

INTEREST RATE DYNAMICS IN SOUTH AFRICA: EVALUATING THE SOUTH AFRICAN RESERVE BANK'S INFLATION TARGETING FRAMEWORK

Tagishi Mashego



Data Science For Economics and Finance 871

June 2025

Interest Rate Dynamics in South Africa: Evaluating the South African Reserve Bank's Inflation Targeting Framework

Abstract

The stagflation experience of the 1970s and 1980s exposed significant weaknesses in global financial systems, particularly in how monetary economics is used to achieve macroeconomic objectives. The experience played a pivotal role in central banks adopting the inflation-targeting framework as the primary focus of their mandate. Since 2000, the South African Reserve Bank has operated within a 3-6% inflation target band. Recently, the SARB has made clear its intention to move to a 3% point target, based on the view that lower inflation begets stronger economic growth. Using the Global Macro dataset, this paper begins with a brief assessment of the effectiveness of this framework, followed by an empirical analysis of how this framework has influenced the behaviour of short-term and long-term interest over time. The findings aim to give valuable insight as to whether the SARB should proceed with this proposed transition.

Keywords: Inflation targeting, Interest Rates

1. Introduction

The SARB has been given the constitutional mandate to protect the value of the local currency. To achieve this mandate, it formally adopted the inflation targeting framework in February 2000, with the explicit and overarching aim to keep inflation low and stable. The measure of inflation targeted at the time of adoption was the rate of change of the overall consumer price index, excluding the mortgage interest cost (CPIX) (Ellyne & Veller, 2011). This target changed to headline CPI inflation in 2009, following the alteration of the measurement of housing costs, which essentially collapsed CPIX and CPI into a single measure (Kahn, 2008).

Under this framework, the SARB aims to keep inflation between 3-6%, with a preference closer to the midpoint of this band. The success of this framework has been subject to much debate. According to Stiglitz (2008), inflation targeting is doomed to inevitably fail, at great cost to those countries that maintain it. This paper examines the validity of this statement by conducting an empirical analysis to evaluate the behaviour of short-term and long-term interest rates in South Africa since 2000, which, to a certain extent, serve as indicators of conditions and monetary policy credibility. Finally, this study gives insight into whether the SARB's pursuit of price stability over this period justifies the transition to a 3% point inflation target.

2. Literature Review

Globally, inflation targeting was first adopted in the 1990s, countries like New Zealand and Canada were among the first to implement this framework following the experience of stagflation, where a significant portion of central banks accepted higher inflation in the hope that it would boost economic growth, largely relying on the theoretical foundations of the Phillips curve. However, this resulted in high inflation and stagnant growth, exposing the shortcomings of this model, particularly the failure to account for expectations (Ellyne & Veller, 2011). This would be a turning point in monetary policy. Many countries, South Africa being amongst them, explored several other ways of conducting monetary policy, such as managing the exchange rates, which proved to be inferior to inflation targeting (Loewald, Steinbach & Rakgalakane, 2025). The late 1990s and early 2000s posted strong growth and more stable inflation rates, with evidence suggesting that countries that targeted inflation enjoyed, on average, 4.8% less inflation over the 1990-2004 period (International Monetary Fund, 2006).

Locally, there has been mixed reviews on the success of this framework, studies show that since 2000, the SARB has missed its inflation target in several years, not only prompting criticism from parties such as COSATU (Congress of South African Trade Unions) but raising doubts around how successful the regime has been in managing price stability, relative to the previous regime (Ellyne & Veller, 2011). Unfortunately, these doubts have economic consequences. If the SARB cannot credibly commit to staying within the band, then that increases the perceived economic risk of lending into the economy, especially given the dire state of our government. While short-term rates are closely tied to the central bank's policy rate (the repo rate), long-term rates are largely driven by inflation expectations and the corresponding risk premium associated with long-term investments. Both fundamentally depend on the credibility of the SARB's commitment to its inflation mandate.

The inflation target band in South Africa is set jointly by the SARB and the National Treasury. In the early years following the adoption of this framework the inflation target band oscillated between a range of 3-5% and 3-6%, since November 2003, it has remained constant at 3-6% (Ellyne & Veller, 2011). However, the empirical evidence suggests that this inflation range is an outlier relative to comparable economies. Among the 149 emerging market and developing economies with available data, South Africa's inflation rate is ranked 94th as of 2024 (Loewald *et al.*, 2025) . In response, the SARB has recently advocated for a transition to an inflation point target of 3%, scheduled for implementation in 2027. The SARB argues that this point target is high enough to avoid reaching the zero lower bound which still allows the SARB reduce the lending rate to stimulate the economy. Further, the target is considered high enough so that price frictions do not carry economic costs when interest rates adjust, which support a more effective monetary policy transmission (Loewald *et al.*, 2025). This paper adds to the literature by showing how interest rates have behaved since the 2000 , providing insight into the credibility of the SARB and give an idea of how economic agents might respond the transition to a lower inflation target.

3. Data Description

This study uses the Global Macro Dataset, an open-source and regularly updated database that compiles macroeconomic data for 243 countries. The dataset integrates data from reputable international organizations, such as the World Bank and the International Monetary Fund. The database covers global macroeconomic trends from the early days of data collection to projected estimates in 2030, with historical data compiled by economic historians to ensure accuracy over time (Müller, Xu, Lehibib & Chen, 2025).

This study makes use of the inflation-related data for South Africa from 2000-2024, to examine insightful trends over this period.

3.1. Analysis

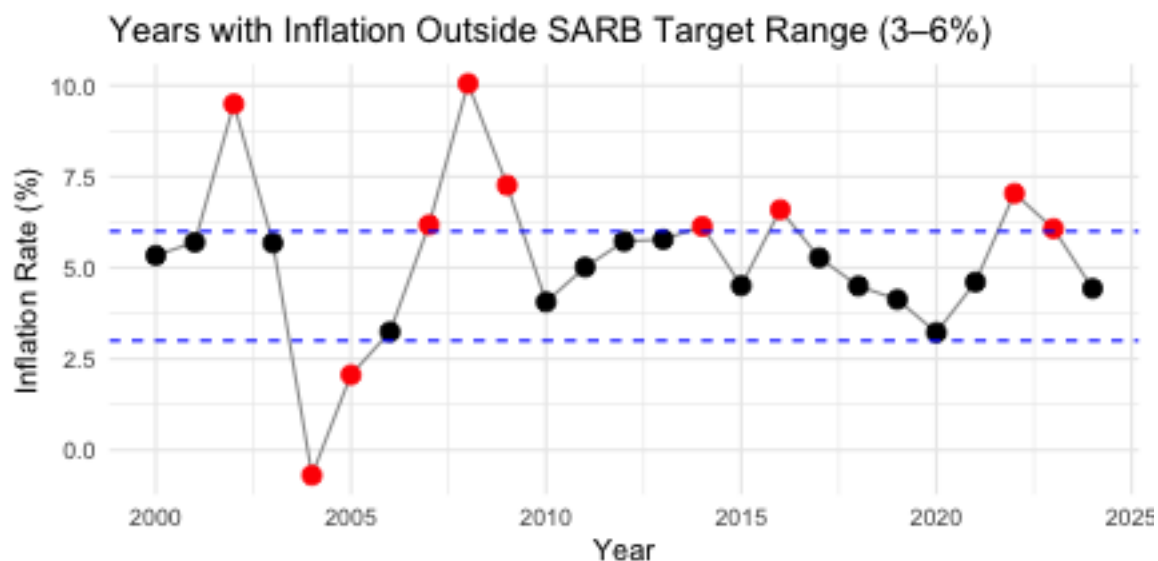


Figure 3.1: Inflation Rates Since 2000

Figure 3.1 provides support for some of the criticisms directed at the SARB. The SARB was unable to keep inflation within the inflation target band in 10 of the years since 2000. An outlier occurred in 2008 where the inflation rate reached 10.06%, it is key to note that this is before the Global Financial Crisis that would ensue, thus this performance cannot be attributed to a once in a lifetime event, instead oil price shocks and domestic price increases played a major role (Honohan & Orphanides, 2022), indicating that monetary policy failed to act aggressively enough to keep inflation stable and within range.

While consulting with additional other sources such as ([Statistics South Africa, 2004](#)) and ([Van der Merwe, 2004](#)), I have taken the -0.69% inflation rate in 2004 with a grain of salt because it does not fully align with the literature, however, the consensus is that inflation in this period was low and quite possibly lower than the 3% bound, and yet the South African economy saw strong growth, fueling belief that a lower inflation rate is the key to growth.

The fact that the inflation rate reached 10.6% in 2008 raised significant concerns about the effectiveness of the inflation targeting framework. Was it doomed to fail just as Stiglitz predicted? Since economic agents base their investment decisions on their expectations of the central bank's ability to achieve their commitment goal, the credibility of the SARB is crucial. The next diagram uncovers how interest rates have behaved following the 2008 peak, with the belief that these interest rates represent agents' evolving perceptions of the central bank's credibility.

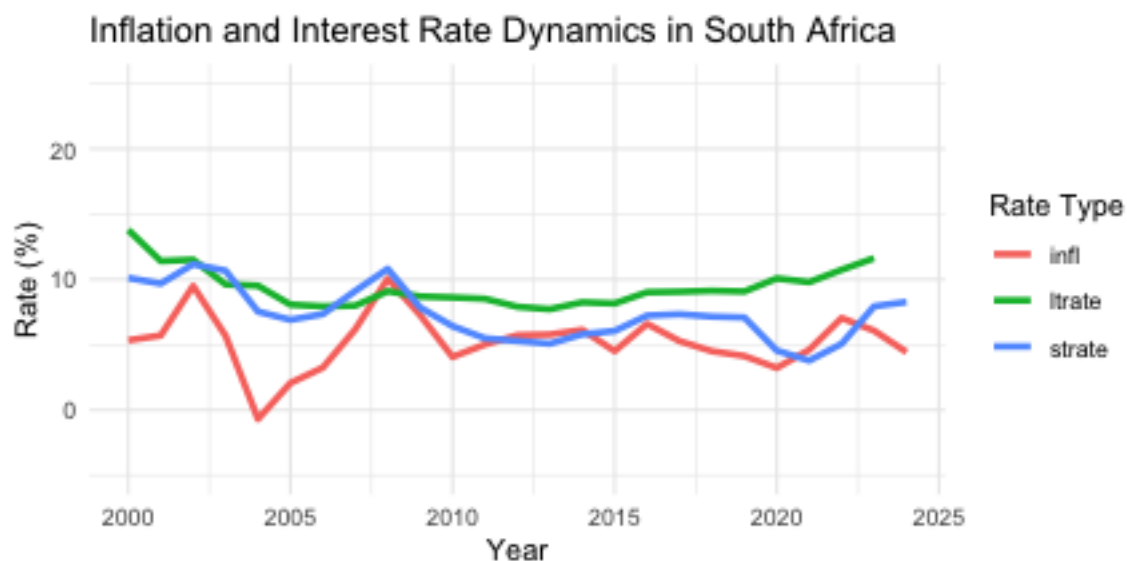


Figure 3.2: Behaviour of Market-Related Rates

Following the inflation rate peak in 2008 as shown in 3.2 and 5.2, long-term interest rates have consistently remained above inflation and short-term interest rates. This suggests investors demand higher returns for holding long-term investments, potentially reflecting concerns about the riskiness of investing in South Africa and doubts about the SARB's commitment to maintaining price stability.

The short-term interest rate has reacted ambiguously over this period. This is not surprising because short-term interest rates typically track the central bank rate (repo rate). Unless there is a complete loss of credibility of the central bank, this rate will remain closely linked to the central bank rate, as shown in below.

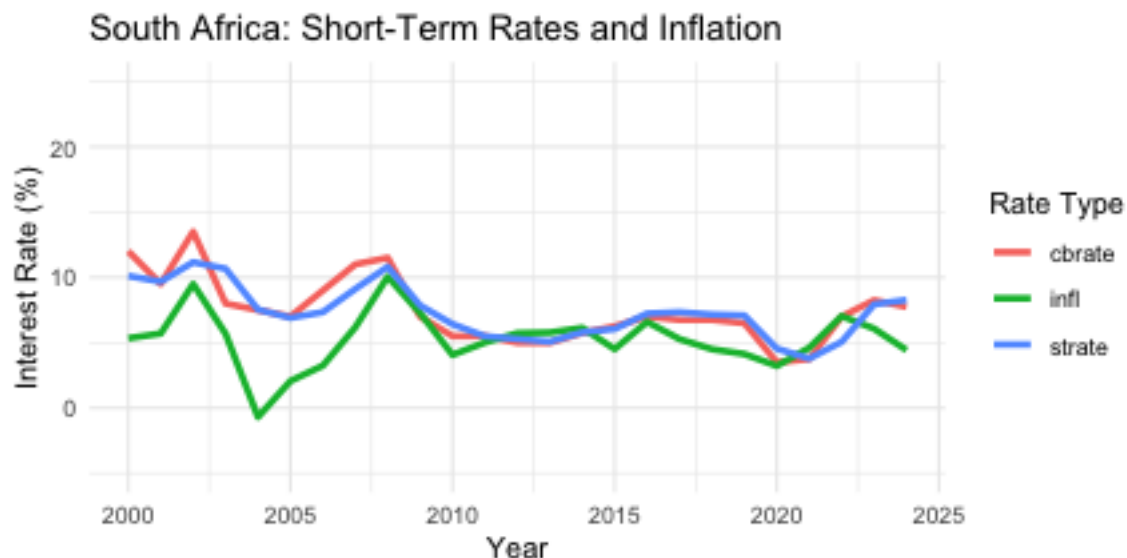


Figure 3.3: Behaviour of Short-Term Rates

Figure 3.3 introduces the central bank rate to this paper, commonly known as the repo rate in South Africa, which is the rate at which the central bank lends to commercial banks. This is the primary tool used by the SARB to influence short-term interest rates and inflation. The repo rate is forward-looking, meaning that it is set based on the central bank's expectation of future inflation. For instance, should the SARB expect inflation to rise in the next year, it may raise the repo rate now, even if current inflation is still within the target. The figure shows that it is common practice for the central bank to set the repo rate above inflation to maintain price stability. However, during the 2021-2022 period, inflation exceeded the repo rate, see 5.3. This deviation from normality can be largely attributed to the COVID-19 pandemic, where economic activity had been limited since 2020, and the SARB kept the repo rate relatively fixed over this period to help the economy recover.

4. Statistical modelling

To add rigour to the findings in Section 3 and to capture the movements that may be lost in visual illustrations, this section explores key econometric techniques to reinforce and validate the findings.

As a precursor to the statistical modelling in this section, the Autocorrelation function (ACF), Partial Autocorrelation function (PACF), and Augmented Dickey Fuller (ADF) tests are conducted to test for the stationarity of the variables. These diagnostic tests inform the selection of the appropriate models for the variables of interest.

4.1. Statistical Tests

4.1.1. Inflation

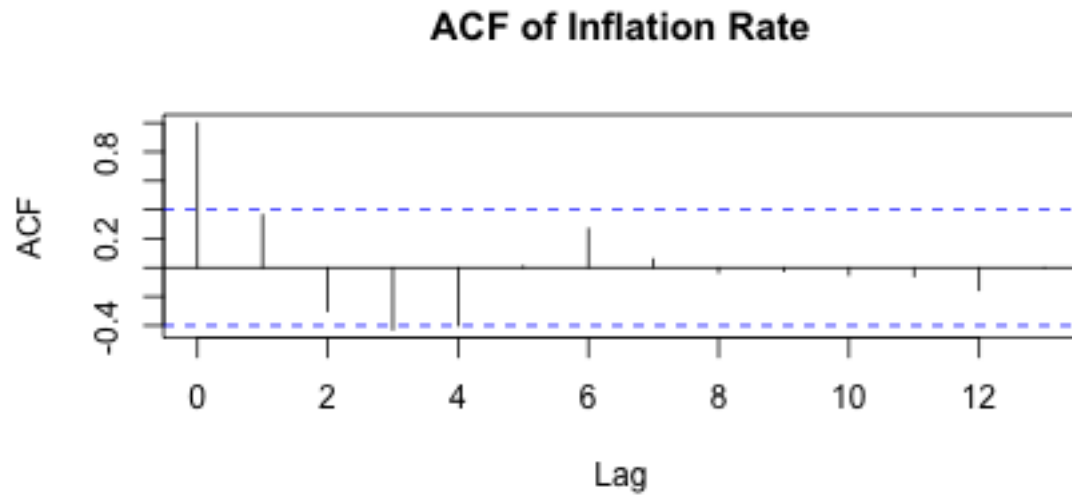


Figure 4.1: Autocorrelation Function of Inflation

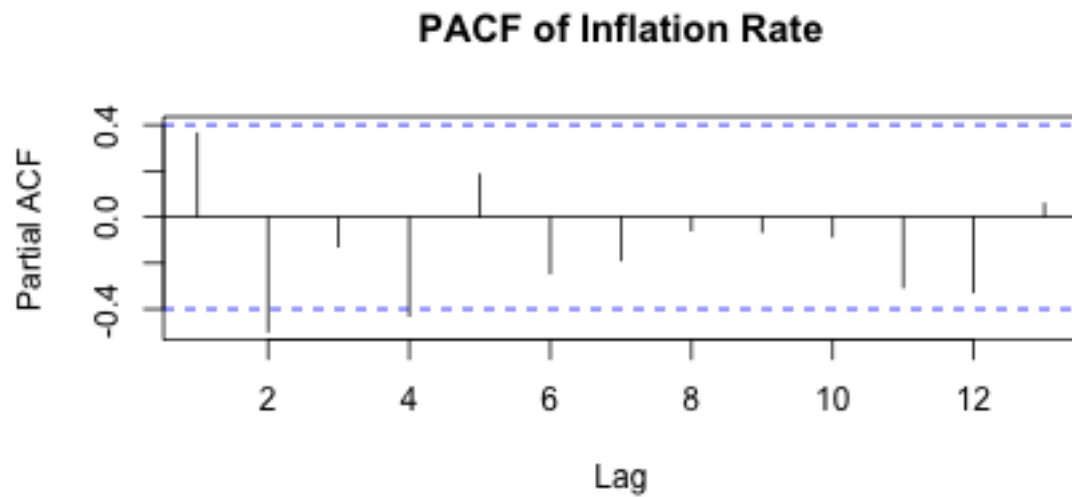


Figure 4.2: Partial Autocorrelation Function of Inflation

Figure 4.1 suggests a degree of inflation persistence, with significant autocorrelation at the first and second lags. Whereas, figure 4.2 suggests that there is a significant PACF at lag 1, this indicates that

the first lagged period has a direct effect on current inflation which usually means that a $AR(1)$ model would be sufficient, however based on the graph we cannot conclusively rule out the possibility of a statistically significant second lag.

However, results for the ADF test rejects the null hypothesis of a unit root, indicating that inflation is stationary. Based on this, $ARIMA(1,0,0)$ and $ARIMA(2,0,0)$ models were estimated and compared. $ARIMA(2,0,0)$ model yielded the lowest values for both the Akaike Information Criterion (AIC) and the Bayesian Information Criterion (BIC), indicating that an $AR(2)$ model is the most suitable for modeling inflation.

4.1.2. Short-Term Interest

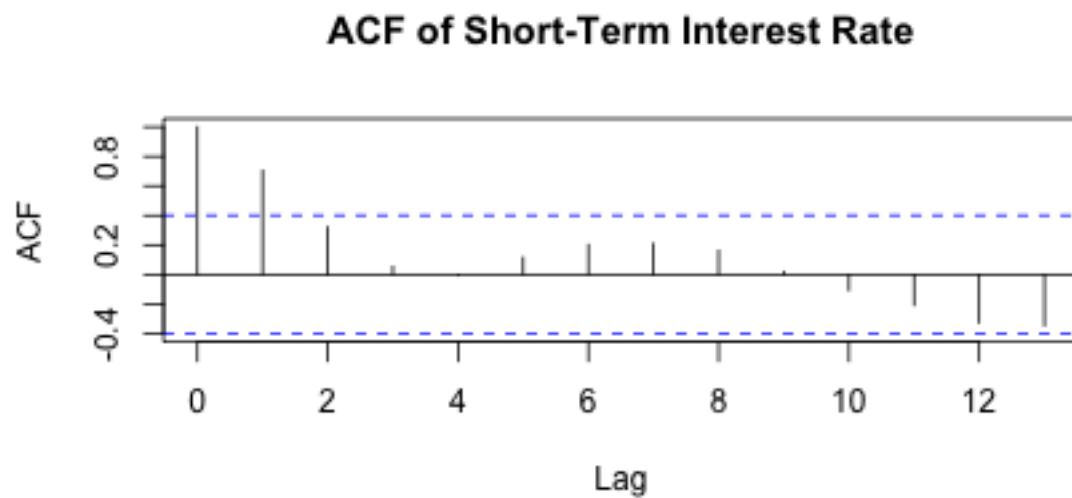


Figure 4.3: Autocorrelation Function of Short-Term Interest Rate

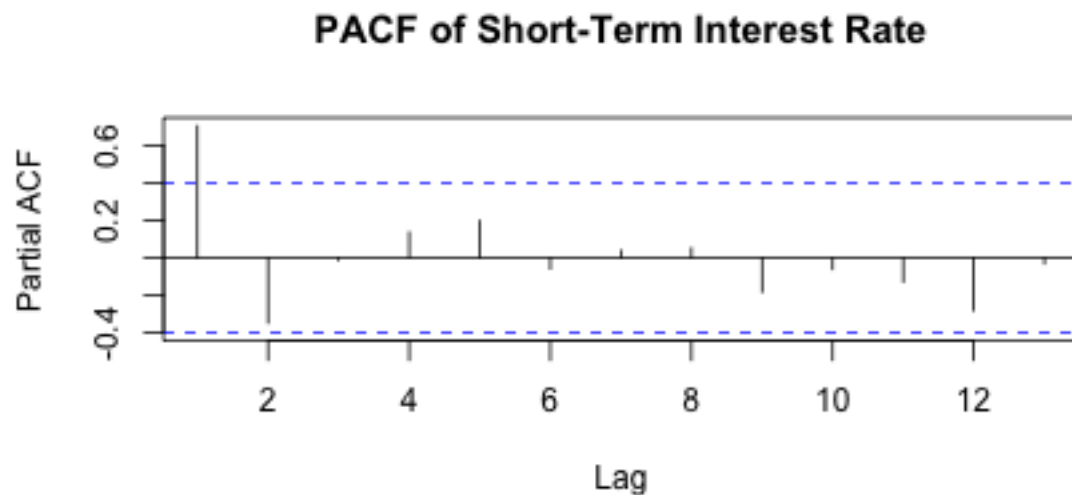


Figure 4.4: Partial Autocorrelation Function of Short-Term Interest Rate

Figure 4.3 suggests a degree of short-term interest persistence, with significant autocorrelation at the first, second and third lags. Whereas, figure 4.4 suggests that there is a significant PACF at lag 1, with an inconclusive second lag.

The results for the ADF test fails to reject the null hypothesis for a unit root, indicating that short-term interest is non-stationary. After taking the first difference this variable becomes stationary, indicating that is $I(1)$ and thus suitable for a VAR model.

4.1.3. Long-Term Interest

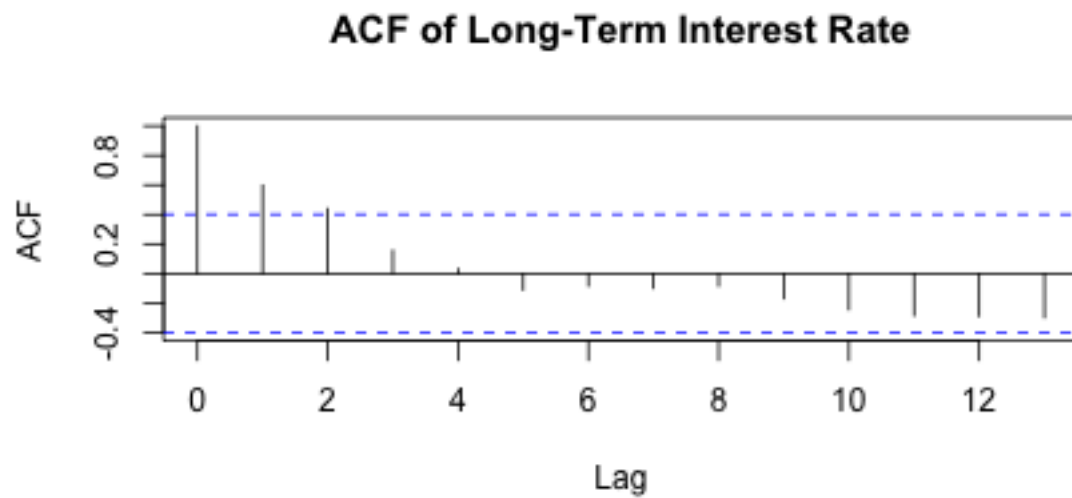


Figure 4.5: Autocorrelation Function of Long-Term Interest Rate

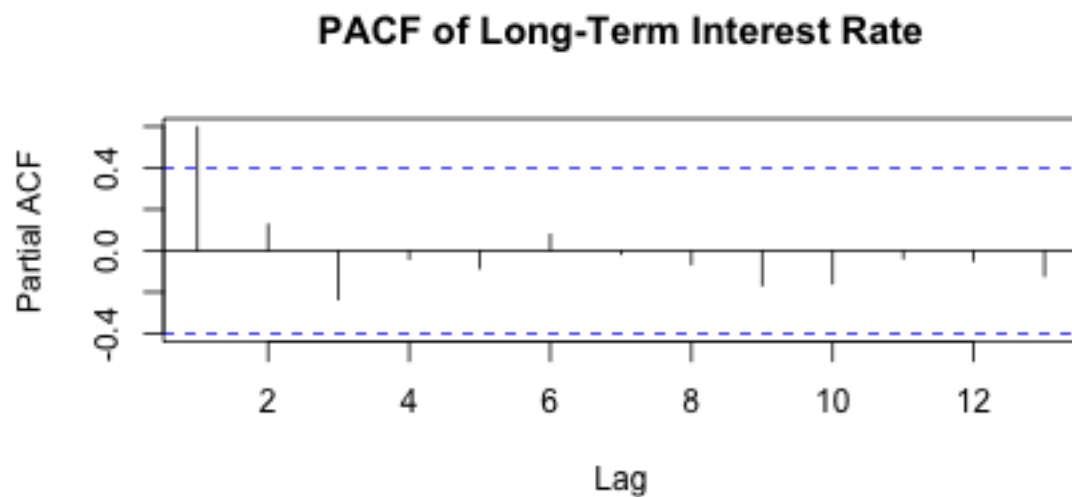


Figure 4.6: Partial Autocorrelation Function of Long-Term Interest Rate

Figure 4.5 suggests a degree of short-term interest persistence, with significant autocorrelation at the first, second, third and fourth lags. Whereas, figure 4.6 suggests that there is a significant PACF at the first and second lags, with an inconclusive third lag.

The results for the ADF test fails to reject the null hypothesis for a unit root, indicating that long-term interest is non-stationary. The long-term interest only became stationary after applying third differencing, indicating it is I(3) and unsuitable for a VAR model.

4.2. Modelling

The Autoregressive Model of order 2 for inflation is :

$$\pi_t = c + \phi_1\pi_{t-1} + \phi_2\pi_{t-2} + \varepsilon_t \quad (4.1)$$

Term	Estimate	Std_Error
ar1	0.52	0.17
ar2	-0.47	0.17
intercept	5.25	0.38

Table 4.1: AR(2) Model Coefficients for Inflation

Table 4.1 shows that a 1 unit increase in inflation in the first lag increases current inflation by 0.524 units and that 1 unit increase in inflation in the second lag decreases current inflation by 0.47 units. This suggests that inflation has short-term persistence but ultimately reverts toward its long-run mean, which is about 5.25%.

The following Vector Autoregressive Model (VAR(6)) was used to examine the dynamic relationship between inflation and the short-term interest rate:

$$\begin{bmatrix} \pi_t \\ r_t \end{bmatrix} = \mathbf{c} + \sum_{i=1}^6 \Phi_i \begin{bmatrix} \pi_{t-i} \\ r_{t-i} \end{bmatrix} + \begin{bmatrix} \varepsilon_{\pi,t} \\ \varepsilon_{r,t} \end{bmatrix} \quad (4.2)$$

Term	Estimate	Std_Error	p_value
inflation.l1	-0.03	0.51	0.95
short_rate.l1	0.47	0.47	0.32
inflation.l2	0.03	0.50	0.95
short_rate.l2	-0.46	0.42	0.29
inflation.l3	0.24	0.33	0.46
short_rate.l3	-0.67	0.46	0.17
inflation.l4	-0.73	0.33	0.10
short_rate.l4	0.43	0.62	0.50
inflation.l5	0.70	0.43	0.14
short_rate.l5	-0.32	0.63	0.61
inflation.l6	-0.23	0.42	0.60
short_rate.l6	-0.34	0.39	0.39
const	-0.32	5.03	0.95

Table 4.2: VAR(6) Model Coefficient for the Short-Term Interest Rate

The results shown in table 4.2 indicate that none of the coefficients are statistically significant at the 5% level. However, inflation at lag 4 shows marginal significance at the 10% level. Overall, these results suggest no evidence of statistically significant interdependence between inflation and the short-term interest rate within a six-period lag structure.

5. Conclusion

This paper assesses the credibility of the SARB under the inflation-targeting regime to evaluate whether a transition to a lower inflation target is both justified and likely to be perceived as credible by economic agents. By analysing the behaviour of short-term and long-term interest rates, the findings show that even though the SARB has not always kept inflation within the target range, the empirical models show that the SARB solves inflation with a bit of a lag. Thus, it has maintained the trust the markets and economic agents. Further, it is important to note that while there have been deviations in the behaviour of interest rates, the findings show that these fluctuations are a result of shocks exogenous to the SARB rather than policy inconsistency. This implies that instances where the inflation target was barely missed may reflect lagged adjustments and external shocks rather than a loss of credibility.

Governor Lesetja Kganyago, has on multiple occasions made the remark that a highly inflationary economy is one that is “ anti-poor”. A lower inflation has the potential to increase productive investment, as a result of lost economic uncertainty. The spillover of this creates an environment that is conducive for economic growth and job creation. This paper provides valuable insight into how the interest rate dynamics reflect institutional credibility of the SARB, the findings in this paper therefore support the argument that a transition to a 3% point target is feasible and may yield desirable outcomes for the South African economy.

References

- Ellyne, M. & Veller, C. 2011. What is the SARB's inflation targeting policy, and is it appropriate?
- Honohan, P. & Orphanides, A. 2022. *Monetary policy in south africa, 2007-21*. (2022/29). WIDER Working Paper.
- International Monetary Fund. 2006. *Inflation targeting and the IMF*. International Monetary Fund.
- Kahn, B. 2008. Challenges of inflation targeting for emerging-market economies: The south african case. *Challenges for Monetary Policy-makers in Emerging Markets*.
- Loewald, C., Steinbach, R. & Rakgalakane, J. 2025. *Less risk and more reward revising south africa's inflation target*.
- Müller, K., Xu, C., Lehibib, M. & Chen, Z. 2025. The global macro database: A new international macroeconomic dataset.
- Statistics South Africa. 2004. *Consumer price index (CPI): Headline, november 2004*. Statistics South Africa.
- Stiglitz, J.E. 2008. The failure of inflation targeting. *Project Syndicate*. 13.
- Van der Merwe, E.J. 2004. *Inflation targeting in south africa*. South African Reserve Bank.

Appendix

Variable	Description
infl	Inflation rate (%)
strate	Short-term interest rate (%)
ltrate	Long-term interest rate (%)
cbrate	Central bank rate (repo rate, %)

Table 5.1: Variable Descriptions

Year	Inflation Rate (%)
2000	5.34
2001	5.70
2002	9.49
2003	5.68
2004	-0.69
2005	2.06
2006	3.24
2007	6.18
2008	10.06
2009	7.26
2010	4.06
2011	5.02
2012	5.72
2013	5.78
2014	6.14
2015	4.51
2016	6.59
2017	5.27
2018	4.50
2019	4.13
2020	3.22
2021	4.61
2022	7.04
2023	6.07
2024	4.43

Table 5.2: Annual Inflation Rate in South Africa (2000–2024)

Year	Inflation Rate (%)	Repo Rate (%)
2010	4.06	5.50
2011	5.02	5.50
2012	5.72	5.00
2013	5.78	5.00
2014	6.14	5.75
2015	4.51	6.25
2016	6.59	7.00
2017	5.27	6.75
2018	4.50	6.75
2019	4.13	6.50
2020	3.22	3.50
2021	4.61	3.75
2022	7.04	7.00
2023	6.07	8.25
2024	4.43	7.75

Table 5.3: Annual Inflation and Repo Rate in South Africa (2010–2024)