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New Zealand

Inflation Targeting in New Zealand: The 1987 Reserve Bank Survey Questionnaire and Related Documents

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Working Paper in Economics 11/14

September 2014

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Abstract

New Zealand is acknowledged widely as the first country to implement a formal monetary policy agreement specifying an explicit inflation target. This agreement, signed in March 1990 between the Minister of Finance and the Governor of the Bank, was implemented under Section 9 of the Reserve Bank of New Zealand Act 1989. By 2014, inflation targeting agreements had been established, in several forms, in more than 25 countries. During the evolving 1984-1989 price stability and inflation targeting deliberations in New Zealand, a survey of Reserve Bank economists in early 1987 included the question 'Should the Bank have an explicitly-stated desired inflation time path?' This paper is primarily a record of the background and responses to this question. It also includes the original documents and related material.

Key Words

inflation targeting
monetary policy
New Zealand
Reserve Bank of New Zealand

JEL Codes

E31, E52, E58

Acknowledgements

I am grateful to the Reserve Bank of New Zealand for providing a very enjoyable period of study leave at the Bank during February and March 1987. I am also grateful to Eric Hansen, a former outstanding student of mine, for his joint participation in our projects. The insightful and very helpful comments on this paper by Arthur Grimes, Michael Reddell and Grant Spencer are appreciated. The views expressed here are not to be attributed to the Reserve Bank of New Zealand.

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Contents *page*

1. Introduction

New Zealand is acknowledged widely as the first country to implement a formal monetary policy agreement specifying an explicit inflation target. The original agreement, signed in March 1990 between the Minister of Finance and the Governor of the Bank, required the Governor to keep the annual inflation rate within 0 to 2 percent during his term of office. The formal basis for this agreement was Section 9 of the Reserve Bank of New Zealand Act 1989. By 2014, inflation targeting agreements had been established, in several forms, in more than 25 countries.[1]

Brash (1999), Reddell (1999) Sherwin (1999) and Singleton *et al.* (2006) all outline the very interesting and revealing political economy of the evolving 1984-1989 price stability and inflation targeting deliberations that led to the Reserve Bank of New Zealand Act 1989. The leadership role of the then Minister of Finance (Roger Douglas) is especially interesting together with the participation and perspectives of subsequent Finance Ministers, Treasury officials, the Reserve Bank Board and staff and external advisers.[2] In April 1988, to the surprise of some in the Reserve Bank - prevailing inflation was then around eight percent - Roger Douglas announced a 0 to 2 percent monetary policy inflation target to be achieved within around two years. Ongoing deliberations resulted in the 1989 Act with its two main monetary policy sections, namely:

[1] Sherwin (1999, p.72) says 'For historical completeness, we should note that Italy, Greece and Portugal had all used published targets for inflation at times during the early 1980s, and Sweden had briefly operated a form of inflation targeting in the 1930s. However, none of these provided a complete [formal] structure for inflation targeting of the sort now understood by that term'. Similar wording also appears in Reddell (1999, p.63).

[2] See Singleton *et al.* (2006, Chapters 4 and 5 especially) for a detailed coverage of the 'complex story' of how the Reserve Bank Act 1989 eventuated. Both chapters identify significant individual contributions.

> **Section 8: Primary Function of Bank**. The primary function of the Bank is to formulate and implement monetary policy directed to the economic objective of achieving and maintaining stability in the general level of prices.
>
> **Section 9.1: Policy Targets**. The Minister shall, before appointing, or reappointing, any person as Governor, fix, in agreement with that person, policy targets for the carrying out by the Bank of its primary function during that person's term of office, or next term of office, as Governor.

For interested readers, the first Policy Targets Agreement between the Minister of Finance and the Governor of the Reserve Bank is reproduced in Appendix 4.[3] In addition to the papers mentioned above, New Zealand's experience with inflation targeting is analysed from an implementation perspective in Bollard and Karagedikli (2006) and from a theory, policy and evidence perspective in Grimes (2014). Both papers include extensive references.

The remainder of this paper covers briefly just one occurrence in the origins or evolution of inflation targeting in New Zealand, namely, a March 1987 internal survey to Bank economists with the question: 'Should the Bank have an explicitly-stated desired inflation time path?'[4] The background to this question is outlined in Section 2, with the research proposal behind the questionnaire in Appendix 1. The 'targeting question' and responses are summarised in Section 3 with the full questionnaire itself in Appendix 2. The subsequent report to the then Chief Economist of the Reserve Bank (Grant Spencer) in April 1987 is reproduced as Appendix 3. There is a brief conclusion in Section 4.[5]

2. The 1987 Reserve Bank Survey Questionnaire

The March 1987 survey was prepared while I was at the Reserve Bank of New Zealand (RBNZ) on study leave from the University of Waikato. I had been requested by the Bank to conduct a project relating to the information content of monetary policy indicators. Four research questions were posed, namely:

- On the basis of the given objective for monetary policy (a stable price level), what are the relevant indicators?
- What is the information content of the respective indicators?
- How are the indicators to be combined in order to assess overall monetary conditions?
- How will the list of indicators and/or the respective weightings change for different environments?

(*Source:* Robin Clements, Economics Department Research Manager, 22 December 1986).

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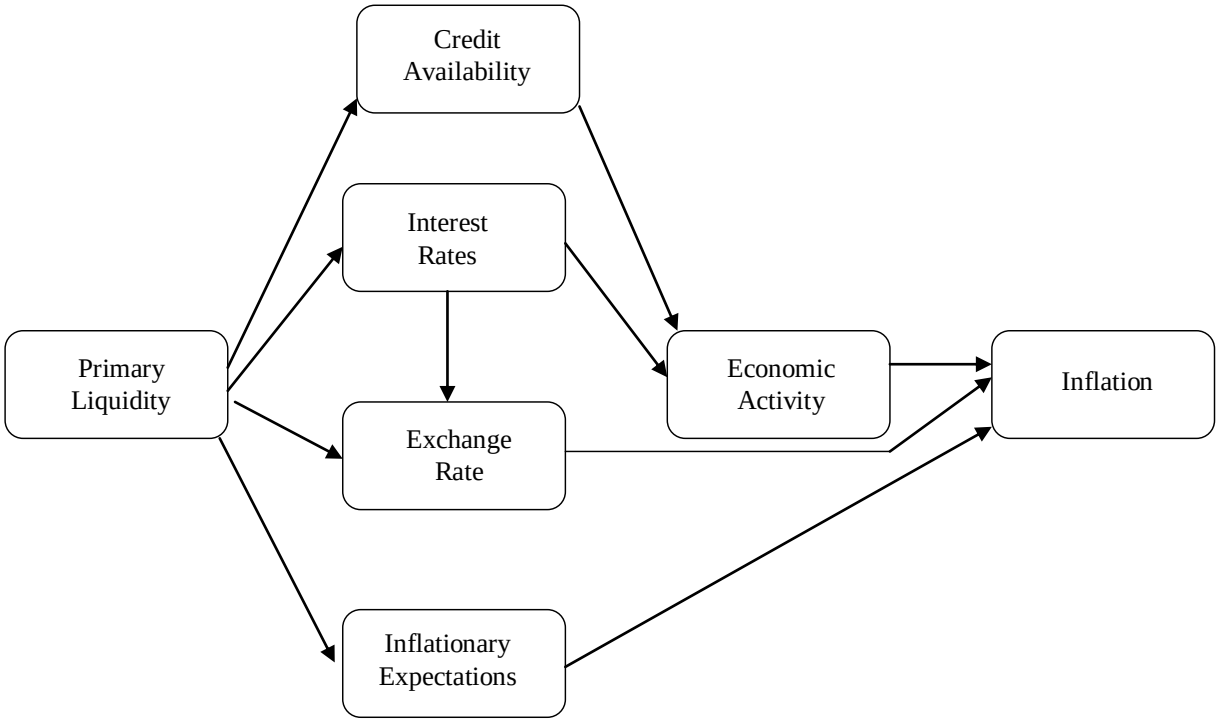
[3] The considerably shorter ninth Policy Targets Agreement, dated September 2012, is available at: http://www.rbnz.govt.nz/monetary_policy/policy_targets_agreement/4944826.pdf

[4] This survey and targeting question are also cited and discussed in Singleton (2006, p127 and p.128).

[5] The appendices are reset versions of the original documents with only minor layout and typographical corrections.

I was joined in this project by Reserve Bank research officer Eric Hansen.[6] The project involved, in the first instance, a literature review. A quick glance through the references at the end of Appendix 3 will show that indicator analysis was a major monetary theme in the 1980s. RBNZ-produced literature included an early 1987 internal paper on monetary policy prepared initially, if I recall correctly, for the lay members of the Reserve Bank Board. The paper appeared subsequently as 'A Layman's Guide to Monetary Policy in the New Zealand Context' in the June 1987 issue of the Reserve Bank *Bulletin*. It included Figure 1 on the then transmission channels of monetary policy from primary liquidity to the rate of inflation as the ultimate target.

Figure 1. The Transmission Channels of Monetary Policy to Inflation



Source: Reserve Bank of New Zealand, Economics Department, internal paper diagram (dated 4 March 1987) and Reserve Bank of New Zealand (1987, p.107).

The paper also included the statement that:

> The overriding objective of monetary policy is to lower the rate of inflation in the economy. *Policymakers generally do not have a specific target in mind for the inflation rate*, at least not in the short-term, but it is widely agreed that the prospects for delivering real economic growth and improved living standards are far greater in an environment of low rather than high inflation.
> (Reserve Bank of New Zealand 1987 p.104. Italics added by Silverstone).

[6] Appendix 1 sets out the scope of our project. See also Hansen and Silverstone (1987) and Hansen (1987) for selected outcomes.

3. The Explicit Inflation Targeting Survey Question and Responses

Despite the very clear statement in RBNZ (1987, p.104) that 'the overriding objective of monetary policy is to lower the rate of inflation', the prevailing 'Main Monetary Issues' paper to the Reserve Bank Board, memorandum reports to the Minister of Finance and publicly available documents contained (with occasional exceptions) little or no theoretical or empirical analysis, and only relatively modest commentaries, if any, on the rate of inflation. Given that inflation, or a stable price level, was the overriding objective, one might have expected to see, at the very least, inflation charts and tables in these reports. The quarterly reviews of 'Monetary Policy and Conditions' in the December 1986 and March 1987 Reserve Bank *Bulletins* are examples of this omission. They review and chart trends in monetary aggregates, primary liquidity, interest and exchange rates, but not inflation.[7]

Two influences, then, prompted us (that is, Silverstone and Hansen) to ask Survey Question 1: First, the apparent absence of a detailed analysis of inflation and, secondly, our wish to gauge the level of support for the RBNZ (1987, p.104) *Bulletin* statement that 'policymakers generally do not have a specific target in mind for the inflation rate, at least in the short run'.

Survey Question 1

In the context of Chart 1 [p.13 below], should the Bank have an explicitly-stated desired inflation time path:

(a) For in-Bank purposes only?
(b) For in-Bank and public information?

Responses [(a) and (b) combined]
Yes: 7
No: 5
Response Rate: 50 percent

Source: Survey Questionnaire, March 1987 (Appendix 2, p.12).

We received 12 replies to Question 1 from the survey (Appendix 2) that we distributed to some 25 RBNZ economists; a 50 percent response rate. Unfortunately, only the aggregated responses (that is (a) and (b) combined) are now available and these provided seven 'Yes' replies and five 'No' replies. This was not an over-whelming response in favour of explicit inflation targeting. This outcome is especially so when the option for an explicit inflation target to remain in-house was a possibility. Overall, this somewhat mild support for a

[7] This observation regarding the treatment of inflation in Bank documents is supported by Reddell (2014) who recounts that 'We spent a lot of time [in the 1980s] analysing monetary base developments, sources of injection to liquidity, and sterilisation techniques, and very little time talking about or analysing inflation itself' (p.134, fn.5). He also observes that 'the Reserve Bank's 1986 book, *Financial Policy Reform*, was published at a time when thinking about reforming the Reserve Bank Act [1964] was already underway, but it has ten times as many references to the exchange rate as to inflation, and five times as many references to the monetary aggregates' (p.134).

specific inflation target is consistent with the range of views at the time - from enthusiastic to cautious - in the 1984-1989 inflation-targeting/stable price level, deliberations.

The responses to two other questions in the 1987 survey are available. They relate to the level of support for an explicitly-stated nominal income time path (Question 2) and whether or not the short-run effects of monetary policy on real output should be included in any assessment of monetary policy (Question 3). Again, opinion is divided, although there is somewhat more support for the view that any assessment of monetary policy actions should include short-run real effects.

Survey Question 2

In the context of Chart 1 [p.13 below], should the Bank have an explicitly-stated desired nominal income time path:

(a) For in-Bank purposes only?
(b) For in-Bank and public information?

Responses [(a) and (b) combined]
Yes: 5
No: 8
Response Rate: 50 percent

Survey Question 3

In the context of Chart 1 [p.13 below], should the short-run effects of monetary policy on real output be included in any assessment of monetary policy?

Responses
Yes: 9
No: 4
Response Rate: 50 percent
[1]

Source: Survey Questionnaire, March 1987 (Appendix 2, p.12).

4. Conclusions

The 1964 Reserve Bank of New Zealand Act prescribed multiple monetary policy objectives. By 1984-1985, lowering New Zealand's poor inflation performance had become the goal of monetary policy expressed typically as 'low single figure inflation' or 'inflation around that of our trading partners' (Reddell 2014, p.135). The possibility of a more tightly specified, or explicit, inflation target was raised, among other places, in a survey questionnaire to Reserve Bank economists in March 1987. The outcome was mildly favourable support for 'an explicitly-stated desired inflation time path'. This survey was just one occurrence in a fascinating and evolving political-economic debate that led to the Reserve Bank of New Zealand Act 1989 and to the March 1990 Policy Targets Agreement that specified that 'An annual inflation rate in the range of 0 to 2 per cent will be taken to represent the achievement of price stability'.

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Appendix 1

A Research Proposal

Memorandum to: Reserve Bank Economists

From: Brian Silverstone and Eric Hansen

Date: 3 February 1987

Subject: **The Information Content of Monetary Indicators**

Time Required: 8 weeks
Completion: 31 March 1987

Aim of Project

To study the information content of monetary and credit aggregates, interest rates and the exchange rate as indicators of the stance of monetary policy, with particular reference to recent experience.

Background

Macroeconomists (including monetary economists) organise their analysis of the macro economy into at least three broad 'markets', namely, markets for goods, financial assets (money and bonds) and for labour. These markets produce prices and quantities which the macro theorist studies both separately (for example, consumption, the rate of interest or the exchange rate) and jointly (for example, the relationship between monetary aggregates and inflation). Hence, the macro and monetary theorist is interested in the separate and joint time paths of macro prices and quantities.

The po1icymaker, on the other hand, is more interested in determining whether or not the time paths of the macro prices and quantities can be influenced by policy. The stance taken by the policymaker will be influenced by his or her 'theory of policy'. The main stylised contenders are the Keynesian, monetarist and new classical theories of policy. The Keynesian and monetarist positions are at the interventionist end, favouring systematic policy intervention (discretion or rules), while new classical theorists deny the effectiveness of systematic or predictable (monetary) policy to alter the time paths of macro prices and quantities from their 'natural' levels. So we have the following summary:

Market	Macroeconomic Examples	
	Prices	**Quantities**
Goods (Closed)	Domestic Prices	Consumption, Investment , Government Spending, Taxation, Savings
Goods (Open)	Foreign Prices, Interest Rates	Exports, Imports, Capital Flows
Financial (Money)	Interest Rates	Money Demand and Supply
Financial (Bonds)	Interest Rates	Bonds Demand and Supply
Labour	Real Wages	Labour Demand and Supply

The monetary policymaker is interested primarily in a subset of these variables, in particular, the relationships between financial variables, real and nominal income, interest rates and inflation. In the decade prior to the mid-1970s, these relationships were thought to be relatively robust; the demand for money relationship function is the best example. The apparent stability of these monetary relationships created confidence in money supply or interest rate targeting. However, the very process of targeting, it has been suggested, along with domestic and international financial sector developments, led an increasing number of countries, by the mid 1980s, to abandon, single variable or 'single information' targeting as a guide to monetary policy.

These two major developments - the apparent breakdown in the reliability of single information targeting and domestic and international sector developments - has led to the use of joint information on monetary indicators as a guide to the stance of monetary policy. A major problem now is how to use the information content of these indicators as a systematic guide to policy. In particular: what is the relative importance of changes in money, credit and other debt aggregates, the interest rate (level and structure), the exchange rate and other variables, for predicting changes in:

(a) The tightness or ease of monetary conditions, and
(b) Inflation, real and nominal income?

In this project we hope, in the first instance, to survey the recent literature relating to this question in the context of the following issues:

(a) What is the information content of the respective indicators?

(b) How are they to be combined in order to assess overall monetary conditions?

(c) How will the list of indicators and/or the respective weightings change for different environments?

Appendix 2

Survey Questionnaire

Memorandum to: Reserve Bank Economists

From: Brian Silverstone and Eric Hansen

Date: 6 March 1987

Subject: **The Information Content of Monetary Indicators**

In the decade prior to the mid-1970s, relationships between financial variables, nominal income and inflation were thought to be relatively robust. This led policymakers to rely heavily on single variable targeting as a guide to monetary policy. Interest rates were targeted initially, followed in the early 1970s by monetary aggregates as increasing variability in rates of inflation made rates of interest difficult to interpret. The impact on inflation expectations of credible money growth targets also encouraged the use of monetary aggregate targets. More recently, the apparent breakdown in the reliability of monetary targets, combined with domestic and international financial sector developments, has led many monetary authorities to use a range of other indicators when assessing monetary conditions.

A major problem now for policymakers is how to assess the relative importance of the monetary and credit aggregates, interest rates, exchange rates and other indicators as a guide to the firmness of monetary conditions.

We are currently surveying the recent literature on the information content of monetary indicators. Part of our survey involves determining the special characteristics of New Zealand's current monetary policy and financial sector, with a view to systematic application of 'full information' analysis to assessments of monetary conditions in New Zealand. To aid us in this process, we would like to survey your views on the appropriate instruments, targets and indicators of monetary policy in New Zealand and also the main transmission mechanisms of policy.

To provide a basis for your thoughts, we have attached two charts. Chart 1 is a general flow chart of instruments, targets and indicators of policy. It is based directly on the 'Review of Monetary Policy and Conditions' in the December 1986 issue of the *Reserve Bank Bulletin*. It reflects the current published framework for interpreting monetary conditions. Chart 2 is a more detailed flow chart of the main transmission mechanisms of monetary policy as described in Clements and Dickens 'Current Monetary Policy in New Zealand' Reserve Bank of New Zealand *Discussion Paper* G86/9, December 1986.

To be useful, your comments need to be returned to
Eric Hansen or Brian Silverstone
by Friday 13 March 1987.
Thank you for your contribution.

In the context of Chart 1 below, we would appreciate your answers to the following questions:

1. Should the Bank have an explicitly-stated desired inflation time path:
   (a) For in-Bank purposes only?
   (b) For in-Bank and public information?

2. Should the Bank have an explicitly-stated desired nominal income time path:
   (a) For in-Bank purposes only?
   (b) For in-Bank and public information?

3. When assessing the appropriate monetary policy response, should the Bank note the trend gap between actual and desired inflation?

4. Should the short-run effects of monetary policy on real output be included in any assessment of monetary policy?

5. What other *key indicators* (in addition to those indicators listed in Chart 1) would you regard as important for assessing current and expected future monetary conditions?

6. What other *key information* would you use to assess the reliability of the listed indicators (for example, the impact on the New Zealand exchange rate of perceptions by overseas investors about the Australian economy)?

In the context of Chart 2 below, we would appreciate your responses to the following matters:

1. Please place ticks or crosses (on Chart 2) against those relationships you believe are very strong (√√), strong (√), very weak (xx) or weak (x).

2. Please indicate your estimate of the lag length between:
   (a) A sustained change in short-term interest rates and
       interest rates on loans to the public.
       interest sensitive consumption.
       interest sensitive investment.

   (b) A sustained change in the exchange rate and the demand for domestic goods by the private sector.

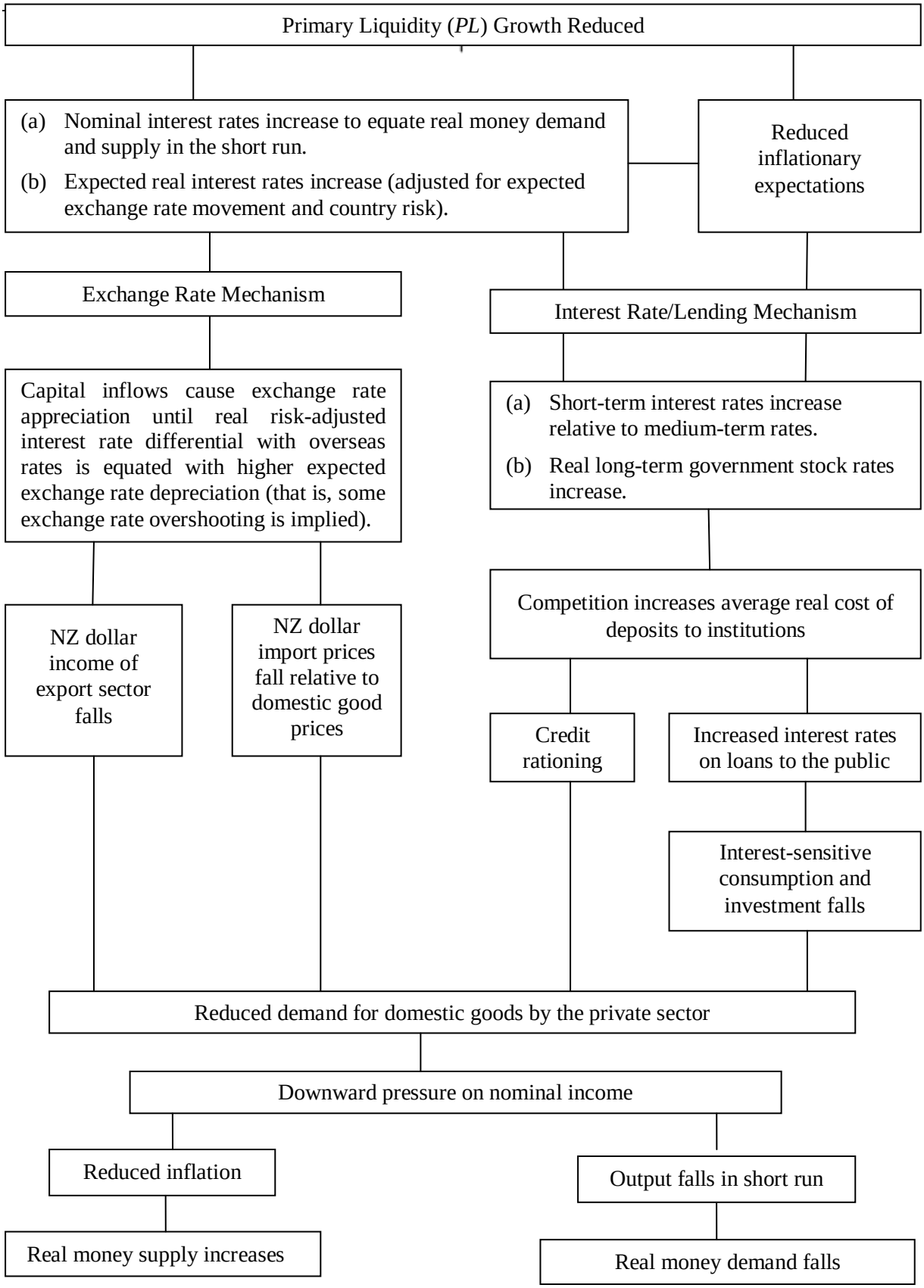
Chart 1

Instruments, Targets and Indicators of Monetary Policy

Objective of Monetary Policy	**Target**
'To exert a steady and predictable degree of restraint on monetary conditions over time, so that inflationary pressures are not accommodated'. $\dot{P}$ = Inflation rate $P\dot{Y}$ = Nominal income growth rate	$\dot{P}$? *or* $P\dot{Y}$? *or* $\dot{P}$ and $P\dot{Y}$?
Policy for Achieving Objective	**Instrument**
'Medium-term restraint is maintained through a stable trend level of primary liquidity, which is in turn achieved by 'fully-funding' all public sector liquidity injections through the year'. *PL* = Primary Liquidity	*PL*
Indicators of Policy Effectiveness	**Indicators**
'In principle ... the best medium term indicators of the degree of pressure being exerted by monetary policy would be the various money and credit measures themselves. ... 'However, the period under review ... is not "normal" [therefore] ... a judgment as to the state of monetary conditions must be supplemented by a reference to a range of other indicators'. 'The use of such indicators … must be undertaken ... with reference to as much other relevant information as can be obtained'. *M3* = M3 money supply *PSC* = Private Sector Credit	*M3* *PSC* 90 day bill rate 5 year stock rate Yield curve Exchange rate index Real economy developments Financial state of major sectors Developments in foreign exchange markets Expectations and confidence Structural changes in financial sector
Targets	$\dot{P}$ *and / or* $P\dot{Y}$?

Source: Adapted from the text of Reserve Bank of New Zealand (1986) 'Review of Monetary Policy and Conditions' Reserve Bank of New Zealand *Bulletin* 49(4), pp.510-517.

Chart 2
Monetary Policy Transmission Mechanism



Source: Adapted from the text of Robin Clements and Rodney Dickens (1986) 'Current Monetary Policy in New Zealand' Reserve Bank of New Zealand *Discussion Paper* G86/9, December.

Appendix 3

The Information Content of Monetary Indicators

Progress Report
and Tentative Recommendations

To
Grant Spencer
Chief Manager, Economics Department
Reserve Bank of New Zealand

by

Brian Silverstone
Senior Lecturer in Economics
University of Waikato

and

Eric Hansen
Research Officer
Reserve Bank of New Zealand

3 April 1987

In our Research Proposal to you of 3 February 1987 [attached as Appendix 2], we stated that the aim of our project was 'to study the information content of monetary and credit aggregates, interest rates and exchange rates as indicators of the stance of monetary policy, with particular reference to recent experience'. This is a brief progress report containing some of the *operational* ideas which have occurred to us as we have studied the literature. These ideas are, to some extent, separate from our *analytical* study of the information content of monetary indicators. We thought, however, it might be helpful to have some of our operational ideas at this stage of the project pending a possible the discussion paper [see Hansen (1987) and Hansen and Silverstone (1987)] containing the results of our more analytical work at a later date.

All macroeconomic and monetary models have 'information content' in the sense that they provide information to the user as a result of the determination of the individual and joint variables in the model under conditions of equilibrium and disequilibrium adjustment. We would like to have started our project with a systematic model involving the three main groups of monetary indicators, namely, money and credit aggregates, interest rates and exchange rates. Indeed, there is now a rapidly growing literature on the 'information content' of monetary variables in the context of the information hypotheses of the rational expectations revolution. We found, however, that we first had to read the more immediate or

'operational' literature on, for example, monetary targeting, financial innovations and deregulation as well as country experiences and general issues of monetary policy, in order to gain a perspective on the current uncertainties facing monetary policymakers worldwide in interpreting the stance of monetary policy.

These uncertainties about economic relationships have led policymakers to say that they are now more 'pragmatic' when they interpret monetary conditions or they 'look at everything' or they consult a 'checklist'. Implicit, rather than explicit, models now appear to be guiding the assessment of monetary policy because of the apparent uncertainties about the stability of previously established economic relationships. In these circumstances, monetary policy assessment worldwide has come to rely relatively more on observation and casual theorising than was the situation just a few years ago when models of various sizes, including single equations models, influenced policy assessment.

We think this trend away from theoretical and empirical support when assessing monetary conditions is possibly a waste of potentially useful information. The general tenor of our recommendation to you, then, is that the regular interpretation of monetary conditions in New Zealand might benefit from the systematic overview of a wider theoretical and empirical literature than possibly occurs at the moment.

To illustrate our point:

The 'Main Monetary Issues' paper to the Reserve Bank Board, and the 'Monetary Conditions' memorandum to the Minister of Finance, are reviews of recent trends in monetary aggregates, interest rates and exchange rates. These reports, however, contain no theoretical or empirical analysis, or even commentary, on the rate of inflation, whose reduction was described in the March [1987] Board paper, 'Overview of Monetary Policy', as 'the overriding objective of monetary policy'. Similarly, conclusions from the demand for money literature and the literature on the determination of real and nominal interest and exchange rates are not obviously reflected in these reports.

We are not advocating bulky reports or surveys in addition to the analyses prepared by the already hard-pressed Monetary Policy Section, but brief appendix-type papers prepared for you by sections other than Monetary Policy. At the very least, this process should allow those immediately removed from monetary policy assessment to have some input into policy assessment by giving a brief written overview of some of the 'vibes' in the domestic and international literature on the targets, indicators, instruments and transmission of monetary policy. More specifically, these are our thoughts regarding:

Inflation

It could be argued that there are both monetary and non-monetary influences on inflation (and on real output). It might be helpful if the Bank maintained an open file the monetary influences on inflation (and on real output).

Monetary Aggregates

The demand for money function is the centrepiece of monetary theory and policy. Typical demand for money specifications involve the major key variables of interest to monetary policy makers: the monetary aggregates themselves, real income and wealth, interest and exchange rates and inflationary expectations. It might be helpful to monitor the 'vibes' from the demand for money literature as there may be useful insights for the assessment of policy.

Interest Rates and Exchange Rates

Similar reasons apply to the literature on interest rates and exchange rates. It might be helpful, for example, to be aware of explanations offered in the literature for 'high' real interest rates and the possible links between interest rates and exchange rates.

Other Country Experiences

As other countries face similar problems interpreting monetary indicators, we think it might be helpful if *selected* bank bulletins, bank reviews and OECD reports were sent first to the Monetary Policy Section for brief evaluation. These reviews often have helpful ideas on ways to interpret current trends and policies. They also often reflect developments in the theoretical and empirical literature. Publications we have in mind include:

- OECD country reports (say UK, USA, Canada and Australia).
- *OECD Economic Outlook*.
- Central bank bulletins (say, UK, USA, Canada and Australia).
- Bank reviews (say, Barclays, US Federal Reserve reviews).
- Selected New Zealand publications.

Specific Indicators

In the interpretation of current monetary conditions, we think the following classes of information, might usefully supplement current reporting from the Monetary Policy Section:

- Consider the standard deviations of main indicators.
- Add inflation and expected inflation as 'indicators'.
- Consider historical ratios of monetary and credit aggregates (M_1, M_3 and PSC) to GOP or their inverse.
- Consider real money supply trends.
- Consider trends in capacity utilisation and expected capacity utilisation.
- Consider explanations for real interest and real exchange rate changes.

Report on Questionnaire

A questionnaire on targets, indicators and the transmission mechanism of monetary policy was sent to about 25 selected Bank staff and 15 replies were received. A copy of the questionnaire is attached [Appendix 2 above]. The broad conclusions were as follows:

Targets

1. Should the Bank have an explicitly-stated desired inflation time path:
   (a) For in-Bank purposes only?
   (b) For in-Bank and public information? Yes: 7 No: 5

2. Should the Bank have an explicitly-stated desired nominal income time path:
   (a) For in-Bank purposes only?
   (b) For in-Bank and public information? Yes: 5 No: 8

3. Should the short-run effects of monetary policy on real output be included in any assessment of monetary policy? Yes: 9 No: 4

Indicators/Other Information

There was a relatively disappointing response to a request for additional information which might be used to supplement the three main groups of indicators for assessing monetary conditions, namely, money and credit aggregates, interest rates and exchange rates. This was a surprising outcome given the comment made in the Board paper 'Overview of Monetary Policy' that information from the three main groups of indicators 'is supplemented and conditioned by other relevant trends in the real and domestic economy and in overseas markets' (p.6). Only one substantive response was received. This response is set out below, supplemented by the other replies.

Indicators Relevant to:

M3/Private Sector Credit

- Domestic demand for goods and services
- Domestic demand in asset markets (property, equities)
- Structural shifts in financial markets, including the effects of offshore borrowing and inter institutional activity
- Ml, M2

Interest Rates

- Foreign interest rates
- Inflationary expectations
- Budget deficit
- Seasonal liquidity factors
- Strength of domestic demand
- Call market and commercial bill activity

Exchange Rates

- Terms of trade movements
- Inflation differentials
- Stance of monetary policy in trading partners
- Movements in real exchange rates of main trading partners (especially Australia)
- Real exchange rate.

Lags

The following responses are broad 'aggregated' results:

1. What is your estimate of the lag length between a sustained change in short-term *interest rates* and
   (a) Loans to the public? 2.5 months
   (b) Interest-sensitive consumption? 6.0 months
   (c) Interest-sensitive investment? 6.5 months

2. What is your estimate of the lag between a sustained change in the *exchange rate* and the demand for domestic goods by the private sector?
   8.0 months

Monetary Policy Transmission Mechanism

Respondents were asked to indicate the strength and weakness of a stylised transmission mechanism based on a Reserve Bank *Discussion Paper*. The responses have been 'aggregated' and the broad results are indicated on the attached chart. [This chart, without the aggregated results, is shown on page 14 above].

It may be helpful to add some comments made by some of the respondents on this chart and some of the additional links they observed.

Comments Received

1. Chart does not show an 'intermediate target' or 'indicator', that is, monetary aggregates. Monetary disequilibrium has direct spending effects as well as interest rate effects and these are not shown on the chart.

2. Several respondents questioned the relationship in the final pair of boxes between (*M/P*)*s* and (*M/P*)*d*.

3. Primary Liquidity is not a 'growth target' but a level.

4. Most loans are essentially short term as the longer terms have review clauses in them.

5. In general the banks do not see government stock as a portfolio alternative to lending.

Additional Links

6. Three respondents stressed the very strong direct effect of import prices on inflation. Export price effects on inflation were sometimes also important (for example, meat and fish prices).

7. One respondent stressed that the direct link between reduced inflationary expectations and reduced inflation was a weak one.

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Appendix 4

Reserve Bank of New Zealand

Policy Targets Agreement
(March 1990)

In terms of section 9 of the Reserve Bank of New Zealand Act 1989 (the Act), the Minister of Finance (the Minister) and the Governor, of the Reserve Bank of New Zealand (the Governor) agree as follows:

1. Inflation Targets

Consistent with section 8 of the Act, the Reserve Bank should formulate and implement monetary policy with the intention of achieving price stability by the year ending December 1992. An annual inflation rate in the range of 0 to 2 per cent will be taken to represent the achievement of price stability. The inflation rate should be kept within that range for the remainder of the Governor's current term of office, which ends on 31 August 1993, and conditions at that date should be consistent with the maintenance of sustained price stability thereafter. In pursuing this target, and subject to the caveats below, the Bank's implementation of monetary policy should be designed to achieve a steady reduction in the annual rate of inflation (exclusive of the direct impact of the July 1989 GST increase) throughout the period to December 1992. Each policy statement released by the Bank under section 15 of the Act should contain a projected path for inflation over the following five years.

2. Measurement of Inflation

Section 8 of the Act requires the Bank to direct monetary policy towards the stabilisation of the 'general level of prices'. In pursuing this objective, the Bank will monitor price movements as measured by a range of price indices. However, it is considered that the primary measure of prices used to calculate the inflation rate for the purpose of these targets should relate to the prices of goods and services currently consumed by households. Unfortunately, the All Groups Consumers Price Index (CPI) is not an entirely suitable measure of these prices since it also incorporates prices and servicing costs of investment-related expenditures, notably in the housing field. The New Zealand CPI is unusual amongst OECD consumer price indices in including components for both the purchase price of dwellings and the cost of mortgage finance. For this reason, while the CPI will, for practical purposes, be the measure of inflation used in setting the targets, the Bank is to prepare an alternative measure of consumer prices based on an internationally comparable approach, so as to provide a basis for assessing the impact of investment- related housing costs on the CPI. In particular, the Bank's adjusted index will replace the current expenditure based measure of housing costs in the CPI with a measure based on imputed housing rentals. The Bank shall publish this index on a quarterly basis and is to ensure that the calculation of the index is verifiable by reputable external sources.

3. Variations to Targets

A. If an Order-In-Council comes into force under section 12 of the Act, the policy targets in this document cease to have effect and must be replaced by new targets within 30 days of the making of the order in accordance with section 12(7) of the Act.

B. These targets may also be varied at any time by agreement between the Governor and the Minister in accordance with the provisions of section 9(4) of the Act. The following specific instances will trigger a renegotiation of these targets in accordance with these provisions:

(i) The Bank shall notify the Minister if, in 1992 or 1993, there is, or is likely to be, a divergence of at least one half of one percentage point between the annual inflation rate of the CPI and of the Bank's internationally comparable measure of consumer prices. Within 30 days of this notification, the Governor may choose to renegotiate new policy targets so as to take account of the effect of the deficiencies in the construction of the CPI.

(ii) Any decrease or increase in GST, or any material change in other indirect taxes, will automatically lead to a renegotiation of these targets where the change is expected to impact directly on the 1992 or 1993 annual inflation rate. In general, a material change in indirect taxes will be interpreted as one which has a positive or negative impact on the price level of at least one half of a percentage point within a one year period. It is intended that the targets will be renegotiated on the basis of allowing the direct effect of the change to impact on the price level, with no accommodation of second round effects. Following a GST change, or following what the Bank estimates to be a material change in other indirect taxes, the Bank shall inform the Minister in writing of its estimate of the direct effect of the change on the price level. If necessary, new policy targets shall be set within 30 days of this estimate being received by the Minister.

(iii) A significant change in the terms of trade arising from an increase or decrease in either export prices or import prices will trigger a renegotiation of the policy targets, where the Bank indicates to the Minister in writing that it estimates the change will have a significant direct impact on the 1992 or 1993 annual inflation rate. In informing the Minister that a significant change has occurred, the Bank should provide an estimate of the direct price effects of the terms of trade change on the price level. Following the provision of this estimate, new policy targets shall be set within 30 days. The intention of this provision is to enable some or all of the direct price effect of a significant terms of trade change (whether positive or negative) to be accommodated but it is not intended to accommodate any second round influences. Thus it is intended that any terms of trade change will have, at most, only a transitory effect on the inflation rate.

(iv) In the case where some other crisis situation, such as a natural disaster or a major disease-induced fall in livestock numbers, is expected to have a significant impact on the price level, the same procedures should be followed as in the case of a terms of trade change.

C. It is intended that section 9(4) of the Act will not be utilised to alter the policy targets in response to any domestically sourced inflationary shock other than the particular cases already considered. In particular, increases in wages or profit margins that are inconsistent with these targets will not be accommodated by the Bank and will not give grounds for automatic renegotiation of the policy targets.

4. Implementation

Sections 10 and 14 of the Act set out certain considerations that the Bank must take into account when implementing monetary policy; provided, in accordance with section 13 of the Act, that these considerations do not limit the Bank's obligation to meet its monetary policy objectives. Within this context, considerations that the Bank should take into account when formulating and implementing monetary policy shall include the following:

A. The Bank must take into account the effects of its actions on the efficiency and soundness of the financial system. Where it considers that its actions may have a materially adverse effect on the efficiency or soundness of the system, it must inform the Minister. Following the provision of this advice to the Minister, the Governor and the Minister may review whether the existing policy targets remain appropriate, and may fix new policy targets in accordance with section 9(4) of the Act.

B. Where the Bank considers that the actions of any other party (including the Government) may have an adverse effect on the achievement of the policy targets, or may increase the economic or social costs of achieving the policy targets, or may prejudice the efficiency or soundness of the financial system, the Bank shall consult with that party in an attempt to change that party's actions as necessary to reach the desired policy outcomes at minimum cost.

C. The policy targets are established on the basis of the current institutional structure of the financial sector, particularly in relation to the settlements process within the banking sector. If the Bank considers that the institutional structure has changed or is likely to change in a manner which will prejudice the Bank's ability to implement monetary policy, it shall inform the Minister. If the institutional changes continue to hamper the implementation of policy, the Minister and the Governor may set new policy targets in accordance with section 9(4) of the Act.

Signed on Friday, 2 March 1990, by the

Minister of Finance
The Hon. David Caygill

and the

Governor of the Reserve Bank of New Zealand
Dr Donald T. Brash.