Part IV. New Zealand

New Zealand was the first country to adopt formal inflation targeting. In discussing its experience, we stress the following design choices and themes:

- Inflation targeting in New Zealand followed legislation that mandated a Policy Targets Agreement (PTA) between the elected government and the newly independent central bank, which resulted in a jointly decided numerical target for inflation.

- Inflation targeting was adopted only after a successful disinflation had largely taken place.

- Rather than using the headline consumer price index (CPI), the central bank uses a core-type price index to construct the inflation target variable; the variable excludes not only energy and commodity prices, but also, in particular, the effects of consumer interest rates as well as other prices on an ad hoc basis.

- The same entity that is accountable for achieving the inflation target, the Reserve Bank of New Zealand, also defines and measures the target variable when "significant" first-round impacts from terms-of-trade movements, government charges, and indirect taxes arise. The ultimate long-run target variable of CPI inflation, however, is compiled by a separate agency, Statistics New Zealand.

- Although New Zealand's inflation-targeting regime is the most rigid of the inflation-targeting regimes discussed in this study, it still allows for considerable flexibility: as in Germany, the central bank responds to developments in variables other than inflation, such as real output growth.

- Accountability of the central bank is a key feature of the inflation-targeting regime; the Governor of the central bank is subject to possible dismissal by the government if the target is breached.

- The inflation target is stated as a range, rather than as a point target—with the midpoint of this range above zero—again suggesting, as in the German case, that the long-term goal of price stability is defined as a measured inflation rate above zero.

- Strict adherence to the narrowness of the inflation target range and the one-year time horizon of the target has resulted in two related problems: 1) a control problem—that is, the difficulty in keeping inflation within very narrow target ranges—and 2) an instrument instability problem—that is, wider swings in the policy instruments, interest rates, and exchange rates than might have been desirable.

The Adoption of Inflation Targets

The present framework for the conduct of monetary policy in New Zealand is explained by the Reserve Bank of New Zealand Act of 1989. The Act was introduced into Parliament by the government on May 4, 1989, was passed by Parliament on December 15, and took effect on February 1, 1990. It assigns to the Reserve Bank the statutory objective "to formulate and implement monetary policy directed to the economic objective of achieving and maintaining stability in the general level of prices" (Section 8).[1]

Although inflation targeting was the institutional means chosen to implement the Reserve Bank's commitment to price stability, the Act only put into the statute the need for a visible nominal anchor. Section 9 of the Act requires the Minister of Finance and the Governor of the Reserve Bank to negotiate and make public a Policy Targets Agreement, setting out "specific targets by which monetary policy performance, in relation to its statutory objective, can be assessed during the period of the Governor's term" (Lloyd 1992, p. 211). The first PTA, signed by the Minister

of Finance and the Governor on March 2, 1990, specified numerical targets for inflation and the dates by which they had to be reached.

The passage of the Act and the establishment of numerical inflation targets have been the result of a slow process that started in July 1984. The then newly elected Labour Government embarked on a wide-ranging effort to reform the government's role in the New Zealand economy, tackling at the same time fiscal, monetary, structural, and external issues based on the view that these different aspects of economic policy were interrelated and thus had to be mutually coherent (for an overview of the reform measures, see Brash [1996b]). There was a general sense of crisis over New Zealand's economic policy at the time, based on concerns that the country's performance had been significantly lagging that of other members of the Organization for Economic Cooperation and Development (OECD) and that neither of the major party's old policies would work. As far as monetary performance went:

> New Zealand experienced double digit inflation for most of the period since the first oil shock. Cumulative inflation (on a CPI basis) between 1974 and 1988 (inclusive) was 480 per cent. A brief, but temporary, fall in inflation to below 5 per cent occurred in the early 1980s, but only as the result of a distortionary wage, price, dividend and interest rate freeze. Throughout the period, monetary policy faced multiple and varying objectives which were seldom clearly specified, and only rarely consistent with achievement of inflation reduction. As a result of this experience, inflation expectations were deeply entrenched in New Zealand society. (Nicholl and Archer 1992, p. 118)

Although the Reserve Bank stated that "a firm monetary policy is seen as an essential prerequisite for lower, more stable interest rates and inflation rates over the medium-term" (Reserve Bank of New Zealand 1985a, p. 451), at the start of the general reform movement there was no focused discussion of what exactly the objective(s) of monetary policy in the new economic environment should be. Initially, there was some indication of interest in intermediate targeting of monetary aggregates,[2] but this topic was never pursued and in recent years the Bank has stressed that no useful link exists between these aggregates and inflation.

At the time of the signing of the first PTA in March 1990, the Reserve Bank of New Zealand, backed by the Labour Government (which had been reelected in August 1987), had succeeded in bringing underlying inflation down from almost 17 percent at the beginning of 1985 to within the 5 percent range "although a number of one-off factors meant that only limited progress [on disinflation] was made" during 1989 (Reserve Bank of New Zealand 1990, p. 6). "The increase in GST [the goods and services tax in July 1989] pushed up the [headline] inflation rate and proved detrimental to inflation expectations. The GST damage was . . . compounded by the impact of strong commodity prices" (Reserve Bank of New Zealand 1990, p. 7). The decision to announce inflation targets occurred after most of the disinflation had already taken place. As we will also see in Canada, the announcement fortuitously was timed to cut off a rise in inflationary expectations and the original target was easily met.

The Operational Framework

Most of the operational aspects of New Zealand's inflation-targeting framework are governed by the PTAs, since these agreements (and the targets they set) represent the only legal implementation of the Reserve Bank of New Zealand Act of 1989. The challenge for institutional designers in New Zealand was twofold: to determine, first, how far institutional change could take a very small natural-resource-based open economy to desired macroeconomic outcomes, and second, how to maintain appropriate public understanding of and support for counterinflationary policies after the initial reform impetus met with difficult developments. In general, New Zealand has opted to build in legal and formal means of introducing flexibility in its monetary framework. This choice of design opens the possibility of frequently announced changes in monetary policy variables and time horizons—with detailed legal accountability—albeit at some real cost in transparency to the general public. Within the exercise of this flexibility, the Reserve Bank still has had to balance the remaining constraints necessary for credibility with the realities of the world economy.

From the start, the eventual goal of price stability was defined in practice as achieving a rate of measured

annual inflation of between 0 and 2 percent in the All Groups (that is, headline) CPI. The target was always intended to be a true range, with both the floor and ceiling to be taken seriously, but no special emphasis was placed on the midpoint. For example, in September 1991, policy was explicitly eased to avoid undershooting the range to encourage perceptions that the bands of the range were hard (Nicholl and Archer 1992, p. 124). Hitting the target remains an extremely ambitious goal because of the narrowness of the range and its centering so close to zero measured inflation—conditions that are costly to maintain in the face of external or commodity price shocks. The result has been that the actual inflation rate has remained near the top of the range for much of the time since the adoption of targets, with the public focus being on the 2 percent (ceiling) target rather than the 1 percent midpoint (the intended target).

Unlike Switzerland, a similarly small open economy that chose not to adopt a target range given the difficulties of controlling inflation exactly (especially so close to zero measured), the Reserve Bank clearly did not want to admit the likelihood of control problems, at least initially. As noted below, at the end of 1996 the band was widened, in part because the Reserve Bank recognized these difficulties. As a beginning for discussion, the Bank uses the CPI

> because it is the most widely known and the best understood index. . . . The above-zero rate of inflation specified reflects index number problems, the survey methodology, and the difficulty of adjusting for new goods or for improvements in quality. Effectively, a judgment has been made that 1 percent CPI inflation is consistent with stability in the general level of prices." (Nicholl and Archer 1992, p. 120)

The first PTA admitted that this headline CPI "is not an entirely suitable measure of [the prices of goods and services currently consumed by households] since it also incorporates prices and servicing costs of investment-related expenditures," most notably prices of existing dwellings, but the Agreement concluded that "the CPI will, for practical purposes, be the measure used in setting the targets" (Section 2).[3] The most difficult challenge for the Reserve Bank of New Zealand in communicating with the public about the target definition has arisen from the inclusion of interest rates in the headline CPI, as that is the main source of divergence from the target series. In the "Underlying Inflation" section of its August 1991 *Monetary Policy Statement*, the Bank stated that headline CPI "is the basic yardstick against which the Bank should be assessed" (Reserve Bank of New Zealand 1991, p. 17). It then stressed its emphasis in the recent past on controlling "underlying inflation" and continued:

> Unfortunately, because the nature of such shocks cannot be fully specified in advance, and because the impact of shocks can often not be measured precisely, it is not possible to specify a single, comprehensive definition of "underlying inflation." To some extent, interpretation of the impact and significance of the shocks is a matter of judgement, and hence requires clear explanations by the Bank to support any numerical estimates. (Reserve Bank of New Zealand 1991, p. 19)

In practice, therefore, the Bank has developed a measure of underlying inflation that it relies upon to exclude any of these shocks. (The first-round effect of interest rate changes on prices is automatically excluded in a series published by Statistics New Zealand, while other adjustments are left to the Bank.) Underlying inflation has been reported regularly alongside headline inflation by the New Zealand press as well as by the Reserve Bank, and there has been little confusion as the public has been educated over time (even as the two series diverged by as much as 2 percent in later years and have occasionally moved in opposite directions). This need to exclude items from the CPI series and then make sure the public understands why this action is legitimate is a challenge that all inflation targeters face. Even when a headline CPI series is used in inflation targeting, there is still a need to explain why the central bank should not respond to some deviations from the target (for example, identifiable temporary deviations from the trend such as hikes in the value-added tax).

It is useful to stress that this definition of underlying inflation has its advantages for New Zealand as the classic example of a small open economy. Without the terms-of-trade provision in the PTAs, for example, it is hard to see how monetary policy could limit variation in inflation to a meaningfully narrow range without causing severe

disruption in real activity. Yet the judgmental aspect of this measure of inflation—that the Bank decides whether a given shock has a "significant" impact on the price level—is also potentially problematic. The most problematic aspect is that the Bank itself is in charge of defining the measure of inflation that determines whether the Bank has been successful in achieving the announced targets, an arrangement that undermines the seeming impartiality of the mechanism meant to hold the Bank accountable for achieving price stability.[4]

Another consequence of the Bank's efforts to communicate clearly and usefully about the distinction between headline and underlying inflation has to do with time horizons. Since the underlying inflation measure is not defined as a continuous series, but rather one with its composition changing at irregular intervals, this distinction adds to the potential confusion. It is worth pointing out, moreover, that the timing of the PTAs themselves—and therefore of the inflation target, however defined—is arbitrary, with the first interval lasting only six months and the latest lasting indefinitely. In light of the shift to open-ended targets, it is also worth noting that while the PTAs are not necessarily tied to the electoral cycle—set to expire with a given parliamentary majority—neither are they themselves statutorily insulated from such a cycle, and a new government could potentially renegotiate with the Bank as desired. The realization of this possibility, which occurred when the time horizon and range of the target were reset in December 1996, is discussed below.

A final aspect of timing is that neither the government nor the Bank has targeted the price level rather than the rate of inflation; the decision makers are letting bygones in earlier price-level rises be bygones. Either interpretation of price stability would have been consistent with the original Reserve Bank of New Zealand Act, as pointed out by Bryant (1996, p. 8). Since at the conclusion of the second PTA inflation had been within the 0 to 2 percent range for one year, both the third and fourth PTAs required the Bank merely to "formulate and implement monetary policy to ensure that price stability is maintained" indefinitely.

In practice, each of the PTAs has included a list of shocks in response to which the Bank is required to "generally react . . . in a manner which prevents general inflationary pressures emerging" (Section 3):[5] that is, the PTAs have escape clauses to accommodate first-round effects on prices but not to allow the passing on of these prices to a second round. These shocks include:

- a movement in interest rates that causes a significant divergence between the change in the CPI and the change in the CPI excluding the interest costs component. This clause of the third PTA replaced the earlier provision for a significant divergence between the CPI and a price index treating housing costs on an internationally comparable basis;
- significant changes in the terms of trade arising from an increase or decrease in either import or export prices;
- an increase or decrease in the rate of the goods and services tax (GST) or a significant change in other indirect taxes;
- a crisis such as a natural disaster or a major disease-induced fall in livestock numbers that is expected to have a significant impact on the price level; and
- a significant price-level impact arising from changes to government or local authority levies.

The Bank has consistently excluded from its measure of underlying inflation the effect of interest rate changes on mortgage and credit charges (relying on a series from Statistics New Zealand). It has also excluded the direct effects of any changes in indirect taxes and government and local authority levies when their impact on the CPI was judged to be significant (defined as an impact of at least 0.25 percent in any twelve-month period). Of course, this assessment of significance requires some decisions about modeling tax effects, and the Reserve Bank has chosen only to respond to those tax changes that were clearly driven by a policy decision.[6] The natural disaster escape clause has so far not been invoked. The terms-of-trade escape clause, however, has been applied in the discretionary manner allowed for in the PTAs. Twice, in 1990-91 and in 1994, oil price changes were excluded from the calculation of underlying inflation, while timber prices were excluded in 1993-94.

Caveats and escape clauses are meant to balance the Reserve Bank's inflation goal with other goals, particularly real economic goals in the face of supply shocks:

> [A] detailed examination of what has been written about the caveats makes clear, the fundamental rationale for the caveats is that, in certain specified circumstances, the Reserve Bank should be paying attention to consequences for variables such as output and employment rather than concentrating single-mindedly on the inflation rate. (Bryant 1996, p. 24)

There was an absence of multiple stated objectives for the Reserve Bank, with only price stability listed in the Reserve Bank of New Zealand Act of 1989, and only supply shocks admitted as a potential reason for deviation. There were five reasons given for this single-minded focus: 1) monetary policy affects inflation only in the long run, 2) because monetary policy is only one instrument, it can deal with only one short-run goal at a time, 3) multiple objectives allow policy to change, which lowers credibility and raises inflationary expectations, 4) objectives partly undertaken by other government agencies if also pursued by the Reserve Bank could compromise the Bank's autonomy, and 5) multiple objectives reduce transparency and accountability since poor performance can then be attributed to the pursuit of the other objective (see Lloyd [1992] for a representative discussion). The explicit escape clauses were the only exception.

Whenever an inflation goal below current levels is to be achieved within a specified time horizon, this path of disinflation implies a judgment about the acceptable costs for achieving the lower inflation rate within the time frame. Because this choice affects the well-being of the public, it is inherently a political decision. That is why, in the New Zealand context, the choice was not left solely to the Reserve Bank. In this spirit, both the first and second PTAs envisaged a gradual transition to price stability over the three years following their signing and both called on the Bank to "publish a projected path for inflation for each of the years until price stability is achieved" (Section 5b).

> The initial Policy Targets Agreement signed in March 1990 called for achievement of 0-2 percent inflation by December 1992 and maintenance of price stability thereafter. Partly as a result of a view that the output and employment costs of the speed of adjustment implicit in this time frame were too high, the new government elected in October 1990 deferred the target date by one year.[7] (Nicholl and Archer 1992, p. 120)

Clearly, the Reserve Bank of New Zealand under the 1989 Act was designed to operate as a very rule-based central bank. Notice the contrast between the PTA framework in New Zealand and that in Germany. Rather than seek an agreement with the government, the Bundesbank, when necessary, takes responsibility for setting the path of disinflation on its own, and then justifies that path directly to the general public.

In the time since the initial Policy Targets Agreement, the Reserve Bank has taken great pains to emphasize that the link between the real economy and monetary policy still exists in the short run, and that determining the speed of disinflation is the government's choice (and not the Bank's).[8] In the Reserve Bank's own words:

> It should be emphasized, however, that the single price stability objective embodied in the Act does not mean that monetary policy is divorced from consideration of the real economy. At the technical level, the state of the real economy is an important component of any assessment of the strength of inflationary pressures. More importantly, inflation/real economy trade-offs may need to be made on occasion, particularly in the context of a decision about the pace of disinflation. . . . The main trade-offs are essentially political ones, and it is appropriate that they be made clearly at the political level. The framework allows trade-offs in areas such as the pace of disinflation, or the width of target inflation ranges, to be reflected in the PTA with the Governor. The override provision can also be used, if required, to reflect a policy trade-off.[9] (Lloyd 1992, p. 210)

Also, the Reserve Bank admits that there is still a short-run objective of financial stability, as all major central banks acknowledge.[10] "The Bank now has effective independence to implement monetary policy in pursuit of its statutory objective, without limitations on the technique except that the choices made must 'have regard to the efficiency and soundness of the financial system'" (Nicholl and Archer 1992, p. 119). The key point of this extended discussion of the true intent and functioning of the Bank's escape clauses, time horizons for targets, and beliefs about the relationship of monetary policy to goals other than

price stability is to drive home the fact that even the Reserve Bank of New Zealand—the most extreme of all the inflation-targeting countries in its use of formal institutional constraints on monetary policy—is in operation not as constrained or as single-minded in its pursuit of price stability as some would have it.[11]

Since target adoption, the Reserve Bank has never assigned intermediate target status to any variable except the inflation target itself. It has consistently assigned low weight to developments in monetary and credit aggregates, reiterating that, since the beginning of the reforms in 1985, it is hard to establish any informative link between these aggregates and inflation. Over the past six years, in its public statements, it has paid the most attention to the trade-weighted exchange rate and the level and slope of the yield curve as part of an information-inclusive strategy:

> In building its forecasts of inflation pressures, the Bank has, over the last year or so, taken increasing account of the role of interest rates. Over the years, a better sense has emerged of the strength of the interest rate effect on demand, and hence inflation. . . . Short-term interest rate developments are now playing a greater role in the implementation of policy between formal forecast reviews, alongside the prominent role played by the exchange rate. (Reserve Bank of New Zealand 1995, p. 8)

This analysis of the yield curve emphasizes an interpretation of it as assessing monetary policy's stance or effect, rather than as a way of backing out an implicit inflation forecast. Inflation is chosen as the target just because it is the most practical nominal anchor available to New Zealand at this time—there is no reason a PTA could not be set up around another intermediate target.

> The judgment to date has been that a target specified in terms of the final inflation objective (suitably defined) is preferable to an intermediate monetary aggregate target, mainly because empirical work had not been able to identify any particular money aggregate which demonstrated a sufficiently close relationship with nominal income growth and inflation. (Lloyd 1992, p. 213)

In June 1987, well before the announced target adoption, the Bank started to conduct quarterly surveys of businesses' and households' expectations concerning a number of economic variables, among them inflation, and has regularly reported on developments in inflation expectations obtained from these as well as other surveys. Since then, the Reserve Bank has invested a great deal of effort and interest in the survey, which covers ten different macroeconomic variables and draws the majority of its respondents from the financial and business sectors. Questions and responses from the survey are published in the *Reserve Bank of New Zealand Bulletin* (discussed below). Price uncertainty, the Bank's greatest concern (rather than the point estimate of private sector inflation forecasts), is measured by the standard deviation of directly observed price-related expectations (Fischer and Orr 1994, p. 162).

All of these inflation-related data items and forecasts are assembled for public reading. Section 15 of the Reserve Bank of New Zealand Act of 1989 requires the Bank to produce, at least every six months, a policy statement that reviews the monetary policy of the previous six months and outlines how monetary policy is to be implemented over the next six months consistent with the Bank's stated inflation objective. These semiannual *Monetary Policy Statement*s must be published and submitted to Parliament, and they may be discussed by a parliamentary select committee.

> They must review the implementation of monetary policy over the period since the last Statement, and detail the policies and means by which monetary policy will be directed towards price stability in the coming periods. The reasons for adopting the specified policies must also be given. The annual report provides a vehicle for accountability and monitoring of the Bank as a whole (not just in terms of monetary policy). This is also tabled in Parliament. The Governor and/or Deputy Governors are questioned by the Parliamentary Select Committee for Finance and Expenditure on both the Monetary Policy Statements and the annual reports. (Lloyd 1992, p. 214)

As noted, the Reserve Bank publishes an *Annual Report* and the *Reserve Bank of New Zealand Bulletin* with topical articles, reprinted speeches, and official statements. (Since the Reserve Bank of New Zealand Act of 1989, articles in the *Bulletin* have for the most part been attributed to their

authors, encouraging more accountability and greater open discussion rather than presenting Bank policy as *deus ex machina*.) However, one major limitation remaining on the flow of information involves the collection and reporting of the various inflation series on a quarterly rather than monthly basis; it is not clear whether this reflects inherent data limitations in the New Zealand context or an intent to further smooth out noisy shifts in the inflation rate (and potential reactions by the markets) beyond those embodied in the "underlying" series and the various explanations.

Despite the tendency to classify the Reserve Bank's legal independence as akin to that of the Bundesbank or the Federal Reserve System, the Reserve Bank of New Zealand and its Governor actually face a much different situation. "This is not independence as the Bundesbank would understand it, since the target is to be set by the government and the Bank is responsible to the government for achieving it. The Bank is an agent, not a principal" (Easton 1994, p. 86). Put differently, while the two central banks share a similar goal, similarly defined, the Bundesbank's position is consistent with it being a trusted (and only informally or voluntarily accountable) institution. However, the structure of the Reserve Bank of New Zealand is consistent with its being an agency of the government held regularly to account. This is not a criticism of the Reserve Bank, either by observers or by the original legislators.

> The New Zealand reforms were motivated partly by orthodox economics and the desire to apply its precepts to government. However, they were also influenced by the political "New Right," which, on philosophical grounds, sought a smaller role for the public sector than perhaps could be justified from conventional economic theory alone. (Easton 1994, p. 78)

In addition, tighter constraints may have been necessary because of the past poor performance of New Zealand's monetary policy and the weaker public support for low inflation. The upshot for inflation targeting in New Zealand is that there is very little exercise of short-run discretion except as allowed by the caveats in the PTAs; moreover, that limited discretion must be accompanied by formal ex post communications with the government. Accordingly, although these statements are made public in the *Monetary Policy Statement*s, and in an active communication program beyond the *Statement*s as pursued by the Bank, in New Zealand the burden of explanation falls less upon direct, transparent communications with the public than it does in countries where discretion is less constrained. This means that government support, rather than the power of the Reserve Bank's explanations to the public, is the source of flexibility.

New Zealand Monetary Policy under Inflation Targeting

This section summarizes the main events in New Zealand's monetary policy in the 1990s. It is based on the Bank's *Monetary Policy Statement*s as well as on *OECD Economic Report*s and various newspaper reports.[12] Charts 1-4 (pp. 49-50), which track the paths of inflation, interest rates, the nominal effective exchange rate (henceforth the exchange rate), GDP growth, and unemployment in New Zealand both before and after inflation targeting, suggest that the period since New Zealand's adoption of inflation targets can be usefully divided into three episodes.

The first, from target adoption in March 1990 to March 1992, is characterized by inflation falling to within the 0 to 2 percent range, initially high interest rates (which later fell rapidly), a gradual decline in the exchange rate, negative GDP growth, and rising unemployment. During the second episode, from the second quarter of 1992 through the first quarter of 1994, inflation fluctuated within the upper half of the 0 to 2 percent range, interest rates continued to fall, the trend in the exchange rate was reversed, GDP growth rose sharply, and unemployment declined at a moderate pace. The third episode spans the last three years, when the Reserve Bank faced its greatest challenges since target adoption, and draws most of our attention. This situation since the second quarter of 1994 has been one of rising inflation and interest rates, continued appreciation of the exchange rate, sustained high GDP growth rates, and rapidly falling unemployment. During this episode, the inflation target was breached twice briefly, and was in fact reset as a result of an election.

The first episode begins with the initial Policy Targets Agreement, signed on March 2, 1990, stipulating that price stability, defined as annual inflation within the 0 to 2 percent range, was to be achieved by the year ending December 1992, and that each *Monetary Policy Statement* released by the Bank should contain a projected path for inflation over the following five years. The first *Monetary Policy Statement*, released in April 1990, specified that a 3 to 5 percent target range for inflation be reached by December 1990, a 1.5 to 3.5 percent range by December 1991, and a 0 to 2 percent range by December 1992 and thereafter. At this time, the Bank expected the economy to continue its gradual recovery during 1990 from the 1988 recession. The December 1989 figure for underlying inflation, excluding the effects of the 2.5 percent increase in the goods and services tax (GST) effective July 1, 1989, was 5.3 percent, and the Bank saw no need for changes in short-term interest rates at this point to achieve the first range in December 1990.

The two major surprises over the period through January 1991 covered by the second and third *Monetary Policy Statement*s were the oil price shock in the wake of the Iraqi invasion of Kuwait and the continued weakness of the New Zealand economy. In August 1990, the Bank tightened monetary policy somewhat in response to what it called the "fiscal slippage" evident in the budget released in July. In October, it announced that the target range for December 1990 should apply to CPI inflation excluding oil prices. The oil price adjustments were then used as a pedagogic occasion for the Bank to specify that in the future, targets would apply to underlying inflation. As it turned out, inflation including oil prices over the year to December 1990 was 4.9 percent—inside the original target range—but by then the target ranges had been changed.

Following its victory by a large margin in the general election on October 29, 1990, the new majority National (right) Government signed a new PTA with the Bank on December 19, extending the disinflation process by one year. As noted above, this extension was due to the elected government's belief that rapid disinflation had already proved too costly in real terms. This view was widely held, and the domestic financial sector was extremely outspoken in characterizing the 0 to 2 percent inflation target range as a dangerous "obsession."[13] Nevertheless, before the election both the Labour and the National Parties (the two main parties in the then-majoritarian, rather than proportional representation, parliamentary system) supported maintaining the inflation targets at their original level.[14] These developments illustrate the many ways in which an inflation target can be adapted without a change in the primary target definition, with the time horizon being a critical determinant (as explained above) of how tightly the target constrains policy.

The February 1991 *Monetary Policy Statement* specified the inflation target range at 2.5 to 4.5 percent by December 1991, 1.5 to 3.5 percent by December 1992, and 0 to 2 percent by December 1993 as the new path toward price stability. Already in mid-November 1990, the Bank started to allow the ninety-day bank bill rate to fall substantially in response to lower than expected inflationary pressure due to only modest effects of the oil price increases, sluggish domestic growth, and what was seen as the new government's support of the goal of price stability. (The bill rate is indicative of the stance of the Reserve Bank's monetary policy, but unlike a true policy instrument it is not directly controlled by the Bank.[15]) By mid-January 1991, the bill rate had fallen to under 11.5 percent from 14.6 percent in August 1990.

By August 1991, the Bank had expressed its surprise at the speed at which inflation was falling. Growth in wage settlements was low, unit labor costs were essentially unchanged, the exchange rate was stable, and import prices were flat, reflecting the recession in a number of major economies. Whereas in its February 1991 *Monetary Policy Statement* the Bank had expected headline inflation to be slightly above the midpoint of the 2.5 to 4.5 percent range by the next December, in the quarter to June it was already down to 2.8 percent, and the Bank's forecast for the year up to December 1991 was 2 percent. Likewise, underlying inflation (with mortgage interest rates, oil prices, and indirect taxes and government charges removed) was down to 2.6 percent by June and was expected to fall below 2.5 percent by the end of the year. The Bank stated that "this outcome will reflect the firm policy stance maintained throughout

[1990], and some imprecision in the process of controlling inflation" (Reserve Bank of New Zealand 1991, p. 43).

By late September, the Bank started to ease monetary policy sharply "when it became clear that, in the absence of this action, underlying inflation for 1992 was likely to fall below the 1.5 to 3.5% indicative range" (Reserve Bank of New Zealand 1992a, pp. 5-6). In order to maintain the floor on the range as part of the explicit commitment (without seeming to be motivated by any apparent fears of deflation), the Reserve Bank allowed the ninety-day bank bill rate to fall to 8.8 percent over the next three months and the exchange rate to depreciate sharply. Already by October, the New Zealand dollar was at its lowest level against the currencies of its trading partners in five years, but the Bank and the Prime Minister explained to the public that the depreciation would not imperil the achievement of future inflation targets because of the forecast and the nature of the depreciation.[16] In December 1991, headline and underlying inflation were down to 1 percent and 1.7 percent, respectively, roughly 1 percent below the forecasts from August. "The contraction in the domestic economy (which itself was more marked than anticipated) impacted on inflationary pressures to a greater extent than had been expected" (Reserve Bank of New Zealand 1992a, p. 10). Also, world prices had been lower and the exchange rate held firm for longer than had been expected. Mostly as a result of the exchange rate depreciation, the Bank expected underlying inflation to peak at around 3 percent by early 1993 and then to fall back to 1.2 percent by the end of that year.

The June 1992 *Monetary Policy Statement* heralds the beginning of the second episode, stating that "the Bank is now focusing on ensuring that price stability is consolidated, rather than on still trying to achieve significant reductions in inflation" (Reserve Bank of New Zealand 1992b, p. 13). In the year from March 1991 to March 1992, headline and underlying inflation had fallen to 0.8 percent and 1.3 percent, respectively. The domestic economy had entered the recovery in recent months and the Bank therefore saw that its task now was to maintain price stability in an environment of moderate growth. The continued favorable outlook for inflation and the reduction in inflation expectations, as documented by the Bank's surveys, had allowed the Bank to accommodate some further easing, with the ninety-day bank bill rate falling to 6.6 percent. The Bank's forecasts for underlying inflation for the end of 1992 and for 1993 were now at 2 percent and 1 percent, respectively, reflecting primarily downward revisions in expected unit labor costs and import prices. The turning point in the exchange rate, in January 1993, was foreshadowed by the Bank's assessment that "over the longer run . . . if the inflation rates of our trading partners . . . remain higher than that in New Zealand, some appreciation of the nominal exchange rate would be entirely consistent with the maintenance of price stability" (Reserve Bank of New Zealand 1992b, p. 35).[17]

Some unrest in the currency market following the release of the December 1992 *Monetary Policy Statement* prompted a moderate tightening action by the Bank, reflected in a rise in the ninety-day bank bill rate from 6.4 percent to 7.8 percent. Apart from this brief incident, the period from mid-1992 until the end of 1993 is best described by the absence of any challenges to monetary policy. The domestic economy continued its recovery without any notable inflationary pressures appearing. The ninety-day bank bill rate fell below 5 percent in December 1993. Private sector inflation expectations remained by and large unchanged, and the Bank's inflation forecasts one and two years ahead remained comfortably inside the 0 to 2 percent range. Donald Brash had been reappointed Governor of the Reserve Bank on December 16, 1992, reflecting the Reserve Bank's perceived strength, while the National Party barely survived the next election, holding on to a one-seat majority in Parliament. At the end of 1992, a new PTA was signed between the Bank and the National Party, specifying that the Reserve Bank must maintain underlying CPI within the already achieved 0 to 2 percent range.

As the most recent period in New Zealand monetary policy began, continuing domestic expansion and appreciation of the exchange rate shifted the risks of future inflation from external to domestic sources. With hindsight, it is clear that inflationary pressures started to develop in early 1994. In December 1993, the Bank noticed indications that the recovery might be stronger

than anticipated, but still considered it "premature" to tighten policy. Its forecast of underlying inflation by the end of 1994 and 1995 was at 0.8 percent and 1.8 percent, respectively. One recurring topic covered in the *Monetary Policy Statement*s during the period since early 1994 is the Bank's uncertainty about the level of growth that the New Zealand economy could sustain without creating inflation. The structural reforms initiated since 1985, primarily the liberalization and opening of markets to international competition and institutional changes in the wage-setting process, were presumed to have made it more difficult for price and wage inflation to develop. Combined with an assumed increase in the credibility of the monetary policy framework, the reforms could have allowed higher growth rates to be sustained without igniting inflation than was the case during previous business cycles. Forecasting the actual size of these effects proved to be difficult.

In line with the seeming thrust of these effects, the average ninety-day bank bill rate dropped from 5.5 percent in the December 1993 quarter to 4.9 percent in the March 1994 quarter, even as it became clear that GDP had grown 5 percent during 1993. Over the second quarter of 1994, monetary policy started to respond to the unexpected strength of the economy, and the average ninety-day bank bill rate rose to 6.2 percent through June. GDP was growing at a rate of 6 percent per year with all sectors displaying rapid expansion, most notably the construction sector. Capacity utilization had been on an upward path since late 1991, despite strong investment over the preceding years, and employment had grown at an annual rate of 4 percent since the beginning of the year. By midyear 1994, private sector economists began to worry that a breach of the target range by headline CPI might give rise to increasing inflation expectations by the public, even if underlying CPI inflation remained on target. From June to December, the bill rate rose from 5.5 percent to 9.5 percent. As a result, the yield curve turned negatively sloped again. The exchange rate had appreciated by 4.5 percent over 1994.

At this point, the Bank's assessment was "that the economic upturn may have peaked, and that growth may begin to moderate over the coming year" (Reserve Bank of New Zealand 1995). However, its forecast of underlying inflation over the next two years came very close to the 2 percent upper bound, with underlying inflation expected to stay around 1.8 percent over all of 1995 and headline inflation peaking at 4.2 percent in the second quarter of 1995, mainly as a consequence of rising mortgage rates. A number of private forecasts disagreed with the Bank's, predicting a target breach in mid-1995. Finance Minister William Birch found it necessary to respond to press questions about whether Governor Brash would in fact be dismissed if the target were breached. His response, unsurprisingly, was that the Reserve Bank's forecasts did not offer any grounds for believing that the target would be breached.[18]

The Bank's forecast for both GDP growth and inflation in 1995 proved to have been too low. In May, the Reserve Bank revised its forecast to predict that underlying inflation would exceed the 2 percent target ceiling in the second quarter of 1995. But "Mr. Brash said the Bank remained confident the underlying inflation rate would fall back during the third quarter of this year, and therefore planned to take no action on a 'temporary' breach" (Tait 1995). Governor Brash made it clear that the overshooting would not be reversed so long as there was no trend behind it, but that he did not anticipate expectations to respond unduly to a "temporary" deviation. This episode illustrates, however, that the government's view of the inflation-targeting framework in New Zealand consciously denies the framework's consistency with an "averaging" approach (why else would the government make an immediate request for the explanation of a 0.2 percent target breach?). This rigidity, given the inevitability of target breaches due to policy uncertainty, especially for a narrow target, is problematic.

Although during the second and third quarters of 1995 there were some signs of a slowdown in economic activity, by the end of the year the outlook had become more mixed, with some indication that GDP growth would pick up again, leading the Bank to forecast GDP growth of 1.5 percent in the year to March 1996 and 3 percent in the year to March 1997. More important, from the Bank's point of view, measured underlying inflation did in fact rise above the 0 to 2 percent range to peak

at 2.2 percent in the second quarter, with headline inflation rising to 4.6 percent (although both remained below the outer bounds of private sector forecasts).

Thereafter, headline inflation fell rapidly, as the rise in mortgage rates stemming from the monetary tightening during 1994 stopped having an effect on the CPI calculation (an effect that was excluded from the definition of underlying inflation). Underlying inflation, by contrast, fell to only 2 percent in the year to September 1995, and although in June 1994 the Bank still had expected underlying inflation to return to 1.2 percent by June 1996, its December 1995 forecast for the year to September 1996 was 1.7 percent. A major factor behind the increase in underlying inflation was the persistent construction boom, particularly in the Auckland area, in which construction costs increased by 11.8 percent over the year to March 1995.

This concentration of inflationary pressures in the nontraded sector made the Bank's monetary policy less effective in slowing prices than past experience indicated because the exchange rate channel of monetary transmission would have little impact on this sector of the economy. As a result, keeping inflation within the tight target range required a sharp rise in nominal interest rates (to more than 9 percent) and a sharp appreciation of the New Zealand dollar. The required movements of interest and exchange rates can be characterized as the result of a very small economy running an independent monetary policy when its economic cycle is out of phase with the major world economies. In addition, these movements can be a potential source of instrument instability, with resulting economic dislocations.[19] Nevertheless, the key accomplishment that New Zealand observers saw was that the country had, for the first time in decades, been through a business cycle upswing of strong growth without a balance-of-payments or inflation crisis at the end of it.

Governor Brash did take "full responsibility" for the Bank's not having acted sooner to stem inflationary pressures, thereby allowing the target to be breached. Citing the "temporary" nature of the breach, however, he said that he would not resign, and Finance Minister Birch backed him (Hall 1995). Clearly, the dismissal of the Reserve Bank Governor for breach of the target is not automatic, either in design or in practice. Rather, dismissal is left to the judgment of the Board and the Finance Minister. However, from the point of view of an "optimal central banking contract"—as many have characterized the New Zealand framework—Governor Brash was not penalized for exceeding the specific number set in the contract.

By October 1995, inflation had subsided, but Governor Brash was sufficiently chastened by the experience to suggest that he would rather see the Bank have an inflation target in which the goal was in the center of the range, given the difficulties of forecasting. "You don't have any room for being wrong at a rate of 1.8 to 1.9 percent" (Montagnon 1995). The gap between how finely it is possible for the Reserve Bank to control inflation and the narrow range to which the Reserve Bank was committed became the main theme for the next year. The target breach illustrated the potential for instrument instability, in which the policy instruments need to undergo wide swings in order to achieve inflation targets narrower than a small economy's monetary policy can consistently provide.

Since the inflation target goal required of the Bank results from the PTA with the elected government—and the response (that is, whether or not to dismiss the Governor) to target breaches also depends upon the government's support—monetary policy became a highly visible political issue in the run-up to the October 1996 elections. The primary debate centered on whether the target range should be widened, although some minor parties considered altering the goal of monetary policy from 1 percent measured inflation. In December 1995, the Reserve Bank tightened policy again. Most observers characterized this as a reaction to tax cuts announced by the National Party meant to take effect right before the elections nine months later; Finance Minister Birch publicly denied this interpretation, stating that the size and nature of the tax cuts had been discussed with the Reserve Bank before being put through Parliament (Birch 1996). In any event, the issue in the popular mind had moved from one of low inflation to one of high real interest rates. By February 1996, Governor Brash felt it necessary to open a speech to the Auckland Manufacturers' Association with the following remarks:

> Over recent weeks there have been a number of media reports of people calling for the abolition of the Reserve Bank, or the repeal of the Reserve Bank Act, with the claim that the Bank is an anachronism in New Zealand's free-market economy, that its operations result in New Zealanders having to pay interest rates which are among the highest in the world in real terms, and that these interest rates are pushing up the exchange rate to the huge detriment of exporters and those competing with imports. There are variations around this theme, depending upon who is mounting the case, but I think that I accurately reflect the general case. (Brash 1996b)

While Governor Brash's policies had contained trend inflation sufficiently to justify the government's support, the differential effects of tight money on traded and non-traded goods exacerbated the public political fallout of having to maintain high interest rates to achieve the required tight control. Simply meeting the contract was not enough when the contract itself came under fire, and even though rewriting the contract was the politicians' responsibility and not the Bank's, the Bank began to suffer the consequences.

On April 19, 1996, the Board of the Reserve Bank sent a letter to Finance Minister Birch. It had become clear that the target ceiling would be breached again by mid-year, that headline inflation would rise while underlying inflation would only temporarily rise again, and that the issue of dismissing the Governor would have to be dealt with once more, even though again no one felt that policy was too loose or that inflation expectations were slipping. However, the fact that the Reserve Bank was running into a control problem for the second time in a year pointed out the difficulties of the third PTA. The Board's letter supported Governor Brash's performance—carefully basing the argument mostly on the trend of underlying inflation—and recommended that he continue in his position.

In May, however, the New Zealand First Party—a populist party likely to become a coalition member for the first time in the November elections once multimember proportional representation had replaced majoritarian elections[20]—advocated the addition of unemployment and growth goals for monetary policy. Between the upcoming likelihood of an inflation blip and the political uncertainty being tied to monetary policy, long-term bond yields rose, and the spread between ten-year bond rates in New Zealand and the United States reached 200 basis points, the highest level since 1992. The Labour Party made a proposal of its own to widen the band to -1 to 3 percent inflation.

In June 1996, the Reserve Bank reported that underlying inflation did in fact breach the target ceiling of 2 percent in the first quarter, and it forecast that underlying inflation would reach 2.6 percent in the third quarter. When historically high real interest rates appeared to be insufficient to maintain inflation within the target range consistently, the feasibility of the target range was questioned more widely. Private sector economists began to join the opposition parties in advocating a widening of the target range, predicting that inflation would remain above 2 percent through March 1997. Of course, the Reserve Bank, among others, feared that a widening of the range might be interpreted as a weakening of anti-inflationary resolve and would have harmful effects on credibility and inflation expectations; as noted above, however, even Governor Brash had come to realize that the control problems of a 0 to 2 percent target range were too great for monetary policy in the New Zealand economy.

> Dr. Brash acknowledged that it would be tempting to say that the 0 to 2 percent target range was both too low and too narrow. But . . . "I don't think it is self-evident at all that a wider target would help the real economy," Dr. Brash said. "On the contrary there are some real risks in doing that." The dangers were that widening the range would itself raise inflationary expectations, and that the Reserve bank itself would be slower to react to inflationary pressures. The width of the target band is only one of the features of the present monetary policy framework to be questioned of late. (Fallow 1996)

Only successful targeters of long standing, like Germany and Switzerland, appeared to be able to explain frequent target range misses without changing their ranges. Given the starting premises of the Reserve Bank of New Zealand Act of 1989 and its inflation-targeting framework, the need to control inflation tightly every quarter (or to formally justify the Governor's retaining his

position) when New Zealand's monetary policy could only do so much, created pressure for a more activist monetary policy than was ever originally intended. In particular, the interaction between domestic interest rates oriented toward fighting inflation and the exchange rate harmed the competitiveness of export sectors of the economy.

On October 12, 1996, New Zealand held its first mixed-member proportional representation elections for national Parliament; the outcome was (as expected) indecisive, with no one party getting more than 50 percent of the vote. The New Zealand First Party clearly held the balance in making a coalition, negotiating with both the Labour and National Parties. On October 18, National Party (and caretaker) Finance Minister Birch publicly indicated that the inflation target (its width, its average level) was on the table in negotiations with the New Zealand First Party. The October 16 data release showed underlying inflation remaining above target at 2.3 percent (headline inflation was 2.4 percent), but below some private forecasts that were as high as 2.7 percent. In the words of one New Zealand business columnist watching the negotiations, "the message: [despite being generally successful,] present Reserve Bank inflation targets are not credible. They could be changed at any time, depending on the whims of whoever wants most to drive about in a ministerial LTD. We are back to politicized monetary policy" (Coote 1996).

Meanwhile, the Bank found itself on the horns of its ongoing dilemma. The New Zealand dollar had risen to an eight-year high against the yen and the U.S. dollar as capital flowed back into New Zealand after the election. The Bank again was confronted with difficult choices. Despite the above-target contemporaneous inflation rate and the need to rein in inflationary pressures on the nontraded goods side—and because of the medium-term trend of underlying inflation and the highly unfavorable circumstances for the traded goods sector—there was good reason not to raise interest rates further. "Unfortunately, in order to keep overall monetary conditions consistent with maintaining price stability, it appears we have to accept rather less interest rate pressure than might be ideal, and rather more exchange pressure than might be ideal," stated the Bank on October 24 (Hall 1996a). In other words, the Bank was admitting that its control problem of hitting the required narrow target range forced it into short-run policy trade-offs that it did not want, given the political constraints of the tight target.

Finally, on December 10, a parliamentary coalition between the National and New Zealand First Parties was agreed to for a three-year term. Their first substantive announcement was that the inflation target would be modified. The new Policy Targets Agreement was signed by the National Party's Finance Minister Birch and Governor Brash on December 10. The shift effectively underlines the inescapably political nature of a central bank's accountability under any democratic system: that is, that the goal by which the monetary framework is evaluated, and in the New Zealand case the exercise of the option to dismiss the Governor for not attaining the goal, reflect the current elected officials' preferences.

On December 18, Governor Brash characterized the widening of the inflation target from 0 to 2 percent to 0 to 3 percent as a modest change: "We previously aimed at inflation of 1 per cent. It is now 1.5 per cent" (Hall 1996b). While Governor Brash admitted that this would allow some easing, he stated that it was already justified by inflation forecasts: "to the extent that increased inflationary expectations lead to higher prices, higher wage settlements and so on, the new inflation target gives much less scope for an easing . . . than might perhaps be assumed" (Tait 1996). To the extent possible, the Reserve Bank was intent on limiting any damage to its credibility.

In an address given a month later (Brash 1997), Governor Brash summarized the meaning of the new PTA, including the amended inflation target. He emphasized that "price stability remains the single objective of monetary policy and constitutes the best way in which the Reserve Bank can contribute to New Zealand's economic development." He noted that the current state of knowledge in monetary economics left unresolved the debate between those who advocate a "low, positive inflation" and those who argue for zero inflation. The Governor continued,

> "it is at this stage quite inappropriate to be dogmatic, and in my own view a target which involves doing our utmost to keep measured inflation between

> 0 and 3 percent is certainly consistent with the intention of the legislation within which monetary policy is operated. . . . Indeed, irrespective of where the mid-point of the target range should be, there may be some advantage in having a slightly wider inflation target than the original 0 to 2 percent target. A number of observers have suggested that a target with a width of only 2 percentage points requires an excessive degree of activism on the part of the central bank. . . .The tension is between, on the one hand, choosing a target range which effectively anchors inflation expectations at a low level but which is so narrow that it provokes excessive policy activism and risks loss of credibility by being frequently exceeded; and on the other, a target range which does a less effective job of anchoring inflation expectations, but which requires less policy activism and protects credibility by being rarely breached. (Brash 1997)

Key Lessons from New Zealand's Experience

After close to seven years of inflation targeting, the Reserve Bank of New Zealand's experience provides several important lessons. First, it suggests that the challenge of bringing down trend inflation and maintaining low inflation expectations is relatively easy compared with that of tightly controlling the course of inflation within a narrow range, especially for a small open economy. Furthermore, New Zealand's experience indicates that strict adherence to a narrow inflation target range can lead to movements in policy instruments that may be greater than the central bank would like and open the potential for instrument instability should the pressures from these movements become too great.

In addition, the Reserve Bank has found that excessive restrictions on the exercise of its discretion and the manner of its explanation of policy—even if in the name of accountability—can create unnecessary instances in which credibility could be damaged even when underlying trend inflation is contained. This is due not only to inflexibility, but also to the Bank's focus on direct, formal accountability to the government rather than a broader accountability to the general public through transparency.

These lessons about the operation of targeting frameworks do not negate the fact that inflation targeting in New Zealand has been highly successful: this country, which was prone to high and volatile inflation before the inflation-targeting regime was implemented, has emerged from the experience as a low-inflation country with high rates of economic growth.

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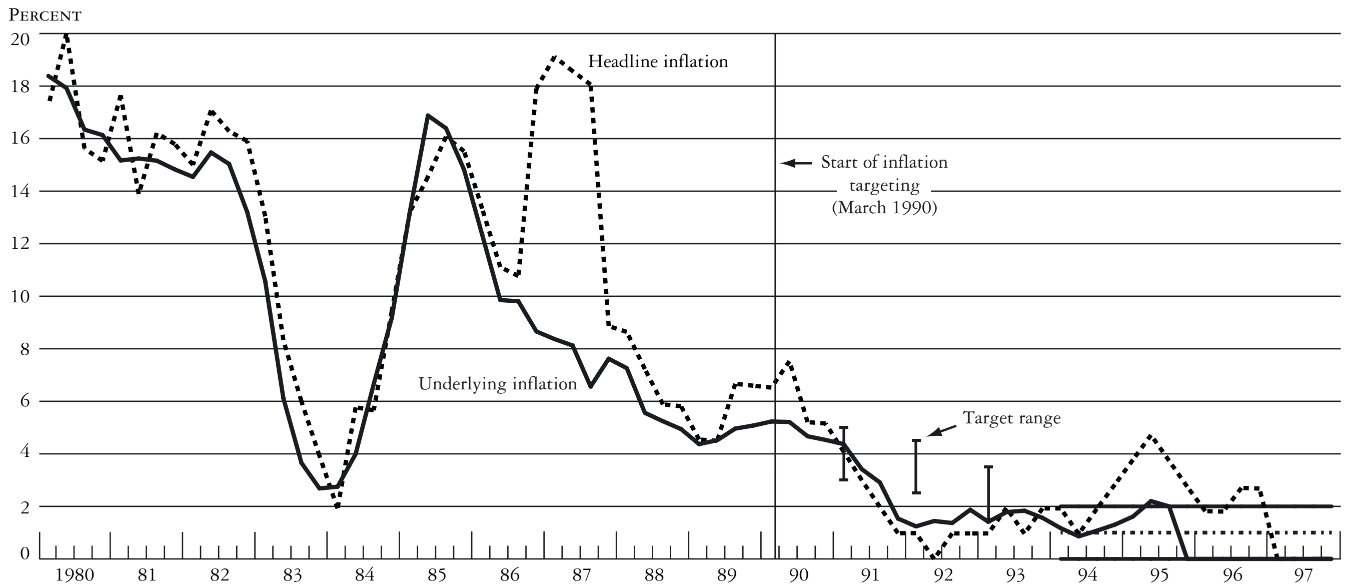
Economic Time Line: New Zealand

Chart 1

Underlying Inflation, Headline Inflation, and Targets

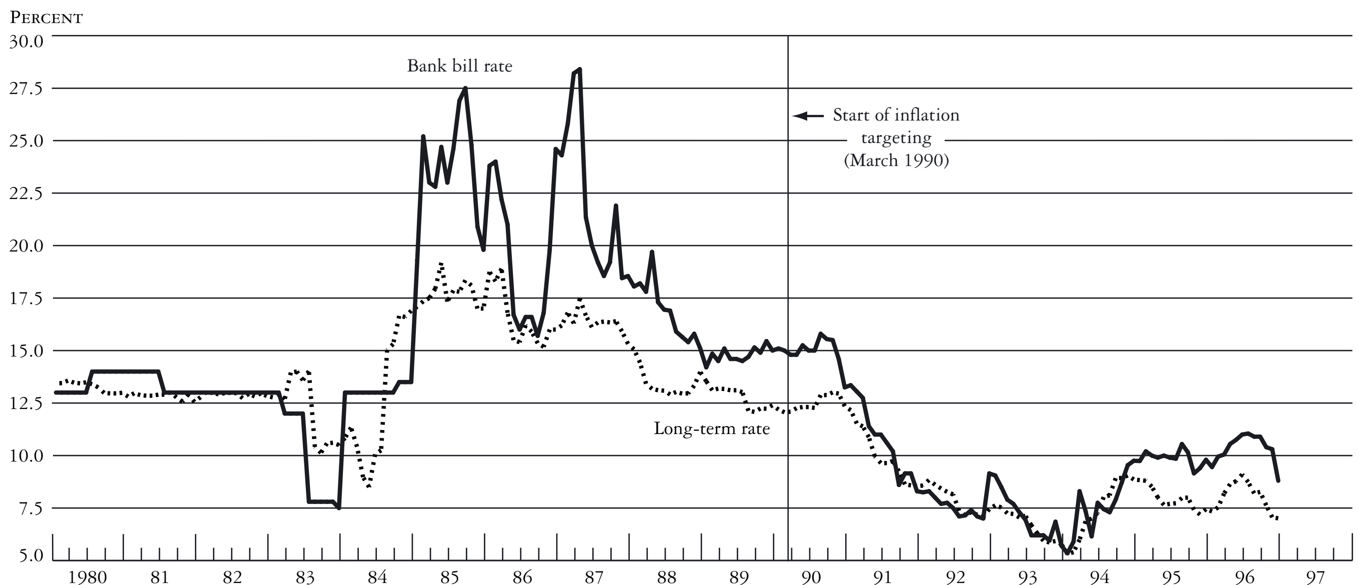


Source: Reserve Bank of New Zealand.

Note: The I-shaped bars indicate the target range for inflation in effect before the adoption of an ongoing target range of 0 to 2 percent in March 1994; a dashed horizontal line marks the midpoint of the ongoing target range.

Chart 2

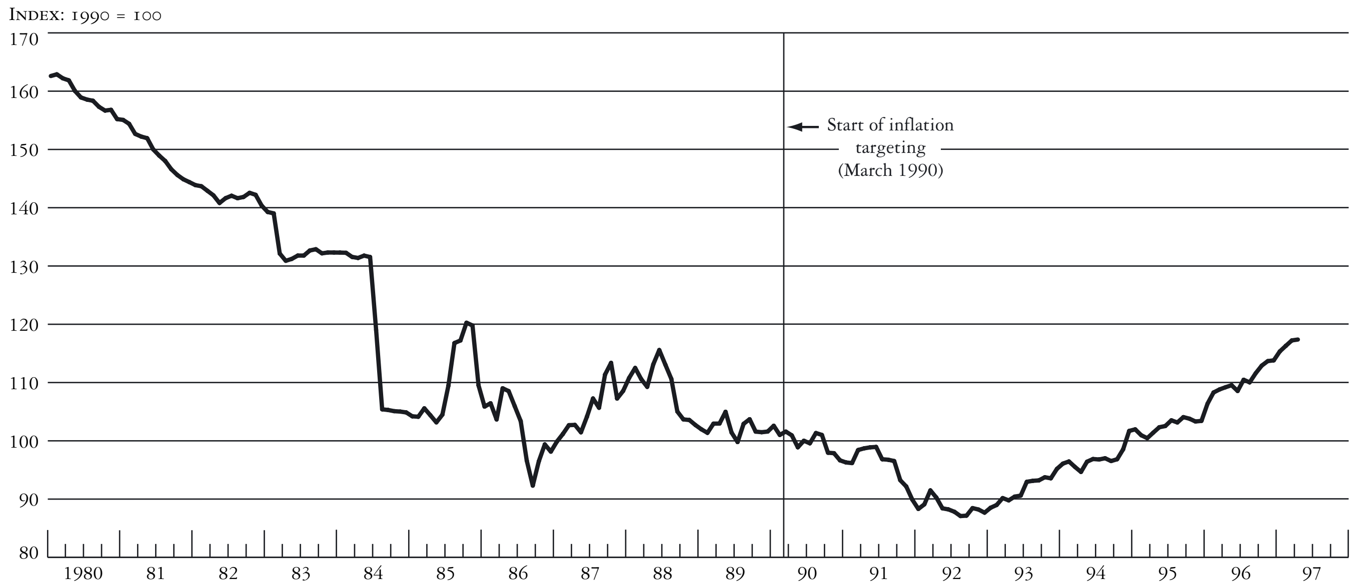
Bank Bill and Long-Term Interest Rates



Source: International Monetary Fund, *International Financial Statistics*.

Chart 3

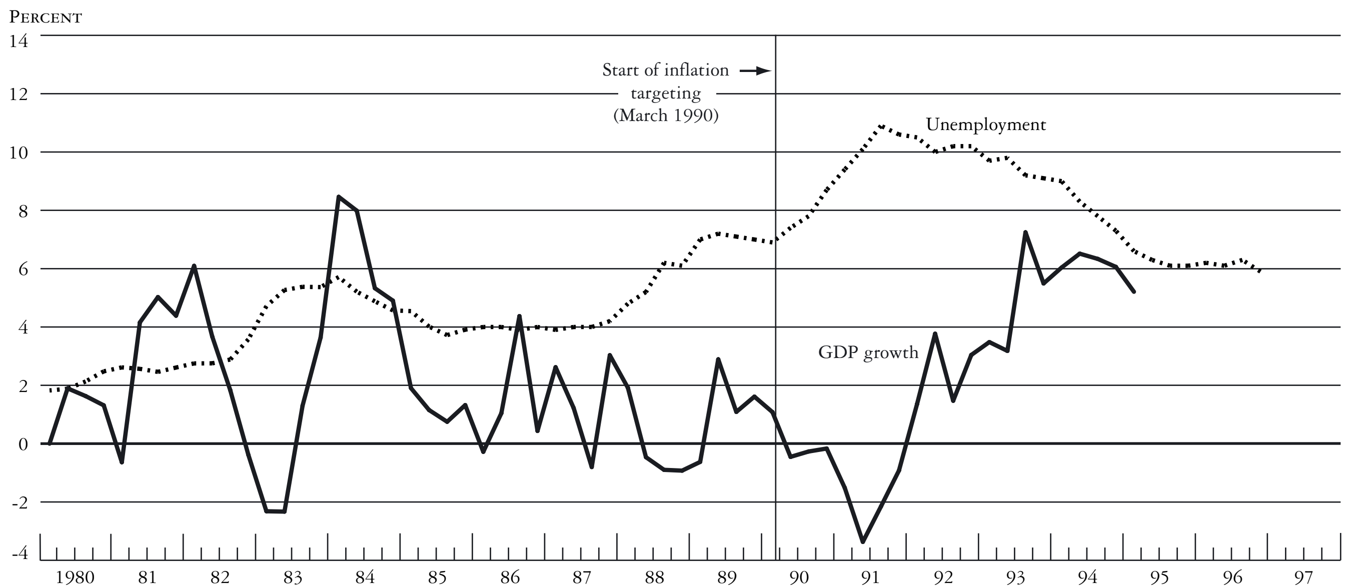
Nominal Effective Exchange Rate



Source: Bank for International Settlements.

Chart 4

GDP Growth and Unemployment



Source: Reserve Bank of New Zealand.