

Seminar Paper No. 641

**INFLATION TARGETING IN NEW ZEALAND:
EXPERIENCE AND PRACTICE**

by

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Inflation targeting in New Zealand: experience and practice*

an address by

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Governor of the Reserve Bank of New Zealand

to the
Institute for International Economic Studies

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Ladies and Gentlemen

Introduction

Thank you for your kind welcome.

I have been asked to give my perspective on inflation targeting. The first point I can note is that you, an audience of professional economists, have turned up to listen to a central banker. So an obvious question presents itself: does the practice of inflation targeting reflect sound economic principles? Certainly, the inflation-targeting regime in New Zealand has been subject to considerable academic scrutiny along these lines. I suggest, however, that some other questions are more interesting for today's discussion. Have we made progress in the *practice* of monetary policy? Have we learnt anything about inflation targeting along the way? And what is the way forward?

I'm going to use these questions to define the main themes of my address. I will argue that an inflation-targeting *framework* is not the same as a day-to-day *policy* for inflation-targeting. There is at least as much to learn about how to work within an inflation-targeting framework as establishing the framework itself. I will also argue that one of the main challenges we face as policy makers is confronting uncertainty, and it is here that I see a significant opportunity for academic economists to make more contributions to the practice of monetary policy.

To put some substance on this argument, I will refer often to the New Zealand experience. I hope you will forgive me if you think I am indulging in a history lesson, but it has much to do with where we are today.

Toward the Reserve Bank Act and beyond

Many of you will be aware that New Zealand passed legislation in 1989 that granted the Reserve Bank operational independence to achieve and maintain price stability. I would like to say a few words on how we got there, and our experiences since the passage of the Reserve Bank Act, in order to put my comments about the *practice* of monetary policy into context.

The transition to inflation targeting did not arise out of a vacuum. It reflects several factors: New Zealand's own experience with activist monetary policy and high inflation, other countries' experiences with nominal targeting regimes, and a ground-swell of academic opinion.

To begin with the facts: New Zealand experienced double digit inflation for most of the period from the first oil shock through to the late 1980s. 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 a result of a wage, price, dividend and interest rate freeze. Throughout the period, monetary policy faced multiple and varying objectives that 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. Distortions were pervasive. Nor was there any compensation in output: real growth over the same period averaged only 1.8 per cent annually.

At the same time, an emerging consensus challenged the support for activist monetary policy. You will all know that this challenge was long in development, indeed since the 1950s when Friedman remarked famously about the “long and variable lags” that undermined the scope for activist monetary policy. Experience world-wide was lending credence to the view that monetary policy is neutral in the long run and that a central bank cannot “buy” a permanent increase in output by tolerating a bit more inflation.

However, inflation targeting did not spring immediately from this background. It simply brought us to the point, in the mid-1980s, where reform-minded members of government, the Treasury and the Reserve Bank saw the need to pursue a nominal anchor. This in itself was not particularly innovative. The idea was well-established in many other central banks. That said, perhaps there were some advantages to being a late starter. It would have been easy to adopt the exchange rate as a nominal anchor, or to pursue money targeting. However, problems that other countries were experiencing with unstable money demand seemed to rule out money targeting, particularly since we were engaging in a programme of reform that included extensive financial liberalisation. These issues were also becoming well-documented in the academic literature, and the same literature also made it clear that exchange rate targeting inevitably meant accepting whatever inflation rate seemed appropriate to the central bank whose currency was targeted. Moreover, given experience with an election cycle in monetary policy, academic notions of “incentives” and “commitment” that might have remained obscure began to make sense.

Against this background the idea began to form that it might be better to target inflation directly. The transition, however, was not well-defined. It was even less clear how to go about targeting inflation. Primary liquidity, for example, was for some time used operationally as an instrument, though to this day it is often mistakenly argued that it was a target itself. I will simply note that history can be surprisingly confusing, even for those who were there. So let me cut to 1988.

By then the inflation rate was, for all intents and purposes, the nominal anchor. The question at that stage was whether there was an institutional arrangement that could achieve credibility and lock in gains from commitment. The Reserve Bank Act of 1989 mandated price stability as the single goal for monetary policy. Further, a Policy Targets Agreement, signed by the Governor and the Minister of Finance (now the Treasurer) on behalf of the elected government, set out specific targets by which monetary policy performance could be assessed during the period of the Governor’s term.

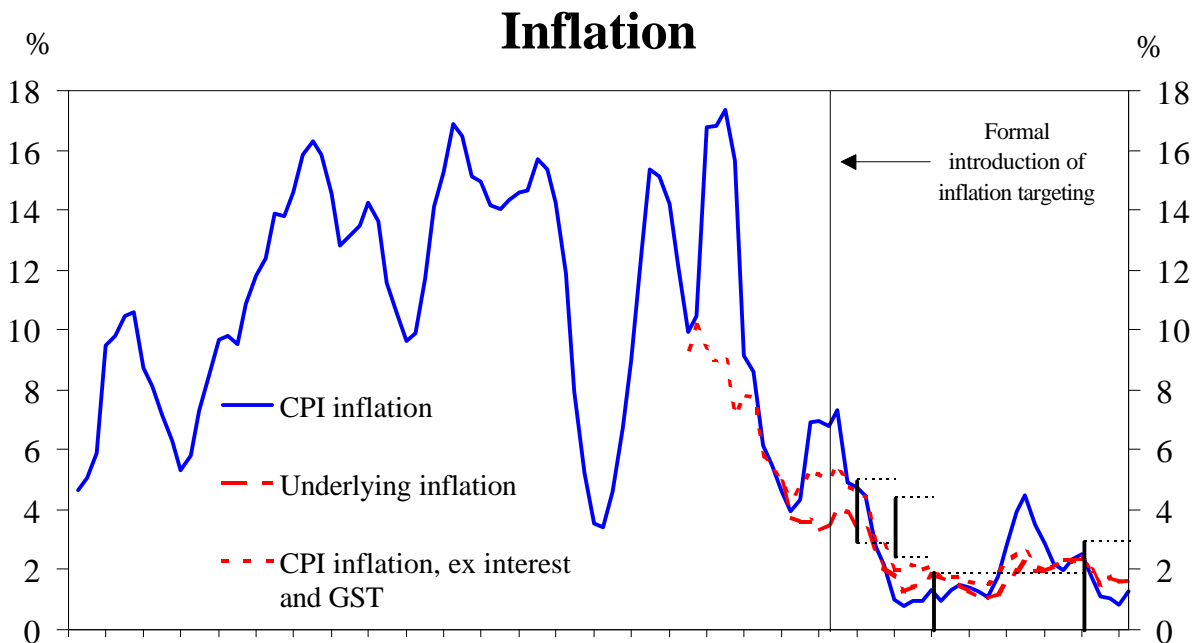
Several points are notable about the Reserve Bank Act and the Policy Targets Agreements (PTAs). First, the Act grants operational independence to the Bank to pursue its goal. This is backed up with an emphasis on accountability to the Government of the day. This contracting arrangement has many of the features of optimal contracting that have attracted so much attention in the academic literature. Secondly, what the Act describes as “stability in the general level of prices” has been defined in the PTAs as inflation bands, rather than price level targeting. To the extent that “bygones are bygones” with inflation targeting, this should result in lower instrument volatility than price level targeting. Finally, and perhaps most obviously, there is only one objective listed, that of price stability. This was clearly intended to lend credibility to the whole arrangement. However, in practice a single objective does not mean that the monetary authority need be blind to other macroeconomic considerations, and I will come back to this point soon.

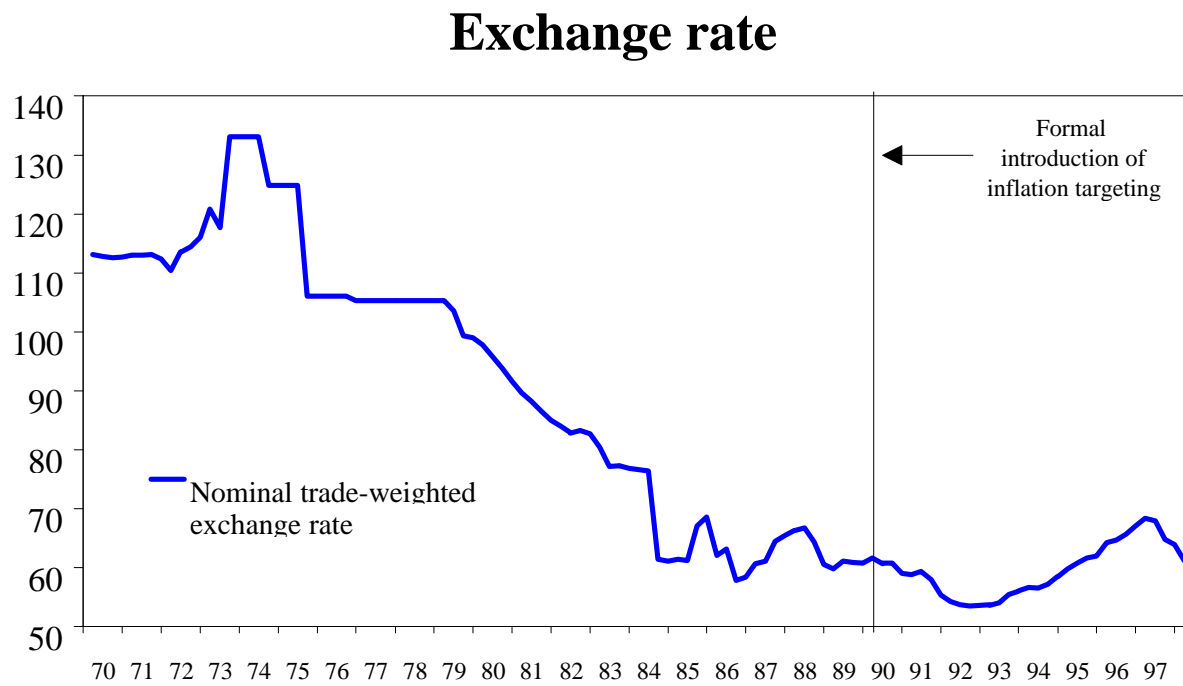
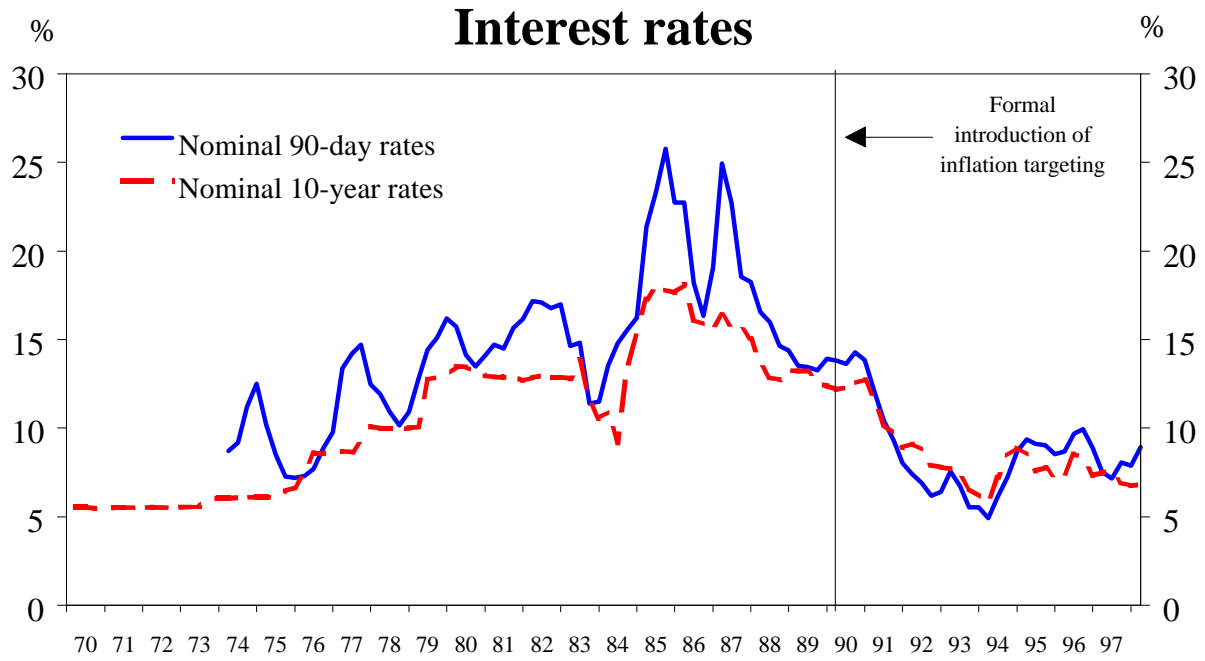
Before doing so, however, I would like to remark briefly on the years since the passage of the Act. In so doing, I want to emphasise that the enactment of this legislation has not in itself guaranteed anything, still less successful monetary policy.

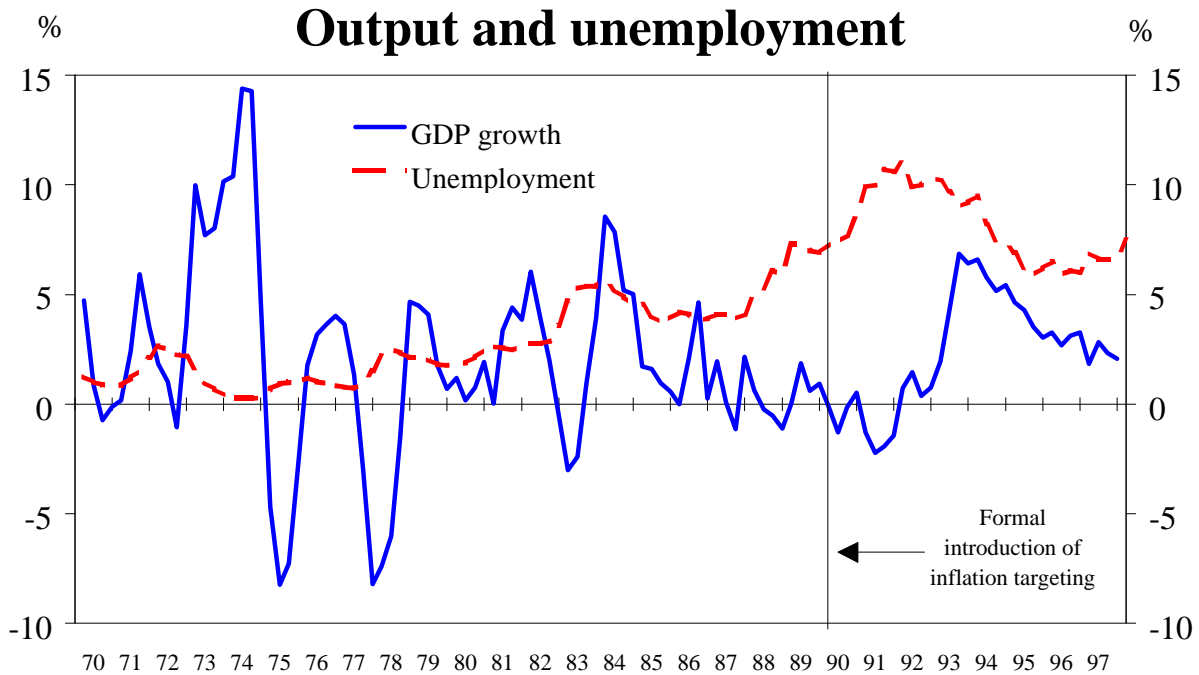
Our experience of inflation targeting may be divided into two periods. The first period, from 1987 through the end of 1991, saw inflation fall from double-digit levels to within the then 0 to 2 per cent target. Nominal interest rates and the exchange rate fell, output growth was very low, and unemployment rose. I note in passing that this was also a period of wide-ranging macro- and microeconomic reforms.

The second period from 1992 to the present has seen something that more closely resembles a conventional business cycle. Earlier on, a sharp rise in growth was accompanied by falling unemployment. Inflationary pressures emerged, pushing underlying inflation outside the 0 to 2 per cent range in 1996. Monetary conditions were tightened substantially, with 90 day rates up from 4.5 per cent to 9.5 per cent in 1994 and the trade-weighted exchange rate appreciating very substantially until early 1997. Recently, as growth has slowed and inflationary pressures abated, we have been able to ease monetary conditions.

The key accomplishment of this later period is that for the first time in many years New Zealand has experienced a full business cycle without rapidly rising inflation or pronounced fiscal imbalances. However, achieving our inflation target has proven very challenging indeed. Along the way, we have learnt some lessons, and it is to the *practice* of monetary policy under inflation targeting that I now want to turn.







Inflation targeting: practice and evolution

This issue can be approached in two complementary ways: what an inflation-targeting framework gives you, and what it does not.

First, what do I think we have gained from the framework itself? I think one benefit of moving to our framework is that inflation targeting has largely been taken off the political agenda. All but one of the political parties in the 1996 election campaign - New Zealand's first under a proportional representation system - had some policy of inflation targeting and central bank independence in their manifestos. At the same time increases in transparency have seen the level of economic debate improve considerably.

It is also likely that the introduction of the framework brought with it some changes in the way people form their expectations and make decisions. But that is far from saying that the framework meant that price stability was somehow locked in for all time. I am sceptical that moving to an inflation-targeting regime *automatically* confers credibility. Our experience suggests that credibility has to be earned. Once again in matters of economic policy, we learn that there is no free lunch.

This leads me to consider what a framework like this does *not* give you. Put simply, we have been learning that a monetary policy *goal* is not the same as a monetary policy *regime*. The Reserve Bank Act and subsequent Policy Targets Agreements provide a target for monetary policy, but they do not tell us how to get there. Nor do they sprinkle a kind of magical "credibility dust" over the macroeconomic landscape, ensuring that price stability is here to stay.

In the same way as we have been learning about how to pursue our goal, it is interesting to see a growing academic literature that addresses the question of an optimal policy framework. One part of this literature addresses whether the monetary authority should react to all types of

shocks. For example, some argue that we should lean against demand shocks but accommodate supply shocks. Others argue that it is persistence that matters: the monetary authority should attempt to see through transitory shocks, and focus on shocks with permanent effects.

Another part of this literature derives optimal reaction functions for the monetary authority given assumptions about our social preferences. Do we attach some importance to low volatility of interest rates, for example? A notable feature of this research is that the optimal rules tend to favour gradual adjustment to shocks rather than very aggressive reaction. Similarly, the efficient policy frontier literature points to the possible existence of a trade-off between the *variability* - not the level - of inflation and output. In practice, therefore, many different choices for the paths of monetary instruments are available at each quarter, all of which are consistent with achieving the target.

As we have gained experience of inflation targeting, we have been learning about these choices. And it seems clear that, in practice, inflation targeting need not exclude other macroeconomic considerations. Because successful inflation targeting requires us to respect the lags between policy actions and inflation outcomes, it requires us to be forward-looking. The gradual adjustment that this implies can be a good approximation of an optimal policy that places some value on smoothing output and monetary instruments.

Getting the balance right is, of course, rather tricky. Targeting inflation at a policy horizon that is too long will let shocks have too much impact and allow unnecessary price level drift. An horizon that is too short may create excessive volatility, and perhaps even instability. In a small open economy this picture becomes even more confusing. An optimal policy should respect the lags in the real economy, but in countries such as New Zealand there are also significant direct effects on the price level from exchange rate movements. Insofar as the monetary authority can influence the real exchange rate in the short run, this would appear to be a quick and effective way of addressing an incipient inflation problem. However, our experience with persistent non-tradeables inflation has given us reason to rely less on direct exchange rate effects. At the same time as our understanding of monetary transmission has improved, our attention has focused more and more on real economy channels. In so doing, we would like to describe ourselves, in Lars' terms, as "flexible" inflation targeters, rather than "strict" targeters.

But what "inflation" are we actually targeting? In practice, a tension exists between targeting a truly underlying measure of inflation and targeting a measure that people can actually see. I don't see any easy solution to this. Common sense dictates that we do not respond to the effects of interest rate movements that show up directly in the New Zealand CPI, for example. Should we also exclude increases in government charges? One argument says yes - they don't have anything to do with monetary conditions, after all. Reacting to them would only generate more volatility in monetary conditions and output. On the other hand, they are a cost that undoubtedly affects people's standards of living, and so not responding puts our external credibility at risk. In practice, we do sometimes "caveat" out components of the CPI, but a situation where the monetary authority constructs the data that is used to measure its performance is clearly not ideal.

In any case, regardless of which inflation measure we target operationally, in the New Zealand framework the target is not expressed as a point but as a band. The band allows flexibility in the face of unexpectedly large shocks that are not caveated, and could be thought of as another way of avoiding excessive volatility. At the end of 1996 a new PTA was negotiated,

with a new target range, 0 to 3 per cent. Does this reflect some change in our preferences? Or did we decide that inflation was just too difficult to confine within 0 to 2 per cent? The answer is no, and no again, although I have to grant that one advantage of the change is that it did suddenly put us back within the target band.

I venture instead that while there was no change in our beliefs that prompted the change, there is probably a lesson revealed *by* the change. We were certainly concerned that the move would cause markets and the public to believe that we had “gone soft” on inflation, and hence for credibility to be lost. In retrospect, this seems neither here nor there. When we were outside the band during 1996, the debate was not about *that* we were outside the band, it was about *why* we were outside the band. Credibility is not just an issue at those kinds of moments, either - we could lose credibility simply by issuing a *Monetary Policy Statement* that was judged to be poorly researched, even though inflation itself was well within the band. To return to my earlier point, credibility is continually earned by our actions and our account of policy, and not legislated.

A crucial part of this ongoing process concerns the publication of quarterly forecasts. We used to publish forecasts on the basis of assumptions about constant nominal paths for interest rates and the exchange rate. Now we publish fully-endogenous paths for monetary conditions, as well as projected paths for other macro variables. This change is fundamental: whereas we used to ask what would happen to inflation if monetary conditions were fixed at a certain level, this new approach asks, “What is the *path* for monetary conditions that is required to get inflation back to its target?” Hence desired monetary conditions will probably be seen to change with each quarterly projection, as new information comes to hand and the state of the economy is re-assessed. We do not attempt to maintain a veil of secrecy about our projected conditions; our analysis is open and transparent and subject to scrutiny by financial markets. I think that this has been well-received. It has also introduced a constraint, but a positive one: financial market commentators and the Bank both find that they have to speak to the facts and each others arguments, rather than just assert their own opinions.

Inflation targets are thus important in their own right, but they need to be backed up with projections and analysis. It does not stop with projections: our annual report is tabled in Parliament, while the Bank publishes a wide range of materials, communications, and speeches available to the general public. We have learnt that we need to continually explain our policy and our actions, whether that means explaining exemptions from headline inflation, emphasising the forward-looking nature of policy, or simply re-affirming how we see the role of inflation targeting in economic policy more generally.

The challenge: policy under uncertainty

I want now to address an outstanding issue concerning the implementation of monetary policy.

As you will know, there is a well-established and highly influential literature that talks about “rules vs discretion.” Mention of these words is enough to send some of my staff members into a fervour about “state contingency” and “time consistency” and other such obscure notions. I don’t really want to get into that at all. Let me suggest instead that in terms of the *practice* of monetary policy, “rules *versus* discretion” is no longer a helpful dichotomy. For what, really, are we trying to achieve? In one sense, all we are doing is trying to get closer to the optimal rule. We have learnt that at any given time we could choose several paths for monetary conditions, all of which are consistent with hitting the inflation target. We know that

some of these paths will produce better results than others - we could hit the target just as successfully while having smaller effects on the real economy, for example. We also know that some of the rules that come out of the formal optimal rules literature are very complex indeed. In order for it to choose the optimal path, the monetary authority is usually assumed to know a considerable amount about the state of the economy and its workings. In practice, however, a binding commitment to a single rule is simply not feasible because not enough is known about the structure of the economy or the shocks it will face.

This is the key issue that faces us: economic uncertainty. And here is the challenge: to design rules that yield results that get close to optimal rules, yet at the same time are simple and robust under wide-ranging uncertainty.

To flesh out this issue a bit further, let's consider the implications of three different types of uncertainty.

The first is what I will call *event uncertainty*. This simply recognises that we live in a stochastic world and that we cannot anticipate future shocks. We can, however, make judgements as to the probability of certain kinds of events, and this may well affect our policy choices. What if our probabilities were skewed, for example, such that the risks of inflationary shocks lay on the upside of a projection? This could well temper a sudden easing in monetary policy, leading instead to a more cautious approach to a change in conditions.

I would be a happy central banker indeed, however, if all we had to confront was event uncertainty. In fact, we often face considerable difficulty even assessing where we are now, let alone in the future. Lags in the arrival of data, errors and data revisions all make it difficult to judge the starting point for a projection. Moreover, macroeconomic theory requires us to use concepts that don't map perfectly well to the data - GDP, for example, is only an imprecise proxy for underlying economic activity, and some key notions such as potential output are not even observable.

We approach this *starting point uncertainty* in two ways. The first and obvious response is to try to get the answer right, and the Bank devotes considerable resources to surveys, indicators and maintaining contacts with the business community. It is here that the formal framework we use for projections can really be beneficial. We have recently begun using a structural macroeconomic model as a tool to help prepare forecasts and policy analysis. The strength of models is not that we're going to be able to predict the future - we know that we will be wrong - instead, it comes from being able to conduct counterfactual exercises. What if, for example, the present output gap differed from our estimate by, say, x per cent? Would we then choose a different path for monetary conditions? Secondly, at the same time as we try to improve our monitoring of the economy, we have begun a research programme to look for policy rules that are robust to doubts about the starting point.

Finally, there is a third type of uncertainty, *model uncertainty*. I have to concur with Bennett McCallum when he argues that the key stumbling block for policy formation is uncertainty about the way the macroeconomy works.

What is so special about model uncertainty? My staff would say that it is more problematic for results since model uncertainty is *multiplicative*, whereas other types of uncertainty are *additive*. What do I take from this? Bad events and mistakes about the state of the economy are hardly desirable, but at least we have some opportunity to recover, re-assess, and to get it right next time. If we make mistakes about the way the world works, however, then we stand

to get it wrong all of the time. It also tells me that results that are highly model-specific are of little use, and therefore the challenge for economists is to develop policy rules that are robust under uncertainty about key parameters and structures.

I will finish here by noting that model uncertainty is also an important element in explaining the behaviour of monetary policy-makers. Measured against the optimising models of some economists, we central bankers can appear rather doltish, moving too slowly and too late. Why should this be? The basic answer is model uncertainty, which means that when the monetary authority adjusts instruments, it cannot be sure about the impact on the economy. As argued nearly three decades ago by William Brainard, this introduces caution in the policy responses, and appropriately so.

Reflections on policy

I would like to finish with some brief reflections on policy directions, both closer to your home and more generally.

First, does any of what I have spoken about have any relevance to Europe?

Clearly the European Central Bank will face considerable challenges. From my own vantage point, I can attest that it is difficult enough to coordinate the monetary conditions for one small country. In recent quarters, some wags have suggested - not entirely tongue-in-cheek - that a separate exchange rate for the Auckland metropolitan region has been needed.

The problems of monetary coordination over such a disparate zone as Euroland have been well documented and I don't propose to add anything here. Nonetheless, are there some lessons about inflation targeting that could apply to Europe? I certainly do not propose to tell European member states how to conduct monetary policy. However, it seems to me that a move to inflation-targeting would involve facing the same kind of questions as we have - and continue to do so. How strictly should inflation be brought back to target? How do you balance the effects of interest rates with the exchange rate? How is credibility to be achieved and maintained?

Regardless of whether inflation targeting is pursued or not, the implications of uncertainty are important for any monetary policy regime. In many ways this might apply especially to Europe, since uncertainty about the structure of the European economy - model uncertainty - is likely to be high.

How should this affect the debate? Discussions of policy rules can make the monetary policy problem appear easy. Armed with a model, all that is required is a statement of the objective function, the constraints under which the problem is to be solved, and the solution is relatively straightforward. But it is important to ask: when and how can we treat monetary policy as an engineering problem, and when shouldn't we?

It is obvious that uncertainty can make policy harder. I think the profession is realising, however, that uncertainty is more fundamental than that. Lars reminds us, for example, that under uncertainty it is no longer possible to specify rules simply in terms of target variables. Rules for targets can only be expressed in terms of the respective *forecasts*, rather than the *ex post* values.

But to get at the full dimension of the problem, we need to get at issues of *credibility* and *active learning* by both private agents and the monetary authority. I would like to encourage you all to venture into this kind of research, because I think it is here that academic economists can make another substantial contribution to the practice of monetary policy.

In the meantime, it serves central bankers well to be reminded, as Alan Blinder has done, that while monetary policy makes progress as a science, it is still something of a black art. Let me add my own measure of progress to that. Perhaps when we started inflation targeting we were uncertain about how much we knew. Today I can confidently say that I'm certain that we are uncertain. I'm just looking for a few good rules, that's all.

Thank you.

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