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Monetary Policy and Inflation Targeting in Chile

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Inflation targeting is the new kid on the block of monetary regimes.² Since the early 1990s, seven industrial countries and a few emerging economies, Chile among them, have adopted inflation targeting as the cornerstone of their monetary policy. This chapter reviews the conduct of monetary policy in Chile and the role of inflation targeting in the country's gradual convergence toward price stability.³

The Conduct of Monetary Policy in Chile

Chile's monetary policy is anchored to an annual inflation target.⁴ As part of its monetary programming, the Central Bank of Chile projects and monitors the main monetary aggregates. However, the fact that the central bank develops internal projections of monetary aggregates does not imply that these are used as intermediate targets. The same is true for the exchange rate. Although the central bank monitors exchange rate trends, the exchange rate is not an intermediate target for the conduct of monetary policy. Indeed, market forces have determined the exchange rate since September 1999, when the central bank adopted a floating exchange rate regime.

¹Excellent assistance provided by Matias Tapia is gratefully acknowledged. The views expressed are those of the authors and do not necessarily represent those of the Central Bank of Chile.

²Among recent work on inflation targeting, its rationale, and international experience see Mason, Savastano, and Sharma (1997), Debelle and others (1998), and Bernanke and others (1999).

³A longer paper, related to this one, compares Chile's inflation targeting framework with those applied in other industrial and emerging economies (Landerretche, Morandé, and Schmidt-Hebbel, 2000).

⁴Detailed reviews of monetary policy and the costs of inflation in the Chilean context can be found in Massad (1998) and Marshall (1999).

Since the mid-1980s, the main operational objective of monetary policy is a real interest rate. The widespread use of explicit real interest rates in financial markets has been a market response to historically high inflation and reflects the extent of indexation in the Chilean economy. From 1985 through 1995, the rate set by monetary policy was the real rate on indexed central bank paper of 90 days maturity. The real rate is applied to the principal, which is adjusted on a daily basis by a unit of account that is indexed daily to the consumer price index with an average lag of 20 days. Since May 1995 the policy rate is the real daily rate paid on interbank loans (the real overnight interbank rate).

The Central Bank of Chile announces its policy rate publicly. Through the conduct of open market operations, the central bank guides the interbank rate toward the policy objective. Since May 1995—except for four months in 1998—the difference between the policy rate and the actual interbank rate has been only 5 basis points. Open market operations are performed by issuing central bank paper and by conducting repos (repurchase agreements) and reverse repos. A program of monthly issues of central bank paper is announced in advance, providing markets with information about the overall stance of monetary policy that is consistent with the real interest rate. Complementary repo and reverse repo operations are conducted during the month in order to satisfy the demand for liquidity at the policy rate of interest.

The central bank provides two standard facilities to financial institutions to use at their discretion: the line of liquidity credit and the liquidity deposit window. The line of liquidity credit provides central bank credit to individual institutions (subject to quantitative ceilings) at marginal interest rates that rise with the amount of the required credit to three different levels. The liquidity deposit window is an open window where financial institutions can deposit their excess liquidity at a floor interest rate. Figure 1 depicts the evolution of market interest rates (the overnight interbank rate) and policy interest rates in Chile since 1997.

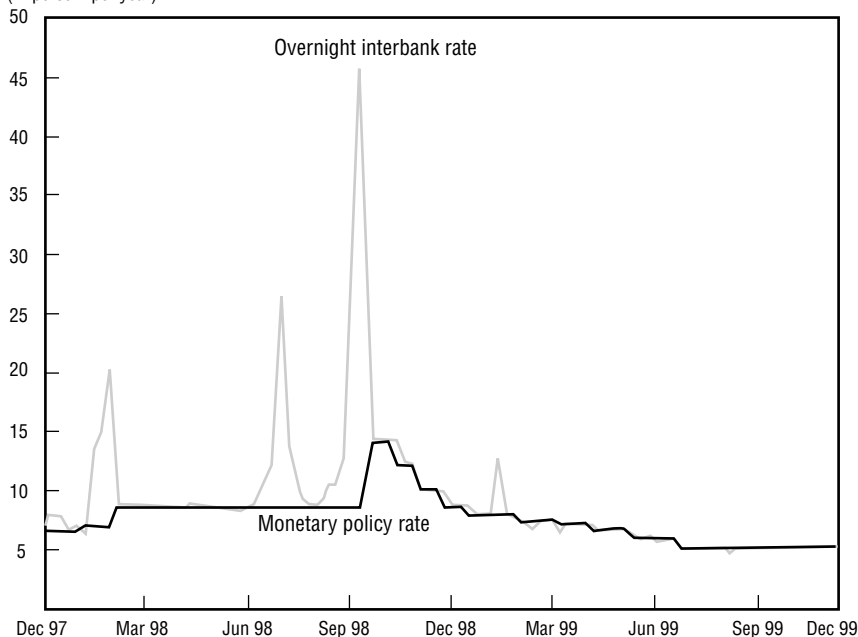
From 1984 through September 1999, Chile's exchange rate policy was based on a crawling exchange rate band. The objective of the band was to provide markets with guidance about the desirable trend of the real exchange rate and reduce excessive exchange rate volatility. However, after the inception of the band, many of its features—including its central parity, its width, the rate of crawl, the reference currency basket, and the degree of symmetry—were altered in response to changing policy objectives and market conditions. In addition, intramarginal exchange interventions were frequent and at times intense.

When the exchange rate band was suspended in September 1999, the market exchange rate was close to the center of the band. This demonstrates that the adoption of a flexible exchange rate system at that time was not the result of mar-

Figure 1

Chile: Interest Rates Set by Monetary Policy and Overnight Interbank Rates

(In percent per year)



Source: Central Bank of Chile data.

ket pressures. In fact, the floating system was adopted both to allow market forces to determine the exchange rate and to strengthen the inflation targeting regime. Figure 2 depicts trends in the exchange rate band and the market exchange rate.

How does the Central Bank of Chile determine monetary policy? The main focus of the central bank's implicit monetary policy rule is on the gap between actual core inflation and the inflation target over the relevant 24-month policy horizon. In addition, a number of key variables are closely watched and projected; foremost among these is the gap between actual and potential output, which reflects current and projected future business cycle conditions. Other monitored variables that are crucial for monetary transmission and inflation in Chile include the aggregate spending-income gap (or the current account deficit), output growth, the unemployment rate, monetary growth, wage growth, the exchange rate, the fiscal policy stance, and the term structure of market interest rates.

As in other open economies, the main channels of transmission of a change in the policy rate include market interest rates and their term structure, mon-

Figure 2

Chile: Real Exchange Rate Band and Market Real Exchange Rates



Source: Central Bank of Chile data.

Note: Lighter tracings indicate the real exchange rate band. The central parity is defined as the nominal central parity, established by the central bank, multiplied by the ratio of the U.S. CPI to the Chilean CPI.

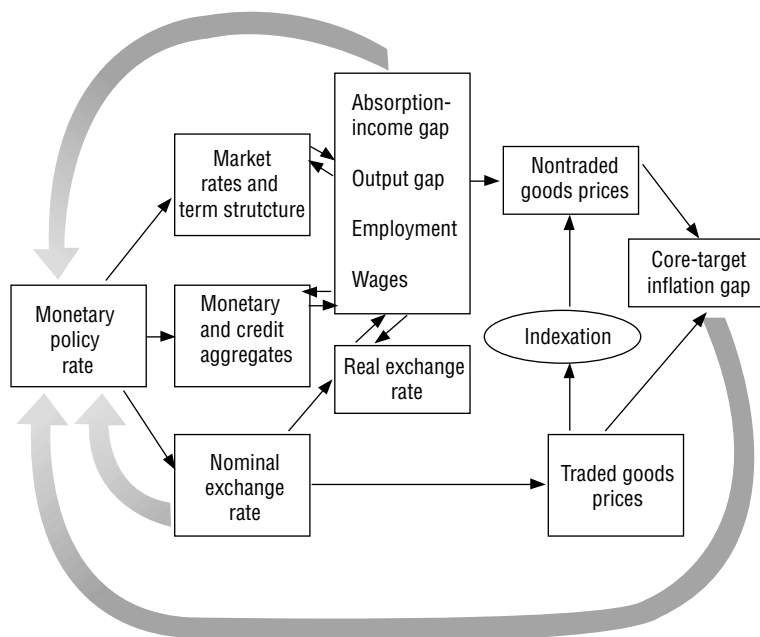
¹Nominal market exchange rate in pesos per dollar divided by the Chilean CPI and multiplied by the U.S. CPI (both CPIs indexed to 1980=100).

etary and credit aggregates, and the exchange rate (Figure 3). These variables act upon (and are affected by) macroeconomic aggregates and the prices of goods, labor, and assets. Indexation is a structural feature of the Chilean economy that raises price inertia and slows relative price adjustment, contributing to a faster transmission of exchange rate and wage shocks to aggregate inflation. Information about the gap between actual core inflation and the inflation target, as well as from other macroeconomic and financial variables, feeds back to contribute to a possible revision of the stance of monetary policy.

Inflation Targeting in Chile

Upon being granted its independence in 1990, the central bank had to face a significant rise in inflation caused by expansionary policies in 1989 and the oil price shock associated with the Persian Gulf war. In this context the central bank simultaneously tightened monetary policy and decided to adopt an annual inflation target as its nominal anchor.

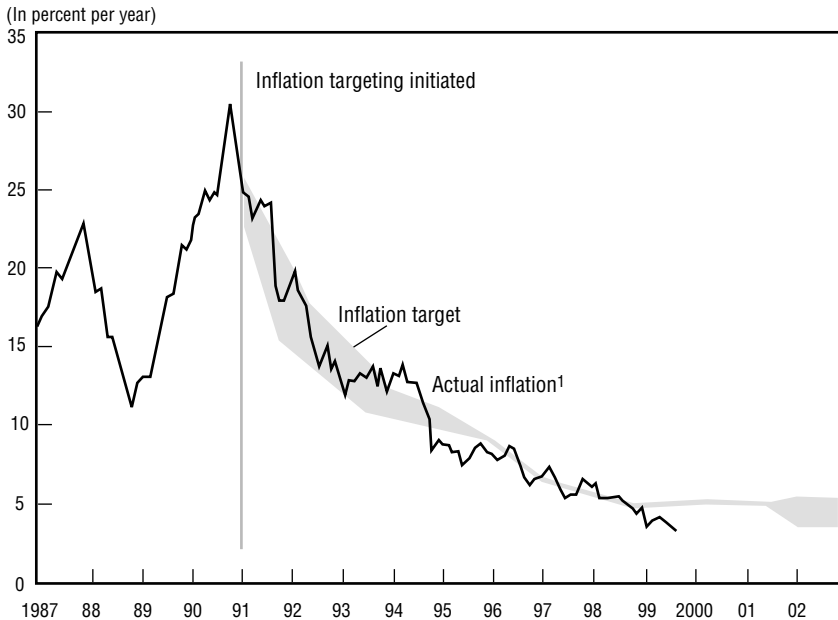
Figure 3

Chile: Channels of Monetary Transmission

Chile's recent inflation history records two major stabilization programs, in 1959–62 and in 1979–82. Both were based on a nominal exchange rate anchor as the main instrument for stabilization, and both failed miserably. Using the exchange rate anchor for a third time to reduce inflation in Chile would have made it very difficult for the newly independent central bank to establish its credibility. On the other hand, the use of monetary aggregates as an intermediate target would also have been difficult in a country with developing financial markets and volatile money demand. The remaining choice for the nominal anchor was the inflation target. An additional explanation of Chile's early adoption of an inflation target was the notion that providing the public with an explicit inflation objective—and committing to its attainment by adopting a supportive monetary policy—would reduce the role of indexation mechanisms, hence lowering the cost of stabilization.

The first inflation target was announced in September 1990 for the 12 months of 1991. Since that first announcement, the inflation target has been generally attained with great precision. Figure 4 depicts the convergence of targeted and actual inflation from high initial levels (actual inflation was 27.3

Figure 4
Chile: Inflation Target and Actual Inflation



Source: Central Bank of Chile data.
¹ As measured by the consumer price index.

percent in 1990) to values consistent with low and stationary inflation (actual inflation was 2.3 percent in 1999). In September 1999 the central bank announced a point target of 3.5 percent for 2000 and a stationary target range of 2–4 percent for the indefinite future, starting in 2001.

A key feature of Chile’s inflation target–based stabilization in the 1990s is its gradualness, which has contributed to reducing inflation without incurring substantial output costs. During most of the 1990s—with the exception of the 1999 recession in the aftermath of the Asian and Russian crises—Chile has grown at high rates under conditions of full employment. Real GDP growth is projected to bounce back to 5.5–6 percent in 2000.

Policy Effectiveness under Inflation Targeting

The downward path of the inflation target and the inflation rate in Chile is not definite proof that target-based monetary policy has been more effective than an alternative monetary framework would have been. For example, one might argue that, rather than acting as a credibility-enhancing commitment device,

the inflation target has simply been an information-improving official inflation forecast with an excellent track record.

One way to assess the effectiveness of policy under inflation targeting is to compare inflation forecasts made prior to the announcement of the central bank's annual inflation target with that target and with actual inflation. We obtain the benchmark inflation forecasts as the out-of-sample inflation prediction based on an unrestricted vector autoregressive (VAR) model.⁵ It is important to note that the model is estimated for each policy announcement using the information available through the preceding month. The forecast is simulated dynamically 16 periods ahead for each inflation target announcement.

We present the results for two VAR-based forecasts. Both VAR models include six endogenous variables (interest rates, wages, GDP, the consumer price index, the money supply, and the nominal exchange rate) and two exogenous variables (the terms of trade and the U.S. consumer price index). The models differ in that one includes a time trend (as an exogenous variable) whereas the other does not.

The results are presented in Figures 5 (with the time trend variable) and 6 (without the time trend variable). The shaded bar depicts the inflation target range or target point announced after the last period on which the out-of-sample inflation forecast (the gray line) is based. The black line depicts actual inflation.

The first and expected result is that the forecasts based on the VAR that includes a time trend are much closer to actual inflation than those based on the VAR without the time trend. This reflects the negative trend in annual inflation observed during the 1990s.

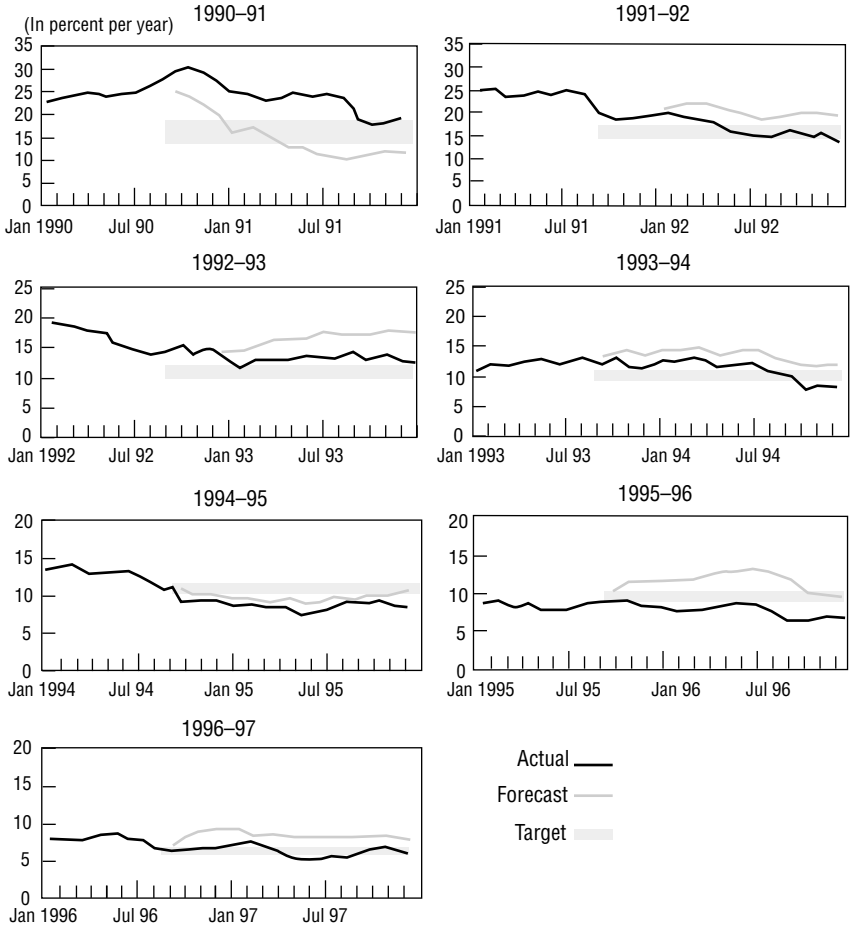
The second and main result is that forecast inflation is typically higher than either targeted or actual inflation. This suggests that the systematic attainment of declining annual inflation targets contributed to a correction of inflation expectations and forecasts. In the absence of credible September announcements of future lower inflation targets, the best (model-based) forecast of future inflation reflects a mean reversion to higher (historical) rates of inflation in the future. The results suggest that the September target announcements helped in correcting inflation forecasts downward.

The results are less clear-cut in Figure 5, where the inflation forecasts are based on the VAR model that includes a time trend. This trend is likely to

⁵A more extensive treatment of this exercise can be found in Landerretche, Morandé, and Schmidt-Hebbel (2000).

Figure 5

Chile: Actual Inflation and Forecasts of the VAR Model, with NER, with Trend

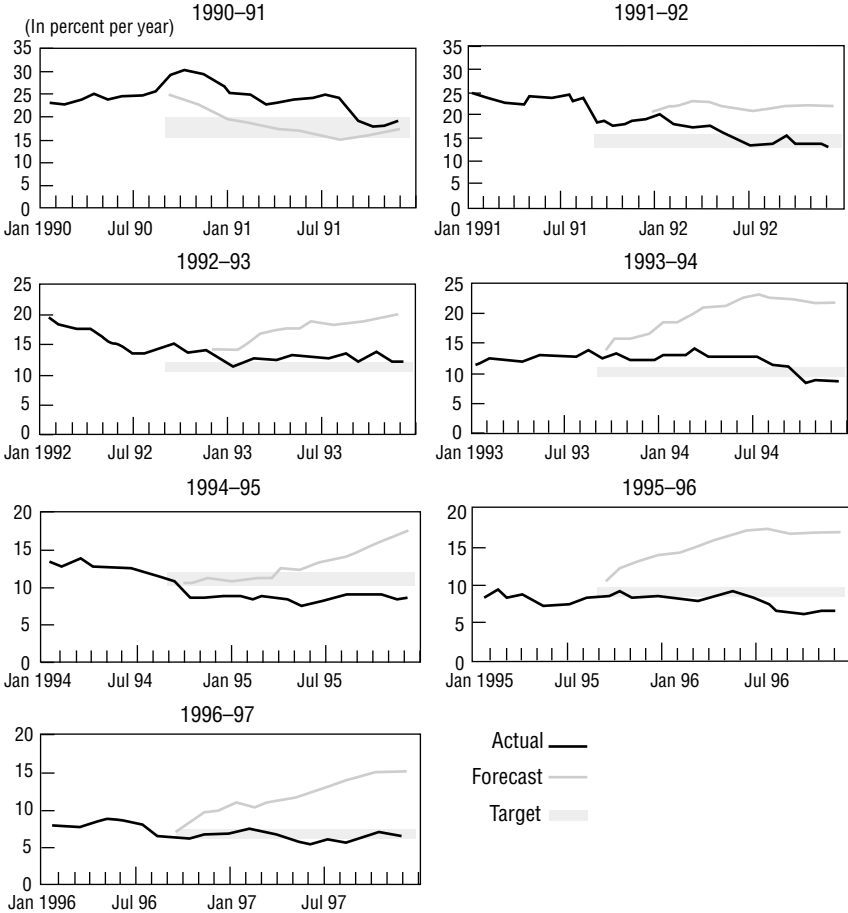


Source: Authors' calculations and Central Bank of Chile data.

proxy for the markets' expectations of a declining inflation trend, which is itself a function of the credible attainment of a declining inflation path by the central bank. In contrast, the results are very strong in Figure 6, where the forecasts are based on the VAR model that excludes the time trend. Here, in six out of seven cases, the out-of-sample forecasts show increasing divergence of inflation forecasts from both actual and target inflation rates over time. This suggests that inflation targeting has allowed a break with in-

Figure 6

Chile: Actual Inflation and Forecasts of the VAR Model, with NER, without Trend



Source: Authors' calculations and Central Bank of Chile data.

flation history, leading to a gradual downward correction of actual and expected inflation.

We conclude that, for most specifications and sample periods, the inflation target was below the forecast, and actual inflation was closer to the target than to the forecast. Although these results do not provide conclusive evidence, they suggest that inflation targeting played a prominent role in reducing inflation. Indeed, a major transmission mechanism of Chile's monetary framework

based on inflation targeting may be the credible announcement of the target. The use of a preannounced inflation objective by a central bank strongly committed to its achievement may have overcome the strong mean-reverting effects of inflation inertia in a country like Chile, where indexation had been widespread. The results reported here provide suggestive evidence that the inflation target has served two purposes: as a credibility-enhancing device for the conduct of monetary policy, and as an effective means of year-to-year communication of information from the central bank to the markets.

Conclusion

Chile's adoption in 1990 of a monetary policy regime based on inflation targeting has contributed to policy credibility and has supported the country's gradual convergence toward price stability. The empirical evidence reported in this chapter suggests that announcement of an explicit inflation target and adoption of a supportive monetary policy that lent credibility to the target were instrumental in breaking inflation expectations and attaining convergence toward low, stationary inflation. The monetary framework and its credibility were further strengthened by the adoption of a floating exchange rate regime in late 1999 and publication of an inflation report since May 2000.

References

- Bernanke, Ben, Thomas Laubach, Frederic Mishkin, and Adam Posen, 1999, *Inflation Targeting: Lessons from the International Experience* (Princeton, New Jersey: Princeton University Press).
- Debelle, Guy, Paul Masson, Miguel A. Savastano, and Sunil Sharma, 1998, "Inflation Targeting as a Framework for Monetary Policy," *Economic Issues*, International Monetary Fund (September).
- Landerretche, Oscar, Felipe Morandé, and Klaus Schmidt-Hebbel, 2000, "Inflation Targets and Stabilization in Chile," in *Monetary Policy Frameworks in a Global Context*, ed. by L. Mahadeva and G. Sterne (London: Routledge).
- Marshall, J., 1999, "La Política Monetaria y la Distribución del Ingreso," *Revista de Economía Chilena*, Central Bank of Chile, Vol. 2, No. 1, pp. 5–22.
- Massad, C., 1998, "La Política Monetaria en Chile," *Revista de Economía Chilena*, Central Bank of Chile, Vol. 1, No. 1, pp. 7–27.
- Masson, Paul, Miguel A. Savastano, and Sunil Sharma, 1997, "The Scope for Inflation Targeting in Developing Countries," *IMF Working Paper WP/97/130*, October (Washington: International Monetary Fund).