
The Policy Targets Agreement:

a briefing note

This paper was prepared for the incoming Minister of Finance and other interested parties following the general election in July 2002.

Executive Summary

With the pending appointment of a new Governor, the PTA is due for renegotiation. Concerns have been expressed in a number of quarters about the performance of monetary policy under the current PTA, with the theme that the economy's trend growth rate has been unnecessarily constrained. Unnecessary constraint is suggested to result variously from a target that is too low, causing interest rates to be too high on average and/or economic rigidities to be encountered; and from policy aggressiveness, causing interest rates and the exchange rate to be too volatile.

These concerns need to be taken seriously. The PTA sets the target and shapes the Bank's response to new information relevant to the chosen target. A well-designed and well-understood PTA is therefore important. However, at the outset it should be stressed that, even with the best of the alternative targets that would be consistent with price stability, monetary policy is most unlikely to have a large influence on the long-run performance of the New Zealand economy.

The design of monetary policy targets has been reviewed in light of the expressed concerns. No specific PTA is offered, as a range of alternatives could be consistent with what we understand would best support the long-run performance of the New Zealand economy. However, the range of alternatives is not open-ended. A review of economic research confirms that there are some things monetary policy cannot achieve. The main findings from our review and the accompanying analysis are:

- Economic research suggests that low inflation rates are likely to be beneficial for growth. Exactly how low is not clear – there is some indication that trend inflation rates below 1 per cent may harm growth, although most of the studies are unable to detect any significant relationship between trend inflation and trend growth below 1 per cent. But the most up-to-date research seems to agree that trend inflation rates above 3 per cent will harm trend growth.
- Expert opinion, based on this and other research, seems to converge on the view that average inflation outcomes between 1 and 3 per cent in the medium-term are indistinguishable in terms of their implications for trend growth.
- This range encompasses the choices made by inflation targeting central banks.
- New Zealand does not share some of the features that have made some other countries particularly averse to very low inflation rates. Our economy is comparatively flexible, is not close to the zero interest floor that Japan's experience has highlighted as a constraining factor for effective policy in relatively closed economies, and is in any case relatively open.
- The New Zealand economy is probably more buffeted by shocks than elsewhere. Yet evidence shows that our interest rates are not more variable, particularly now that the OCR regime is in place. That suggests that monetary policy in New Zealand is not in fact more aggressive than elsewhere.
- That monetary policy in New Zealand is not noticeably more aggressive than elsewhere – especially once allowance is made for the different circumstances we face – is also indicated by research into monetary policy reaction functions. Taken on face value, that research suggests that, had the Fed or RBA been running monetary policy in New Zealand over recent years, their interest rate decisions would have been broadly similar.
- More generally, latest research suggests that monetary policy in New Zealand has been stabilising for the economy overall.
- The perception of greater aggressiveness of monetary policy in New Zealand might be coming from several factors. These include: the memory of earlier (more-hawkish) rhetoric; our transparency in describing paths of likely future interest rates adjustments; and our use of forecasts which include interest rates adjustments that might never occur, and therefore give the appearance

of jumping at inflation ghosts. (The Bank may need to rethink its communication approach on this aspect.)

- Perception of greater aggressiveness might also come from the fact that New Zealand's exchange rate moves through a wide range, even though its variability is not much different than in comparator floating exchange rate economies. But the connection between monetary policy and the exchange rate is not straightforward. We have not found a way to systematically modify the amplitude of the exchange rate cycle without increasing the amplitude of the inflation cycle, potentially to the point that the real exchange rate cycle – the one that matters for competitiveness – is exaggerated.
- Perception of greater aggressiveness might also come from the fact that interest rates in New Zealand are on average higher than elsewhere. This seems to be attributable to New Zealanders' recent propensity to expand borrowing at even high interest rates. That is unlikely to be attributable to monetary policy or the specification of the target, counter-intuitive though that may seem.
- And perception of greater aggressiveness might also come from the fact that inflation has typically been above the mid-point of the 0 to 3 per cent inflation target range, coupled with the fact that we convey an intent to reduce inflation towards the mid-point over time. That the speed with which inflation is nudged towards the mid-point is slow enough to produce average inflation outcomes above the mid-point (around 2 per cent) in reality speaks to lack of aggressiveness.
- Were the Bank to attempt to drive inflation from an average of 2 per cent to an average of 1½ per cent in short order, output losses would be expected. Given the evidence that trend inflation at 1½ per cent is likely to produce no better or worse outcomes for trend growth, those output losses would probably not be made up by subsequent gains. Such a conclusion suggests accepting a higher average target (if in so doing the average inflation rate would not simply drift up further); or continuing to be un-aggressive in the process of nudging inflation down (effectively waiting for an external event to help bring inflation down).

With these findings as the backdrop, we offer some thoughts on alternative approaches to designing a new PTA. These thoughts are based on the presumption that the Act remains in place (so price stability remains the paramount objective), and that major changes in monetary policy method are not being considered (ruling out a variety of options such as fixed exchange rates, nominal income targeting, and price level targeting).

These thoughts can be summarised as:

- The PTA should be structured so as to achieve average inflation outcomes inside the range that research suggests as likely to be most supportive for trend growth. Allowing for uncertainty surrounding research, that suggests that 1½ per cent, 2 per cent, or 2½ per cent are equally supportable.
- A range of reasonable trend outcomes might be nominated, rather than a single point. That would be consistent with the uncertainty over which trend inflation rate is most supportive for growth. But the wider the range of potential outcomes, the less stable and predictable are prices, raising the issue of consistency with the Act.
- With an aiming point of 1½ per cent, inflation can be expected to fall outside a 0 to 3 per cent range about 15 per cent of the time, and simple simulations suggest that there is about a 1-2 per cent probability of experiencing a 5 year run with average inflation outside the range. Were the 0 to 3 per cent range to be interpreted as a zone of aiming points (i.e. no action would be taken if expected inflation were inside the range), outcomes would be much more dispersed. Inflation would likely be outside 0 to 3 per cent about one third of the time, and there would be more than a one in four chance of getting a five year run outside the range. A zone of aiming points should probably not be wider than one percentage point.
- It is probably better to specify a range of *preferred outcomes*, rather than attempt to nominate a range of *aiming points*. That way the Bank is left to apply its professional judgement to the task of achieving those outcomes.

- To avoid creating real volatility, we don't normally act to aggressively rein in inflation. Making allowance for the impact of monetary policy actions on the real economy is implicit in the understanding that a range of inflation outcomes is both likely and acceptable, and that the return of inflation to target should not be immediate. Concern for the impact on the real economy can be made more explicit in a number of ways, but because of the existence of potential conflicts between short-term real economy objectives and medium-term price stability objectives, price stability must remain paramount.
 - It is possible that greater allowance for the impact of monetary policy actions on the real economy could be achieved by further slowing the response of monetary policy reactions to inflation events. But in view of indications that monetary policy in New Zealand is in reality no more aggressive than elsewhere, and given the damage caused on occasions when we were too slow to respond, any changes should be undertaken with caution.
 - Inflation expectations would likely drift upwards if any substantive change resulted in higher trend inflation outcomes than currently believed to be consistent with the PTA. Such a drift would raise nominal interest rates and, at the margin, reduce credibility such that it became more likely that expectations would drift up further. Accordingly, PTA design changes would need to be undertaken with a firm eye to making the changes robust to further pressure for change.
- (a) Some guidance to the public and markets as to what monetary policy is trying to achieve. The targets must be published.
 - (b) Both stability and appropriate flexibility. The targets are set for the Governor's term of five years, but can be altered by mutual agreement.
 - (c) The involvement of both the Treasurer and Governor in shaping the targets.
 - (d) A framework for holding the Governor accountable for outcomes and the conduct of policy. The Bank's Board is charged with using the PTA as the reference point for its assessment of the Governor's performance. It is also the pursuit of these outcomes on which the Bank is required to report in *Monetary Policy Statements*.
- 3 There is no single ideal formulation. In a world characterised by very substantial uncertainty, it is probably impossible to write down in advance all that each of the parties (the public and markets, the Treasurer, the Governor, and the Bank's Board) would ideally like to know. There is a balance to be struck. The framework has to leave the Governor sufficiently free to act sensibly and appropriately in the face of the unexpected. But it must also provide a reasonable degree of certainty for firms, households and markets in more normal times, and some reasonably specific benchmarks that can form a starting point for assessing the Governor's performance. The framework should not put the Governor in a position where meeting the PTA's requirements is at odds with the Act or with the best interests of the country. Equally, the agreement should not be so loose that the Governor to all intents and purposes is setting his or her own objective.
- 4 The initial discussion following in this section is about the economics of monetary policy targets (which is what the PTA is supposed to capture), and the conduct of monetary policy under the current specification. A section deals with different ways to write a PTA to structure decision-making incentives to meet policy objectives. We do not offer a preferred PTA, but instead offer thoughts on the issues encountered in designing a PTA.

Introduction

- 1 With the pending appointment of a new Governor, a new Policy Targets Agreement (PTA) is required. The new government may wish to reconsider the PTA's design, if necessary to clarify the intended interpretation of the agreement. In general, several comments by sector representatives suggest a degree of unease with the current monetary policy approach.
- 2 The PTA framework is designed to provide for a number of things:

- 5 The discussion starts from several presumptions.
- (a) The Reserve Bank Act's prescription of monetary policy's objective – price stability – is appropriate, and not under review. Such a presumption is in keeping with experts' understanding of monetary policy's best contribution to the long-run performance of the economy.¹
 - (b) Any PTA must be consistent with the Act's objective. As the Act does not define price stability, the parties to the Agreement (the Treasurer and the Governor) must satisfy themselves as to consistency.
 - (c) Although it is not stated explicitly in the Act, an important consideration in the design of the PTA is the impact of consequential policy actions on the real economy. Long-term economic performance should be assisted to the greatest degree, so long as there is no conflict with the statutory price stability objective.
 - (d) No major changes to the broad *method* for conducting monetary policy are being contemplated. One of the basic roles of the PTA is to establish the method to be used in pursuit of price stability. Since 1990, that method has been inflation targeting, in preference to the more indirect approaches of exchange rate targeting, money or credit aggregate targeting, or nominal income targeting. Price level targeting is an alternative direct method for pursuing price stability, but is not pursued in this discussion.

6 It would seem that the main concerns about the performance of monetary policy under the current PTA specification are:

- (a) Trend inflation may be too low to best support long run economic performance, if the PTA target of 0 to 3 per cent is interpreted as meaning average inflation outcomes of 1½ per cent per annum.
- (b) Monetary policy actions may cause average interest rates to be unnecessarily high – and higher than elsewhere – if the PTA is interpreted as requiring inflation always to be reduced to 1½ per cent, even when forecast inflation is under 3 per cent.
- (c) Monetary policy actions may be too aggressive. Policy may cause volatility in interest rates and the exchange rate – and through them, volatility in the real economy – if the target is pursued too actively.
- (d) In targeting inflation, too little account is taken of monetary policy's impact on the real economy.

The first and second of these concerns relate to the effective level of the inflation target; the third to the degree of activism of policy in relation to the target; and the fourth to the nature of any tradeoffs between inflation and other variables. These issues are reviewed in the next three sections.

7 Of course, the preceding paragraph does not capture the full list of concerns that have been expressed at various times and by various commentators about monetary policy. Very brief comment on other concerns is provided in this paragraph.

- (a) *Monetary policy should also be directed at lifting growth and lowering unemployment, by reducing interest rates.* Such a change in objective would require a change to the Act's statement of policy objective. Interest rates consistently below those that would ensure price stability would, self-evidently, conflict with the price stability objective. The average interest rates that are consistent with price stability over time are not in fact determined by monetary policy, but instead by things like the public's sense of risk and appetite for debt. Once price stability has been achieved, monetary policy works relative to those average interest rates, pushing rates temporarily above average when inflation threatens to rise persistently, and pushing

¹ Alan Greenspan: "The progress the Federal Reserve has achieved over the years in moving toward ... price stability has contributed to the improvement in our nation's longer-term growth prospects ..." Gordon Thiessen: "The best contribution the Bank of Canada can make to this process [of increasing growth] is by continuing to provide a stable, low-inflation environment." Sir Edward George: "Consistently low inflation is a necessary (though not itself a sufficient) condition for the sustained growth of output of the economy as a whole, for high levels of employment, and for rising living standards."

rates temporarily below average when inflation threatens to fall persistently.

(b) *Monetary policy should do more to reduce the current account deficit and New Zealand's external indebtedness by reducing the exchange rate.* It is not clear that monetary policy could produce a sustained reduction in the real exchange rate or the current account deficit. A loosening of interest rates might initially reduce the nominal exchange rate and stimulate exports, but any associated inflation would erode the initial competitiveness gain. In the meantime, lower interest rates would stimulate consumption and investment, increasing demand for imports. These things pull in opposite directions, with uncertain outcomes for the current account balance.

(c) *Monetary policy should use more "targeted" instruments than the blunt instrument of interest rates.* The sectoral and regional impact of interest rate adjustments is indeed blunt. A constant lookout is kept for other instruments that would help more than they would hinder. We haven't found any. That successful developed nations use the same blunt instrument indicates that they haven't either.

Is there an optimal trend rate of inflation?

8 In preparation for this briefing note, we reviewed the question of the best level of inflation to support growth, and in the process re-examined economic research on the matter. Our interpretation² of the research is the following:

- (a) Above some point, more inflation harms growth; below some point, less inflation also seems to harm growth.
- (b) Research does not provide a precise indication of where that point (or points) is. Empirical studies tend to say that the point of most support for growth is, for the average developed country, somewhere

between 1 and 3 per cent per annum.³ These empirical studies examined data from a period of 20th century history where there are very few examples of countries with sustained, credible, low rates of inflation. We know that earlier periods of history saw sustained low and negative rates of inflation with good growth. And we know that for many countries economic performance has improved alongside the achievement of low rates of inflation (Australia, the United States, Canada, New Zealand, amongst others). This suggests that the growth-maximising point or range extracted from these studies is probably biased upwards. Adjusting for this historical estimation bias, the growth-maximising point could be as low as between 0 and 2 per cent per annum.

(c) In addition to lowering previous estimates of the growth-maximising trend inflation rate, the more recent empirical studies have increased estimates of the harm that could be done to trend growth at moderate trend rates of inflation.

9 Empirical studies are always fraught with problems, and aren't the only way of looking at the connections between inflation and growth. Considering the empirical studies together with other approaches, most experts converge on a range for the growth-maximising rate of inflation in the low single digit area. They also tend to the view that there is probably a zone of inflation rates where small changes in trend inflation rates make no difference to economic performance. Put differently, any changes in economic performance associated with changes in trend inflation within this neutral (no gain/no pain) zone would be immeasurably small.

10 Without having clear quantitative research support for any particular optimum inflation target, the choice of inflation target has been expressed in the qualitative terms used by Chairman Greenspan of the United States Federal Reserve. Greenspan indicated that inflation is

² Which we have had peer-reviewed by international experts.

³ Some studies suggest that the point at which higher inflation might start to harm growth might be as high as 8 or even 12 per cent. However, those studies suggest no improvement in trend growth as inflation rates rise towards those levels, whereas other studies suggest significant harm above the 1 to 3 per cent area.

at the right level when it is not entering people's decision-making. This is a useful, though incomplete, guide. Inflation (and deflation) harms growth when it is significant enough to distort and confuse decision-making. In these terms, a subjective boundary is put on the "low single digit" zone for the growth maximising rate of inflation. For some, an average rate of 3 per cent might be material enough to affect decisions, given that over 3 years that would amount to a quite noticeable 9 per cent change in prices (i.e. a halving in the value of money in 24 years). For others, a 9 per cent change might not be sufficiently noticeable to fail the Greenspan test.

- 11 An unstated component of Greenspan's test helps inform the subjective choice of the upper boundary on the growth-maximising rate of inflation. That unstated component is volatility and uncertainty. If an *expected* average 3 per cent inflation rate could potentially each year turn out to be anywhere from 1 per cent to 5 per cent, the 3 year outcomes could be anywhere from 3 per cent to 16 per cent. This is particularly important given that harm from inflation comes from price instability distorting and confusing decision-making.
- 12 There are now 11 examples of comparable choices having been made by developed countries on the appropriate level of inflation to target.
 - (a) New Zealand, the ECB and the Swiss National Bank are at the lower end of the group. The latter two target "below 2 per cent".⁴
 - (b) Four choose 2 per cent as the focal point (Sweden, Canada, Finland and Spain, the latter two having since been subsumed by the ECB target).
 - (c) Four have 2½ per cent as the average acceptable outcome (Australia, the UK, Iceland and Norway).
- 13 Individual country circumstances should be considered when comparing choices made on the level of the inflation target. Three types of technical factors are relevant.

⁴ Neither the SNB or ECB describe themselves as inflation targeters, but both specify an inflation performance objective.

(a) *Measurement error (index bias)*. The Consumers Price Index (CPI) is the standard index that is targeted. CPIs are subject to measurement error, which typically leads to an over-statement of inflation. The extent of that bias might differ across countries.

Although we have no formal assessment of bias in New Zealand, Statistics New Zealand have long held that the bias here is likely to be comparatively low. We don't know how accurate that claim might be,⁵ but it seems unlikely that comparative measurement error would warrant an inflation target in New Zealand much different than elsewhere.

(b) *Adjustment flexibility*. Inflexible economies find it difficult to adjust real incomes downwards in response to bad economic events, resulting in bigger recessions and more unemployment than an equivalent flexible economy would have experienced. Such economies might warrant slightly higher trend inflation, so that a slowing of nominal income growth can produce a substantial reduction in real income.

Our sense is that New Zealand has a relatively flexible labour market (somewhere between the United States and other OECD countries), with a high proportion of income earned from self-employment rather than wages. The exchange rate is also flexible. Overall then, the New Zealand economy is itself comparatively flexible. A lower inflation target in New Zealand than elsewhere would be consistent with this.

(c) *"Liquidity trap" avoidance*. As illustrated by the case of Japan, once nominal interest rates are reduced to zero but expectations remain for deflation, real interest rates can get stuck at too high levels. Countries particularly exposed to being caught by the zero nominal interest rate floor might warrant higher trend inflation, to provide more distance from that floor in normal times.

⁵ A recent paper (Gibson, J. and Scobie, G., "Are we growing faster than we think? An estimate of 'CPI bias' for New Zealand", *New Zealand Association of Economists Conference*, June 26-28, 2002) throws a little bit of doubt on that view.

In fact, New Zealand is probably much less exposed to the zero interest rate trap than other countries. Trend real interest rates are higher in New Zealand than in other developed economies. No one is particularly sure of the explanation. But the fact that households and companies have doubled their borrowing (relative to income) in the last decade suggests that high trend interest rates result from decisions by a large sector of the community increasingly to spend ahead of receipt of income.⁶ Whatever the explanation, the result is that additional inflation is *not* required to provide extra headroom for interest rates to be cut.

In addition, given our economy's sensitivity to the exchange rate, we have a more powerful additional monetary policy channel than seems to be available to the Japanese authorities.

- 14 In sum, the PTA's inflation target is at the low end of the developed country range (although the range itself is comparatively wide). That choice does not seem to be inconsistent with the technical factors normally considered when a country chooses its preferred trend inflation rate. Considered more broadly, economic research and expert opinion suggests that the PTA's target range is also consistent with a zone of probable growth-maximising trend inflation rates, a zone which encompasses all of the developed country range of aiming points. In the region of the growth-maximising rate of inflation, any effect of a change in trend inflation on trend growth will be very small indeed, and would be very difficult to identify even after the event. Outside that ill-defined region, the harm to economic performance could be increasingly large.

⁶ That people have been spending even more relative to current income over the last decade illustrates that monetary policy has not pushed real interest rates to levels that predominantly constrain expenditure. That point is also illustrated by the fact that monetary policy has, far from delivering *lower* than expected inflation, delivered *higher* than expected inflation (though generally inside the target range).

Is monetary policy too aggressive?

- 15 A generally agreed approach for assessing the appropriate responsiveness or aggressiveness of monetary policy is the ultimate impact of policy on the performance of the real economy. Just as price instability harms economic performance through the confusion and distortion of decision-making that comes with volatility and uncertainty, economic growth can be harmed by volatility induced by monetary policy actions.
- 16 Thus, there is a trade-off. Policy inaction that lets inflation (or deflation) get too large or embedded may harm growth. Policy action that is *unnecessarily* quick or aggressive in the attempt to keep inflation under control may also harm growth, by increasing the variability of the economic circumstances facing decision-makers.
- 17 Recognition of this trade-off has been in every PTA, and in policy practice.
- (a) It is the reason for specifying a range of acceptable outcomes. A range allows for uncertainty in the control of inflation, and reduces the need for sharp reactions to revealed misses.
- (b) It is the reason for the emphasis on the *trend* of inflation, and the allowance for special and temporary events. By distinguishing between transitory and persistent inflation developments, monetary policy can ignore or "look through" some inflation developments.
- (c) It is the reason for looking forward. To a considerable extent, policy actions are triggered by forecast inflation developments. That is a way of operationalising the idea that transitory inflation departures from target need not call for a response, whereas persistent ones do.

Recognition of this trade-off was made explicit and more up-front with the rewording of clause 4(c) in the 1999 PTA.

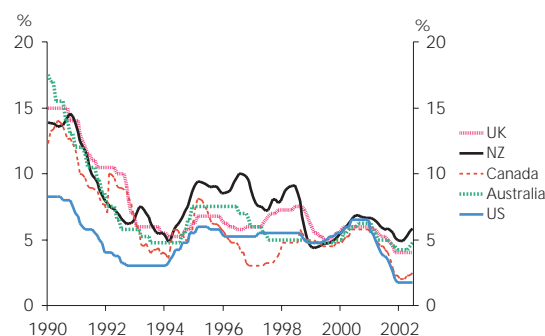
- 18 The agreed guideline and the associated trade-off are mainly conceptual in character. What does the trade-off mean in practice? How can we tell when the right

point on the trade-off is reached? How can we tell when clause 4(c) is being given due consideration? There are some empirical angles that can throw some weak light on this variance trade-off issue. Most go to the same question, namely whether the scale and pattern of interest rate responses in New Zealand is noticeably more “aggressive” than elsewhere, *and* importantly whether that is due to policy choices being made or to the nature of the shocks to which monetary policy must respond.

19 The first empirical angle is to ask how different are interest rates cycles in New Zealand? Figure 1 indicates that New Zealand policy interest rates are not in fact much more variable than elsewhere, notwithstanding the generally accepted understanding that the pattern of the shocks hitting the country produces a more volatile economy than others. That our policy interest rates have a similar variance to those elsewhere is especially noticeable following the introduction of the OCR in early 1999. (The focus here is on the typical scale of interest rate cycles, rather than the timing of interest rate adjustments, which is looked at later.)

20 Another way of looking at the same thing is to consider the frequency and size of interest rate adjustments. Table 1 shows the record from March 1999, when the OCR regime was introduced, to the end of July 2002.⁷ The record shows that central banks across the developed world behave in remarkably similar ways. New Zealand is middle of the pack when it comes to the frequency of interest rate adjustment. Over the particular period shown in the table, New Zealand had relatively more ups than downs, as befits the economy’s relatively strong

Figure 1
Variability of policy interest rates
(90-day interest rates for New Zealand, given the absence of a policy rate until the OCR was introduced in 1999.)



performance over the period, but the typical scale of adjustment was again very similar to those of this cohort.

21 A second empirical angle is to ask how far inflation has been allowed to wander. Were it the case that PTAs required monetary policy in New Zealand to seek noticeably tighter control over inflation than is typical elsewhere, one would expect to see noticeably lower variability of inflation than elsewhere. Table 2 indicates that in the mid-1990s New Zealand’s inflation rate became one of the most stable in the OECD group (ranking 5th most stable out of 19 countries for the period from 1993 to the latest), being outranked only by the US, the UK, France and Denmark. Since 1999, however, that ranking has dropped to 14th, making the New Zealand inflation rate one of the *more* variable in the OECD group.

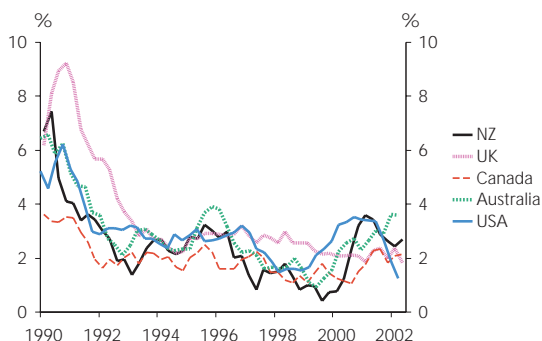
22 Figure 2 makes the same point, this time in terms of inflation measures that exclude volatile items.

Table 1
Policy interest rate adjustments - March 1999 to July 2002

	Number of adjustments			Average size of adjustment (bps)	
	Total	Up	Down	Up	Down
Bank of Canada	19	7	12	29	-35
US Federal Reserve	17	6	11	29	-43
RBNZ	14	9	5	33	-35
RBA	13	7	6	29	-33
Bank of England	13	4	9	25	-28
ECB	12	7	5	32	-40

⁷ Prior to the OCR, the Reserve Bank of New Zealand did not directly adjust interest rates, making earlier comparisons meaningless.

Figure 2
Variability of core inflation



23 To further illustrate the point that the PTA does not necessarily induce the Bank to control inflation tightly, under the current PTA (signed in December 1999):

- (a) Inflation has varied between 1.5 per cent and 4 per cent.
- (b) The average has been 2.6 per cent.
- (c) Interest rates were cut four times (by 125 basis points in total) when published inflation rates were above the target range.
- (d) The May 2002 *Monetary Policy Statement* projected that interest rates would need to rise by 125 basis points, but that with a view to bringing inflation down from nearly 3 per cent to just under 2 per cent over a four year period. Over that four year period, inflation was expected to average $2\frac{1}{4}$ per cent, after averaging $2\frac{3}{4}$ per cent in the preceding

two year period. While there is plenty of room for debate over whether interest rate increases of the projected scale would ever be needed, it would be hard to describe the intended outcome of policy described in that *Statement* as indicative of particularly vigorous inflation control.

24 The third angle is provided by evidence on real economy volatility. Various statistical measures show that the variability of the real economy has, if anything, *dropped* since the move to inflation targeting (see Table 2). Other countries also recorded falls in variability over the same period, by similar orders of magnitude to the falls in New Zealand. Those countries have also focussed monetary policy more closely on price stability in recent years. These international comparisons do not suggest that New Zealand has become relatively more volatile than other countries. Indeed, in the latest period (since 1999) the volatility of real GDP growth in New Zealand ranked 10th out of 19 OECD countries, having ranked 14th or 15th in earlier periods, although this is more likely a result of good fortune than good management.

25 Fourth, one can attempt to model policy in various countries and evaluate both the degree of attention paid to the stability of the real economy versus inflation control, and the degree of interest rate aggressiveness of the different central banks. A few such exercises have been conducted, mainly encompassing the pre-OCR period when short-term interest rates in New Zealand

Table 2
Indicators of economic stability
Standard deviations and relative OECD rank (1 = most stable; 19 = least stable)

Time period (nominated starting point to latest)	Inflation		Real short term interest rate		Real exchange rate		Real growth	
	Std dev	Rank	Std dev	Rank	Std dev	Rank	Std dev	Rank
Since 1979	5.4	17	3.6	18	8.3	10	2.5	14
Since 1985	3.8	19	2.6	14	8.6	11	2.4	15
Since 1990	1.1	7	1.8	7	8.7	12	2.5	15
Since 1993	0.7	5	1.6	14	9.5	17	2.1	15
Since 1999	1.0	14	0.7	9	5.0	17	1.4	10

The 19 countries are: Ireland, Sweden, Australia, Italy, Spain, Germany, Japan, Austria, Switzerland, Finland, Canada, the Netherlands, Norway, Belgium, US, France, Denmark, UK and New Zealand.

were more variable than they are now.⁸ These exercises suggest that in the period examined:

- (a) Interest rate “adjustments” were slightly less gradual in New Zealand than in most other countries examined, but the difference was slight and not statistically significant. Canada appeared to be an exception, having less gradualism than New Zealand.
- (b) As in other countries, monetary policy in New Zealand places roughly equal weight on responding to real economy and inflation movements over time. Including the OCR period, the relative weights on the real economy and inflation in New Zealand are similar to those in the US.

26 Fifth, one can use these models of monetary policy to simulate other countries’ policy responses in the New Zealand context. The idea again is to evaluate whether it is the nature of the policy response, or the nature of the economic context, that distinguishes monetary policy in the respective countries. Our “Taylor rule” estimates of monetary policy responses in the New Zealand, Australia and the US, applied to New Zealand data, suggest a similar pattern of interest rate adjustments would have occurred in New Zealand had Australian or US policy-makers been confronted with the New Zealand situation.⁹ Other people’s estimates generate a similar conclusion.¹⁰ It appears that the fact that interest rates in New Zealand have been a little more variable than interest rates in Australia or the US has more to do with New Zealand’s economic circumstances than with different policy approaches.

27 Sixth, there are ways of evaluating whether monetary policy has overall been stabilising or destabilising for the real economy. The claim is sometimes made that monetary policy has in practice *added* volatility to the economy, by being too aggressive at the wrong time (rather than acting at the right time and thereby being able to be less aggressive). This chain of argumentation is thoroughly reasonable in principle – policy adjustments that are mistimed (usually too late, given ever-present recognition lags) have the potential to amplify swings. Thus, even if interest rates in New Zealand aren’t more variable than elsewhere, the timing of interest rate moves might still have been less than ideal.

28 There have certainly been episodes where, in retrospect, different monetary policy settings would probably have produced better outcomes, both for inflation relative to target and for the path of the real economy. These episodes were documented in the Bank’s submission to the Svensson review.¹¹ They provide evidence of the Bank being both too fast *and* too slow to adjust interest rates.

29 It will always be the case that a retrospective on the Bank’s performance will indicate that some outcomes could have been better with different specific decisions. That is an unreasonable test, however. The real question is whether the policy approach typically produces bad results. A recent piece of research, which seeks to identify the consistent contributors to economic cycles in New Zealand, provides some insight. That research suggests that monetary policy has in fact on average been stabilising.¹²

30 Finally, in the most recent period, it is especially hard to substantiate the case that monetary policy has added to economic volatility. The period since 1999 has been unusual (by New Zealand’s historical standards) for the small scale of our economic cycle in the context of the cycle experienced by our trading partners.

⁸ Drew A. and Plantier L. C., “Interest rate smoothing in New Zealand and other dollar bloc countries”, *Reserve Bank of New Zealand Discussion Paper DP2000/10, December 2000*; National Bank of New Zealand *Financial Markets Update*, July 2002; International Monetary Fund *World Economic Outlook*, April 2002.

⁹ Huang, A., “Are we similar to the Fed in our monetary policy operation?”, *Reserve Bank of New Zealand Internal Memorandum, July 2002*.

¹⁰ Using a different characterisation of the Fed’s monetary policy provided by a Federal Reserve economist (Orphanides A., “Monetary policy rules based on real-time data”, *Board of Governors of the Federal Reserve System Discussion Paper #3*, 1998) indicates an adjustment path for interest rates that is somewhere between Taylor rule estimates and the actual historical path of 90-day rates in New Zealand.

¹¹ “Independent review of the operation of monetary policy”, *Submission by the Reserve Bank of New Zealand*, September 2000.

¹² Buckle, R., Kim, K., Kirkham, H., McLellan, N. and Sharma, J., “Trade, climate and financial influences on macroeconomic fluctuations: Analysis using an open economy SVAR model of the New Zealand economy”, *New Zealand Treasury Draft Paper*, June 2002.

31 In sum, real economy volatility has fallen since monetary policy has been guided by PTAs. Overall, economic volatility still appears to be greater than elsewhere, but that seems to be because the economy tends to be thrown about by external events more than do comparator countries. Allowing for the different economic contexts, monetary policy reactions in New Zealand seem to be similar in character to those elsewhere, especially since the introduction of the OCR. Indeed, some research suggests that, were the RBA or the US Fed calling the shots in New Zealand, policy adjustments would have been quite similar. It is different economic circumstances, not different monetary policy approaches, which provide the main explanation for different outcomes in New Zealand than in comparator countries.

32 Nevertheless, it seems to be commonly held that New Zealand's monetary policy approach is more aggressive than elsewhere, and that as a consequence monetary policy has done harm to growth. Five reasons suggest themselves for the frequency of this viewpoint.

- (a) First, the rhetoric used by the Bank in the early 1990s emphasised the fight to reduce and then control inflation almost exclusively, with little room made for expression of concern about the variance trade-off. This was probably appropriate in the circumstances. It may be that the flinty-eyed inflation targeting image created has persisted, notwithstanding an evolution of words and practice.
- (b) Second, unusually among central banks, the Bank publishes projections including a varying forward track for interest rates.¹³ At times, those forward tracks suggest substantial future increases in rates. Other central banks, facing similar circumstances, focus attention on the current interest rate adjustment. If the likelihood of subsequent interest rate increases is explicitly acknowledged (by way of a statement about "bias"), the potential scale is not. Thus, even if the actual adjustment path of interest rates were the same, the transparency of the New

Zealand approach might create the appearance of a more aggressive policy response. Moreover, as economic projections and the resulting interest rate tracks are highly conditional on the assumptions made, the published tracks often do not eventuate. This may amplify the sense of aggressiveness, to the extent that the bark is more evident than the bite.

- (c) Third, these forward interest rate tracks in our published projections might have other implications for the public face of monetary policy in New Zealand relative to abroad. Other central bank forecasts, if they are published at all, are published on the basis of unchanged interest rates. A key difference between the two approaches is that, in our projections, inflation is always under control, since we presume the policy action necessary to ensure that outcome. That can lead to confusion (despite our efforts to dispel it), since it can appear that we are signalling interest rate increases at a time when inflation appears to be under control. A reader who is not familiar with the forecasting approach would wonder why interest rate increases are being flagged when apparently not needed.
- (d) Fourth, New Zealand's economy appears to be inherently more volatile than other economies with which we typically compare ourselves. Policy's *reaction* to comparatively volatile economic circumstances can readily be confused with policy independently *causing* volatility.
- (e) Fifth, and probably most important of all, the New Zealand economy has not grown as rapidly as we would have hoped. Quite naturally, there is an interest in explaining the reasons for disappointing growth, with attention being drawn to instances of apparent difference between us and others who have been more successful.

One obvious difference is that interest rates in New Zealand are typically higher than elsewhere. It is understandable why people might link the idea that New Zealand has a slightly lower inflation target than

¹³ Since June 1997.

some other countries with the observation that we have a higher average interest rate.

While a linkage between interest rates and monetary policy is clearly valid for the short to medium term, it is wrong when trying to explain trend or average relationships. That can be seen by considering what would have happened if monetary policy had tried to keep interest rates lower on average over the last decade by one per centage point, say. The already large run-up in household and corporate indebtedness observed over the 1990s would presumably have been even larger, as spending ahead of receiving income was made cheaper. That additional spending would add to inflation pressure, unless the lower interest rates stimulated as much additional capacity to produce as new demand (an outcome that would be completely at odds with New Zealand's experience).

While our interest rates are higher than elsewhere on average, they do not seem to have been high enough to induce New Zealanders to save rather than consume. That New Zealanders have been unwilling to save more at these interest rates means that interest rates must be higher than otherwise to keep demand and supply (and hence inflation) in balance. And it means that the nation has had to use foreigners' savings extensively to fill the financing gap, with consequences for the exchange rate, current account, and external debt. A greater willingness to save is the (apparently simple but in fact complicated) answer – monetary policy cannot stimulate more saving by pushing interest rates *down*.

- (f) Finally, the wording of the PTA itself might have contributed to a perception of aggressiveness. For example, some readers interpret the PTA as requiring that inflation be inside the range within each 12 month period, when in fact the "12 months" reference in the PTA relates to the fact that annual rather than quarterly inflation rates are used as the reference measure. Some interpret the PTA as "allowing" departures from the 0 to 3 per cent range

only in circumstances envisaged by the "caveats" clause (clause 3), whereas clause 4 (on accountability) envisages general circumstances when inflation will be outside the range. And there are different perspectives on whether the 0 to 3 per cent range identifies an area of acceptable outcomes in normal times, or a zone of broadly comparable aiming points. (This latter interpretation issue is taken up in the next main subsection.)

More generally, the construction of the PTA seems to many readers to call for a quite different approach than represented in the RBA's exchange of letters with their Treasurer, whereas in practice the policy approaches are very similar.

- 33 All in all, it is difficult to be definitive as to whether we have got our judgements on the degree of responsiveness or aggressiveness of monetary policy about right. The evidence discussed above suggests that the current policy approach is quite similar to that deployed in other countries, and that monetary policy overall has been stabilising rather than destabilising. While alternative degrees of responsiveness might be considered, it would not be possible to say with any certainty that they would produce noticeably different outcomes for the economy. However, there does seem to be a perception of unwarranted aggressiveness that does not match the reality. This perception might partly be traceable to gaps in understanding about the role and capability of monetary policy, and to communication style – things that might be able to be altered, and on which the Bank clearly needs to do some thinking.

Is too little account taken of the exchange rate's impact on exporters?

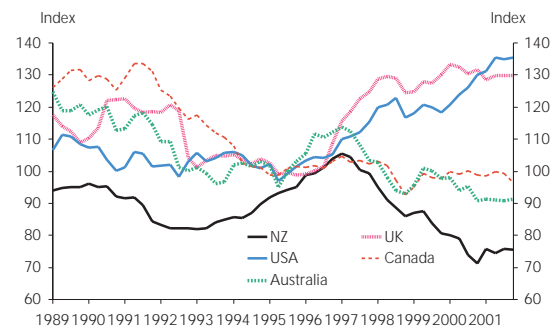
34 As can be seen from the preceding discussion, there are no simple metrics available for judging whether the policy approach guided by the current and former PTAs has done the best job possible in supporting real economic stability while keeping inflation under control. What evidence exists suggests that the real economy has in general become more stable since monetary policy has been guided by inflation targets, as have the economies of comparator countries which have also controlled inflation more closely.

35 The main exception to this story is the real exchange rate, which has been and still is more variable than in the typical OECD economy. To some extent that relates to the fact that many OECD countries have fixed exchange rates within currency unions. Amongst floating exchange rate economies, New Zealand's real exchange rate is comparatively volatile, but not dramatically so (see figure 3).¹⁴

36 An important question, therefore, is whether a different policy approach might reduce exchange rate variance without paying too large a price on variance elsewhere – or whether instead substantial exchange rate variance goes with being a small, open and comparatively undiversified economy. Each time we have looked at this question we come up against the following problems:

- (a) We find it difficult to understand, let alone predict beyond the immediate period ahead, the connection between the nominal exchange rate and any given change in interest rates or given level of interest rates. Just recently we increased interest rates by 25bp and saw an exchange rate appreciation of around 6 per cent in the month following the announcement. Six weeks later we increased interest rates again by 25bp and have since seen a depreciation of around 3½ per cent.

Figure 3
Variability of real exchange rates



As a consequence, we would find it difficult to anticipate how to set interest rates to sustainably achieve a given nominal exchange rate outcome. If we were to iteratively adjust interest rates with a particular exchange rate outcome in mind, we would find it difficult to know where interest rates and hence interest-sensitive expenditures would end up. It is possible that limiting the upswing in interest rates at the top of an exchange rate cycle would reduce the amplitude of that cycle. It is equally possible that holding back on interest rate increases would amplify the business cycle and inflation pressure to an extent that might result in an exaggerated exchange rate cycle (as policy sought to regain control over inflation).

- (b) It is one thing to influence predictably the path of the nominal exchange rate and quite another to influence predictably the path of the real exchange rate. And it is the real exchange rate that matters for economic performance. If we iteratively adjusted interest rates to keep the (nominal) exchange rate down, it seems likely that interest rates would (initially) be somewhat lower and inflation would end up somewhat higher than otherwise¹⁵. That higher inflation would erode the competitiveness gain from the lower exchange rate (i.e. it would offset the initial fall in the real exchange rate).

¹⁴ Exchange rate variance under discussion is the quarter-to-quarter and cycle-amplitude variance that matters most for economic decision making.

¹⁵ Over time, the higher inflation would mean that nominal interest rates would also end up higher, by about the same amount.

(c) The chief alternative to attempting to manage the nominal exchange rate without using interest rates is via foreign exchange market intervention. Most other countries use exchange market intervention to a greater or lesser degree. We have been re-evaluating this option with the conclusion that while it might have a marginal beneficial role to play, with less financial risk than commonly thought, the likely effect on the real exchange rate would be very marginal.

37 In sum, while foreign exchange market intervention might be worth exploring, its benefits for reducing exchange rate variance would be marginal at best. Adjusting interest rates differently with the purpose of managing the exchange rate would probably have adverse implications for the stability of inflation, and would have uncertain implications for the real exchange rate and current account balance.

Alternative PTAs

38 First, some words on the presumption that 1½ per cent is a central aiming point – a kind of operational target – implicit in the current PTA. We have interpreted the PTA as requiring the Bank to operate policy with the intent that trend inflation normally fall within the range. The 0 to 3 per cent range is, in other words, an indication of acceptable outcomes in normal times. Brief blips outside the range are reasonable, so long as those blips don't disturb the trend in a way that threatens future achievement of the range. Blips associated with specific events that have an inherently transitory effect on inflation (so-called "caveats") fall easily into the category of reasonable blips outside the range. With increasingly anchored expectations, blips associated with events that could otherwise have had a persistent effect on inflation can still occur without necessarily threatening future achievement of the range – so long as inflation comes back into the range over a reasonable time frame, and so long as the blips don't become a recurring theme.

39 We have also understood that a phased response to inflation blips is reasonable if that helps avoid real

economic instability while still bringing inflation back into the range within a reasonable time frame. How quickly or slowly one acts depends a lot on circumstances, and in particular on how well anchored are expectations.

40 In this context, we tend to nudge inflation towards the centre of the target range with steadily increasing energy as inflation moves towards the edges of the target range. This is to reduce the risk that trend inflation would end up outside the range as a result of an unforeseen blip in inflation that could become persistent. Inflation is far from being precisely controllable.

41 There are many alternative PTA designs that could be consistent with both the Act's primary objective and with concerns to maximise monetary policy's support for top economic performance. Broadly speaking, PTAs can focus on:

(a) A range of acceptable inflation outcomes in normal times.

The implications for the conduct of policy are left unstated, though the width of the range and the language of the PTA provides some general guidance. This is how we interpret the current PTA to be written.

(b) A point or range of acceptable outcomes in normal times, but expressed as an average over a period of several years.

An example of this approach is the RBA's 2 to 3 per cent "thick point" target, although the same approach can be applied at a different target level. In Australia, the thick point target is an expression of acceptable outcomes on average over a business cycle. Again, it is left unstated just what that means for the conduct of policy. Also, by virtue of expressing the target as a medium term target and leaving unstated how widely inflation might reasonably wander over time, more discretion is given to the central bank to determine the conduct of policy (also making it harder to hold the Bank to account).

(c) A target point and an indicated range of acceptable outcomes.

An example of this approach is the Bank of England's 2½ per cent target, with a plus/minus 1 per cent band around that target before the Bank must write to the Chancellor to explain. The conduct of policy is again left unstated, although the width of the band around the target point provides some general guidance as to how quickly the Bank should react. This approach is similar to the PTA target band approach, except insofar as the nomination of a target point provides additional guidance to the Bank and the public as to the locus of intended outcomes.

(d) Policy's conduct itself.

The PTA could attempt to define how policy should react in given circumstances. For example, it could be specified that monetary policy leans against inflation when forecast inflation is outside a particular zone, but not otherwise.

No examples of such an approach exist. This is probably because of the resulting uncertainty about outcomes - unforeseen circumstances and inherent limitations on the ability of monetary policy to closely control future inflation make the connection between policy actions and inflation outcomes quite variable. Pre-specifying policy conduct reduces or removes the potential for the central bank to use experience and judgement to alter policy settings to increase the predictability of inflation outcomes.

42 Underneath these alternative PTA designs there are essentially three choices to be made. One needs to choose the average level of acceptable inflation outcomes, the range over which inflation is likely to wander (i.e. the aggressiveness of policy in controlling inflation), and the extent of discretion given the central bank to adjust policy settings according to the conditions.

43 In respect of the first choice (the average level), as argued earlier, economic theory and evidence doesn't allow us to distinguish between the economic performance that would be associated with average or trend inflation rates between 0 and 3 per cent.

(a) Considering subjective tests as to what constitutes price stability, average inflation outcomes in the upper reaches of the 0 to 3 per cent range probably

border on being material enough for people to take into account in their decision-making. This is especially so once allowance is made for the variance of outcomes around the average.

(b) Risks to economic performance associated with increasing nominal rigidities in the economy at very low rates of inflation probably also suggest avoiding average inflation outcomes in the lower reaches of the 0 to 3 per cent range.

(c) This suggests that it would not be sensible to specify either edge of the range as the central focus of intended outcomes.

(d) When the choice is made of what average inflation outcomes would be best, it is worth recognising that average outcomes over the last decade have been around 2 per cent, and that long-term expectations have probably settled around the same level.

(i) To move *quickly* down from 2 per cent and re-anchor inflation expectations at, say, 1½ per cent would probably involve some loss of output. Choices that would not involve some loss of output would be to wait for some outside event that would generate disinflation, or to re-specify the target so as to produce intended outcomes of around 2 per cent.

(ii) To move up from 2 per cent would probably result in an increase in inflation expectations, by a similar amount as the increase in average outcomes. Over time that would imply higher nominal interest rates on average (by the same amount).

44 The second consideration (the range that inflation can be expected to wander over, and the associated aggressiveness of policy), involves a judgement call on the trade-off between the predictability of the price level and the effects of policy aggressiveness on the volatility of the real economy.

(a) With the target specified so that inflation is brought back over time to the mid-point of a 0 to 3 per cent range, past simulation work indicates that outcomes are likely to fall outside that range around 15 to 20

per cent of the time. Some simple calculations imply that this probability would roughly double in a regime where the thick point was widened to 0 to 3 per cent, and policy only attempted to bring inflation back to the edge of the band when it left it. Perhaps more significantly, there would also be a very large increase in the probability of a sustained breach, where the average rate of inflation stayed outside the target band for a 5 year period. Our simulations suggest the probability of this might go from around 1 to 2 per cent (when targeting the mid-point) to as high as 30 per cent (with a 0-3 per cent thick point). With a "thinner" thick point like 1 to 2 per cent, the probabilities of temporary or sustained target breaches would increase much less, so long as the thick point was near the centre of the target band. But if we went for a non-central thick point (like 2 to 3 per cent in a 0 to 3 per cent range of acceptable outcomes), this would also roughly double the probability of target breaches, and greatly increase the likelihood of inflation staying outside the band for a sustained period.

Doubling the probability of being outside a 3 per cent wide range means that the volatility of inflation outcomes would rise sufficiently to make New Zealand an outlier, when compared to the rest of the OECD.

- (b) As a first approximation, these rough probability calculations would likely carry over to a situation where the range of acceptable outcomes and associated aiming points were increased by 1 per cent. The main qualification would be if higher inflation outcomes (e.g. blips above a 1 to 4 per cent range) raised people's consciousness about inflation to the point that inflation expectations started to drift. This is an important risk. Outcomes over 4 per cent would these days be regarded as unusual, and possibly symptomatic of a significant change in inflation tolerance.
- (c) As noted earlier in this briefing note, notwithstanding the different specifications of the target in New Zealand and Australia, by and large

policy conduct is very similar, once allowance is made for different economic circumstances. The pace that we nudge inflation back towards the centre of the range is such that average outcomes can be well away from the centre of the range – and indeed close to the edge of the range – over an extended period.

- 45 With respect to the third consideration (the extent of discretion provided the central bank), the fact that no country pre-specifies the conduct of policy lends support to our view that such an approach would not be sensible.
- 46 Consideration for the stability of the real economy should continue to be expressed as subsidiary to the task of achieving the specified inflation target, in order to avoid conflict with the Act's price stability objective. The fact that, at times, there can be trade-offs between inflation control and the stability of the real economy has been noted. If concern to avoid actions that cause even temporary harm to the real economy were elevated to equal or superior place compared with maintaining price stability, it would not be possible to achieve the statutory objective.
- 47 Overall, there are several alternative PTA specifications available. As to the choice of acceptable inflation outcomes, average outcomes in the upper or lower reaches of a 0 to 3 per cent range would probably be riskier for the long-run performance of the economy than outcomes somewhere in the middle part of that range. Where in the middle part is best we cannot say.

As to the choice of the extent to which inflation might wander, a judgement call is required. The evidence does not suggest that monetary policy is in fact more aggressive in New Zealand than elsewhere, once allowance is made for local economic conditions. While it is possible that adjustments to the nature of monetary policy responses would better support the performance of the real economy, the evidence is weak in either direction, and there are risks.

And as to the question of whether the target should be specified in terms of acceptable outcomes or instead the conduct of policy, the former seems more sensible.

- 48 Should a change in the PTA be considered, it would be necessary to consider the robustness of the new arrangements. One of the main channels for potential harm to arise from a change in the targeting arrangements is through a reduced anchoring of inflation expectations on the chosen target. Reduced anchoring would arise from the perception of an increased willingness to change the target, particularly in a loosening direction, should economic performance not live up to expectations. And reduced anchoring would imply that monetary policy reactions to inflation perturbations would need to be strengthened, to prevent inflation expectations drifting.
- 49 Note that reduced anchoring of inflation expectations is different from a change in inflation expectations consequent on changing the target. It is likely that changes in the PTA that have the effect of increasing trend inflation will affect inflation expectations, and thereby increase nominal interest rates (leaving real interest rates mostly unchanged). The concern is that any such change in the PTA that results in higher inflation expectations should not result in a further drift in expectations. It would be dangerous if a sequence of previous PTA changes, perhaps associated with disappointed aspirations for New Zealand's economic performance, meant that future disappointed aspirations were to be translated into a further upshift of inflation expectations.
- 50 There is no simple way to ensure a re-anchoring of inflation expectations on a new target.
- (a) PTA targets are not embedded in statute. Indeed, there is now a tradition of renegotiating PTAs on changes in government as well as changes in Governor.
 - (b) At some point, higher average inflation outcomes under successive PTA changes would become clearly inconsistent with the Act's price stability objective. To the extent that the Act itself has credibility as a shaper of policy reality, that would perhaps put a cap on any drift in expectations.
 - (c) It might be that re-specifying the target to be identical to Australia's would facilitate re-anchoring of expectations, if trans-Tasman comparability provided a robust touchstone. This is of course highly speculative. Moreover, one would need to be satisfied that the Australian target is suitable for New Zealand, and that any future change in the Australian target would sensibly be followed by New Zealand. (It should be noted that a common target does not imply a common path for interest rates, or a stable exchange rate between the two countries.)