reliable rates of cointegration and adjustment speeds.

[25] Additionally, the UK's departure from gold – that brought about a watershed of policy changes across the world (e.g. Obstfeld and Taylor, 1997; Colvin and Fliers, 2019) – happened four months before our sample split. Given that we find that equilibrium relations with the UK during the Sterling Area Regime were restored between 2 and 5.5 months, we argue that – in conjunction with the independent monetary policy conducted by the SARB – all observed policy changes during the *Sterling Area Regime* (relative to the previous period) can be attributed to operational changes conducted by the SARB, albeit obviously induced by the exit of the UK from gold.

each estimation, $R_{f,i,t}$ is either the policy rate of the UK, US, France or the Netherlands, see figure 2. Table 1 reports the reduced form estimations.[26]

[INSERT FIGURE 2 HERE]

Our estimations yield several interesting results. We find that throughout the interwar gold standard South Africa's monetary policy was extremely flexible. This is evidenced by four key results. Firstly, we find that, during the *Gold Standard Regime* adjustment, speeds were significantly negative (between -0.205 and -0.155). This implies that any short-run deviation from the benchmark rate ($R_{f,i,t}$) would be offset between 3 and 5 months, to maintain exchange rate stability.[27] Secondly, we find that the SARB was unable to stabilize equilibrium relationships with the most important countries (UK and the US) during the *Gold Standard Regime*. That is, relative to these countries, interest rate movements were less predictable. Thirdly – and arguably most importantly – we find that the SARB did not link its policy rate to any of the reference countries, i.e. $\beta_{gold} \approx 0$.

[INSERT TABLE 1 HERE]

These findings are fully consistent with the predictions from the monetary policy trilemma. That is, under a fixed exchange rate regime a country cannot maintain both full capital mobility and monetary policy independence. We find that the SARB under the governance of Clegg had full autonomy in setting its monetary policy. This policy was reverted as of 1932. When Postmus controlled the SARB – and the Union left the *Gold Standard Regime* - a period of uncertainty ensued. When Parliament, in 1933, directed the government to re-establish parity with sterling, the SARB was forced to change its monetary policy.

Table 1 also shows the results for the SARB policy rate co-integration with benchmark countries during the *Sterling Area Regime*. During the new regime under the auspice of Postmus, we find that the SARB linked its policy rate to the one set by the BoE. Our results can be summarized into four parts. Firstly, adjustment speeds between the SARB and BoE rates increased by approximately 20%. Secondly, SARB rates became more predictable and much more stable.[28] Thirdly, we find that the SARB inextricably linked its policy rate to BoE, or $\beta_{sterling} \approx 1$. This co-integration rendered the SARB's monetary policy ineffective and fully dependent on fluctuations in the UK.[29] Our findings have two major implications related to the

[26] As a robustness test we construct a linear combination of US and UK policy rates as the benchmark rate. We find that the SARB did not consider a linear combination of these economic powers. AAll results are available upon request.
[27] Compared to, for example the Netherlands, adjustments speeds for the SARB were much faster (Colvin and Fliers, 2019, Table 1).
[28] This can be seen from the higher R-squared and the observation that for the relationship with the UK, PPS-bounds testing yielded significant coefficients.
[29] For exact details of the rate reductions under Postmus' governance, see De Kock (1954).

monetary policy trilemma. Firstly, during the *Gold Standard Regime* the independence of the SARB's monetary policy implies significant limits to capital mobility. Secondly, during the *Sterling Area Regime* the dependence of the SARB's monetary policy implies that capital must have flowed to the London market more easily.[30] The role of gold and capital controls are thus key to understanding the SARB's monetary policy.

4.2 Gold and capital controls

The SARB's control over the gold market becomes apparent when looking at the development of global and domestic gold prices. The SARB was able to buy gold from the mining corporations well below the market price, paying 77s and 9½d per standard ounce (equivalent to 3.89 pounds). During the interwar period both domestic and global prices of gold increased dramatically. Figure 3 depicts the indices of domestic South African gold prices and global market prices. We find that the global market price for gold increased 30% more than the domestic price. This was possible because the SARB purchased gold directly from mines. The SARB struck agreements with the mining corporations that allowed the young central bank to purchase all gold produced in the union.[31] Between 1928 and 1930, it bought gold at a premium of between 0.43% and 0.52%. Later, as the international demand for gold increased, the SARB faced a discount of approximately 32.5%. During the 1930s, the SARB was able to supplement its reserves with gold proceeds significantly, as only 60% of the profits were to be allocated to the mining corporations (De Kock 1954). We estimate that the total proceeds in 1933 (when South Africa joined the Sterling Area Regime) amounted to approximately 23 million pounds should the SARB have sold all gold on the domestic market. More importantly, we find that the SARB could have made approximately 1 billion pounds (in 1933) in profits if it were to sell its entire reserves on the open market.

[INSERT FIGURE 3 HERE]

The importance of the SARB in the global gold markets is apparent, but it was also vital for the domestic economy. We examine this by considering the importance of gold for South Africa's trade balance. Figure 4 shows the value of gold exports and its relative importance for total exports. We find that the SARB exported up to 50 million pounds in gold between 1929 and 1935, ranging up to 82 million pounds in 1936. At a minimum this constituted between

[30] A third interesting finding is that the increase of adjustment speeds (20%) implies that there was a significant policy change to off-set short-run shocks in the London market to protect the domestic economy, and the stability of the exchange rate.

[31] By 1929, the SARB handled all gold production in the Union (Kantor 1971). The SARB was established with the dual purpose to centralize the Union's banking system and protecting the country's exchange rate did not intend to operate a monetary policy independently of any balance of payment considerations. To this end, from January 1925, the SARB bought gold directly from the mines in South Africa.

50%-70% of South Africa's total exports. Combined with the fact that South Africa produced approximately 52% of the global supply of gold, two striking conclusions emerge. Firstly, the SARB's move to buy gold directly from mining corporations in South Africa not only put it in a position to control the domestic gold market, it also put it squarely in the center of global gold markets. Secondly, it appears that the SARB rationed gold supply to global markets. For example, in 1933, the value of gold exported amounted to approximately 47 million pounds, the production value, however, amounted to approximately 69 million pounds. While this is not direct evidence of rationing, it is at least indirect evidence that the SARB used its market power.

[INSERT FIGURE 4 HERE]

In summary, we find that the SARB changed its monetary policy with respect to its gold reserves significantly when it joined the *Sterling Area Regime*. We find that the expansion of the SARB's balance sheet was driven by the increase in gold reserves. Figure 5 shows the development of the SARB's total (and relative) gold reserves. After Postmus had taken over the governance of the SARB in January 1932, the volatility of the SARB's gold reserves increased dramatically, by a factor 3.5. This highlights the importance of gold reserves for the SARB's policy to manage its exchange rate. During the *Gold Standard Regime*, the bank had limited capital mobility to facilitate independent policy rate setting. To facilitate the rapid adjustment of exchange rates and to offset and short-run monetary shocks, the SARB held earmarked gold in the vaults at the BoE. During the *Sterling Area Regime* under Postmus, the bank became more active in the gold market and effectively drove up the global price. Given the surge in the global price of gold and the SARB's change in gold policy, we argue that it had sufficient means to link its currency to sterling and it did so successfully.[32]

[INSERT FIGURE 5 HERE]

The transition from the gold standard to a managed exchange rate regime with Sterling caused significant changes in the economic and monetary position of South Africa. When South Africa left the gold standard on 28 December 1932, the SARB experienced significant difficulty controlling the country's exchange level.[33] Abandoning the standard automatically terminated the existing agreement between the SARB and the mining corporations regarding the sale of gold. At the same time, commercial banks continued to quote sterling at a discount

[32] See Figure A.2 for the surge in gold prices.

[33] After the UK had left the standard, it took the SARB until 2 October 1931 to resume fixing the Pretoria-London exchange rate on its own initiative. On that date the Bank began to follow a definite procedure by fixing the Pretoria-London rates every day based on the closing London-New York rate of the previous day, allowing, as will be explained in more detail below, a margin as a protection against possible violent and rapid fluctuations in that rate, and still maintaining a difference between the buying and selling rates of 2%.

in terms of the Union's currency (De Kock 1954). For the first few days following the abandonment of gold, little sterling was offered to the commercial banks as there still was significant speculation against sterling. It took until 16 January 1933 for spreads to come down enough such to restore the Union's currency with sterling. It was during this period – before Parliament would be back in session on 20 January 1933 – that it had become clear that linking the Union's currency to sterling would significantly affect the balance of payments. A linkage to sterling would induce significant repatriation of funds and the influx of new capital from London, and South Africa would accumulate significant sterling balances. Since neither the SARB nor the commercial banks in the Union were willing to bear the associated exchange rate risks, the government was forced to step in. It was in March 1933 following the approval of the Currency and Exchange Act of 1933 that the government assumed all exchange rate risk retroactively from 20 January. Additionally, the Act stipulated that the SARB was empowered to 'prevent undue fluctuation' of the Union's currency with respect to sterling (De Kock, 1954). Because the government had the flexibility to cancel the Act anytime, this *Sterling Regime* can be considered a free but managed exchange rate regime. With the SARB now being granted additional powers, its legal reserve requirement was also lowered to 30%.

The Currency and Exchange Act of 1933 effectively restored the arrangement the SARB had with the mining corporations in the Union. Initially, the SARB purchased gold at the price of the original agreement, later more complicated arrangements were made, yet, all provided the SARB with significant windfall gains. By 1933, gold amounted to approximately 70% of all exports by the Union.[34] The significant repatriation of funds and the abundance of new capital inflow gave rise to higher national income and a significant subsequent growth in imports. Between 1932 and 1934 the Union's GDP increased by approximately 20%. As a result of the country's improved trade balance, higher income and the continuously increasing global market price for gold, the SARB did not feel the need to sell all its gold reserves on the open market. The SARB continued to hoard significant gold reserves. Between 1932 and 1934 its reserves almost doubled and by 1935 its reserves had tripled.[35]

[34] It is important to note that De Kock (1954) describes that the exports in the union were defined as the combination of all goods exported including gold produced (as this was largely intended for foreign markets). However, if one recalculates the balance of payments of the Union using actual exported gold during Postmus's tenure, the balance would not be favourable.

[35] In addition to changing to a gold hoarding policy, Postmus also struck payment agreements with Germany. The SARB agreed to act as a facilitator between the German and Union's government in the financing and settlement of trade arrangements between the two countries. Postmus saw to it that commercial banks in the Union purchased bills drawn on German importers. The banks were then guaranteed repayment in sterling by the SARB, backed by the government. The SARB then took over the Reichsmarks from the commercial banks at the maturity date and paid the sterling equivalent, while German authorities would convert the Reichsmark balances into sterling when the funds would accrue to them. Additionally, in 1938 the SARB started to facilitate the earmarking of gold in its vaults, facilitating the earmarking of gold in its vaults for commercial banks and other central banks.

4.3 Credit policy (1925-1932)

In the first years following the inception of the central bank, the bank's monetary policy was contrarian (De Kock 1954). The broad objectives of the bank's credit policy were orthodox. Before 1925, Governor Clegg aimed to continuously work towards restoring the gold standard at pre-war parity. When the gold standard was re-established in the Union, the main policy was geared towards maintaining the standard. The SARB focused its credit and money supply policies on stabilising the exchange rates, rather than managing domestic price level and business activity.

In the first decade after the SARB's establishment the bank faced significant difficulties controlling the money and credit supply. This was largely due to two factors: (1) the relative immature state of the country's money and capital markets and (2) the bank's limited statutory powers. In the early days of the SARB, trade and agricultural bills were mostly unavailable.[36] Essentially, there was no open money market, which prevented the SARB from conducting market operations. The SARB's limited statutory powers caused the bank to have only limited control over the three most important commercial banks in the Union. These three commercial banks controlled over 95% of all assets under management by commercial banks in South Africa (De Kock 1954). Clegg attempted to develop a liquid market for bills of exchange.

The Currency and Banking Act of 1920 stipulated that the commercial banks were required to hold deposits at the SARB. In return the banks received gold certificates, yet they received no interest on their deposits until 1927 (De Kock 1954).[37] Even though banks were required to have deposits at the SARB, they made little use of them. Under Clegg's supervision bankers' deposits never increased above 8 million pounds (with an average around 5 million pounds). Moreover, the deposit liabilities of the SARB during this period were relatively stable (standard deviation of approximately 400,000 pounds).[38] De Kock (1954) concludes that in its early years, the SARB was successful in its credit and deposit policy. However, when South Africa left gold, devalued and decided to link its currency to sterling, a repatriation of funds occurred. This explains in full the increase of bank deposits observed in the early months of 1933, as banks in the Union were required to hold an average of 16% (ranging between 9 and 35%) of reserves with the SARB (Laight 1954).[39]

[36] The Union was dominated by a system of commercial credit based on a form of overdraft.
[37] De Kock (1954, 31) describes the importance of gold certificates: 'Gold certificates were to be legal tender for payment of any amount up to their face value and were to be regarded as gold or gold specie for every purpose for which gold or gold specie was required to be kept under the Currency and Banking Act. Gold certificates could thus be held as minimum reserves by the Reserve Bank against its notes in circulation and its deposits, and by the other banks against their note issues, while they still enjoyed the right to issue notes.'
[38] A standard deviation of 400,000 pounds is approximately 8% of the average deposits held.
[39] See Figure A.3

In the run-up to the Great Depression, the SARB was faced with a dilemma. The improvement of the country's trade balance and the high demand for sterling, forced the bank to temporarily commit to a contractionary policy, and the SARB increased its policy rates to cool down the domestic economy and make discounting more expensive. The Great Depression prompted a period of moderate deflation in the Union and a significant slowdown of economic activity. More importantly, the Union saw a significant appreciation of its exchange rate relative to the UK, largely caused by the fall of sterling. The SARB was forced to take control of the gold export that, by 1930, amounted to almost 60% of the country's total exports. The Great Depression set in a downward trend in the credit creation by the SARB. We find that between 1927 and 1929 the SARB maintained a lending and advancing ratio well above unity, meaning they were expanding the credit supply. After 1929, the bank started to reduce this credit creation rate.

During Clegg's tenure, the SARB stayed well above its legal reserve requirement and as the sole bank of issue, it was able to actively manage the money supply.[40] It shows that during Clegg's tenure, money supply was relatively stable, with only moderate increase of notes issued prior to the outbreak of the Great Depression and a decline during the first years of the depression. When the SARB linked its currency to sterling, we find that the volatility of the money supply more than doubled. This highlights how Postmus took a more active role in managing the domestic economy. Additionally, we realise that, as the SARB expanded its balance sheet, it did not increase the money supply in a similar fashion. The increase of the money supply was much more gradual and only used to ensure significant liquidity in the South African economy. However, the total of funds available in the country depended heavily on the credit available. More explicitly, the SARB significantly revised its credit and monetary policy after it had decided to leave gold in favour of sterling. Clegg's successor, Postmus, put in place a more reactionary-type policy intervening in gold and credit markets when needed.

4.5 Credit policy (1933-1936)

Postmus not only changed the SARB's position in the global gold markets, but moved to a more reactionary policy, moving from a regime of monetary stringency to a regime of monetary easing. Previously the Bank had followed a typical gold standard credit policy, which had frequently involved high and decidedly contractionary rates changes. After the link to sterling had been established, the repatriation of funds started, the terms of trade improved and the

[40] The money supply is measured by the value of notes in circulation. See figure A.4 for the change in money supply.

significant inflow of capital gave a boost to the country's income, Postmus found himself managing a free currency in a cheap-money situation.[41] As a result there was a significant increase in the commercial banks' demand deposits and the liabilities of the SARB. We find that the bankers' deposits increased by a factor of five between 1932 and 1935.

The SARB now faced a situation of high liquidity. It was no longer forced to be restrictive in its credit creation. Over the period, the quantity of money continued to increase – the total notes in circulation increased by more than 65%. This meant the SARB's legal reserve ratio dropped by about 14%, yet its reserve ratio was never below 39%. By 1935, the SARB had started to increase its gold holdings and its legal reserves were 6% above its monthly average of 1932. Under Postmus's governance the SARB followed the market, and along with the UK sharply reduced interest rates in the Union, allowing for cheaper credit. This significantly increased the money supply.[42]

De Kock (1954) discusses whether the resulting credit policy of the SARB was the cause or a symptom of the new monetary situation. He concludes that the monetary situation was not one of the SARB's making, as the abundance of liquidity cannot be attributed to any open market operations it conducted. Also, the paced decrease of the policy rate was 'forced' as the influx of money lowered its price. As such we conclude that Postmus switched the bank to a reactionary-type monetary policy. The consequence, however, was an increased risk of inflation, as the gold standard previously provided an anchor against inflation. Although the amount of credit in the Union increased relative to the deposits held at the SARB, the credit creation dropped and only stabilized after 1935. The absence of a true money market left the SARB incapable of mopping up any excess liquidity in the system. However, between 1934 and 1939 the Union's government took care of this by allowing for small budget surpluses, granting municipal loans, and repaying outstanding debt (De Kock 1954).

These findings are consistent with our earlier finding that the SARB during the Sterling Area Regime sacrificed its independent monetary policy, in favour of increased and unimpeded capital flows. The question remains: what was the impact of the devaluation and the SARB's policy change?

5. Simulation

To answer the question posed above, we construct an out-of-sample simulation exercise where we ask what would have happened if South Africa had not devalued but instead the SARB had

[41] Especially following the rate reductions that were required to bring the Union's currency back on par with sterling.
[42] See Figure A.5.

continued to set a policy rate independently from the UK. We present four different policy paths the SARB could have followed. Before we discuss these alternatives, we describe the data and model used in our simulations.

5.1 Data

To estimate a standard VAR and construct our out-of-sample simulation, we use various data sources. First, we collect weekly data from the statistical tables of the SARB (1921-1946) and calculate monthly averages from these.[43] General macroeconomic monthly aggregates, like economic activity, inflation, imports, exports, and stock markets, were sourced from Albers (2018). Interest rate variables were sourced from the Centre for Financial Stability for the UK (Hills et al. 2015), and the Federal Reserve Bulletin for South Africa. Additionally, we supplement our data with the BoE gold reserves (Huang and Thomas 2016) and the world market inflation-adjusted price of gold obtained from MacroTrends LLC. Table 2 show all our variables included in the various model specifications. Additionally, the sources and exact definitions are provided in Figure 6 and 7. In subsequent analysis, all factors that are not fractions have been log-transformed.

[INSERT TABLE 2 HERE]

[INSERT FIGURE 6 and 7 HERE]

5.2 Vector autoregression

We estimate a vector autoregression (VAR) inspired by Karau (2020). The reduced form VAR is represented by:

$$y_t = k + A_1 y_{t-1} + \ ... + A_p y_{t-p} + \ \epsilon_t \qquad (2)$$

where y_t is an $n\ x\ 1$ vector of endogenous variables, pertaining to the factors described in Table 2 and k is a vector of constants. A_p is a $k\ x\ k$ matrix of parameters capturing the relationship between the individual endogenous factors. For our baseline model, this implies that y_t consists of seven domestic factors and four global factors. The seven domestic factors are the policy rate, gold reserves, economic activity, inflation, unemployment, money supply

[43] This data can be accessed here: https://www.resbank.co.za/content/dam/sarb/publications/quarterly-bulletins/quarterly-bulletin-publications/1946/5393/02Statistical-tables---September-1946.pdf

and stock markets. The four global factors are the UK policy rate, UK economic activity, UK inflation and the world gold price. For ϵ_t, we assume that $E(\epsilon_t) = 0$ and the covariance matrix is defined by $E(\epsilon_t \epsilon_t')$. We therefore assume that our model is correctly specified and contains no errors related to our endogenous variables. Our baseline model uses $p = 2$. This is the Akaike Information Criterion that uses two months lags for our endogenous variables.[44] This allows us to estimate the model for the period March 1925 to August 1931, when South Africa is on the gold standard and the SARB is under the governance of Clegg. We use the estimated parameters to simulate the evolution of the South African economy after August 1931. Every simulation draws additive errors from a multivariate normal distribution and is replicated two hundred times.

We simulate the development of the South African economy and ask what would have happened to economic growth, inflation, and gold reserves if South Africa had not devalued but had continued to set an independent monetary policy. This means all our out-of-sample simulations are "as if South Africa never devalued its currency". We identify four distinct policy paths (other than devaluation) that the SARB could have implemented after August 1931.

5.3 Simulated policy paths

Path I is a continued interest rate policy. In the absence of devaluation as a policy option and South Africa remaining on gold, Path I assumes the SARB continued their interest rate setting behaviour in the same fashion as observed prior to September 1931. The previous interest rate policy was uninformed by conditions elsewhere in the world and policy rate decisions were informed by the development of the domestic economy. More specifically, the SARB was able to drive local interest rates away from the world rate conditional on domestic economic development.

Path II represents a contractionary policy. As discussed in section 4.3, the SARB faced a dilemma in the run-up to the Great Depression. The SARB was forced to use contractionary monetary policy to cool down the economy and quell the high demand for sterling. It did so by making discounting more expensive. In the absence of devaluation as a policy option, the contractionary policy path assumes that the SARB would have kept interest rates high and fixed at 6% until the end of the gold standard.

[44] We have estimated models using a wide variety of lag length. Under all, we find that our results presented here hold.

Path III we call an 'accommodating policy'. Given the global economic turmoil and many countries reducing their interest rates, a plausible strategy for the SARB would be to lower its interest rates to the level that suited exporting firms in the country. We assume this interest rate at the same level observed in June 1933 or 3.5%.[45]

Path IV is the cheap money policy. As described above, with the global turmoil and countries reducing their interest rates, the SARB could have also lowered its interest rate to historically low levels – lower than under path III. This would have highly stimulated credit provision in the country. For this, we assume that as of September 1931, the SARB would have set the interest rate level at 2%.

While alternative policy paths can be imagined, the current setup allows for policy path II and III to be on both ends of what South Africa's central bankers at the time considered to be plausible. Policy path IV however is an 'extreme strategy' in that it sets policy rate even lower and provides artificial stimulus to the South African economy.

5.4 Results

Figure 8 shows the result of our simulation for our variables of interest conditional on the policy path. Each panel in the graph contains five timeseries: observed levels (solid line), Path I (dashed line), Path II (dotted line), Path III (short dashed line) and Path IV (long dashed line).[46] The estimations are summarised in Table 3 below as well.

[INSERT FIGURE 8 HERE]

Our simulations suggest that if South Africa had not devalued and the SARB had continued to set its policy rates independently from international considerations, the country would have performed significantly worse. Across the first three policy paths, we find that South Africa's economic growth would have been lower by between 9% and 19% after August 1931. Similarly, if South Africa had not devalued and remained on gold, the country would have experienced a period of persistent deflation under these paths.[47] Our simulations show that in order to stabilize the exchange rates, the SARB's gold reserves would have been depleted by approximately 60% to 70% compared to the situation under devaluation.

[45] Here we argue that the SARB considered a policy rate level of 3.5% reasonable but rather than slowly moving towards this level, there was one downward shock following August 1931.
[46] For the sake of readability confidence intervals of the simulations have been omitted from figure 8. Figure A.6 in the appendix shows the 95% confidence intervals for our simulations.
[47] Gold exchange rate standards are known for their deflationary bias (e.g. Bernanke and James 1990).

The only result that yields results close to those observed is under the fourth path – a cheap money strategy. In this simulation, we show that if the SARB set the policy rate at historically low levels – thereby simulating credit creation – the country would have experienced approximately 16% higher economic growth after August 1931 compared to the observed growth under devaluation. While this policy path stimulated the domestic economy, it would have come at a cost. Had the SARB executed the cheap money strategy, inflation would have been approximately four times higher than under devaluation. Ultimately, we conclude that the devaluation and joining the sterling area was a low-cost strategy for the country to escape the consequences of the Great Depression. Only a severe disconnection from the BoE would have achieved similar GDP level but with significantly higher inflation.

[INSERT TABLE 3 HERE]

To ensure the stability of our simulations we estimate various specifications of equation 2. We estimate models with additional variables such as: imports, exports, legal reserve ratio, foreign asset holdings, banker deposits and BoE gold reserves. Although there is some variation in the observed effect sizes, as shown in Table 3, we find that all our main results hold.[48]

6. Discussion

Our analysis in this study shows that South Africa's outperformance during the interwar period can largely be ascribed to three pillars. First was the country's devaluation by leaving the gold standard and linking to the Sterling Area. We find that if the country did not devalue its currency and continued its previous independent monetary policy, the country would have performed significantly worse. Second, the change in monetary policy and the inextricable link between the SARB's policy rate and the rate set by the BoE allowed for capital, mainly gold, to move freely to London. Third, spearheaded by the SARB, South Africa had full control of domestic gold markets during the interwar period. Considering South Africa's dominance over the international gold supply, the country had all the tools to maintain the gold standard. However, with the SARB fully in charge of all gold flows to and from South Africa, and its decision to link its interest rate to the BoE, it stimulated exports, and imported inflation from the UK.

[48] We find that the level of gold reserves significantly depends on the degree to which imports, exports and the SARB's foreign assets holdings can offset exchange rate fluctuations. However, our main results with regards to economic activity and inflation remain consistent between different model specifications. These results can be obtained from the authors on request.

And, while South Africa's experience might sit uneasy with the conventional wisdom regarding the Great Depression, as suggested by Eichengreen (2021), there is a good explanation for why it thrived during the 1930s. When the country left gold, it controlled international gold supply and – as we showed – the country had a central bank that significantly boosted the domestic economy. In summary, this is why South Africa was able to escape the world-wide fall in prices and output that came with the Great Depression (Eichengreen and Sachs 1985; Hamilton 1987; Bernanke and James 1991; Eichengreen 1992). With the global competition for gold (e.g. Irwin 2012; Sumner 2015), South Africa had all the tools at its disposal to prosper. That countries took South Africa's position in the international gold markets seriously, can be seen in a letter sent on 7 February 1922 from Norman (BoE) to Strong (FED) where he wrote: 'I have to state that the Bank of England could probably obtain authority to send to you, or to anyone on your behalf, at any time, South African gold purchased by you from time to time in the London market, and meanwhile they would be prepared to hold the gold on behalf of your Bank upon such terms as might be arranged' (Norman 1927). Similarly, Cadorel (2021, 16) quotes a telegram between Norman (BoE) and Harrison (FED): 'Recent liquidation in your Stock Market and reduction in call money rates have been satisfactory and have helped to re-establish international position. Result of our 6.5% rate has been satisfactory and omitting normal South African gold we anticipate adequate arrivals within two months' (Bank of England archives, Series OV32-5, October 24, 1929).

These quotes also highlight the importance of the SARB in the global competition for gold.[49] And with the UK's exit from gold causing a watershed of monetary policy changes across the world (Obstfeld and Taylor 1997), it was South Africa and the SARB that stood firm during the storm that ensued. By 1936, South Africa was outperforming all benchmark countries (UK: 18%; US: 36%; France: 31%; the Netherlands: 36%) and secured an early strong and robust recovery from the Great Depression with the SARB at the helm, despite leaving the gold relatively late.

In this context South Africa was still considered to be on the periphery of the gold standard and the interwar period. However, we show that there is more nuance to the case. Compared to other countries discussed in, for example Ögren and Øksendal (2012), South Africa's strategy was significantly different. For example, Belgium switched from a gold exchange standard to a gold bullion standard when the UK left gold (Van der Wee, 2012). Spain never joined any of the gold standards (Martin-Acena et al., 2012). A country that saw

[49] Another example is The Netherlands where the only price of gold reported was the South African gold price.

relative prosperity after the UK left the standard, was Japan. Japan reformed its economic policy into what is now known as 'Takahashi economic policy'. The yen devalued and the Bank of Japan conducted an accommodative monetary policy throughout the period (Shizume 2012). And while the Japanese reforms could be compared to the South African case, Japan did not enjoy the same position in the international gold markets, nor was it historically closely tied to the UK. Perhaps the closest related case is the one of the Netherlands. It was one of the first countries to join the interwar gold standard and was arguably the last to leave, causing the Great Depression to significantly affect its economy. When the UK left the standard, it chose to stay on gold and reclaim its monetary independence and limit capital mobility (Colvin and Fliers 2019). The Dutch decision was diametrically opposed to what South Africa did. Ultimately, the South African case is unique because of the switch between exchange rate regimes, the SARB and the turnaround of monetary policy during the interwar period.

7. Conclusion

During the interwar gold standard, South Africa established a new central bank and navigated two exchange rate regimes: *Gold Standard* and *Sterling Area*. Our analysis shows that the SARB was able to maintain monetary independence during the *Gold Standard* because of its control over gold markets. During this period, under the governance of Clegg, the SARB followed a contractionary monetary policy independent of other countries. While on gold, the SARB was able to stabilize its exchange rate, but also preserve a high domestic interest rate that caused a significant influx of capital. When South Africa left the gold standard in 1933, the country quickly joined the *Sterling Area.* The SARB inextricably linked its policy rate to that of the BoE. As a consequence, Postmus switched the SARB to a reactionary stance, intervening in the gold markets when needed. Despite sacrificing its independence during the *Sterling Area,* we show that it significantly improved the country's performance during the Great Depression. The regime shift allowed the young central bank to reduce its policy rates, stimulate exports, import inflation from the UK and offset imbalances in the country's exchange rate by using its significant gold holdings. A simulation exercise shows that if South Africa had not devalued and had not changed its monetary policy, the country would have suffered a severe depression, persistent deflation and depleted its gold reserves. We show that only a cheap money strategy executed by the SARB, lowering the policy rate levels to historical lows could have brought about the same economic growth as the devaluation. However, the cheap money strategy would have come at the cost of significantly higher inflation.

Overall, our findings suggests that the new young central bank was able to successfully

navigate the turbulent waters of the interwar gold standard. This success was based on three pillars: the devaluation, the change in monetary policy by linking to the BoE and the SARB's control over gold flows. These three aspects fuelled South Africa's unparalleled recovery from the Great Depression. We add to the literature on South African monetary policy and the gold standard during the interwar period. We show how monetary policy was executed by the SARB and what the alternatives were. However, several unanswered questions remain. For example, so far it is unclear to what extent the SARB's control over domestic gold markets influenced global gold market prices. That is our analysis opens up new avenues for research on South African monetary policy during the interwar.

References

Albers, Thilo N. 2018. The Prelude and Global Impact of the Great Depression Evidence from a New Macroeconomics Dataset. *Explorations in Economic History* 70: 150-163. doi: 10.1016/j.eeh.2018.08.004

Ally, Russell. 1994. *Gold and Empire: The Bank of England and South Africa's Gold Producers 1886-1926.* Johannesburg: Witwatersrand University Press.

Arndt, Ernst H.D. 1928. *Banking and Currency Development in South Africa, 1652-1927, with an Appendix on the Rise of Savings Banking in South Africa.* Cape Town: Juta.

Balderston, Theo. 2003. *The World Economy and National Economies in the Interwar Slump.* Basingstoke: Palgrave Macmillan.

Bazot, Guillaume, Eric Monnet and Matthias Morys. 2019. Taming the Global Financial Cycle: Central Banks and the Sterilization of Capital Flows in the First Era of Globalization (1891-1913). No. 13895. CEPR Discussion Papers

Bernanke, Ben and Harold James. 1991. "The Gold Standard, Deflation, and Financial Crisis in the Great Depression: An International Comparison" in *Financial Markets and Financial Crises*, edited by R. Glenn Hubbard, 33-68. Chicago: University of Chicago Press.

Bordiss, Bradley, Vishnu Padayachee and Jannie Rossouw. 2019. *The response of the first two Governors to "the two most eventful years in the history of the SA Reserve Bank": William Henry Clegg and Johannes Postmus in the lead up to, and in the midst of the 1931-32 crisis.* [Forthcoming]

Bordo, Michael D., and Finn E. Kydland. 1995. The Gold Standard as a Rule: An Essay in Exploration. *Explorations in Economic History*. 32: 423-464.

Bordo Michael D., and Ronald MacDonald. 2003. The inter-war gold exchange standard: credibility and monetary independence. *Journal of International Money and Finance*. 22 (1): 1-32. doi: 10.1016/S0261-5606(02)00074-8.

Bordo Michael D., and Ronald MacDonald. 2005. Interest rate interactions in the classical gold standard, 1880–1914: was there any monetary independence? *Journal of Monetary Economics*. 52 (2): 307-327. doi: 10.1016/j.jmoneco.2004.05.008.

Botha, Joubert. 2002. Down Memory Lane: The Economic Society of South Africa: Past Presidents, 1925-1963. *South African Journal of Economics*. Special Issue: 1-139.

Breckenridge, Keith. 1995. 'Money with dignity': Migrants, minelords and the cultural politics of the South African gold standard crisis, 1920-33. *Journal of African History* 36: 271-304.

Cadorel, Jean-Laurent. 2021. *An International Monetary Explanation of the 1929 Crash of the New York Stock Exchange.* Working paper presented at the 2021 Economic History Society. Available at: https://www.dropbox.com/s/hr3uikpyjty0xtm/Cadorel_Great_Crash_1929.pdf?dl=0 [Accessed: 27 April 2021].

Colvin, Christopher and Philip Fliers. 2019. "Going Dutch: The management of monetary policy in the Netherlands during the interwar gold standard." *QUCEH Working Paper Series No 2019-03.* Queen's University Belfast, Queen's University Centre for Economic History.

Dalgaard, Bruce R. 1981. *South Africa's Impact on Britain's Return to Gold, 1925.* Dissertations in European Economic History. New York: Arno Press.

De Kock, Gerhard. 1954. *A history of the South African Reserve Bank (1920-52).* Pretoria: J.L. van Schaik.

Eichengreen, Barry. 1984. Central bank cooperation under the interwar gold standard. *Explorations in Economic History* 21 (1): 64-87. doi: 10.1016/0014-4983(84)90017-2

Eichengreen, Barry. and Jeffrey Sachs. 1985. Exchange rates and economic recovery in the 1930s. *Journal of Economic history* 45 (4): 925-946. doi: 10.1017/S0022050700035178

Eichengreen, Barry. 1992. *Golden Fetters: The gold standard and the Great Depression, 1919-1939.* New York: Oxford University Press.

Eichengreen, Barry J., Barry Eichengreen and Marc Flandreau. 1997, editors. *The Gold Standard in Theory and History.* Hove: Psychology Press.

Eichengreen, Barry. 2021. Gold and South Africa's Great Depression. *Economic History of Developing Regions.* [Forthcoming] DOI: 10.1080/20780389.2021.1891879.

Engle, Robert F., and Granger, C.W. 1987. Co-integration and error correction: representation, estimation, and testing. *Econometrica* 55 (2): 251-276. doi: 10.2307/1913236.

Feinstein, Charles. 2005. *An economic history of South Africa: Conquest, discrimination and development*. Cambridge: Cambridge University Press.

Fleming, J. Marcus. 1962. Domestic Financial Policies Under Fixed and Floating Exchange Rates. *Staff Papers, International Monetary Fund* Vol. 9: 369-379.

Frankel, Sally H. 1938. *Capital Investment in Africa: Its Course and effects*. Oxford: Oxford University Press.

Franszen, D.G. 1983. Monetary Policy in South Africa 1932-82. *South African Journal of Economics* 51 (1): 54-85. doi: 10.1111/j.1813-6982.1983.tb00779.x

Friedman, Milton, and Anna J. Schwartz. 1963. *A Monetary History of the United States, 1867-1960.* Princeton: Princeton University Press.

Gelb, Stephen. 1984. "The Origins of the South African Reserve Bank". Paper presented at African Studies Seminar, African Studies Institute, University of the Witwatersrand, 17 September 1984. Available at: http://wiredspace.wits.ac.za/handle/10539/8712. [Accessed: 27 April 2021]

Giovanni, Julian di and Jay C. Shambaugh. 2008. The impact of foreign interest rates on the economy: The role of the exchange rate regime. *Journal of International Economics* 74 (2): 341-361. doi: 10.1016/j.jinteco.2007.09.002.

Hamilton James D. 1987. Monetary factors in the Great Depression. *Journal of Monetary Economics* 19 (2): 145-169. doi: 10.1016/0304-3932(87)90045-6

Hansen, Alvin H. 1953. *A Guide to Keynes*. New York: McGraw-Hill.

Hassler Uwe and Wolters Jürgen. 2006. Autoregressive Distributed Lag Models and Cointegration. In *Modern Econometric Analysis*, edited by Olaf Hübler and Joachim Frohn, 57-72. Heidelberg: Springer.

Hicks, John. 1937. Mr. Keynes and the "Classics"; A Suggested Interpretation. *Econometrica* 5 (2): 147-159. doi: 10.2307/1907242

Huang, Huaxiang and Ryland Thomas. 2016. The Bank of England Weekly Balance sheet. OBRA dataset. Available at: https://www.bankofengland.co.uk/statistics/research-datasets. [Accessed on: 6 June 2021].

Irwin D.A., 2012. The French gold sink and the great deflation of 1929-32. Cato Papers on Pub. Pol'y. 2:1.

Kantor, Brian. The Evolution of Monetary Policy in South Africa. *South African Journal of Economics* 39 (1): 42-72. doi: 10.1111/j.1813-6982.1971.tb00274.x

Karau, S. (2020). "Buried in the vaults of central banks: Monetary gold hoarding and the slide into the Great Depression," Discussion Papers 63/2020, Deutsche Bundesbank.

Kemmerer, Edwin and Gerhard Vissering (1925). *Report on the Resumption of Gold Payments by the Union of South Africa*. Pretoria: Government Printing and Stationary Office.

Keynes, John M. 1936. *The General Theory of Employment, Interest and Money*. London: Macmillan.

Kindleberger, Charles P. 1986. International Public Good without International Government. *American Economics Review* 76 (1): 1-13.

Laight, John C. 1956. Banking Liquidity and Central Bank Control in South Africa. *South African Journal of Economics*, 24 (2):113-24.

Martín Aceña, P., Pons, A., & Betrán, C. (2012). Financial crises in Spain: lessons from the last 150 years. *Revista de Historia Económica-Journal of Iberian and Latin American economic History*, 3: 417-446.

Minnaar, Anthony. 2011. The effects of the Great Depression (1929-1934) on South African White Agriculture. *South African Journal of Economic History* 5 (2): 83-108. doi: 10.1080/20780389.1990.10417176

Mohr, Philip. 2001. The governors and deputy governors of the South African Reserve Bank, 1921-2001. *South African Journal of Economic History* 16 (1-2): 101-138. doi: 10.1080/10113430109511135

Norman, Montagu, 1871-1950. Correspondence with Great Britain: Montagu Norman, Governor, Bank of England, Pt. 1, 1927, Papers of Benjamin Strong, Jr.. Available at: https://fraser.stlouisfed.org/archival/1160/item/473582. [Accessed: 27 April 2021].

Mundell, Robert. 1960. The Monetary Dynamics of International Adjustment under Fixed and Flexible Exchange Rates. *Quarterly Journal of Economics* 74 (2): 227-257. doi: 10.2307/1884252

Mundell, Robert. 1961. The Theory of Optimum Currency Area. *American Economic Review* 51 (4): 657-665.

Nurkse, Ragnar. 1944. *International Currency Experience: Lessons of the Inter-War Period*. New York: Columbia University Press.

Obstfeld, Maurice and Alan M. Taylor. 1997. The Great Depression as a watershed: International Capital Mobility over the long run. *NBER Working Paper 5960*. Cambridge: National Bureau of Economic Research.

Obstfeld, Maurice and Alan M. Taylor. 2003. Sovereign Risk, Credibility and the Gold Standard: 1870-1913 versus 1925-31. *Economic Journal* 113 (487): 241-275. doi: 10.1111/1468-0297.00128.

Obstfeld, Maurice, Jay C. Shambaugh and Alan M. Taylor. 2005. The Trilemma in History: Tradeoffs among exchange rates, monetary policies and capital mobility. *Review of Economics and Statistics* 87 (3): 423-438. doi: 10.1162/0034653054638300.

Officer, Lawrence H., 2010. Gold standard. In *Monetary Economics*, edited by Steven N. Durlauf and Lawrence E. Blume, 96-107. London: Palgrave Macmillan.

Ögren, Anders and Lars Fredrik Øksendal, editors, 2012. The Gold Standard Peripheries: monetary policy, adjustment and flexibility in a global setting. Basingstoke: Palgrave Macmillan.

Padayachee, Vishnu and Bradley Bordiss. 2015. How Global Geo-Politics Shape South Africa's Post-World War I Monetary Policy: The Case of Gerhard Vissering and Edwin Kemmerer in South Africa, 1924-25. *Economic History of Developing Regions* 30 (2): 182-209. doi: 10.1080/20780389.2015.1051027.

Parsons, Raymond W.K. 1994. "Keynes and South Africa". In *John Maynard Keynes: Critical Assessment: Second Series,* edited by John C. Wood, 412-418. Abingdon-on-Thames: Routledge.

Reserve Bank Annual Review (RBAR). 1923. Third Ordinary General meeting of Stockholders: Minutes of Proceedings.

Reserve Bank Annual Review (RBAR). 1932. Twelfth Ordinary General meeting of Stockholders: Minutes of Proceedings.

Rossouw, Jannie. 2009. *South African Reserve Bank: History, functions and institutional structure*. Pretoria: South African Reserve Bank.

Rossouw, Jannie and Vishnu Padayachee. 2011. Reflecting on ninety years of intermittent success: the experience of the South African Reserve Bank with inflation since 1921. *Economic History of Developing Regions* 26 (1): 53-72. doi: 10.1080/20780389.2011.586408

Schumann, Christian G.W. 1938. *Structural changes and business cycles in South Africa 1806-1936.* London: Staples Press.

Shambaugh, Jay C. 2004. The Effect of Fixed Exchange Rates on Monetary Policy. *Quarterly Journal of Economics* 119 (1): 301-352.

Shizume, Masato. 2012. The Japanese economy during the interwar period: instability in the financial system and the impact of the world depression. *In The Gold Standard Peripheries: monetary policy, adjustment and flexibility in a global setting,* edited by Anders Örgen and Lars Fredrik Øksendal, 211-228. London: Palgrave Macmillan.

Simmons, Beth A. 1996. Rulers of the game: central bank independence during the interwar years. *International Organization* 50 (3): 407-443. doi: 10.1017/S0020818300033439

Sumner, Scott, 2015. Nominal GDP futures targeting. *Journal of Financial Stability*, 17: 65-75. doi: 10.1016/j.jfs.2014.10.001

Temin, Peter. 1976. *Did Monetary Forces Cause the Great Depression?* New York: W.W. Norton.

Union of South Africa. *Report of the Select Committee on Embargo on Export of Specie.* (S.C. 2 of 1920). Printed by order of the House of Assembly, June, 1920. Cape Town: Government Printers.

Union of South Africa. *Report of the Select Committee on the Gold Standard.* (S.C. 9 of 1932). Printed by order of the House of Assembly, May, 1932. Cape Town: Government Printers.

Van der Wee, Herman. 2012. Belgian Monetary Policy under the Gold Standard during the Interwar Period. In *The Gold Standard Peripheries: monetary policy, adjustment and flexibility in a global setting* 130-144. London: Palgrave Macmillan.

Van Rensburg, Chris. 2003. *The South African coin and banknote collection.* Randburg: Randburg Coin.

Wandschneider, Kirsten. 2008. The Stability of the Interwar Gold Exchange Standard: Did Politics Matter? *Journal of Economic History*, 68 (1): 151-181. doi: 10.1017/S0022050708000053

Williams, David W. 1968. "The Evolution of the Sterling System." in *Essays in Money and Banking in honour of R. S. Sayers*, edited by Charles R. Whittlesey and John S.G. Wilson. Oxford: Clarendon.

Wolf, Nikolaus. 2012. Crises and policy responses within the political trilemma: Europe, 1929-36 and 2008-11. *European Review of History: Revue europeenne d'histoire* 19 (6): 855-879. doi: 10.1080/13507486.2012.741113.

Tables

Table 1: ARDL-estimation of SARB's monetary policy independence, July 1925 – December 1936

	The Netherlands		United States		United Kingdom		France	
Variables	Gold Standard	Sterling Area	Gold Standard	Sterling Area	Gold Standard	Sterling Area	Gold Standard	Sterling Area
Adjustment	-0.206***	-0.134***	-0.157**	-0.106*	-0.155**	-0.195***	-0.180***	-0.132***
	(-3.301)	(-3.141)	(-2.352)	(-1.843)	(-2.635)	(-5.567)	(-2.910)	(-3.091)
Benchmark	0.065	-0.005	0.052	0.061	0.146	1.585***	-0.019	0.018
	(1.164)	(-0.039)	(0.886)	(0.218)	(1.595)	(4.378)	(-0.542)	(0.149)
Observations	78	60	78	60	78	60	78	60
R-squared	0.492	0.233	0.423	0.485	0.386	0.565	0.382	0.233
Half-life (months)	3.4	5.2	4.4	6.5	4.5	3.6	3.9	5.3
Break date	n.a.	Dec-32	n.a.	Dec-32	n.a.	Dec-32	n.a.	Dec-32
F-test	281.93	59.18	263.42	11.11	87.34	2.61	813.97	63.60
Significant Stability @ I(0)	Yes	Yes	No	No	No	Yes	Yes	Yes
Significant Stability @ I(1)	Yes	Yes	No	No	No	Yes	No	Yes
Independence	***	***	***	***	***	n.s.	***	***
Policy	Offsetting	Offsetting	Offsetting	Offsetting	Offsetting	Ineffective	Offsetting	Offsetting

Note: Reported are the ARDL estimation results for equation 1 for different time periods. The variables of interest are explained in text, and in the note under Figure 2. Tests for breakpoints using ADF, Zt and Za statistics yields no significant break dates, except for December 1932. T-statistics in parentheses. For testing the stability of the cointegration, we rely on the bounds testing procedure described by Pesaran et al. (2001), using asymptotic F-distributions, which are independent of whether out variables are I(0) or I(1); we refer to this as PPS-methodology. Significance levels: *** p<0.01, ** p<0.05, * p<0.1, n.s. = not significant.

Table 2: Factors included in VAR specifications

		Robustness				
	Baseline model	Trade	Legal gold reserves	Foreign assets	Banker deposits	BoE
Number of factors	*11*	13	11	12	12	13
Specification	*2 lags*	2 lags	2 lags	2 lags	2 lags	2 lags
Domestic factors						
Policy rate	✓	✓	✓	✓	✓	✓
Economic activity	✓	✓	✓	✓	✓	✓
Inflation	✓	✓	✓	✓	✓	✓
Gold reserves	✓	✓	x	✓	✓	✓
Money supply	✓	✓	✓	✓	✓	✓
Stock markets	✓	✓	✓	✓	✓	✓
Unemployment	✓	✓	✓	✓	✓	✓
Total exports	x	✓	x	✓	x	x
Total imports	x	✓	x	x	x	x
Legal reserve ratio	x	x	✓	x	x	x
Foreign assets	x	x	x	✓	x	x
Banker deposits	x	x	x	x	✓	x
Global factors						
UK policy rate	✓	✓	✓	✓	✓	✓
UK economic activity	✓	✓	✓	✓	✓	✓
UK inflation	✓	✓	✓	✓	✓	✓
Global gold price	✓	✓	✓	✓	✓	✓
BoE gold reserves	x	x	x	x	x	✓

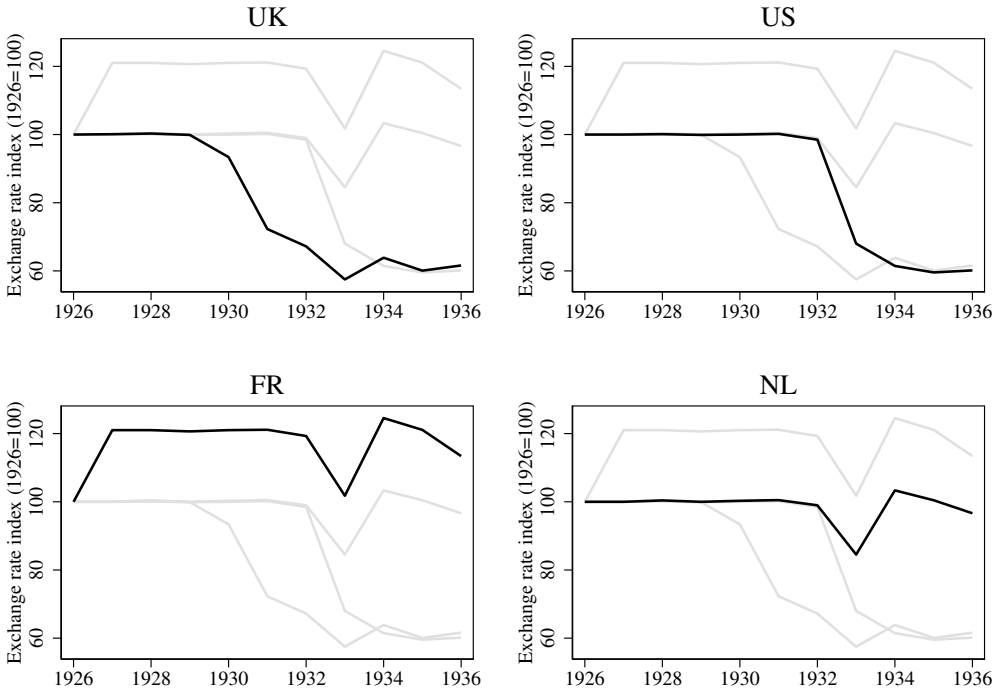
Table 3: Simulation statistics, deviation, uncertainty and robustness

Specification	Variable	Path I		Path II		Path III		Path IV	
		Deviation	*Uncertainty*	*Deviation*	*Uncertainty*	*Deviation*	*Uncertainty*	*Deviation*	*Uncertainty*
Baseline	Economic activity	-13.26%	0.51%	-18.87%	0.46%	-9.01%	0.48%	16.29%	0.47%
	Inflation	-23.59%	1.50%	-45.35%	1.90%	-5.06%	1.94%	417.52%	1.89%
	Gold reserves	-64.95%	1.38%	-69.52%	1.42%	-60.47%	1.45%	24.70%	1.43%
Trade	Economic activity	-7.49%	0.54%	-10.35%	0.42%	-5.04%	0.41%	6.73%	0.42%
	Inflation	-31.33%	1.70%	-48.42%	2.22%	-19.37%	2.04%	169.54%	2.16%
	Gold reserves	-68.04%	1.52%	-72.90%	1.67%	-64.11%	1.63%	-3.73%	1.66%
Legal gold reserves	Economic activity	-12.77%	0.51%	-16.11%	0.43%	-9.57%	0.44%	6.56%	0.44%
	Inflation	-21.20%	1.47%	-46.30%	1.88%	2.15%	1.91%	764.91%	1.90%
	Legal gold reserves	-32.35%	2.39%	-45.36%	2.51%	-21.81%	2.51%	137.35%	2.54%
Foreign assets	Economic activity	-18.13%	0.53%	-22.41%	0.53%	-14.13%	0.56%	6.94%	0.53%
	Inflation	-32.05%	1.56%	-48.17%	2.09%	-18.74%	2.19%	177.49%	2.01%
	Gold reserves	-60.97%	1.19%	-66.24%	1.32%	-56.24%	1.36%	-9.86%	1.29%
Banker deposits	Economic activity	-15.30%	0.52%	-21.51%	0.51%	-11.03%	0.50%	16.97%	0.47%
	Inflation	-28.49%	1.54%	-49.35%	2.08%	-12.35%	1.98%	445.36%	1.72%
	Gold reserves	-67.09%	1.42%	-71.46%	1.55%	-62.99%	1.51%	35.72%	1.44%
BoE gold reserves	Economic activity	-12.05%	0.50%	-15.24%	0.44%	-8.65%	0.45%	6.82%	0.43%
	Inflation	-22.62%	1.42%	-42.21%	1.82%	-1.40%	1.83%	337.38%	1.65%
	Gold reserves	-68.42%	1.46%	-73.03%	1.60%	-62.51%	1.63%	65.49%	1.53%

Note: Using equation 2, we simulate the development of the South African economy after August 1931. Shown in the table are the results for each specification and policy path the SARB could have chosen. Path I is the Continued interest rate policy path; Path II is the contractionary policy path; Path III is the accommodating policy path; Path IV is the cheap money policy path. The column deviation is defined as the average forecasted levels minus observed level of the variables of interest between as of September 1931 till the end of the period. The column accuracy is calculated as the relative root mean squared error of the forecasts, capturing the scale invariant forecasting accuracy.

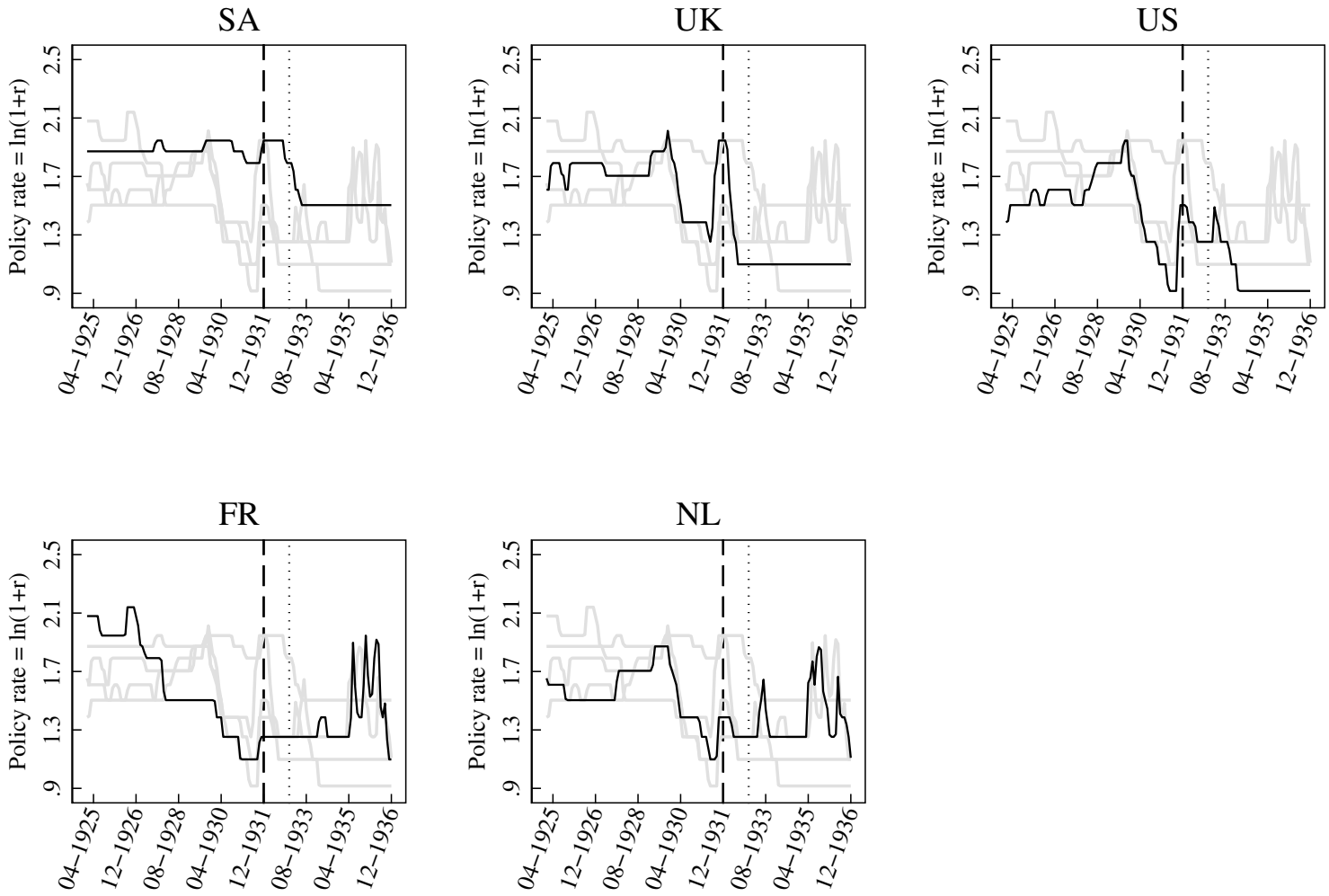
Figures

Figure 1: South African exchange rates, 1926-1936



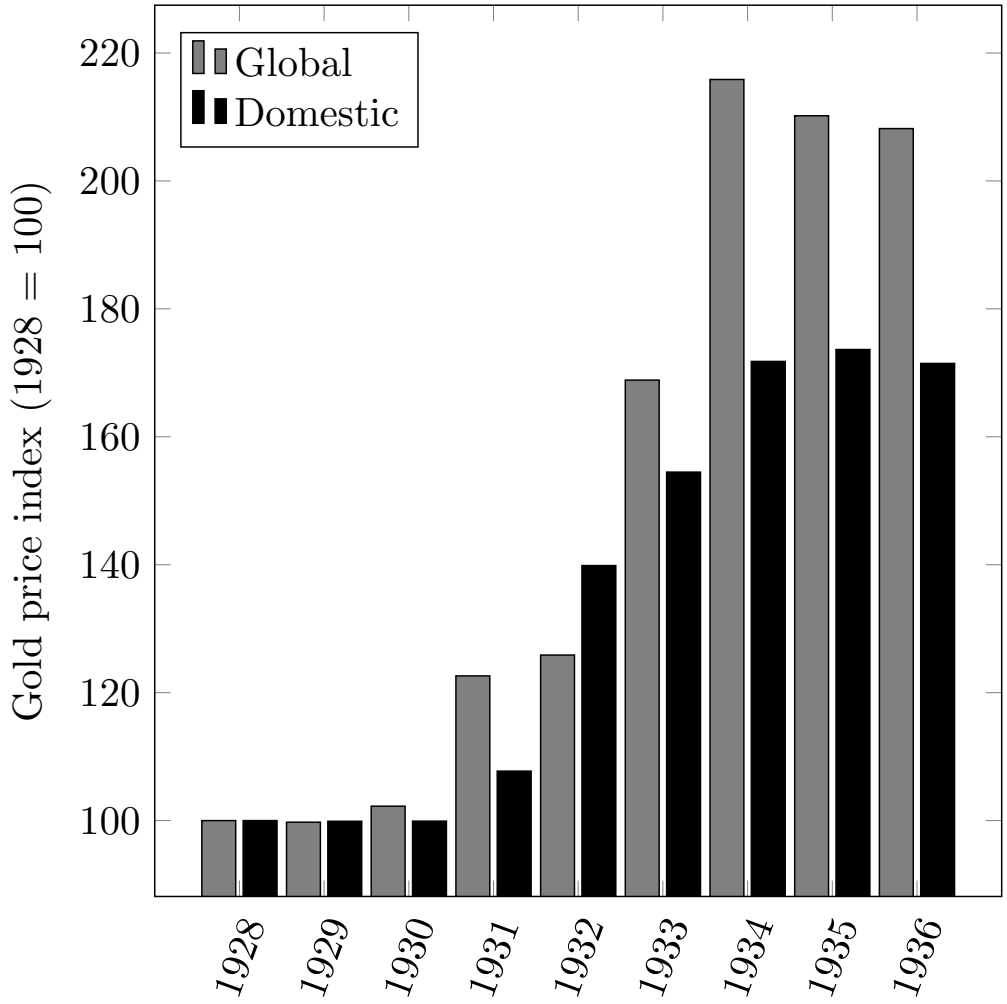
Note: Depicted are the indices of exchange rates of the South African Pound expressed in UK Pounds, US Dollars, FR Francs and NL Guilders.
Source: Commercial and Financial Chronicle 1865-1963, accessed via St. Louise FED.

Figure 2: Different interest rates, April 1925 – December 1936.



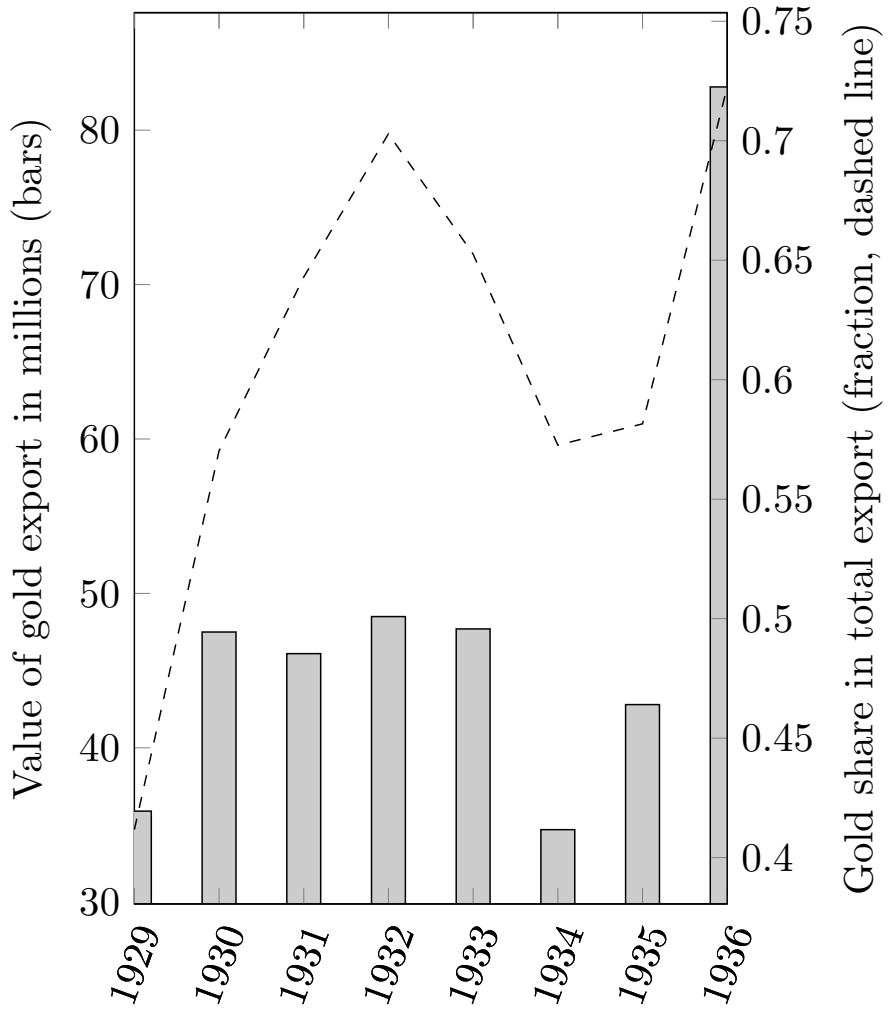
Note: Depicted are the key policy rates set by South Africa, The Netherlands, the United Kingdom, the United States, France. The vertical lines mark the end of the tenure of governor Clegg (dashed) and South Africa's exit from gold (dotted).
Source: Own calculation using for NL: DNB (1999). Remaining data sourced by Centre for Financial Stability using for UK: Hills et al. (2015); US: Board of Governors (2020); FR: Loubet (1990), Flandeau and Zumer (2004) and Homer and Sylla (2005); SA: Federal Reserve Bulletin.

Figure 3: Gold price indices (annual frequency), 1928–1936.



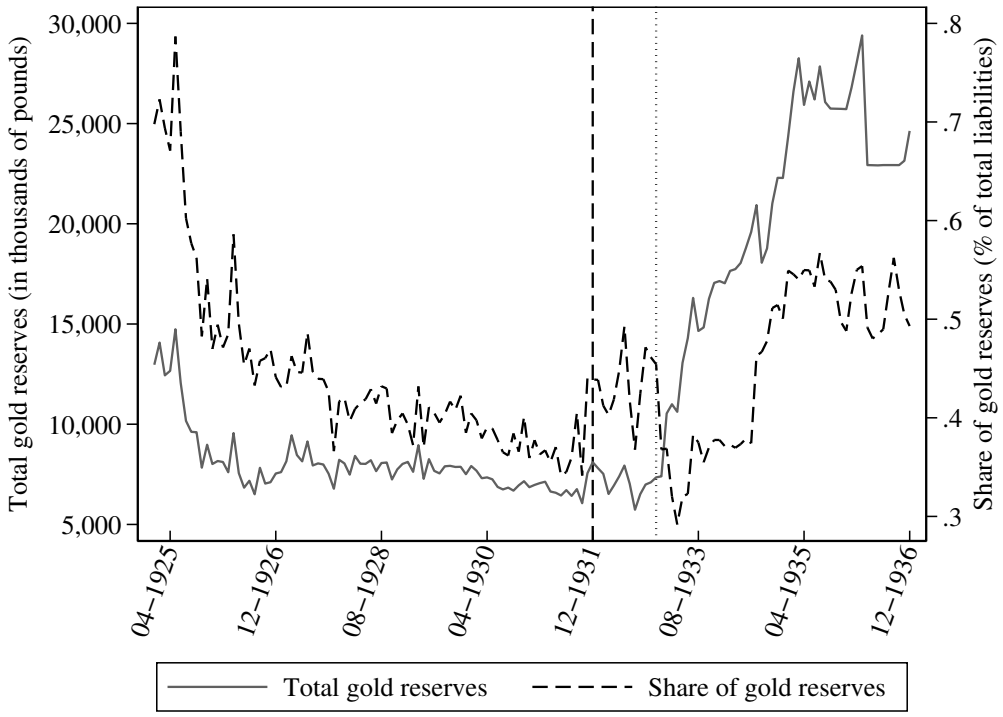
Note: Depicted are the indices of global and domestic gold prices for South Africa.
Source: De Kock (1954), Porter et al. (2017) and The Commercial and Financial Chronicle 1865-1963, accessed via St. Louise FED..

Figure 4: Gold exports (annual frequency), 1929–1936.



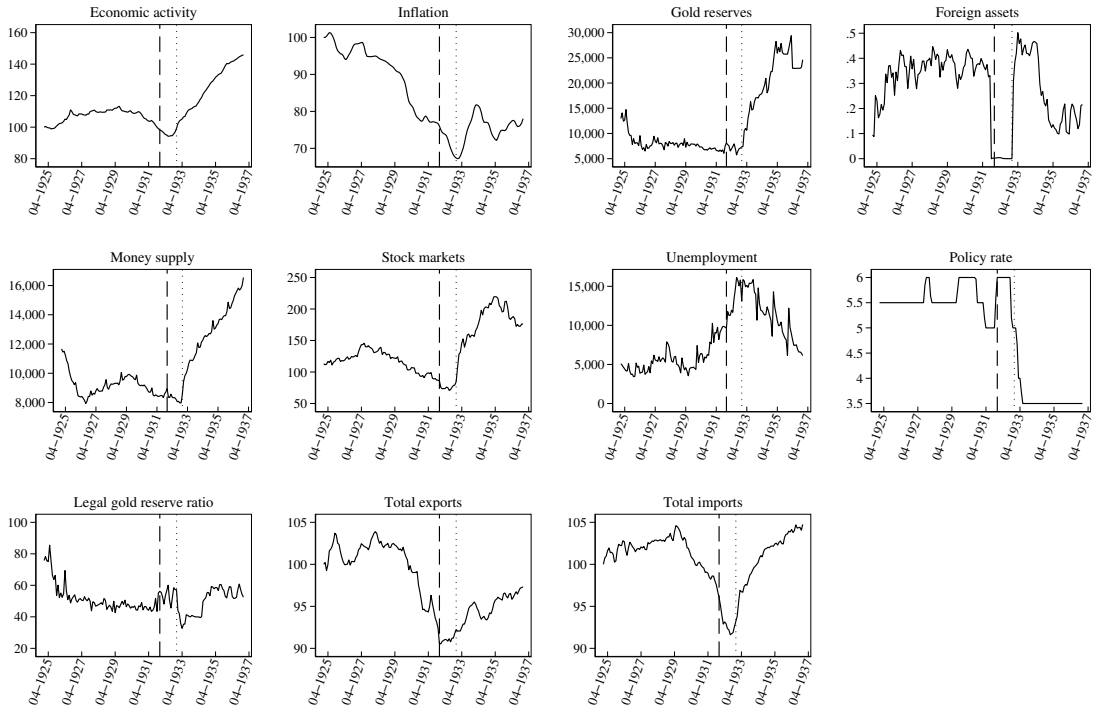
Note: Depicted are the value of gold exports in millions of pounds and the share of gold in South Africa's total export.
Source: United Nations, Statistical Yearbook (1948).

Figure 5: Gold reserves in South Africa, April 1925 – December 1936.



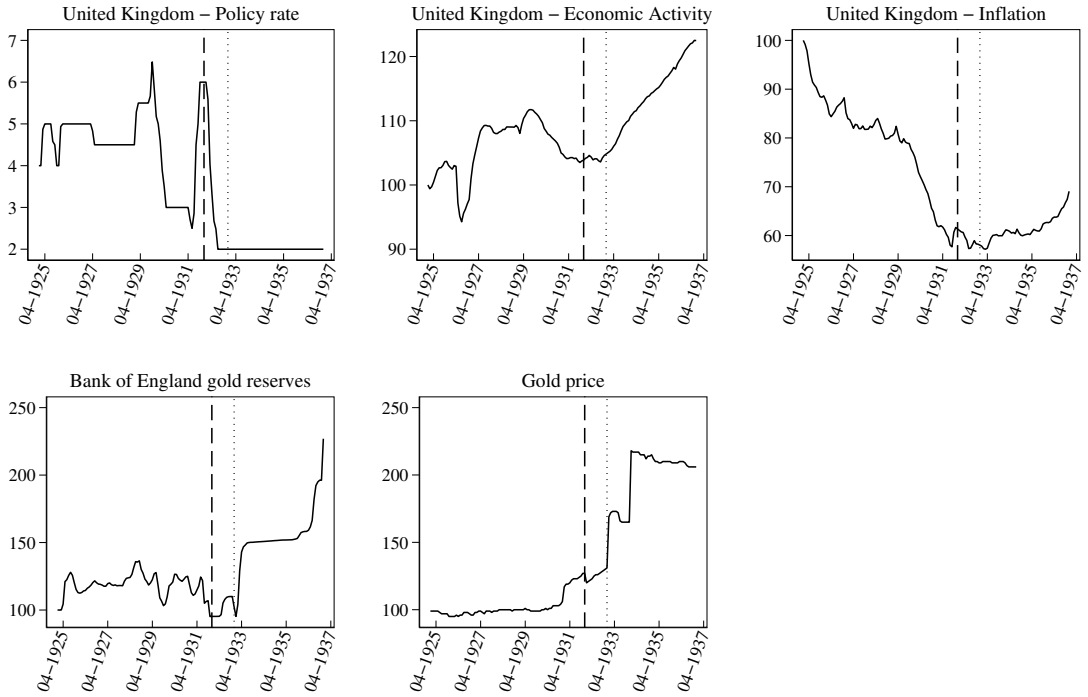
Note: Depicted is the gold coin and bullion reserves relative to the SARB's total liabilities and the total amount (in thousands of pounds). The vertical lines mark the end of the tenure of governor Clegg (dashed) and South Africa's exit from gold (dotted).
Source: Own calculation, using South African Reserve Bank (1921–1946).

Figure 6: Domestic factors, April 1925 – December 1936.



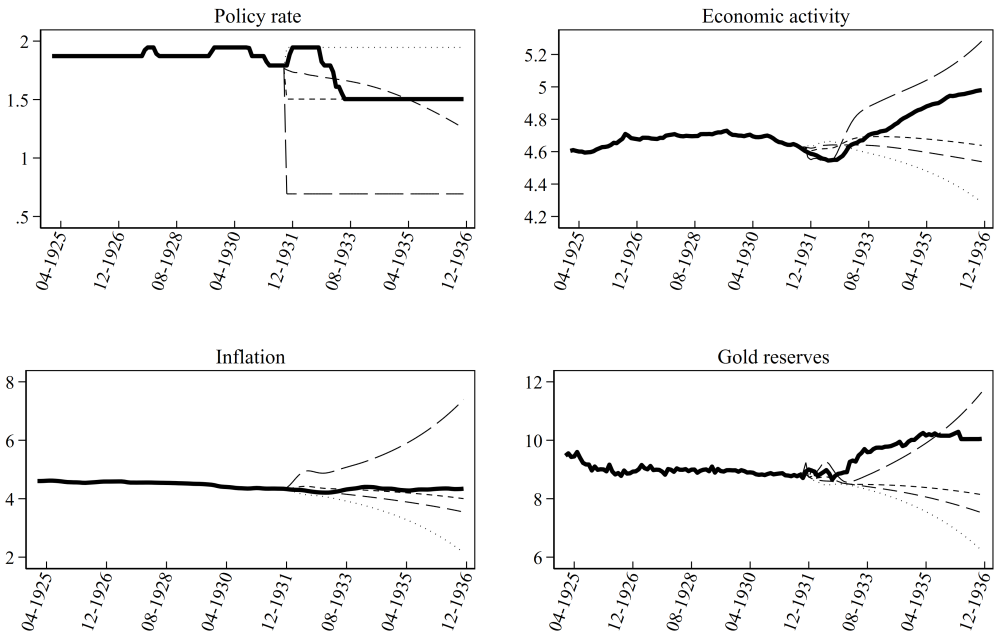
Note: Depicted are variables used for various specifications of the vector autoregressive models. The vertical lines mark the end of the tenure of governor Clegg (dashed) and South Africa's exit from gold (dotted).
Sources and definitions: Economic activity, depicted as an index (January 1925 =100), Albers (2018); Inflation, defined as whole sale price index (January 1925 =100), Albers (2018); Gold reserves, denoted in South African Pounds, South African Reserve Bank (1921–1946); Foreign assets, defined as foreign assets held by the SARB relative to total liabilities, South African Reserve Bank (1921–1946); Money supply, defined as notes in circulation, denoted in South African Pounds, South African Reserve Bank (1921–1946); Stock markets, defined as a combination of 6 largest mining stocks, denoted as an index (January 1923 = 100), Albers (2018); Unemployment, defined as unemployed Europeans (job seekers), Albers (2018); Policy rate, defined as the policy rate (ln(1+r)) set by the SARB, Federal Reserve Bulletin; Legal reserve ratio, South African Reserve Bank (1921–1946); Total exports, defined as total exports (excluding gold and coin) index (January 1925 =100), Albers (2018); Total imports, defined as total imports index (January 1925 =100), Albers (2018); Banker deposits, denoted as a fraction of the SARB's total liabilities, South African Reserve Bank (1921–1946).

Figure 7: Global factors, April 1925 – December 1936.



Note: Depicted are variables used for various specifications of the vector autoregressive models. The vertical lines mark the end of the tenure of governor Clegg (dashed) and South Africa's exit from gold (dotted).
Sources and definitions: For the United Kingdom the following sources were used: Policy rate, defined as the policy rate set by the Bank of England (ln(1+r)), sourced by Centre for Financial Stability using for UK using Hills et al. (2015); Economic activity, depicted as an index (January 1925 =100), Albers (2018); Inflation, defined as whole sale price index (January 1925 =100), Albers (2018); Bank of England gold reserves, denoted at an index (January 1925), Huang, H and Thomas, R (2016). Gold price, defined as an index of monthly inflation adjusted gold prices denoted in US dollars, MacroTrends LLC.

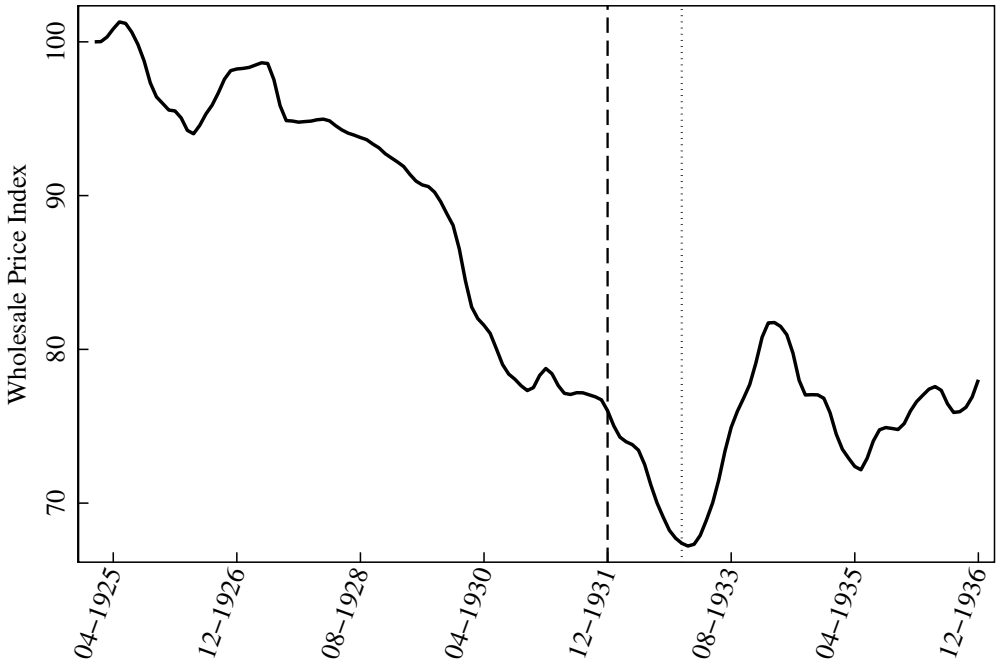
Figure 8: Simulations based on the baseline 11-Factor VAR for different policy paths



Note: Depicted are the simulations based the baseline VAR specification defined in equation 2. For our variables of interest we show the observed levels (solid line); Policy Path I: continued interest rate policy (dashed line), defined as dynamically reduced interest rates; Policy Path II: contractionary policy (dotted line), defined as an policy rate of 6% after August 1931; Policy Path III: accommodating policy (short dashed line) defined as a policy rate of 3.5% after August 1931; Policy Path IV: cheap money policy (long dashed line), defined as a policy rate of 2% after August 1931; 95% confidence intervals (shaded areas).
Sources and definitions: Economic activity, depicted as an index (January 1925 =100), Albers (2018); Inflation, defined as whole sale price index (January 1925 =100), Albers (2018); Gold reserves, denoted in South African Pounds, South African Reserve Bank (1921–1946). All factors have been log-linearized.

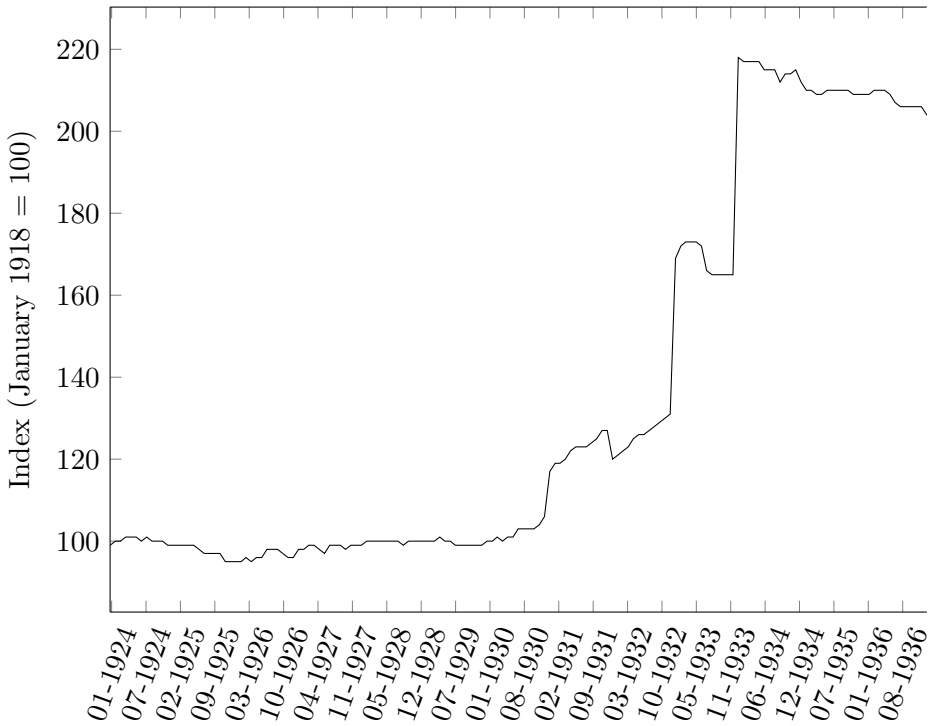
Appendix A (online only): Additional graphs

Figure A.1: South African wholesale prices, 1925-1936



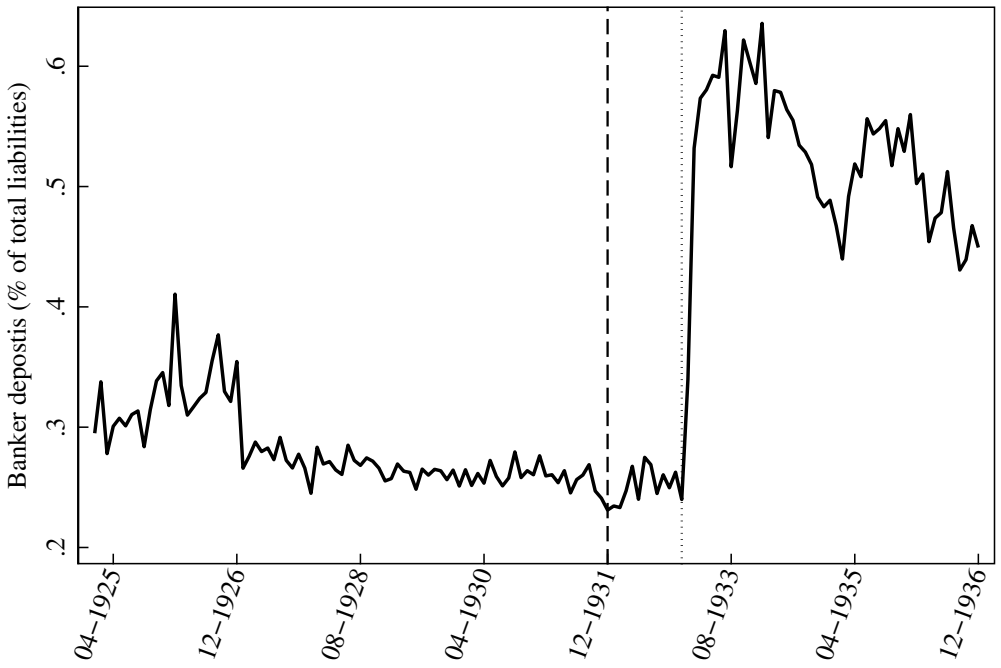
Note: Depicted is the index of seasonally adjusted wholesale prices (January 1925 = 100). The vertical lines mark the end of the tenure of governor Clegg (dashed) and South Africa's exit from gold (dotted).
Source: Albers (2018)

Figure A.2: Inflation adjusted world gold price, 1924 – 1936.



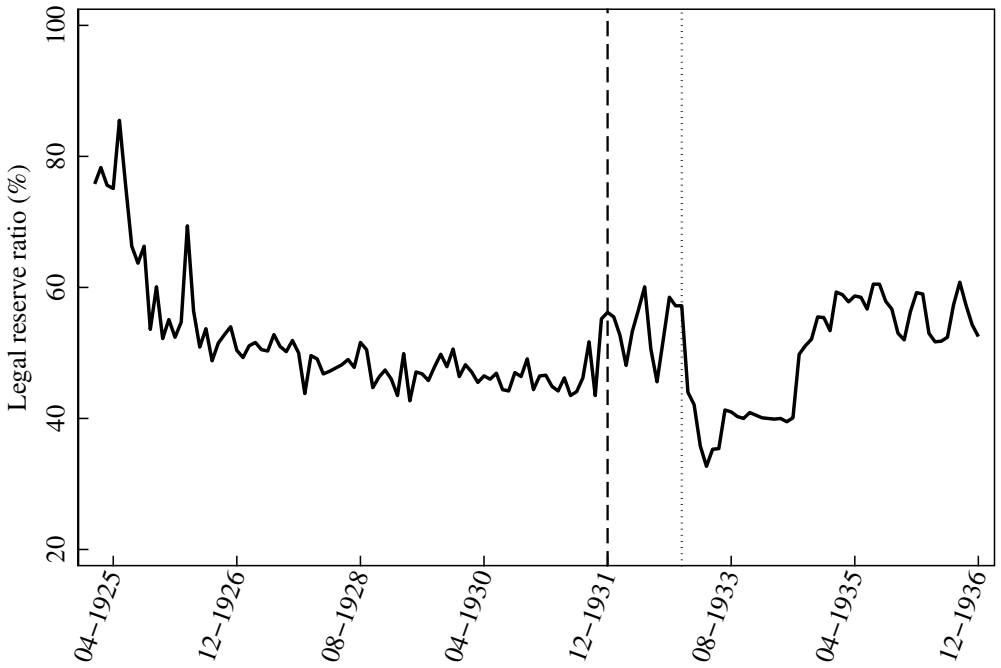
Note: Depicted is an index based on the price in USD.
Source: MacroTrends LLC

Figure A.3: Bankers deposits, April 1925 – December 1936.



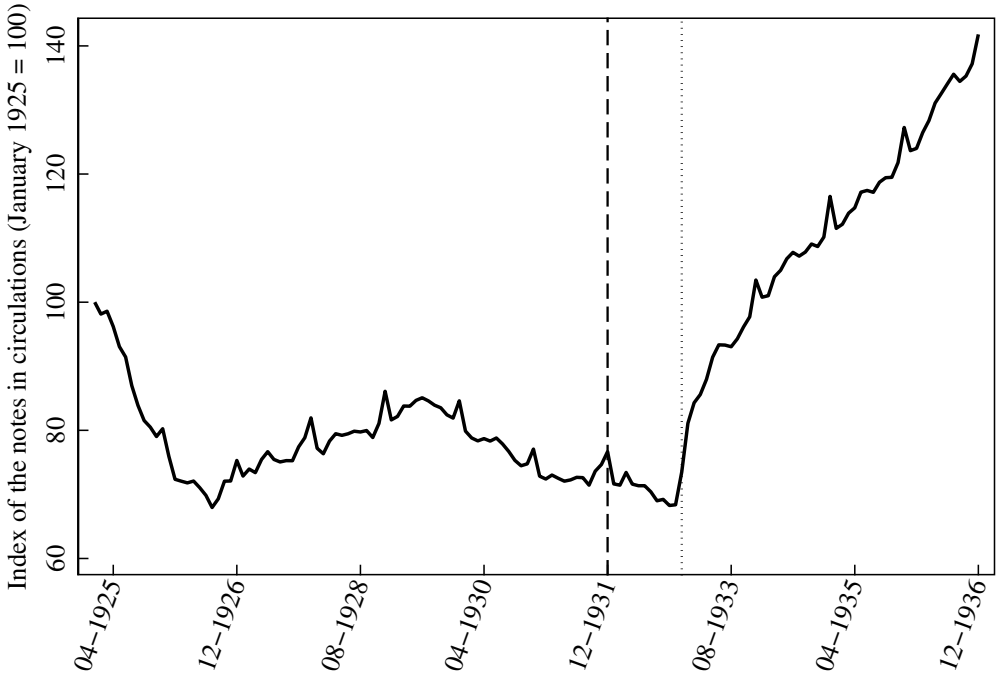
Note: Depicted is the banker's deposits relative to the SARB's total liabilities. The vertical lines mark the end of the tenure of governor Clegg (dashed) and South Africa's exit from gold (dotted).
Source: Own calculation, using South African Reserve Bank (1921–1946).

Figure A.4: Legal reserves held by the SARB, April 1925 – December 1936.



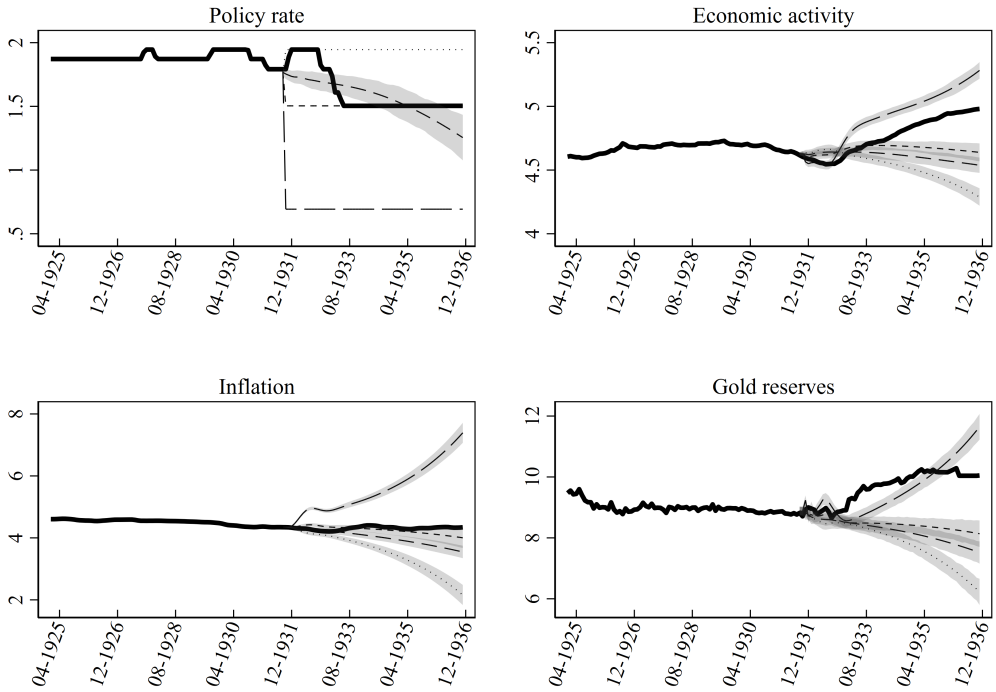
Note: Depicted is the legal reserve relative to the SARB's total liabilities. The vertical lines mark the end of the tenure of governor Clegg (dashed) and South Africa's exit from gold (dotted).
Source: Own calculation, using South African Reserve Bank (1921–1946).

Figure A.5: Money supply in South Africa, April 1925 – December 1936.



Note: Depicted is index of the notes in circulation. The vertical lines mark the end of the tenure of governor Clegg (dashed) and South Africa's exit from gold (dotted).
Source: Own calculation, using South African Reserve Bank (1921–1946).

Figure A.6: Simulations based on the baseline 11-Factor VAR for different policy paths



Note: Depicted are the simulations based the baseline VAR specification defined in equation 2. For our variables of interest we show the observed levels (solid line); Policy Path I: continued interest rate policy (dashed line), defined as dynamically reduced interest rates; Policy Path II: contractionary policy (dotted line), defined as an policy rate of 6% after August 1931; Policy Path III: accommodating policy (short dashed line) defined as a policy rate of 3.5% after August 1931; Policy Path IV: cheap money policy (long dashed line), defined as a policy rate of 2% after August 1931; 95% confidence intervals (shaded areas).
Sources and definitions: Economic activity, depicted as an index (January 1925 =100), Albers (2018); Inflation, defined as whole sale price index (January 1925 =100), Albers (2018); Gold reserves, denoted in South African Pounds, South African Reserve Bank (1921–1946). All factors have been log-linearized.