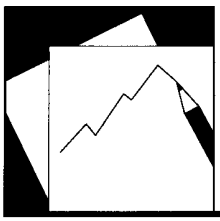
WP/07/123



IMF Working Paper

Monetary Policy Transparency and Financial Market Forecasts in South Africa

Vivek Arora

INTERNATIONAL MONETARY FUND

 WP/07/123

IMF Working Paper

African Department

Monetary Policy Transparency and Financial Market Forecasts in South Africa

Prepared by Vivek Arora[1]

May 2007

Abstract

The transparency of monetary policy in South Africa has increased substantially since the end of the 1990s; but little empirical work has been done to examine the economic benefits of the increased transparency. This paper shows that, in recent years, South African private sector forecasters have become better able to forecast interest rates, are less surprised by reserve bank policy announcements, and are less diverse in the cross-sectional variety of their interest rate forecasts. In addition, there is some evidence that the accuracy of inflation forecasts has increased. The improvements in interest rate and inflation forecasts have exceeded those in real output forecasts, suggesting that increases in reserve bank transparency are likely to have played a role.

JEL Classification Numbers: E37, E52, E58

Keywords: Monetary Policy, Transparency, Financial Markets, South Africa

Author's E-Mail Address: varora@imf.org

[1] International Monetary Fund (varora@imf.org). I am grateful to Eric Swanson for the idea discussed in this paper and for useful discussions; to Saul Lizondo, Alfredo Cuevas, Thomas Harjes, Sean Nolan, and Athanasios Vamvakidis for helpful comments; to Marisa Fassler and Tebogo Dintwe of J.P.Morgan (Johannesburg) for providing the data on macroeconomic forecasts and interest rates; and to Leighton Harris for assistance in assembling the data set.

Contents Page

I. INTRODUCTION

As in other areas of economic policy in South Africa, the framework for monetary policy formulation has changed substantially since the end of apartheid in 1994. A significant development has been an increase in monetary policy transparency as institutional changes have been introduced to make policy more transparent and accountable, particularly with the adoption of an inflation targeting framework in 2000. An important question for research, and one that has received little attention in the literature to date, is what the economic benefits of the greater policy transparency have been.[2] This paper contributes to the literature by examining the implications of the increase in South African monetary policy transparency for the accuracy of private sector financial forecasts, which is an indicator of expectations formation and a measure of the benefits of greater transparency.

Several papers in the literature have analyzed the implications of greater monetary policy transparency in other countries. A key benefit of greater monetary policy transparency is that, by reducing policy uncertainty, it can have a positive impact on the accuracy of private sector financial forecasts. Greater forecast accuracy in turn allows private agents to take a longer term view of economic decisions than they could do otherwise, strengthening the basis for investment and employment creation. Swanson (2006) shows that, since the 1980s, U.S. financial markets and private sector forecasters have become better able to forecast the federal funds rate and are less surprised by Federal Reserve announcements, in part due to greater Federal Reserve transparency.

In many countries, including South Africa, greater monetary transparency has been associated with the adoption of an inflation targeting framework. There is some debate in the literature about the implications of adopting inflation targeting. Bernanke and others (1999) provide evidence that inflation and inflation expectations in inflation-targeting countries have fallen by more than could have been predicted ex ante. Ball and Sheridan (2003) and others argue, however, that countries that adopt inflation targeting tend to have experienced inflation rates that are higher than historical averages in the preceding period, and once one allows for mean reversion there is no evidence that the adoption of inflation targeting has any impact on inflation dynamics. The present paper does not enter directly into this discussion, as it focuses on the impact of monetary transparency in general rather than that of inflation targeting in particular.

The analysis follows the approach of Swanson (2006) and focuses on the private sector's ability to forecast interest rates.[3] The central conclusion, based on monthly data for 1997–2006, is that the accuracy of private sector interest rate forecasts has increased

[2] The review essay by Aron and Muellbauer (2005) represents a comprehensive discussion of the post-1994 monetary policy experience and related literature. Mboweni (2004) and van der Merwe (2004) outline the main measures to increase monetary policy transparency since 2000.

[3] While the focus of Swanson (2006) was on the fed funds rate, the analysis in the present paper focuses on market interest rates.

significantly. In addition, in the more recent period financial market surprises around MPC announcements have been reduced and the dispersion across different private sector forecasts has fallen. The evidence also indicates some improvement in the accuracy and dispersion of inflation forecasts. The improvements in private sector interest rate forecasts have exceeded those in output forecasts, suggesting that increases in reserve bank transparency have played a role.

II. Increases in Monetary Policy Transparency

Monetary policy transparency in South Africa has increased significantly during the post-apartheid period, and particularly after 1999 (Table 1). In the period after 1994, the SARB gradually increased the amount of information that it disclosed about its operations, which hitherto had largely been secret. In 1996, it acknowledged the existence of a forward book in foreign exchange and thereafter published information on the book. The increases in transparency became more pronounced with the establishment in 1999 of a monetary policy committee, which would meet regularly and publish the conclusions of its meetings, and the adoption in 2000 of an inflation target (to become effective in 2002). Monetary policy forums were introduced in 2000 that are conducted at a semi-annual frequency and allow for an exchange of views on monetary policy between the reserve bank and the public. A semi-annual publication, the Monetary Policy Review, was introduced in 2001 that presents the reserve bank's views on monetary developments and the inflation outlook.

III. Accuracy of Financial Market Forecasts

Interest rate forecasts

Greater monetary policy transparency should contribute to greater accuracy over time in private sector forecasts of interest rates, as the reserve bank's policy intentions become clearer to the public. A simple measure of the accuracy of private sector interest rate forecasts is the deviation between the actual outturn of the spot rate on a given date and the market prediction of that outturn made at a previous date. The market prediction in turn can be captured by the forward rate that prevailed at the previous date. The accuracy of 3-month-ahead forecasts, for example, can be measured by the difference between the outturn in a given month and the 3-month forward rate that prevailed three months previously.

On this basis, the absolute value of interest-rate forecast errors declined during 1997–2006 (Table 2 and Figures 1–3). Figures 1–3 plot the absolute value of the forecast error in the Johannesburg Interbank Average Rate (Jibar), defined as the average realized spot value of the Jibar in a given month minus the forward rate forecast of the Jibar made 3, 6, and 12 months ago.[4] Each of the three figures shows an increase over time in the accuracy of the forward market forecast of the Jibar rate, reflected in a negative trend in the forecast errors. As one might expect, the proportionate decline in forecast errors was greater at shorter horizons. The average 3-month-ahead forecast error declined by nearly two-thirds, from 126 basis points during 1997–2000 to 47 basis points during 2001–2006. The average 6-month-

[4] The data are monthly averages calculated from daily spot and forward rates.

ahead and 12-month-ahead errors declined from 213 basis points and 326 basis points, respectively, during 1997–2000 to 84 and 159 basis points during 2001–2006.

The decline in forecast errors was interrupted in 1998 and 2002, which were periods when significant exogenous shocks, in addition to monetary policy effects, affected South African financial markets.[5] The size of the increase in forecast errors was smaller in 2002 than in 1998, which could mean that the size of the shocks was greater in 1998 or that the different policy responses to the two episodes had an influence on the size of the forecast errors. It is generally accepted that the policy response in 2002 was more conducive to macroeconomic stability than the response in 1998 (IMF (2002)).[6] In any event, during 1999–2000 (a period that excludes the large errors in 1998 that are evident in figures 1–3) the forecast errors at the three horizons were, respectively, 72 basis points, 166 basis points, and 342 basis points. The change in average forecast errors between 1999–2000 (as opposed to 1997–2000) and 2001–2005 was thus less steep, but it remained markedly negative at all horizons.

The negative trend in the forecast errors during 1997–2006 was statistically significant at the 3-month and 6-month horizons (Table 3). It was not statistically significant for the first half of the period, 1997–2001, but became so when the second half of the period was included, implying that forecasting accuracy increased during the more recent period.[7] The trend was negative but not statistically significant at the 12-month horizon. A dummy variable for the post-2001 period was not statistically significant, which could capture the fact that although inflation targeting became effective in 2002, the associated changes in monetary transparency were part of an ongoing process and not identifiable with any discrete point in time.

Surprise component of MPC announcements

As monetary policy becomes more transparent, the increase in public knowledge about the policy path intended by the reserve bank should presumably contribute to policy

[5] In 1998, the uncertainty in global financial markets leading up to the Russian devaluation and the collapse of Long Term Capital Management (LTCM) contributed to a reduction in investors' appetite for assets in emerging markets, including South Africa. Market perceptions of the riskiness of South African assets were heightened by a build-up in the SARB's net open forward position (NOFP) as a result of foreign exchange intervention to support the currency. The impact on financial markets was evidenced most starkly in the exchange rate, which lost 17 percent of its value (in nominal effective terms) during May–August 1998. In late 2001, a shock reflecting both external and domestic factors contributed to a 20-percent decline in the value of the rand between September 2001 and September 2002. These episodes are discussed by Bhundia and Ricci (2005).

[6] In addition, sovereign spreads widened substantially during the 1998 episode but did not do so in the 2001 episode, reflecting in part the positive perceptions of the soundness of macroeconomic policies in the intervening years.

[7] The time trend in the 3-month and 6-month errors remains negative and statistically significant even if the sample period is limited to 1999–2006 (that is, if data are excluded for 1998, when forecast errors were subject to significant exogenous shocks).

becoming more predictable and to market participants being less surprised by policy announcements over time. If a policy change is anticipated perfectly, then the announcement that effects it should have no immediate impact on market interest rates; but if a policy change surprises the markets it should induce a change in interest rates.[8] The "surprise component" of MPC policy announcements can thus be measured by the change in market interest rates between the day immediately after and the day immediately before MPC meetings.

Figure 4 plots the absolute value of the surprise component of MPC policy announcements, as measured by changes in the 3-month and 1-month Jibar rates (panels 4a and 4b) around each announcement date. The top figure in each panel plots the surprise component during 1999–2006, a period during which there were 47 policy announcements. The surprise component turns out to have a slight upward trend, which can, however, be attributed to two large surprises in 2003 (in June and October). Excluding these two surprises, the average surprise associated with MPC announcements remained roughly unchanged, moving from 12 basis points (1-month) and 14 basis points (3-month) during October 1999–March 2003 to 13 points and 14 points, respectively, during December 2003–December 2005. For the full 2003–2005 period, the trend in the surprise component was markedly negative, as shown in the bottom figure of panels 4a and 4b. This pattern was repeated in the surprise component measured by the Jibar forward rate instead of the spot rate (panel 4c).[9]

Dispersion of interest rate forecasts

The increase in the accuracy of market forecasts of interest rates was accompanied by greater unanimity among forecasters, reflected in a reduction in the cross-sectional dispersion of forecasts. The dispersion, defined as the maximum- minus the minimum forecast of the prime rate in the Reuters monthly survey of market participants, declined over time at both the 1-quarter ahead and 4-quarters-ahead horizons (Figure 5). The negative trend in the cross-sectional dispersion of forecasts was statistically significant at the 5-percent level (Table 5).

Inflation trends

Inflation has declined markedly over the past decade, with the average CPI inflation rate in 2006 (4½ percent) lower by one-third against its 1996 level (Figure 6). CPIX inflation, which started being computed in 1997 and is the basis for the SARB's official inflation target, has also fallen markedly over time.[10] Inflation rose sharply in 2002, reflecting an earlier easing of monetary conditions as well as the pass-through effects of a sudden sharp

[8] For further discussion, see, for example, Poole, Rasche, and Thornton (2002).

[9] The negative trend in the surprise component during 2003-2006 was statistically significant at the 10-percent level for the 3-month Jibar rate and at the 5-percent level for the forward rates (Table 4). The trend in the surprise component for the 1-month rate was negative but not statistically significant. These results are, however, based on a small sample size, since the number of MPC announcements during the period was 24.

[10] The CPIX is the CPI excluding interest on mortgage bonds.

depreciation in the exchange rate in late 2001, but the rise was temporary. The increase in monetary policy transparency during the period since 2000 has coincided with a statistically significant negative trend in the inflation rate, notwithstanding the spike in 2002 (Table 6).

One would expect greater monetary transparency to help anchor inflation expectations and thus to reduce the volatility of inflation. However, inflation is also subject to exogenous shocks that, when they occur, increase volatility. During the period since 1998, the volatility of CPIX inflation showed a trend increase, which is attributable, however, to the period of market turbulence in 2002 and part of 2003 during which inflation volatility rose sharply (Figure 7). In the more recent period (2003–2006), inflation volatility declined over time.

Inflation forecasts

Greater monetary policy transparency can be expected to contribute to greater accuracy in inflation forecasts over time as the reserve bank's intentions with regard to inflation become clearer to the public. (In addition, in South Africa the increase in monetary transparency was part of the framework of inflation targeting that the government announced in 2000 it would adopt starting 2002.) As with the interest rate forecasts above, a simple measure of the accuracy of inflation forecasts is the absolute value of the differential between the actual inflation outturn for a particular period and the market forecast of inflation for that period made at a previous date. The market forecast can be measured by the mean forecast of the CPIX inflation rate for a given date reported in the Reuters survey of private forecasters at a previous date. The accuracy of 4-quarter-ahead forecasts, for example, can be measured by the difference between the outturn in a given quarter and the forecast for that quarter that was made 4 quarters previously.

On this basis, CPIX inflation forecast errors declined markedly in size during 2003-2006.[11] Figure 8 plots the forecast error in the CPIX inflation rate as measured by the average inflation rate for a given quarter minus the forecast for that quarter made 1 and 4 quarters ago.[12] In Figure 8a, which covers the period 2000-2006, the forecast errors at the 1- and 4-quarter horizons have roughly flat and slightly negative trends, respectively, but the trends are not statistically significant. Figure 8b, which plots the forecast errors during the more recent period 2003-2006, shows an increase over time in the accuracy of inflation forecasts, as reflected in a negative trend in the forecast errors. The negative trend in the forecast errors was greater at the 1-quarter-ahead horizon than at the 4-quarter-ahead horizon in terms of both size and statistical significance.[13] As a separate point, market forecasters tended to over-

[11] The sample period starts in 2000 because that is when the Reuters surveys of market forecasts began. As it happens, this coincides with the period of increasing monetary transparency. However, because it does not cover the period before 2000, this sub-section represents a discussion of trends during the period of increasing monetary transparency rather than a comparison of trends before and after greater monetary transparency.

[12] The Reuters survey reports quarterly forecasts.

[13] The negative trend was statistically significant at the 1-quarter horizon but not statistically significant at the 4-quarter horizon. (The results are available on request.) However, it is hard to draw strong conclusions from this because of the short sample period (16 observations).

predict inflation during the last few years of the sample, as reflected in consistently negative forecast errors from the third quarter of 2003 until the third quarter of 2006.

A relevant question for an open economy with a floating exchange rate, like South Africa, is whether exchange rate shocks account for most of the changes in inflation forecasts. In particular, since exchange rate changes could have a significant impact on inflation expectations, how much of the decline in inflation forecast errors in South Africa has owed simply to changes in exchange rate volatility? Exchange rate volatility in South Africa has historically been sizable. During the period 1998-2006, volatility as measured by the 6-month standard deviation of changes in the nominal effective exchange rate had a slight upward trend (Figure 9). The upward trend, however, owed to 3 consecutive quarters of sharply higher volatility associated with the period of market turbulence that started in the 4th quarter of 2002. During the subsequent period, starting in mid-2003, volatility trended downward and for the period December 2003-December 2006 it was nearly 20 percent lower than for the period March 1998-September 2003.

But exchange rate volatility only partly explains the decline in inflation forecast errors (Table 7). At the 1-quarter ahead horizon, exchange rate volatility has a small negative influence on forecast errors. A 1-percentage point decline in volatility is associated with a less than 0.1 percentage point decline in the forecast error. At the 4-quarter ahead horizon, the impact of exchange rate volatility is not statistically significant. The trend in the forecast errors remains negative at both horizons, but it is no longer statistically significant. This could reflect the fact that exchange rate volatility is only one of the factors that influences forecast errors, and other factors would have to be included in order to account for the decline properly. Such an investigation is, however, outside the scope of this paper which only aims to establish the fact of a decline in forecast errors over time. Moreover, exchange rate volatility itself is arguably influenced by the monetary policy framework among other factors.[14]

Dispersion of inflation forecasts

The increase in the accuracy of market forecasts of inflation was accompanied by greater unanimity among forecasters, reflected in a reduction in the cross-sectional dispersion of forecasts. The dispersion, defined as the maximum- minus the minimum forecast of the CPIX inflation rate in the Reuters monthly survey of market participants, declined over time at both the 1-quarter ahead and 4-quarter-ahead horizons (Figure 10). The negative trend in the cross-sectional dispersion of forecasts was statistically significant for the 2003-2006 period.[15]

[14] Based on data for a panel of emerging market countries, including South Africa, Nowak, Ricci, and Hviding (2004) suggest that higher international reserves help to reduce exchange rate volatility.

[15] It was not significant for the full 2000-2006 period, which includes, as noted, the period of turbulence when forecasts in general performed poorly and were disparate. It should be noted, however, that for judging the impact of monetary policy transparency, forecasts of interest rates, which are closely related to the reserve

(continued…)

Comparison with other macroeconomic forecasts (GDP)

Might the improvements in interest rate (and inflation) forecasts have nothing to do with monetary policy, but instead just reflect a growing sophistication on the part of private sector forecasters? If this were the case, then forecasts of macroeconomic variables that are less closely and less directly related to monetary policy than are interest rates, such as indicators of real output, should also have improved over time. The evidence on improvements in real GDP forecasts, however, is less convincing than that on interest rate forecasts.[16] Overall, the evidence does not contradict the conclusion that the improvements in interest rate forecasts have exceeded those in GDP forecasts.

Figure 11 plots the errors in GDP forecasts, defined as the absolute difference between the actual outturn for real GDP growth in a given quarter minus the forecast for that quarter 1 and 4 quarters ago over the period 2000-2006. The forecast error did not change appreciably at either horizon. The error had a slight negative trend at the 1-quarter horizon and a slight positive trend at the 4-quarter horizon but neither of these trends was statistically significant. Excluding the period of market turbulence in 2002, when economic forecasts in general performed badly, and focusing instead on the period 2003-2006 changes the conclusion only slightly with regard to GDP forecasts (Figure 12). During 2003-2006, forecast errors declined at both the 1- and 4-quarter horizons (the trends were negative) although the decline was not statistically significant. The cross-sectional dispersion of GDP forecasts declined at both the 1- and 4-quarter horizons, and the decline was statistically significant, suggesting that there was some increase in unanimity among forecasters (Figure 13).

IV. CONCLUSIONS

This paper has shown that the private sector financial forecasts in South Africa have improved in recent years. The accuracy of interest rate forecasts has increased, as reflected in a negative trend in forecast errors; forecasters have been less surprised over time by MPC announcements; and forecasters have become less diverse in the cross-sectional dispersion of their forecasts. Inflation forecasts have also become more accurate over time. The improvements in interest rate and inflation forecasts are greater than those in real GDP forecasts, suggesting that monetary policy transparency is likely to have played a role. In future research, it would be useful to examine the role of alternative factors, such as exchange rate volatility and monetary variables, in accounting for the decline in inflation forecast errors over time.

---

bank's policy instrument, are more important than those of inflation, which is influenced in the short run by many other factors.

[16] The fact that the interest rate and inflation forecast improvements are greater than those in GDP, which is the most important macroeconomic forecast, is significant. It would be useful for the sake of completeness also to examine the trends in forecast quality for other real sector variables, such as manufacturing, industrial production, and retail sales. These forecasts are not available, however, in the Reuters survey on which the analysis in this paper is based.

Table 1. Selected Changes in SARB Transparency, 1994–2006

1996	Existence and extent of SARB foreign exchange forward book disclosed. Thereafter, details of net open forward position regularly published.
October 1999	Establishment of a Monetary Policy Committee (MPC). MPC to meet every 6–8 weeks; policy statements published.
February 2000	Adoption by government of inflation target for the SARB to implement (3–6 percent annual average by 2002).
February 2000	Introduction of monetary policy forums convened by SARB. Held twice yearly in major financial centers and attended by labor, business, government, and academic representatives.
March 2001	Introduction of Monetary Policy Review (MPR), published twice yearly. MPR includes SARB's inflation forecast fan chart.
2002	Frequency of MPC meetings reduced to 4 times yearly.
May 2003	Frequency of MPC meetings increased to 6 times yearly.
November 2003	Refinement of inflation target from annual (average) basis to continuous basis (12-month rate).

Sources: van der Merwe (2004); National Treasury Medium Term Budget Policy Statements (various issues)

Table 2. Time Series for Absolute Forecast Error in JIBAR
(annual averages, in basis points)

Years	Errors at horizons of		
	3 months	6 months	12 months
1997	0.72	1.11	2.26
1998	2.89	4.09	3.93
1999	0.95	2.24	3.80
2000	0.50	1.08	3.04
2001	0.40	0.60	1.95
2002	0.70	1.43	2.05
2003	0.79	1.28	1.88
2004	0.48	0.82	1.46
2005	0.25	0.26	1.56
2006	0.23	0.64	0.62

Sources: Published Jibar and FRA rates.

Figure 1. JIBAR 3-month-ahead forecast errors, absolute value, in basis points, 1997-2006

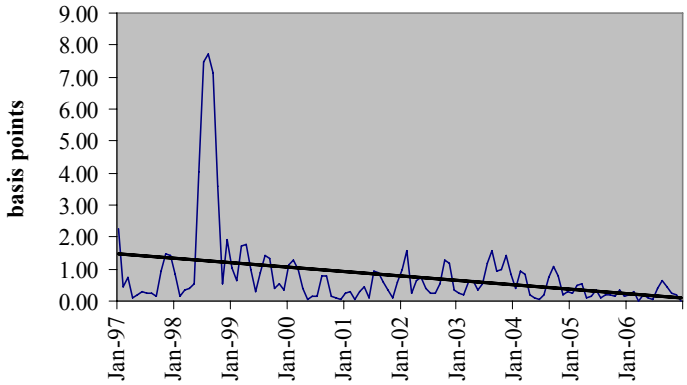


Figure 2. JIBAR 6-month-ahead forecast errors, absolute value, in basis points, 1997-2006

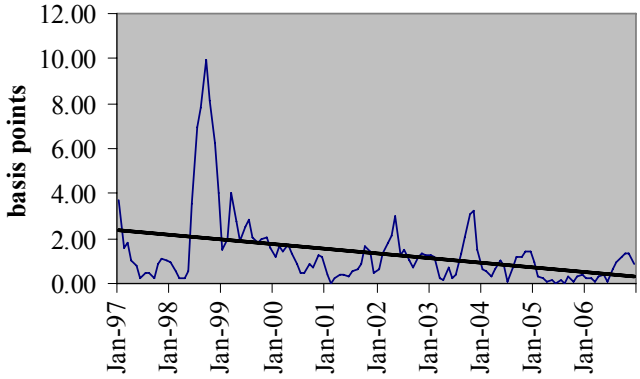


Figure 3: 12-month-ahead forecast errors, absolute value, in basis points, 1997-2005

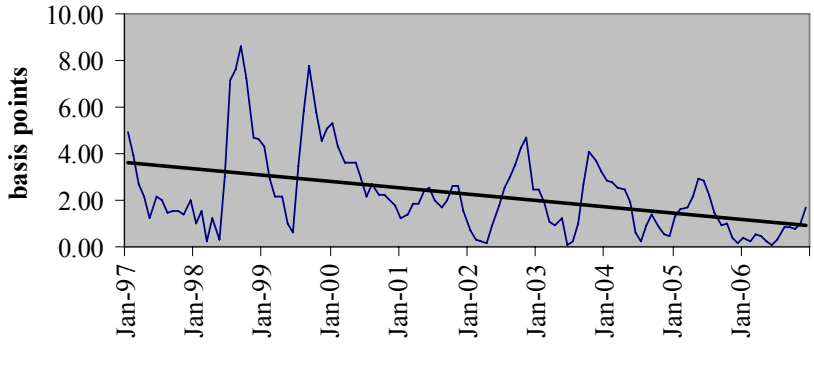


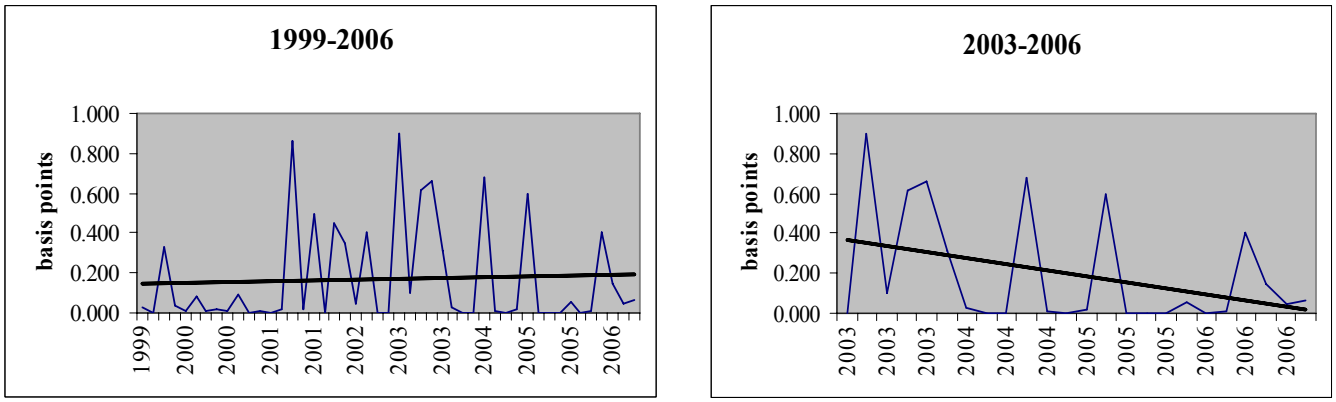
Table 3. JIBAR Forward Market Forecast Errors,
1997:1-2006:12, (monthly data)

Sample period	Constant	Time trend	Post-2001 dummy
(a) 3-month-ahead error			
1997-2001	1.78 (4.17)	-0.022 (-1.85)	
1997-2006	1.60 (6.61)	-0.017 (-2.72)	0.41 (0.95)
(b) 6-month-ahead error			
1997-2001	2.67 (4.99)	-0.028 (-1.81)	
1997-2006	2.53 (8.05)	-0.023 (-2.86)	0.44 (0.78)
(c) 12-month-ahead error			
1997-2001	3.24 (6.32)	-0.008 (-0.55)	
1997-2006	3.47 (10.51)	-0.016 (-1.84)	-0.55 (-0.94)

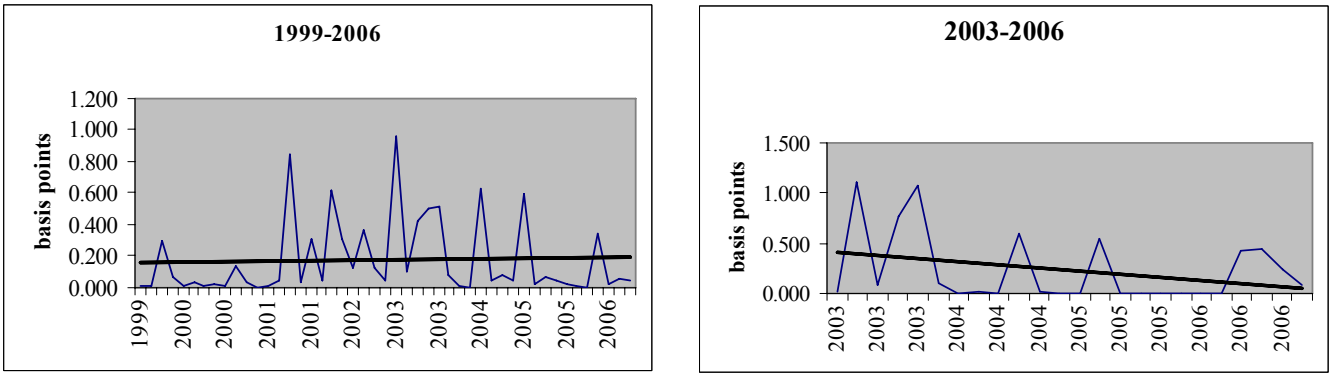
t-statistics in parentheses. Forecast error measured in basis points; time trend in months.

Figure 4. Fluctuations in the JIBAR Rate Around MPC Announcement Dates, 1999-2006
(absolute value, in basis points, based on daily data)

4a. 3-month Jibar fluctuations



4b. 1-month Jibar fluctuations



4c. Forward-rate (1x4 FRA) fluctuations

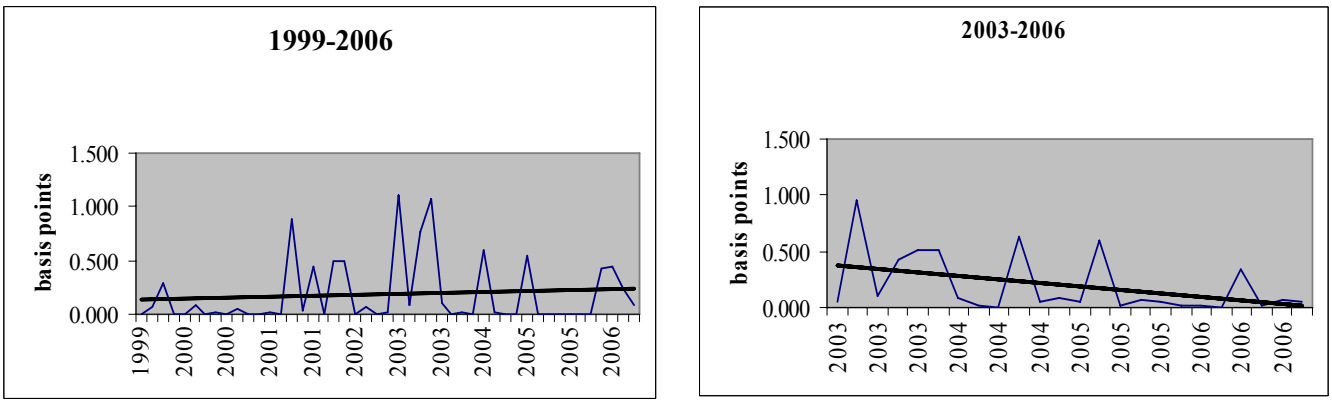


Table 4. Surprise Component of MPC Announcements, 2003-06
(based on daily data)

Interest rate measure	Constant	Time trend
(a) 3-month Jibar	0.37 (3.36)	-0.015 (1.89)
(b) 1-month Jibar	0.42 (2.95)	-0.015 (1.51)
(c) Forward rate	0.40 (3.86)	-0.016 (2.23)

t-statistics in parentheses.

Figure 5a. Cross-sectional dispersion in interest rate forecasts (1-quarter-ahead forecasts)

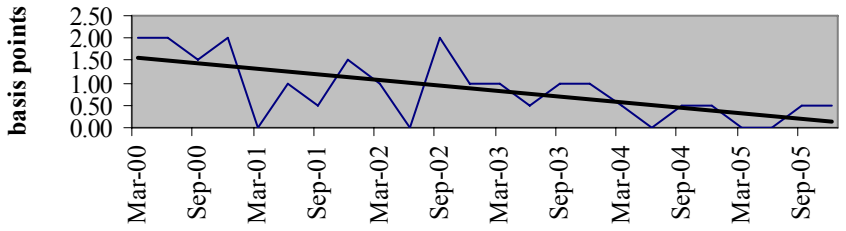


Figure 5b. Cross-sectional dispersion in interest rate forecasts (4-quarters-ahead forecasts)

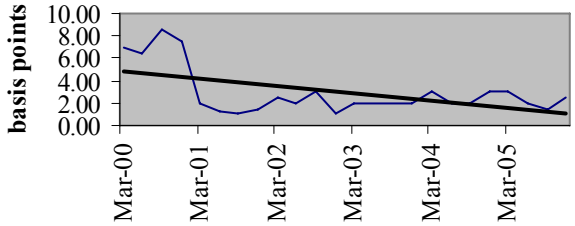
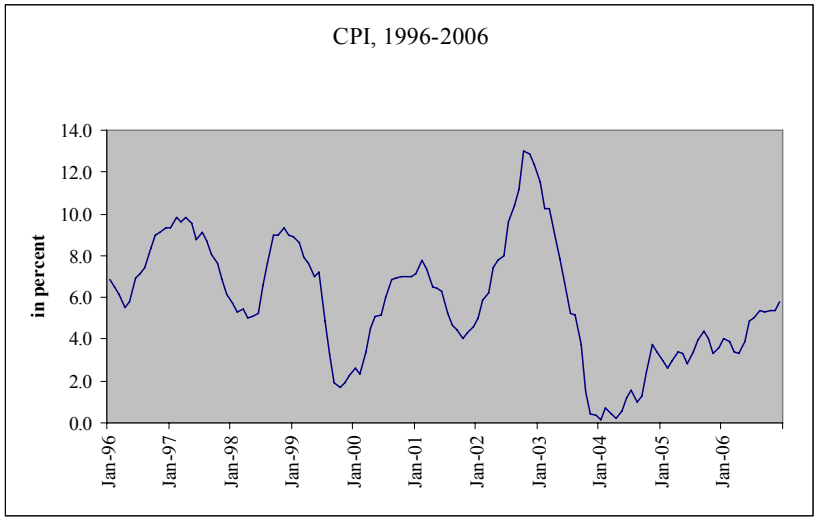


Table 5. Forecast Dispersion, March 2000-December 2006
(dependent variable: forecasts of the prime rate)
(quarterly data)

Forecast horizon	Constant	Time trend
(a) 1 quarter	1.47	-0.05
	(6.63)	(-3.41)
(b) 4 quarters	4.59	-0.12
	(6.58)	(-2.91)

t-statistics in parentheses.

Figure 6. Inflation Trends (12-month change, in percent)



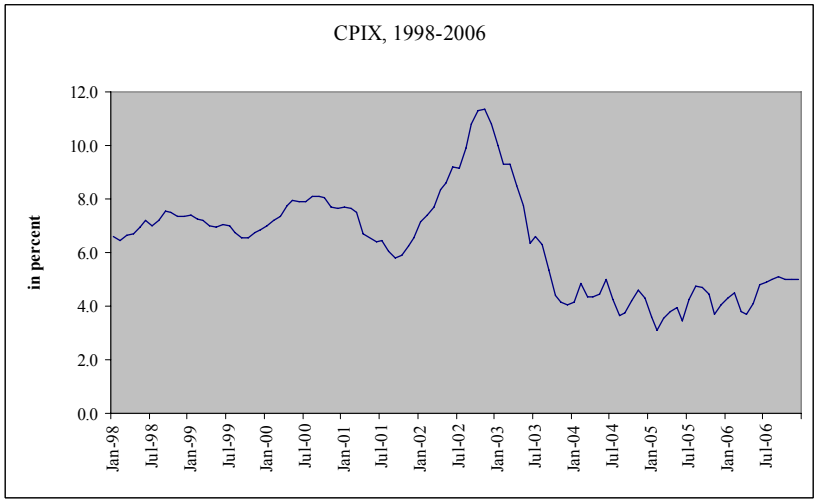
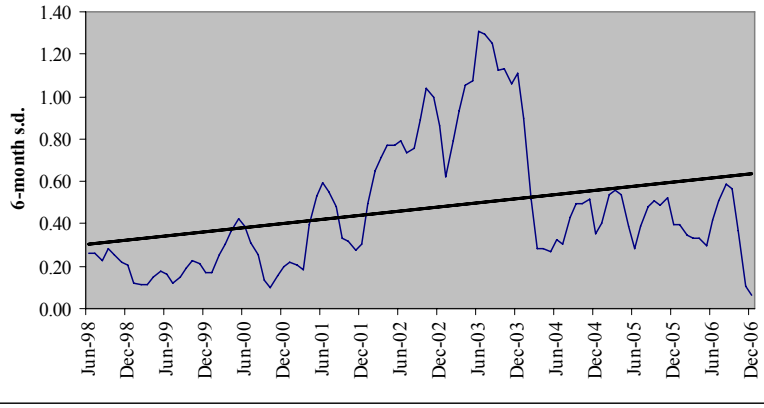


Table 6. Inflation Trends, 2000-06

	Constant	Time trend
CPIX	8.64	-0.06
	(24.68)	(-8.05)
CPI	6.83	-0.04
	(10.87)	(-3.19)

t-statistics in parentheses.

Figure 7. Inflation (CPIX) volatility, 1998-2006



Inflation (CPIX) volatility, 2003-2006

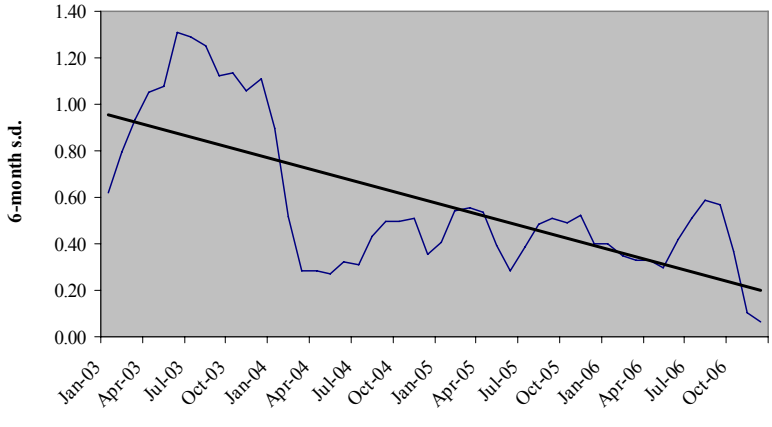
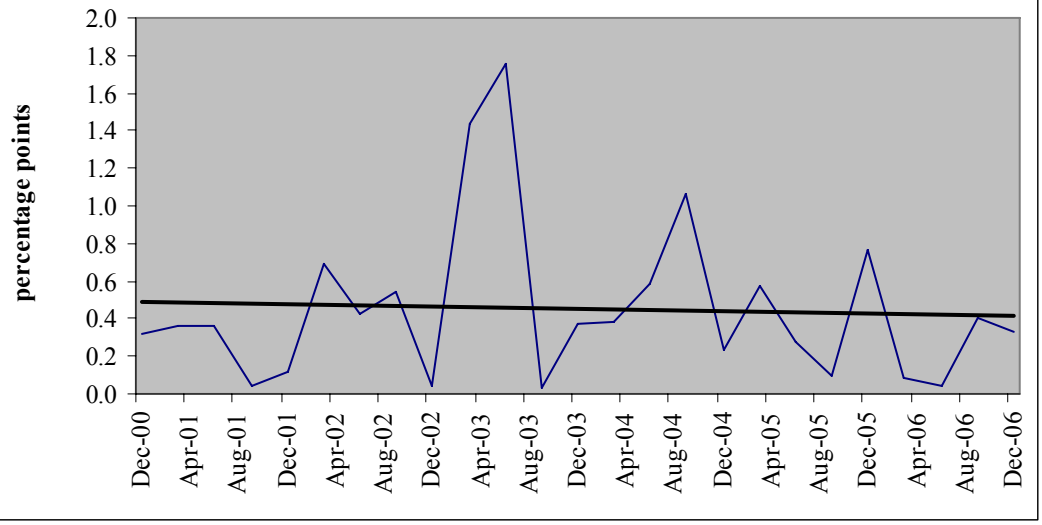


Figure 8a. CPIX inflation: forecast errors, 2000-2006

(1-quarter ahead)



(4-quarters ahead)

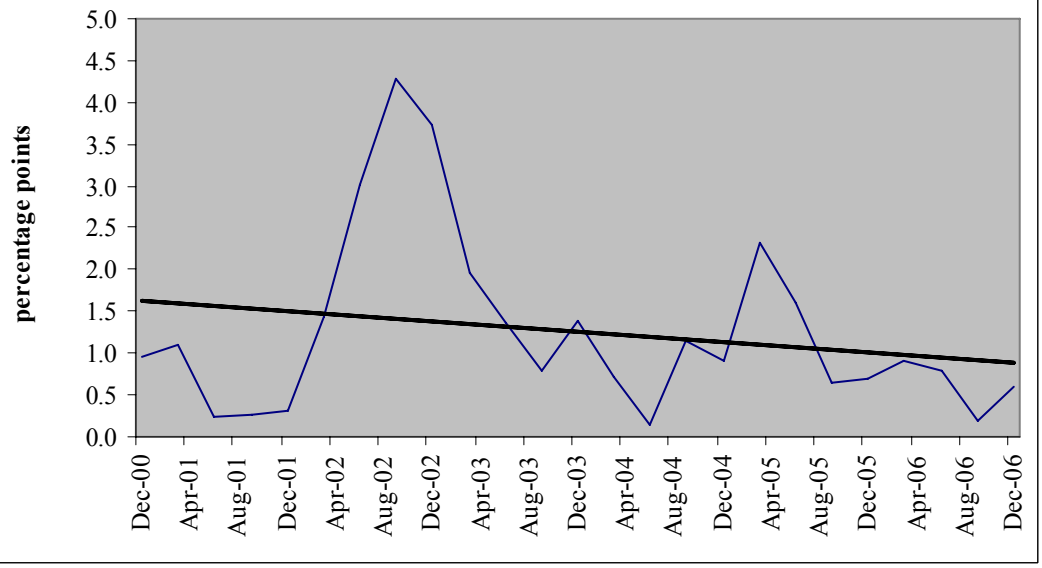
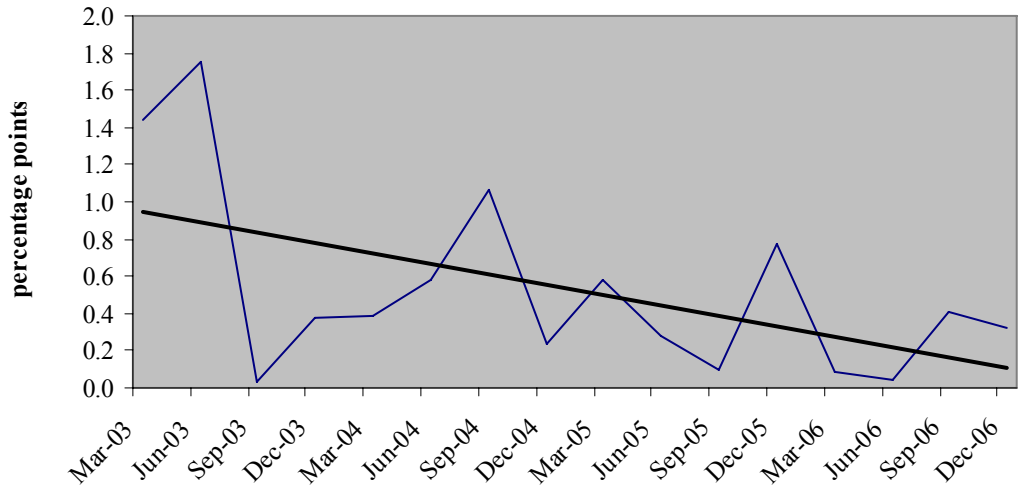


Figure 8b. CPIX inflation: forecast errors, 2003-2006

(1-quarter ahead)



(4-quarters ahead)

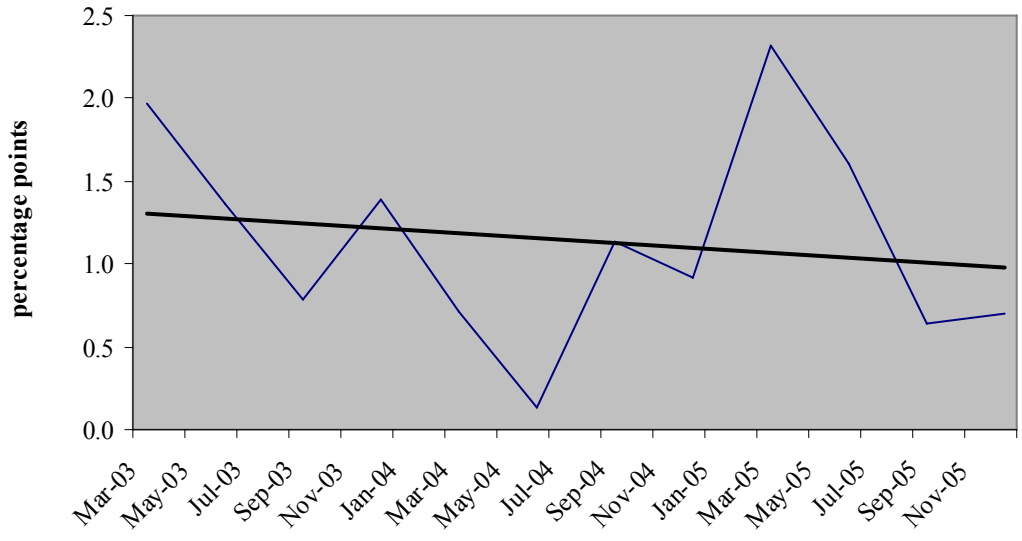
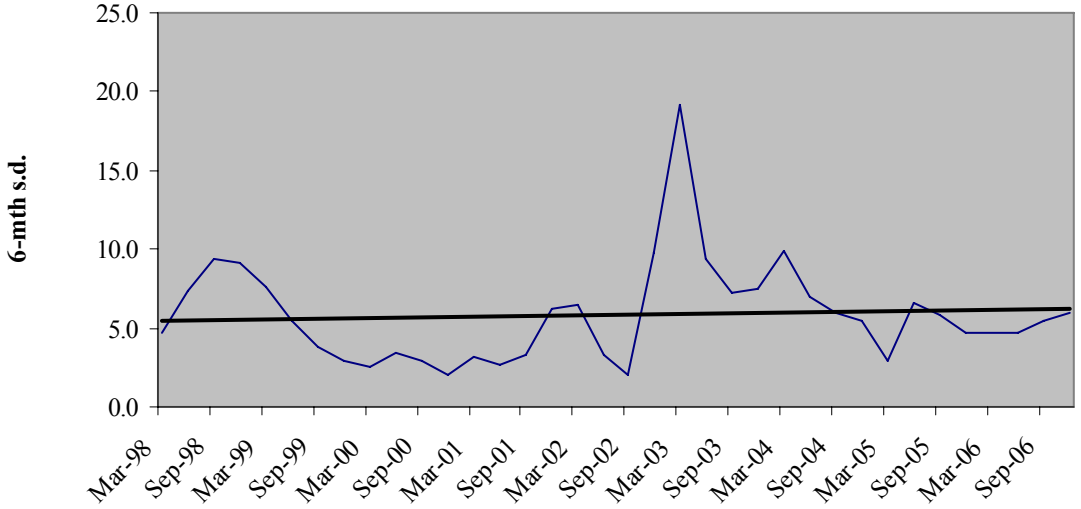


Figure 9. Exchange Rate Volatility

1998-2006



2003:Q2-2006

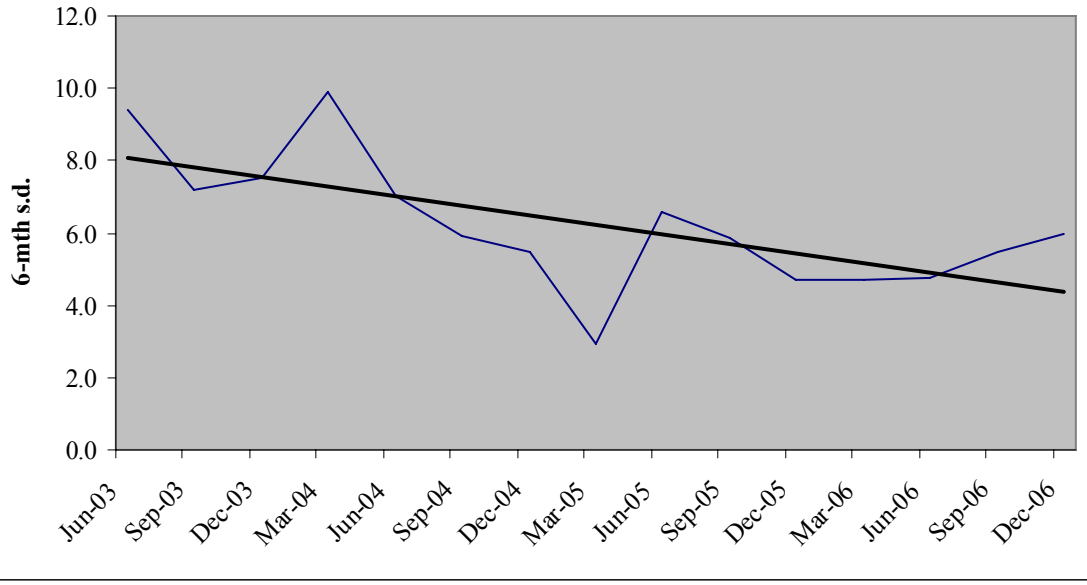


Table 7. Inflation Forecast Errors and Exchange Rate Volatility, 2000-2006

Constant	Exchange rate volatility	Time trend
1-quarter forecast error		
0.24	0.06	-0.008
(1.32)	(2.61)	(-0.87)
4-quarter forecast error		
1.51	0.03	-0.032
(2.66)	(0.41)	(-1.04)

t-statistics in parentheses.

Figure 10. Dispersion in inflation forecasts, 2000-2006

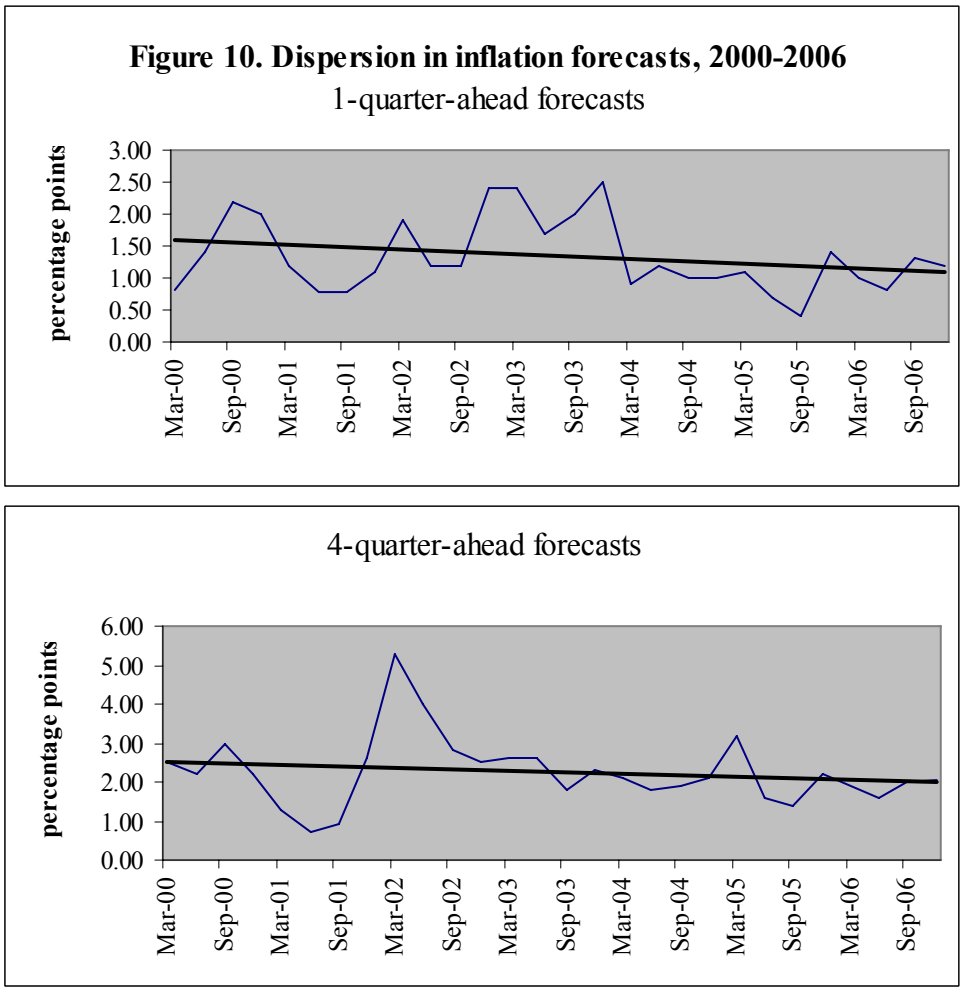
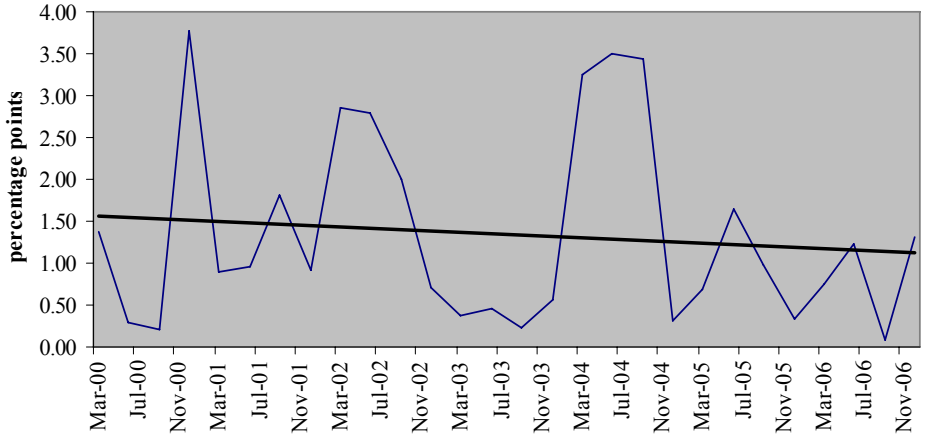


Figure 11. GDP forecast error, 2000-2006

(1-quarter-ahead error)



(4-quarters-ahead error)

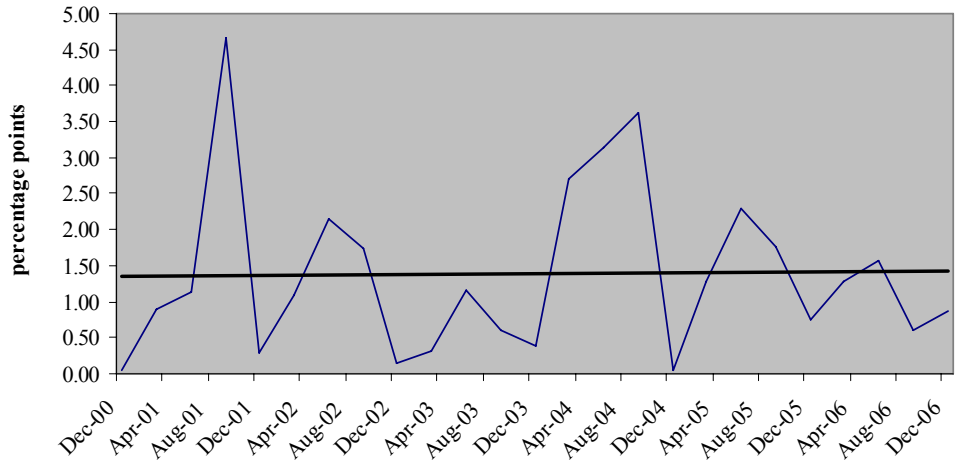
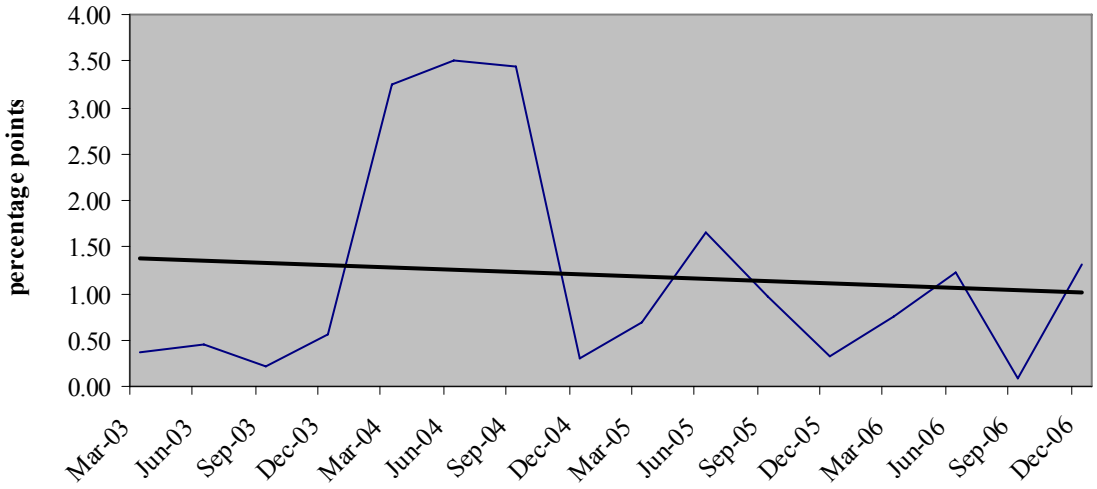


Figure 12. GDP forecast errors, 2003-2006

(1-quarter-ahead error)



(4-quarter-ahead error)

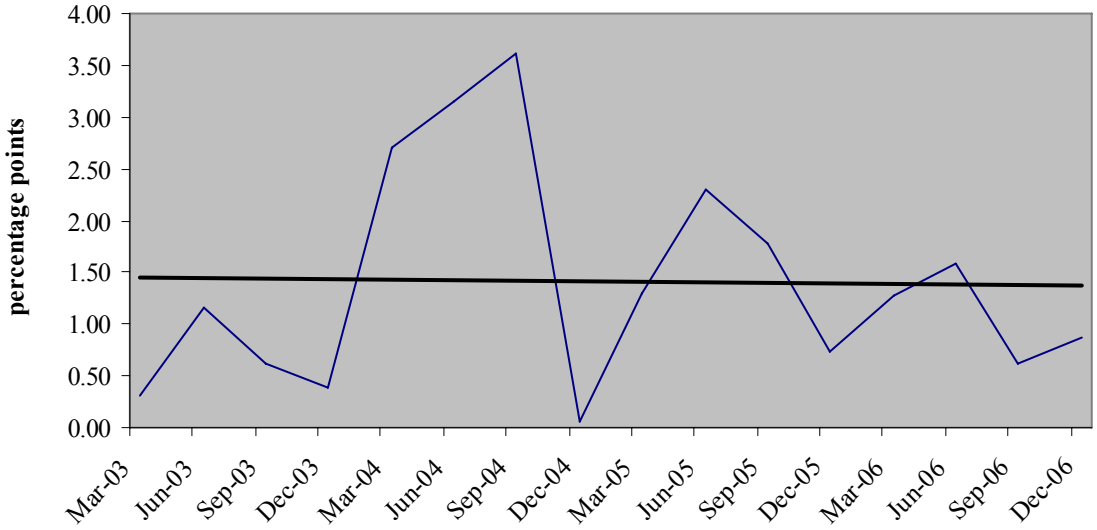
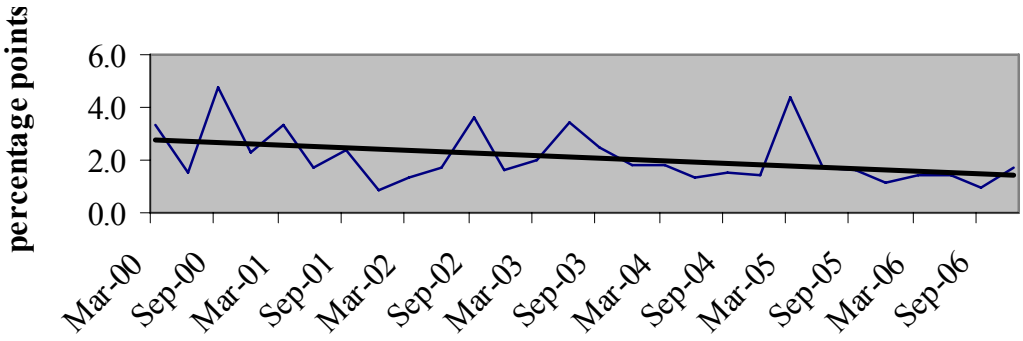
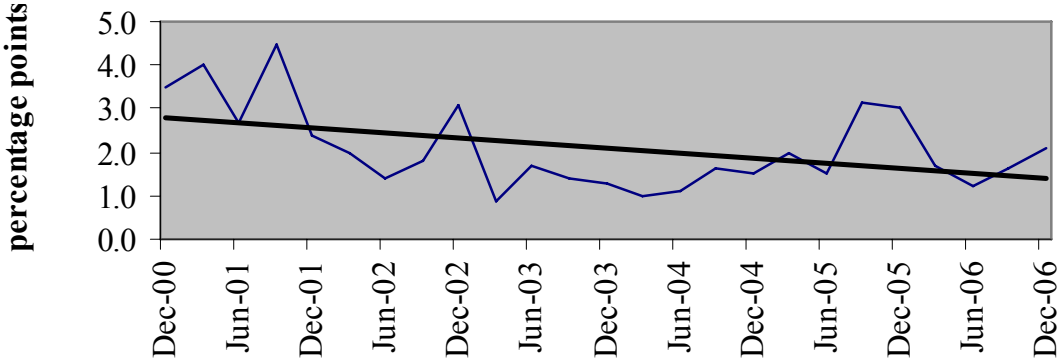


Figure 13: GDP forecast dispersion, 2000-2006

1-quarter-ahead forecast



4-quarter-ahead forecast



DATA SOURCES

Data on the Johannesburg Interbank Rate (Jibar) and forward rate agreements (FRA) were obtained from the J.P. Morgan data source, Data Query, that is compiled from daily closing rates.

Data on the cross-sectional dispersion of private sector interest rate and inflation forecasts were obtained from the Reuters monthly survey of 14 financial market institutions. The dispersion was calculated as the maximum minus the minimum forecast for (i) the prime rate and (ii) the CPIX inflation rate, at both the 1-quarter ahead and the 4-quarters-ahead horizons.

Data on the private sector forecasts of CPIX inflation and GDP growth were taken from the Reuters monthly survey of 14 financial market institutions.

REFERENCES

Aron, J., and J. Muellbauer, 2005, "Review of Monetary Policy in South Africa During 1994–2004," paper presented at a conference on *South African Economic Policy Under Democracy: A 10-Year Review* at Stellenbosch University, October.

Ball, L., and N. Sheridan, 2003, "Does Inflation Targeting Make a Difference?" in B. Bernanke (ed.), Inflation Targeting (Chicago: University of Chicago Press).

Bernanke, B., T. Laubach, F. Mishkin, and A. Posen, 1999, Inflation Targeting: Lessons from the International Experience (Princeton: Princeton University Press).

Bhundia, A., and L. Ricci, 2005, "The Rand Crises of 1998 and 2001: What have we learned?" in M. Nowak (ed.), Post-Apartheid South Africa: The First Ten Years, Chapter 10 (Washington: International Monetary Fund).

International Monetary Fund, 2002, South Africa: Staff Country Report for the 2002 Article IV Consultation, (Washington, DC: International Monetary Fund).

Mboweni, T., 2004, "The Monetary Policy Framework of South Africa," address at International Investors' Conference, Sun City, March 24.

Nowak, M., L. Ricci, and K. Hviding, 2004, "Can Higher Reserves Help Reduce Exchange Rate Volatility?" IMF Working Paper No. 04/189 (Washington: International Monetary Fund).

Poole, W., R. Rasche, and D. Thornton, 2002, "Market Anticipations of Monetary Policy Actions," Federal Reserve Bank of St. Louis Economic Review, July/August, pp. 65-94.

Reuters, various years, Monthly Surveys of South African Financial Institutions.

Swanson, E., 2006, "Have Increases in Federal Reserve Transparency Improved Private Sector Interest-Rate Forecasts?" Journal of Money, Credit, and Banking 38(3), April, pp. 791–819.

Van Der Merwe, E.J., 2004, "Inflation Targeting in South Africa," South African Reserve Bank Occasional Paper No. 19, July.