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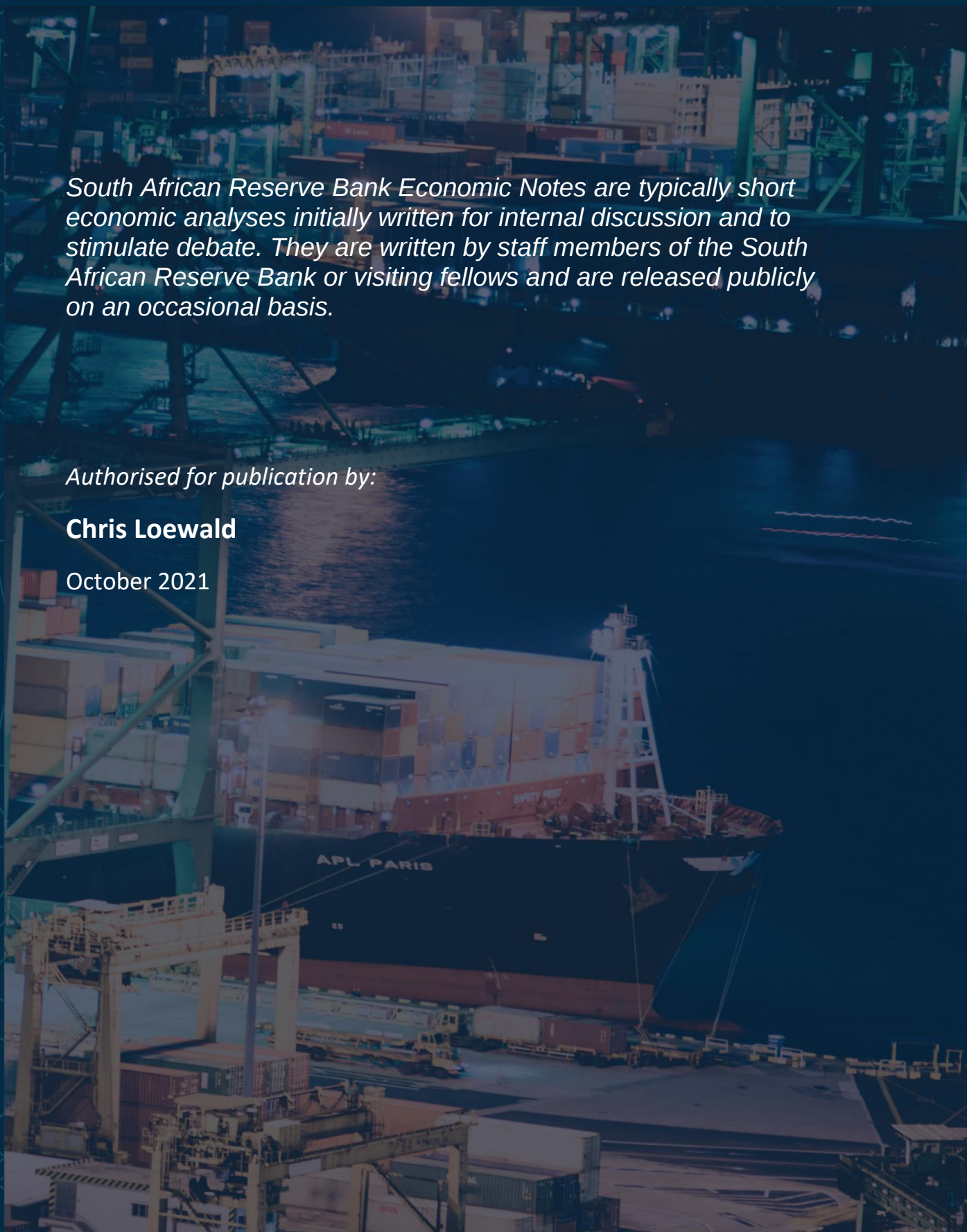
A purposeful journey

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Authorised for publication by:

Chris Loewald

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Table of Contents

Contents

1. Why the pandemic is lowering medical insurance inflation
Kathryn Bankart, Elise Green, Dineo Lekgeu, Koketso Mano and Mpho Rapapali
2. Has publication of a repo path provided guidance?
Luchelle Soobyah and Daan Steenkamp
3. A Truck-o-meter for South Africa
Byron Botha, Nqaba Duma and Daan Steenkamp
4. Inflation in the time of Covid-19: (II) the liquidity surge
Jean-Francois Mercier
5. Drivers of medium term growth
Josina Solomons, Kerschyl Singh and Jean-Francois Mercier

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Has publication of a repo path provided guidance?

Luchelle Soobyah and Daan Steenkamp

Abstract

Since September 2017, the SARB has published a projection of the policy rate (repo) alongside its Monetary Policy statements. We construct measures of monetary policy surprises based on various measures of market expectations of the future level of the policy rate in South Africa. We find that there have been fewer meaningful monetary policy surprises since the publication of the projected policy path. We then test whether this communication has improved how the market incorporates expectations of the policy rate into future interest rates. We find that communication of the SARB projections has improved the market's response to this information. However, policy guidance through the publication of the policy path still plays a relatively limited role in guiding market pricing. We argue there is still room for improvement in the SARB's monetary policy communication by better clarifying the conditionalities associated with the SARB's projections of its future policy path.

1 Introduction¹

Measuring market expectations of the policy rate is important for a central bank for two reasons. The first is because financial markets tend to react to unanticipated policy actions, with implications for monetary conditions in the economy. More simply the central bank wants to avoid unnecessary market volatility which occurs if the market has different expectations from it. In this way, clear communication of the central bank's policy decisions can help to reduce market volatility. The second reason central banks monitor market expectations is that it helps them to understand how their underlying assumptions about the economic outlook account for differences between the Monetary Policy Committee (MPC) projections of the policy rate and market expectations of future interest rates.

This note investigates the market reactions to South African Reserve Bank's (SARB) monetary policy announcements. We create measures of 'monetary policy surprises' by comparing policy rate expectations at various horizons in the future to actual monetary policy decisions. In this way, we distinguish between information that has already been incorporated into prices and unexpected 'news', respectively. This allows us to assess whether policy surprises contain information about short- or longer-term market expectations of the repurchase (repo) rate.

Before September 2017, the SARB monetary policy projections assumed a constant repo assumption. Since September 2017, the SARB has published the QPM implied interest rate projection (IRP) underlying the official projections. In this note, we assess the effectiveness of the SARB's repo 'path guidance'.

2 Measuring market expectations of the policy rate

We apply two approaches to gauge market expectations. Firstly, expectations for each particular announcement are inferred from surveys of economists' expectations. We use the difference between the announced repo rate and the level expected by market analysts - according to the Refinitiv (previously 'Reuters') survey to represent monetary policy surprises. We also infer expectations of the level of the policy rate from forward rate agreements (FRAs).²

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¹ Thanks to David Fowkes, Bruce Donald, Eyollan Naidoo, Edwin Makgopa and Rowan Walters for comments and suggestions.

² There is a large literature that estimates 'monetary policy shocks' in order to understand their contribution to business cycle fluctuations. In theoretical models, monetary policy shocks are typically identified by estimating the level of interest rates consistent with meeting the inflation target given macroeconomic conditions. The difficulty of identifying

Divergences between surveyed expectations and market prices could reflect a range of factors, including fluctuations in risk premia associated with counter-party risk or liquidity concerns or differences in expectations of the broader economy as surveyed by economists and traders, the latter of whom have a stronger monetary interest in the accuracy of their projections of the policy rate. An important advantage of using market pricing is also that the data is available on a more timely basis than surveys that are conducted infrequently.

2.1 Analyst Surveys

The Reuters/Refinitiv survey polls an average of roughly 40 economists for the repo rate forecast for given MPC repo announcement dates (with around half of them on average providing their forecasts over the projection horizon). We define monetary policy surprises as the difference between the actual values of the repo after the decision and its polled value for that MPC date (we consider both the mean and median values of the survey).

2.2 Market pricing

In order to estimate the monetary policy shocks to the market, we calculate the expectations by the market using various FRA rates. We use two approaches. The first we label as ‘the SARB approach’:

$$MP_{shock} = (repo_{t=n} - repo_t) - (FRA_{t-1}^h - JIBAR^{3M,*})$$

MP_{shock} indicates a monetary policy surprise to the market; the FRA rates of maturity are $h = n * m$; we use the 3 month Johannesburg Interbank rate (JIBAR); t is the date of each MPC meeting and the JIBAR rate is fixed at the date after the previous MPC (indicated by *).³ This approach is used by most participants in South African financial markets to approximate market expectations of the policy rate. Its precision will depend on how meaningful (and time-varying) term premia are, and whether how different the premia in the JIBAR and FRA rates of different maturities are. Using the close of the day after the last repo rate adjustment accounts for any cyclical bias towards easing/hiking, where the JIBAR would persistently trade below/above the repo rate.

The second approach we use is simply the difference between the benchmark market rate and specific FRA rates at different horizons (h), labelled market forecast errors (MFE) for each MPC date (t):

$$MFE_t^h = JIBAR_{**}^{3M} - FRA_*^h$$

We use the 3 month JIBAR as the benchmark rate since it is the underlying rate for South African FRAs. To match the effective dates of the underlying rate for quoted FRA rates on days after a policy decision (denotes *), we compare to the market-close JIBAR at a corresponding date for FRAs with different termination dates (denoted **). For a 1 month effective horizon (e.g. $h = 1x4$), for example, we use the FRA^{1x4} as at the day after the last MPC decision and the ex-post realisation of the JIBAR 1 months hence. For a 1 quarter ahead horizon (i.e. $h = 3x6$), we use the FRA^{3x6} as at the day after the last MPC decision and the ex-post realisation of the JIBAR 3 months hence. As a result, the MFE measures the forward-looking market forecast errors of actual market rates after MPC decisions at different horizons, whereas the MP_{shock} measures how much a particular policy decision differed from market pricing at different horizons.⁴

Figure 1 compares survey-based measures of monetary policy surprises to those based on 1 month ahead FRAs. Since the publication of the repo projections in September 2017, there have been fewer

monetary policy shocks in this way is that the estimates are dependent on the specification of the central bank’s policy reaction function.

³ Forward rate agreements in South Africa are contracts on JIBAR, representing an agreement to settle the difference between the contracted and realised future interest rate. Their notation may be understood as follows: a 1x4 FRA is a 3 month contract starting in 1 month and terminating in 4 months. FRAs in South Africa only reference the 3 month JIBAR, which is the main reference rate used to price instruments against.

⁴ Note that the SARB approach does not use the effective dates of JIBAR realisations at corresponding dates to the maturity dates of specific FRAs but quotes of different FRAs on the same date.

meaningful monetary policy surprises. These charts suggest that the market has priced in the SARB's repo projections since the publication of the policy path. Analysts had anticipated easing with the emergence of the Covid crisis, but had not anticipated that the SARB would front-load its cuts. The relatively large analyst surprise on 19 March 2020 (in red) reflected a larger than expected cut (100 basis instead of market expectations of 50 basis points). At the time, South Africa was not in lockdown yet and the crisis was still largely an international one. The approximately -75 basis point surprise in April 2020 (a cut of 100 basis points versus market pricing of a based on market pricing of one 25 basis point cut) reflected the emergency (unscheduled) Covid-related cut. By May 2020, market pricing had incorporated a further 100 basis points of cuts. Over this period, markets appear to have been backward-looking in their expectations of the repo path, treating a sub-3 percent inflation print as reason to cut in real time, even if that was not in the SARB forecast. Unfortunately, historical Refinitiv repo poll data is only available from 2011, so our econometric analysis that follows will only use FRA-based market expectations to assess the market impacts of monetary policy surprises.

Figure 1: Measures of monetary policy surprises

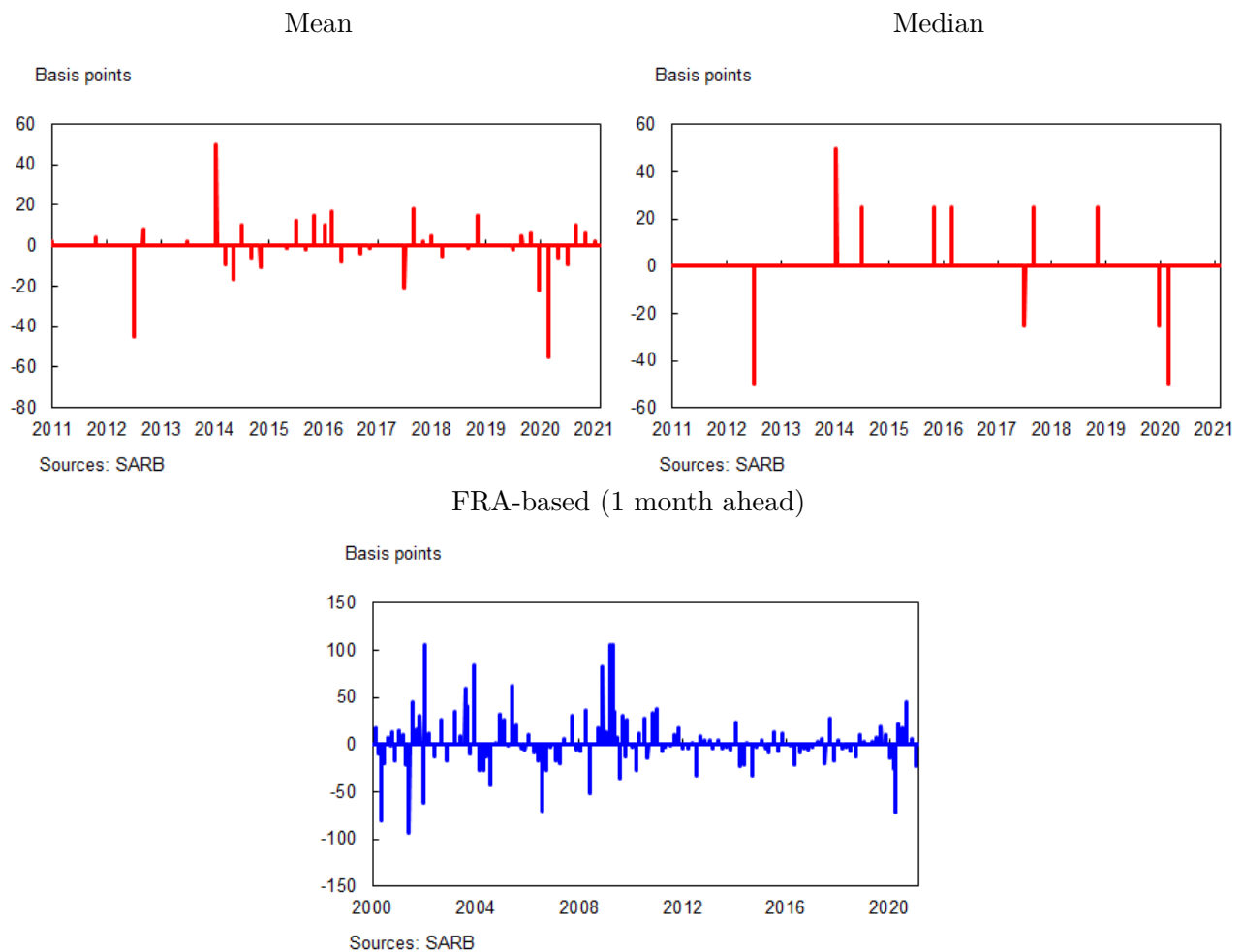


Figure 2 presents measures of policy surprises based on the SARB definition and confirms that there has been a decline in the difference between the repo and market pricing at different horizons since the publication of the repo path. This suggests that monetary policy announcements have been associated with smaller market forecast errors since publication of the SARB's implied policy path. However, the size of these surprises increased again with the Covid crisis. The negative values of monetary policy surprises in 2020 suggest that the market expected additional rate cuts that the SARB had not explicitly signalled. While longer horizon FRAs also priced in a lower policy track in the latter part of 2020 according to the SARB definition of monetary policy surprises, the Covid-related easing shows up as relatively large forecast errors based on our FRA-based measure (Figure 3).

Figure 2: Monetary policy surprises (SARB definition)

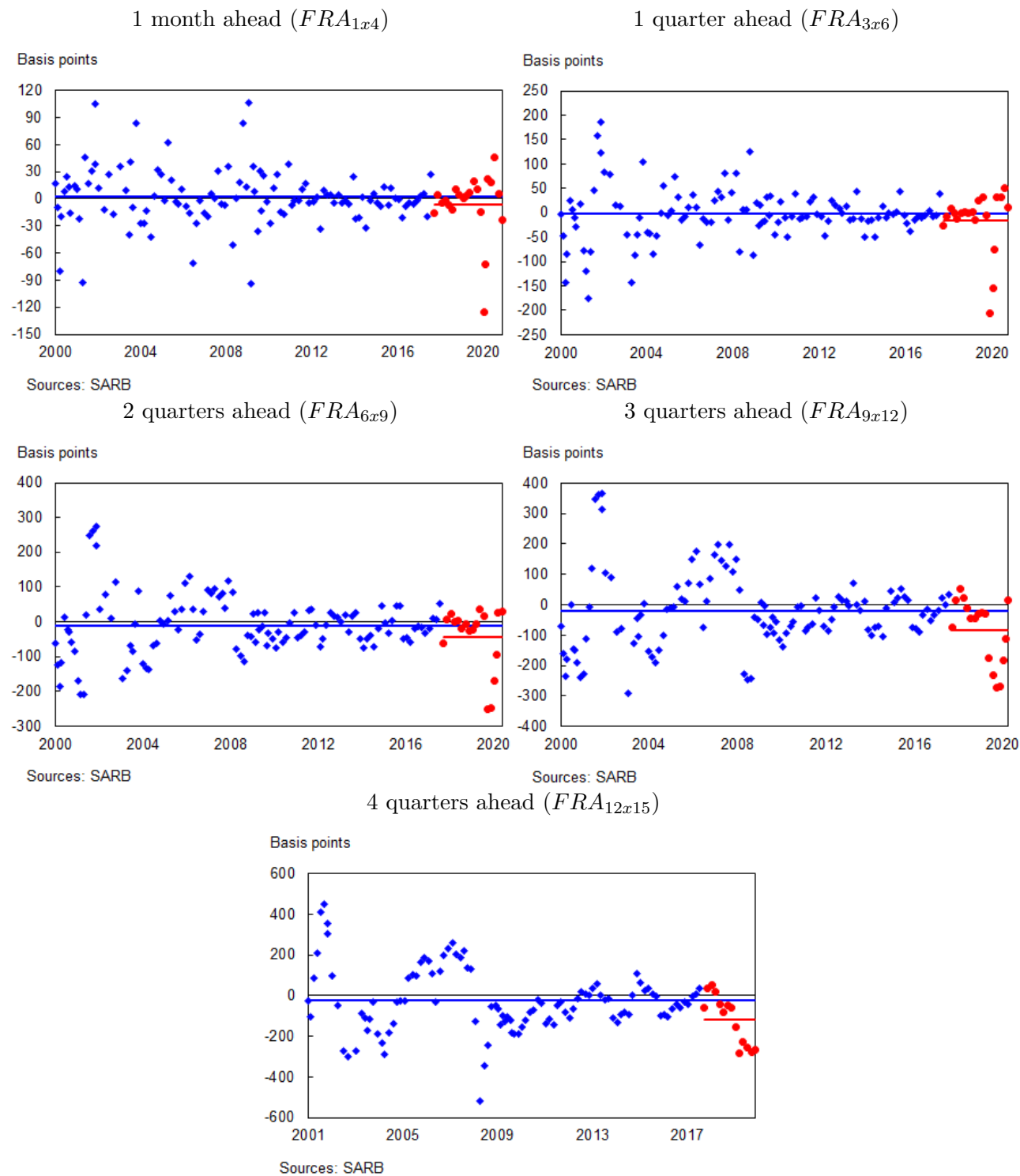
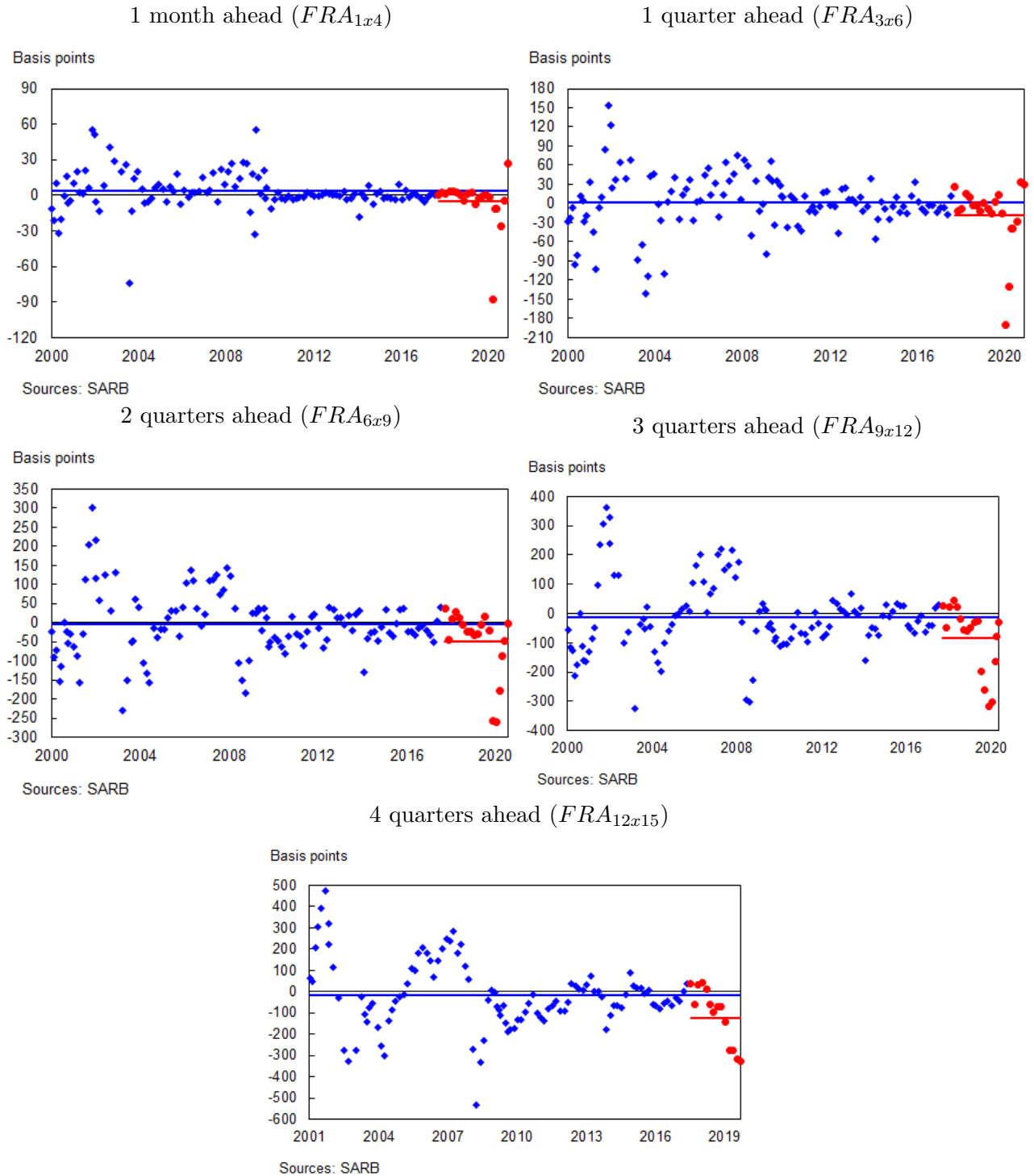


Figure 3: Monetary policy surprises (compared to FRA level)



The FRA 1x4 is currently pricing in a 31 percent probability of a rate hike in March 2021. This is quite surprising given that the QPM forecast (at the last MPC meeting in January 2021) projected two increases of 25 basis points in the second and third quarters of 2021. One explanation is that there has been liquidity-related divergence in the JIBAR from other rates affecting the precision of the SARB approach to measuring market expectations of repo changes.

3 Does publication of interest rate paths provide guidance?

Following Natvik et al. (2020), we assess whether publication of the SARB interest rate path has provided guidance by running the following test:

$$|MFE_t| = c + \beta I_t + \varepsilon_t$$

where I is a dummy for the period during which the track for the repo has been published. This tests whether there has been a systematic change in the mean market forecast errors since the publication of repo projections.

The econometric results in Table 1 confirm the intuition of the earlier charts that communication of the SARB’s future policy path has improved markets’ response to policy decisions. Based on the SARB’s definition of surprises, policy decisions tended to be associated with positive market forecast error responses before the publication of the policy path, which could reflect the fact that inflation was trending down over this period. Since the publication of IRPs, there has been an improvement in the responses of market forecast errors, with the coefficients turning negative for all horizons, even though not yet statistically significant. The largest monetary policy surprises have been at longer horizons, consistent with the findings of Natvik et al. (2020) for other countries.

Our forward-looking FRA-based approach tests whether publication of repo projections has brought market forecasts closer to realized interest rates. After the publication of the repo path, we find that forecast errors did fall for horizons up to 2 quarters ahead, but not statistically significantly. Again, forecast errors are larger at longer horizons where there is more forecast uncertainty. Given the short sample over which the policy rate path has been published, these results are tentative, as confirmed by the lack of statistical significance.

Table 1: Market forecast error responses to monetary policy announcements

Forecast errors based on SARB definition					
Horizon	1 month	1 quarter	2 quarter	3 quarter	4 quarter
Before IRP	21.17 (2.26)	37.22 (3.98)	62.88 (5.75)	91.42 (7.98)	120.56 (10.03)
Change after IRP	-0.40 (5.60)	-2.08 (9.97)	-4.68 (15.12)	-2.67 (21.45)	-6.19 (28.13)
Observations	134	133	131	130	118
Average FE (Bp)	21	37	62	91	121
Forecast errors based on FRAs					
Horizon	1 month	1 quarter	2 quarter	3 quarter	4 quarter
Before IRP	10.23 (1.31)	31.61 (3.20)	61.76 (5.59)	88.75 (8.06)	118.79 (10.64)
Change after IRP	-0.53 (3.33)	-1.36 (8.08)	-3.31 (14.74)	8.67 (21.75)	20.35 (29.84)
Observations	134	131	130	128	118
Average FE (Bp)	10	31	61	90	121

Note: Standard errors in parentheses. Bolded text indicates statistical significance at 10 percent.

4 Conclusion

Since September 2017, the SARB has published a projection of the policy rate alongside its Monetary Policy statements. Since publication of the SARB’s implied policy path, monetary policy announcements have been associated with smaller market forecast errors. Overall, we find communication of the SARB’s projected policy path has improved the markets’ response to policy decisions. Although the size of monetary policy surprises has declined pre-Covid, policy guidance through the publication of the policy path plays a relatively limited role in guiding market pricing. We therefore argue there is still room for improvement in the SARB’s monetary policy communication to guide forward-looking expectations of policy. Over parts of 2020, for example, market expectations of the repo tended to be focused on current economic conditions, not pricing-in the SARB’s repo path guidance. Enhancing the clarity of the communication around the conditionalities associated with the SARB’s projections of its future policy path could help the market better price in SARB’s policy guidance. For example, emphasising that policy path projections are conditional on the economic outlook and providing clar-

ity about how the SARB would react to shocks could help to anchor longer run expectations closer to the repo path projection by reducing the uncertainty around the likely reaction of SARB projections to shocks and data outturns.

To more accurately measure the market implied expectations of the policy rate over the projection horizon, future work should extract forward interest rates from the term structure at future MPC dates and estimate and remove their embedded term premia.⁵ Future work should also formally investigate whether the SARB projections of the repo affect market expectations of future policy rates, particularly using intraday data to more accurately capture monetary policy surprises (as in Brubakk et al. 2021). Lastly, further research into the drivers of the wedge between the repo and market pricing would also be useful.

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- Natvik, G. J., D. Rime, and O. Syrstad (2020). Does publication of interest rate paths provide guidance? *Journal of International Money and Finance* 103(C).

⁵ This could also be extended to indexed debt instruments to estimate market implied inflation expectations over the projection period (as the difference between real and nominal forward rates) as a measure of the credibility of monetary policy.