

Volume 43, Issue 3

Changing the inflation target in emerging markets: the reward of reducing risk

Ekaterina Pirozhkova

University of Pretoria and South African Reserve Bank

Nicola Viegi

University of Pretoria

Abstract

This paper analyses the effects of change by the South African Reserve Bank (SARB) in its preferred definition of inflation target in July 2017 from a range to a point target. We estimate the implications of this shift by means of a Bayesian vector autoregression-based counterfactual exercise. Our results show that the inflation target change allowed to reduce prices and inflation expectations without negative effects on real output and employment. This was achieved via the reduction in the South African - US long-term interest rate spread (i.e. by a reduction in risk) and by a subsequent positive effect on asset prices.

Views expressed in this paper are only the authors' own and should not be regarded as views of the South African Reserve Bank.

Citation: Ekaterina Pirozhkova and Nicola Viegi, (2023) "Changing the inflation target in emerging markets: the reward of reducing risk", *Economics Bulletin*, Volume 43, Issue 3, pages 1453-1457

Contact: Ekaterina Pirozhkova - ekaterina.pirozhkova01@gmail.com, Nicola Viegi - nicola.viegi@up.ac.za.

Submitted: July 24, 2023. **Published:** September 30, 2023.

1. Introduction

In mid-2017 the South African Reserve Bank (SARB) has announced a change in its preferred inflation target definition. Before that the SARB had been targeting inflation within a 3-to-6 percent range. In the July 2017 MPC statement, the Bank revealed that going forward it would be targeting the mid-point of the range - 4.5 percent¹. We utilize this episode to study macroeconomic effects of the change in inflation target.

The shift made by the SARB could be seen as a de-facto inflation target reduction, aimed at moving inflation expectations from the upper-bound to the middle of target range. Surveyed inflation expectations and break-even rates¹ implied inflation expectations hovered around the upper-bound of the 3-to-6 percent range until mid-2017 and were on a downward trend after that, suggesting that prior to mid-2017 agents effectively perceived the inflation target set near the upper bound of the range.

Reduction of the inflation target can have significant long-term benefits - better predictability of returns on investment and savings, and clearer relative price signals. On the other hand, its potential short-run costs, in terms of sacrifice ratio of higher unemployment to achieve a lower long-term inflation, make the change of inflation target a contentious issue (Belke and Boing, 2014).

In the literature, evaluation of effects of inflation target change is mostly done using structural models.² Empirical evidence is scarce and focuses on estimating the response of inflation expectations to inflation target shifts (Blot et al., 2021). We complement the empirical literature by extending the scope of effects analysed, what is enabled by the use of a large-scale vector autoregression (VAR) setup for tracing macroeconomic and financial variables' responses to a one-off change in the inflation target.

In case of South Africa, a significant degree of uncertainty is associated with existing estimates of the inflation target change effects.³ In this context, our work aims to refine the existing empirical evidence by using the approach that is data-driven, i.e. relying on historical correlations, as opposed to imposing a particular model structure, and employing latest methodological tools suitable for this exercise (Banbura et al., 2015). We focus on the 2017Q3 episode and estimate the effects of this event by means of a Bayesian VAR-based counterfactual exercise. We compare the realized macroeconomic dynamics in the period post-transition with the pattern of business cycle fluctuations formed during the period, when the 3-to-6 percent inflation target range was adopted; we follow Caruso et al. (2019) in implementing this. A wide set of real, nominal and financial variables included in the model allows to incorporate the effect

¹ The reason for the change in policy is explained by Governor Kganyago as follows “We would prefer to see ... expectations anchored at the midpoint of the target band. Inflation at this level would bring our inflation rate closer to, though still remaining somewhat above, those of our peer emerging-market economies. It would also give us more headroom within the target range to absorb adverse supply-side shocks without breaching the upper end of the range. Getting inflation expectations to converge on the midpoint of the target band would help to ensure that inflation actually gravitates towards that level. Yet inflation expectations are unlikely to moderate much, unless price-setters believe that lower inflation can be sustained. This requires improving monetary policy credibility by bringing inflation closer to the 4.5% midpoint of the inflation target range” (Kganyago, 2017, p.5). While the numerical target is decided by the government, the SARB can influence the inflation targeting framework by giving an operational interpretation of the target that emphasizes the middle of the range.

² See, among others, Dorich et al. (2018).

³ See, for example, Loewald et al. (2022) and Kabundi et al. (2016).

of financial channels on business cycles. Importantly, we account for the expectations channel of monetary policy by introducing the survey-based inflation expectations variable in our framework.⁴

2. Conditional forecast view

Our approach to estimate effects of transition to a point inflation target is to compare the actual macroeconomic dynamics post-transition with the business cycle fluctuations of previous decades. In implementing this approach we follow Caruso et al. (2019) that analyse characteristics of the Euro Area crisis in 2009-2013 by contrasting aggregate macroeconomic dynamics during the crisis with counterfactual history. In our study counterfactual history is generated as a Bayesian VAR forecast based on variables' historical correlations with the macroeconomy over 2004Q1-2017Q2 - period when inflation target range was adopted. Acknowledging the importance of a point in Leeper (1991) - that both fiscal and monetary policies are to be accounted for to explain macro variables, - and to capture the effect of shocks that drove macroeconomic policies post-2017Q3, we condition the forecast on realized path of monetary and fiscal policy variables - short-term interest rate and government expenditures, respectively.⁵ As a result, our conditional forecast specifies the expected macroeconomic outcome, should a range inflation target continue be adopted post-2017Q3.

Bayesian shrinkage is used to address the dimensionality problem of the VAR with a large number of predictors (Banbura et al., 2010). Our quarterly frequency dataset consists of 27 aggregate time series - real output and its components, unemployment, monetary and fiscal policy variables, consumer and asset prices, financial and credit variables for the period 2004Q1-2019Q4.⁶ We follow Caruso et al. (2019) in addressing challenges associated with incorporating a broad set of variables in the VAR. Minnesota and sum-of-coefficients priors are used in empirical specification (Litterman, 1986), with priors' strength set optimally according to Giannone et al. (2015).

3. Results

In this section the effects of inflation target change are discussed by comparing the realized path of macroeconomic and financial variables with their BVAR-based conditional forecast. Conditional forecast indicates what would be expected, if the SARB had continued adopting range inflation target range post-2017Q3. Deviation of the realized path from the forecast shows the contribution of the transition to a point inflation target in 2017Q3.

Figures 1 and 2 show actual variables' path with their conditional forecast summarized as median, 68% and 90% coverage intervals. Several of our results are noteworthy.

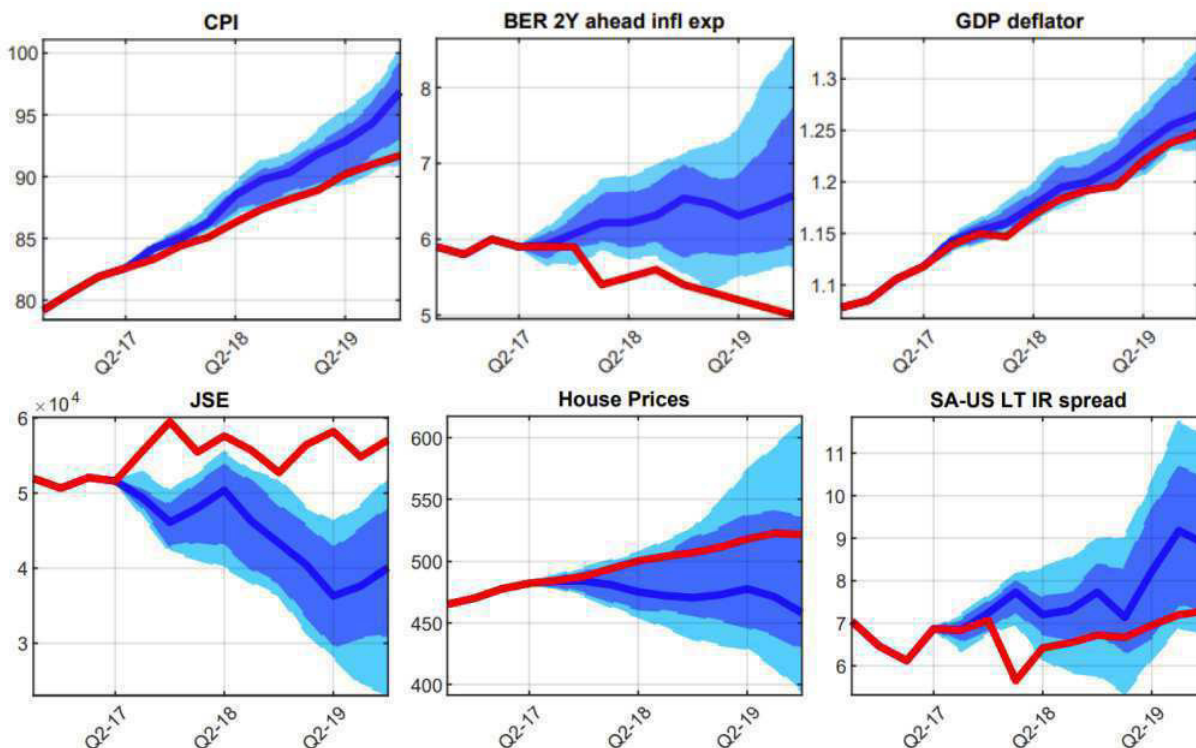
First, consumer prices drop as a result of inflation target change, as expected. The realized path of CPI is below the lower bound of 68% coverage interval implied by the model (see figure 1, 'CPI' panel), meaning that the inflation target shift has contributed to reducing prices.

⁴ Botha et al. (2020) show that inflation expectations play a key role in explaining inflation in the case of South Africa.

⁵ Government spending is used as an effective fiscal policy variable, because government revenues are practically not used to manipulate fiscal policy stance in South Africa.

⁶ Details of the dataset and the model can be found in the technical appendix.

Figure 1. Conditional forecast – consumer and asset prices.



Note: Actual data (red) and counterfactual variables' path. Blue lines are the medians of the conditional forecast (see section 2 for details), plotted with 68% (dark blue) and 90% (light blue) coverage intervals. CPI is an index, BER inflation expectations are in annual rates, GDP deflator is a ratio. JSE and House Prices are indices, SA-US long-term interest rate spread is in annual rates.

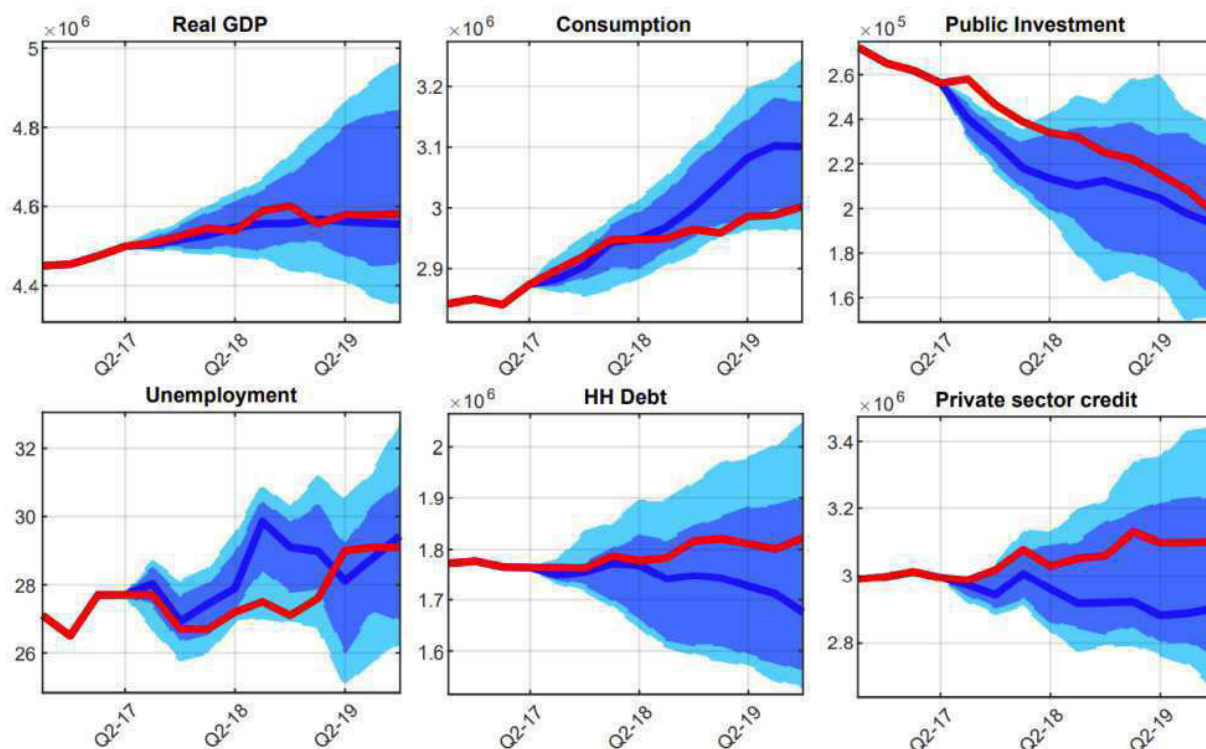
Crucially, the survey-based inflation expectations have dropped significantly post-2017Q3 (figure 1, 'BER 2Y ahead infl exp' panel). The observed path of BER 2Y ahead inflation expectations lies below 90% model-implied coverage band, meaning that the realized levels of inflation expectations were exceptionally low according to the model. Thus, given the actual path of monetary and fiscal policy variables, there has been an unprecedented reduction in prices and inflation expectations since 2017Q3. This evidence points to a strong expectation channel of the central bank communication and high credibility of the SARB consistent with previous findings (Botha et al., 2020).

Second, change of inflation target contributed to increased asset prices. Stock market has recorded anomalous peaks post-2017Q3 contrasting with conditional expectations consistent with lower expected inflationary risk and reduced uncertainty (figure 1, 'JSE' panel). Real house prices have also gone up as a result of inflation target shift, staying close to the upper bound of 68% model-implied coverage interval (figure 1, 'House prices' panel). The South Africa-US long-term interest rate spread has fallen compared to its forecasted level, reflecting reduced inflation risk at a long horizon post-2017 and pointing to an expansionary effect of disinflation via reduction in the country risk premium (figure 1, 'SA-US LT IR' panel). The connection between expected inflation and asset prices is well established in the literature either as a change in the expected real rate of return of assets (Stulz, 1986) or as a build-up of financial imbalances driven by credit growth (Borio and Lowe 2002). In our context, the reduction of the risk

premium reinforces these channels by reducing the risk of financial positions and increasing the expected real rate of return of assets.

Third, no negative effect on aggregate demand is detected as a result of the inflation target change - actual real GDP path is in line or above the median of conditional forecast following transition to the 4.5 percent inflation target in 2017Q3 (figure 2, 'Real GDP' panel). Unemployment has not been affected by this transition negatively as well - if anything, unemployment has fallen post-2017Q3 and has returned to its conditionally expected levels after (figure 2, 'Unemployment' panel). Consumption has fallen post-2017Q3, possibly reflecting households' preference to increase borrowing - household debt and private sector credit have increased over this period in contrast to the median conditional forecast (figure 2, 'Consumption', 'HH debt' and 'Private sector credit' panels). This is consistent with lower expected inflation that reduces uncertainty about the cost of credit going forward. Public investments have been on the rise over 2017Q3-2018Q4 as compared with the forecast with possible crowding out effects (figure 2, 'Public Investment' panel).

Figure 2. Conditional forecast – aggregate demand and its components



Note: Actual data (red) and counterfactual variables' path. Blue lines are the medians of the conditional forecast (see section 2 for details), plotted with 68% (dark blue) and 90% (light blue) coverage intervals. Unemployment is in percent, other variables are in millions of Rands, with 2015 as a base year.

4. Conclusion

Using the conditional forecasting techniques, we show that the SARB's inflation target change in 2017 had no negative real effects. Credible commitment to the new target was rapidly

absorbed by the private sector expectations inducing a reduction in the long-term risk premium with the subsequent positive effect on asset prices and private sector credit, thereby supporting aggregate demand.

References

- Banbura, M., D. Giannone and L. Reichlin (2010) “Large Bayesian vector auto regressions,” *Journal of Applied Econometrics* **25** (1), 71–92.
- Banbura, M., D. Giannone, and M. Lenza (2015) “Conditional forecasts and scenario analysis with vector autoregressions for large cross-sections,” *International Journal of Forecasting* **31** (3), 739–756.
- Belke, A., and T. Boing (2014) “Sacrifice Ratios for Euro Area Countries: New Evidence on the Costs of Price Stability,” *Australian Economic Review* **47** (4), 455–471.
- Blot, C., C. Bozou, and J. Creel (2021) “A welcome revision rather than a revolution,” European Parliament Monetary Policy Dialogue Papers, PE 695.475.
- Borio, C., and P. Lowe (2002) “Asset prices, financial and monetary stability: exploring the nexus,” BIS Working Papers 114, Bank for International Settlements.
- Botha, B., L. Kuhn, and D. Steenkamp (2020) “Is the Phillips curve framework still useful for understanding inflation dynamics in South Africa,” South African Reserve Bank Working Paper WP/20/07.
- Caruso, A., L. Reichlin, and G. Ricco (2019) “Financial and fiscal interaction in the Euro Area crisis: This time was different,” *European Economic Review* **119** (C), 333–355.
- Dorich, J., N. Labelle, V. Lepetyuk, and Mendes (2018) “Could a Higher Inflation Target Enhance Macroeconomic Stability?” BIS Working Paper 720.
- Giannone, D., M. Lenza, and G. E. Primiceri (2015) “Prior Selection for Vector Autoregressions,” *The Review of Economics and Statistics* **2** (97), 436–451.
- Kabundi, A., E. Schaling, and M. Some (2016) “Estimating a Time-Varying Phillips Curve for South Africa,” South African Reserve Bank Working Paper WP/16/05.
- Kganyago, L. (2017) “Address at the 5th SA Tomorrow Investor Conference”, New York, 9 November 2017.
- Leeper, E. M. (1991) “Equilibria under ‘active’ and ‘passive’ monetary and fiscal policies,” *Journal of Monetary Economics* **27** (1), 129–147.
- Litterman, R. B. (1986) “Forecasting with Bayesian Vector Autoregressions-Five Years of Experience,” *Journal of Business & Economic Statistics* **4** (1), 25–38.
- Loewald, C., K. Makrelov, and E. Pirozhkova (2022) “The short-term costs of reducing trend inflation in South Africa,” South African Reserve Bank Working Paper WP/22/08.
- Stulz, R. M. (1986) “Asset pricing and expected inflation”, *The Journal of Finance* **41**(1), 209-223.