REFORMING CENTRAL BANKING

Stephen Kirchner

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Key Points

- there is a worldwide trend toward making price stability the principal objective of monetary policy
- price stability avoids the costs of inflation, which include reducing the value of money balances, speculation and other unproductive activities that offset price uncertainty's effects, and undermining people's capacity to plan for the future
- central bank independence from government is one way to achieve price stability
- this is because given independence the institutional incentives facing central banks are more likely to favour price stability
- degrees of central bank independence are difficult to determine in practice
- this difficulty, along with other measurement problems, makes it hard to show statistically that central bank independence leads to low inflation
- most central banks have substantial independence in how they go about implementing monetary policy
- the controversial issues are how far monetary policy formulation ought to be independent of government, what incentives ought to be built into central bank institutional design, and how central banks can be held accountable for their actions
- the central banker's job security is something he will consider when making decisions
- the central banker is likely to be concerned with his reputation, but this may not be an effective discipline
- the central bank should not be able to profit from inflation through retention of profits from its holding of government securities and open market operations
- central bankers are assumed to have a stronger preference for price stability than politicians
- prudential supervision of the financial system by an agency separate to the central bank could remove an incentive to create inflation

- goals and rules are much less credible when central banks can renege on them at no or little cost
- solving this problem depends on being able to precommit to goals
- performance contracts between the government and the central bank setting out price stability goals are one form of precommitment
- performance contracts can reduce inflationary bias while allowing flexible responses to economic shocks
- performance contracts, however, still allow political interference with central bank goals
- governments cannot precommit easily, since they are able to change central bank legislation
- precommitment can be achieved through constitutional entrenchment
- one possible solution to the precommitment problem is to entrench rules in the constitution
- costs are likely to be higher where there is not strong precommitment, as doubts as to the actions of the central bank are likely to result in higher inflationary expectations
- independence can enhance accountability where there are clear goals, such as price stability, which must be achieved
- performance contracts between the government and the central bank governor are one means of achieving accountability
- however, contracts imply subordinating the bank to the government, which still leaves a precommitment problem
- the New Zealand Reserve Bank has clear price stability goals
- the central bank governor is penalised for poor inflation performance
- the executive government retains controls, but any override of the Reserve Bank can only be done in a very public manner, so raising the political costs of overriding central bank independence

Foreword

Many strands of liberal thought stress the importance of getting institutions right. While we hope that people will be motivated by concern for others, this makes rather optimistic assumptions about human nature. We can be more confident that people's actions will take into account the interests of others if they are encouraged by the right incentives. Institutions that build in these incentives are to be preferred to those which do not.

Central banks have a great capacity to influence, for better or worse, life in their respective countries. Monetary policy is a major factor influencing inflation outcomes, and can have a significant impact on levels of production and employment. Many people blame the early 1990s' Australian recession on monetary policy mistakes.

As Stephen Kirchner's monograph shows, economic theory increasingly argues for making price stability a central goal of monetary policy. There are economic reasons for giving price stability this status, as many economists believe that long-term living standards will be higher if prices are kept stable. The case for price stability does not, however, end there. High inflation has other undesirable consequences. It arbitrarily redistributes wealth from lenders to borrowers. It makes it more difficult for people to plan their futures, as there is not a stable medium of exchange. These consequences involve moral, and not just economic, considerations.

Price stability should be the goal of central banks, but how to achieve this goal is less clear. As Kirchner notes, it is hard to sort out all the causes of different inflation outcomes across time and around the world. However, we can plausibly argue that where central banks face incentives encouraging them to promote price stability then they are more likely to do so. Kirchner goes through the major ideas in central bank institutional design, and looks at the likely incentive effects.

To avoid the problems and costs associated with inflationary expectations, people have to believe that the incentives will produce adherence to price stability goals. The August 1996 exchange of letters between the Australian Treasurer and the Governor of the Reserve Bank does set an inflation target, but the nature of this deal creates credibility problems. Apart from some political embarrassment for failing to meet a publicly stated objective, the parties to the exchange have few incentives to keep to the agreement should they decide they

would like to pursue other aims. Kirchner argues that constitutional entrenchment is likely to be the most effective way of solving these credibility problems.

New Zealand has introduced extensive reforms of its central banking, but it has not pursued the constitutional option. However the reforms have focused the bank on price stability and, through a performance contract with the Governor and other mechanisms, provided some real incentives for the central bank to deliver on this goal. Even though New Zealand's system could be improved upon, it is still well in advance of what prevails in Australia.

Greg Lindsay
Executive Director

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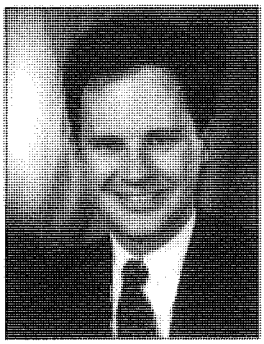
I have benefited from the comments of several anonymous referees and volunteer readers, who shall remain nameless. Needless to say, responsibility for what follows is mine alone.

Stephen Kirchner, Sydney
31 December 1996

About the Author



Stephen Kirchner is an economist with Standard & Poor's Global Markets. He has a Bachelor of Arts (Hons) from the Australian National University and a Master of Economics (Hons) from Macquarie University. He has worked as an adviser for two members of federal Parliament, as a researcher in the Australian Graduate School of Management, University of New South Wales, and as a consulting economist to the Australian Institute of Company Directors. He has published articles in *Policy*, *Agenda*, and the *Australian Journal of Political Science*.

Chapter One

Monetary Institutions and Monetary Stability

> 'The challenging issue about the design of monetary institutions, as I see it, is how to achieve stability of anticipated prices and minimise the costs and risks to society that accompany the social and private benefits of using a medium of exchange' (Meltzer, 1989: 428).

There has been a world-wide trend in recent years towards adopting price stability as the principal objective of monetary policy. Associated with this increased focus on price stability has been a move towards giving central banks greater independence from government in formulating and implementing monetary policy. Traditionally, monetary policy was directed at a wide range of macroeconomic objectives, and responsibility for the determination of monetary policy rested largely with the government of the day. Central banks existed to implement the government's monetary and financial policies. While this is still the case in a large number of countries, it is now widely accepted, especially in academic circles, but increasingly also among policymaking elites, that monetary policy is best directed towards the goal of achieving and maintaining price stability and that this goal can be facilitated by giving central banks greater independence from government.

This trend reflects the industrialised world's experience with inflation since the early 1970s, and a number of important theoretical developments within economics that have sought to explain this experience and macroeconomic outcomes more generally. Persistently high inflation throughout the 1970s and 1980s resulted in much greater attention being paid to the need to promote price stability. The fact that high rates of inflation were associated with reduced rates of economic growth and high rates of unemployment strongly suggested that the traditional trade-off between inflation and unemployment, which had played such an important role in macroeconomic thinking up until the early 1970s, needed to be reconsidered.

Since the early 1960s there has been considerable growth in monetarist theorising under the leadership of Milton Friedman and

others. This refocused attention on the role of money and monetary policy in macroeconomics after many years of Keynesian-inspired neglect. Monetarists argued that inflation was 'always and everywhere a monetary phenomenon,' since an increase in the general level of prices could only be inflationary if it were accommodated by an increase in monetary aggregates. But although monetarists were successful in identifying excessive growth in monetary aggregates as the proximate cause of inflation, they were unable to offer a satisfactory explanation for the observed growth in monetary aggregates as such. Accordingly, US Federal Reserve Board Governor Henry Wallich is reported to have said that inflation is a monetary phenomenon, but only in the sense that shooting people is a ballistic phenomenon (Lamfalussy, 1994: 331). The more important issue to be addressed is the underlying causes of the inflationary growth in monetary aggregates. More recently, Friedman has observed:

> the recognition that a substantial inflation is always and everywhere a monetary phenomenon is only the beginning of an understanding of the cause and the cure for inflation. The more basic questions are: Why do governments increase the quantity of money too rapidly? Why do they produce inflation when they understand its potential for harm? (Friedman, 1992: 193).

These questions are addressed by those interested in political economy and rational choice theory approaches to understanding economic behaviour. The main contributions have come from public choice theory, the rational expectations and game-theory literatures. The closely related neo-institutional economics (NIE) literature[1] can also make a substantial contribution to our understanding of the causes and consequences of inflation.

Whereas more traditional approaches treat institutions and policymaking processes as largely given and of little consequence in determining economic outcomes, political economy, rational choice theory and neo-institutional economics approaches assign an important role to the interaction between institutions, the incentive structures they create and the self-interested behaviour of economic and political actors in determining these outcomes. The growing currency of these approaches since the 1960s is exemplified in the above quotation from Friedman. Whereas in the early 1960s, he attributed adverse monetary

[1] 'Neo-institutional economics' can be distinguished from the older institutionalism on the basis that 'it works largely within neo-classicism, and shares its rationality, maximisation, and market or market-like orientation' (Samuels, 1995: 578)

policy outcomes to intellectual errors on the part of the monetary authorities, by the early 1980s, Friedman had come to identify self-interested behaviour within prevailing policymaking institutions as the major determinant of these outcomes (see, e.g. Friedman, 1982).

In traditional economic policymaking models, governments and their central banks were seen as benevolent social planners seeking to maximise the welfare of the whole community. Persistent inflation is difficult to explain in these models, since inflation is known to be detrimental to economic welfare and runs contrary to a widely expressed preference for price stability. The advent of public choice theory and the private interest theory of regulation led to a reconsideration of the role of government and central banks in promoting economic welfare and the public good. It is now widely recognised that both governments and their central banks are subject to a range of political and economic incentives that may induce them to pursue their own or other private interests at the expense of the public's interest in price stability. The major contribution of public choice theory is to provide us with theories of the behaviour of the monetary authorities that generate testable propositions about the political, economic and institutional determinants of monetary policy. Public choice theory makes possible the modelling of central banks as economic actors in their own right, rather than as passive and benevolent implementors of government decisions. It argues that before governments and their central banks can be expected to act in the public interest, it is necessary to ensure that they have the right incentives to do so. These incentives can be influenced through changes in the institutional arrangements for determining monetary policy. In particular, it is thought that greater independence from government can insulate central banks from political considerations and other private interests, enabling them to focus better on price stability as the overriding objective of monetary policy.

The rational expectations and game-theory literature also focus attention on the role of institutions in shaping economic and political incentives and their implications for macroeconomic outcomes. The most important contribution in this regard has come from the introduction of the problem of dynamic inconsistency into the macroeconomic literature by Kydland and Prescott (1977). Dynamic inconsistency refers to situations in which authorities renege on an earlier commitment because it has become politically or economically expedient to do so. The dynamic inconsistency analysis shows how a discretionary monetary policy results in a higher rate of inflation than would be the

case if the monetary authorities were able to make credible commitments to pursue a predetermined monetary policy. Central bank independence is seen as a means by which governments can make credible commitments to pursue a monetary policy conducive to price stability, by delegating some of their policymaking authority to a central bank with strong anti-inflationary preferences.

The increased focus on the role of central bank independence in promoting price stability also reflects a growing body of empirical literature that has sought to establish a link between inflation performance and the institutional characteristics of central banks, in particular, their degree of independence from government. This literature consists of studies showing that countries with more independent central banks enjoy lower average rates of inflation than those whose central banks have a closer relationship with government. Moreover, this improved inflation performance from central bank independence is said to have been secured at little or no cost in terms of real economic performance (see e.g. Alesina and Summers, 1993). This literature concludes that central bank independence constitutes something of a 'free lunch' – that improved inflation performance can be achieved through reforms to the institutions for the determination of monetary policy, without significant offsetting economic costs (see, e.g. Grilli et al. 1991: 375). This conclusion is a major part of the argument in favour of greater independence for central banks and has provided much of the impetus for recent changes in central banking legislation.

The Trend to Greater Central Bank Independence and Inflation Targeting

The emphasis now placed on the more single-minded pursuit of price stability has led an increasing number of countries to change the institutional arrangements for formulating and implementing monetary policy, including giving central banks greater independence from government. This is typically coupled (although need not be) with an explicit mandate for the central bank to pursue price stability and a reduced emphasis on other macroeconomic policy goals.

Perhaps the most notable of the recent attempts to change the relationship between governments and their central banks involves the Reserve Bank of New Zealand (RBNZ). The 1989 reforms to the RBNZ Act are significant for a number of reasons. First, the reforms predate by a number of years the interest in greater central bank independence in the rest of the world, which did not begin in earnest until the early

1990s. The reforms also predate (indeed, anticipate) the bulk of the academic literature on the subject, which has for the most part appeared since 1990. New Zealand thus provides us with the longest time-frame over which to assess the impact of the reforms. Finally, the New Zealand reforms are unique in the solution they provide to the conflict between the desire for greater central bank independence on the one hand, and continued political accountability for the conduct and outcomes of monetary policy on the other. These issues are examined in detail in later Chapters of this monograph.

New Zealand is far from being alone in seeking greater independence for its central bank. All the members of the European Community are required under the Maastricht Treaty to make their central banks independent of their respective national governments as a prerequisite for their joining the European Monetary Union. The Banque de France was given a more independent legislative framework from January 1994 and the rest of the EU central banks seem set to join the Bundesbank, widely regarded as the world's most independent central bank, as independent institutions under the aegis of the European System of Central Banks. Article 7 of the statute for the proposed European Central Bank (ECB) states that:

> neither the ECB, nor a national central bank, nor any member of their decision-making bodies shall seek or take instructions from Community institutions or bodies, from any government of a Member State or from any other body. The Community institutions and bodies and the Governments of the Member States undertake to respect this principle and not to seek to influence the members of the decision-making bodies of the ECB and of the national central banks in the performance of their tasks.

Article 2 states that:

> The primary objective of the System shall be to maintain price stability. Without prejudice to the objective of price stability, the System shall support the general economic policy of the Community.

The ECB statutes embody the growing international consensus in favour of central bank independence and a greater monetary policy focus on the goal of price stability.

Although the UK government has rejected greater independence for the Bank of England, the idea has received strong support from two former Chancellors of the Exchequer, the House of Commons Treasury Committee and organisations such as the Centre for Economic Policy

Research (see House of Commons, 1993; Roll, 1993). Brazil, Chile, Argentina, Mexico, Venezuela and many of the former socialist economies of Eastern Europe have sought to enhance the independence of their central banks to promote a greater focus on price stability as part of wider economic reform programs. In the case of Mexico, central bank independence has been enshrined at the constitutional level.

Central bank independence became an issue in Australia in the lead up to the 1993 federal election, with the Federal Coalition undertaking to increase the independence of the Reserve Bank of Australia (RBA) and afford it a price stability mandate as part of its policy platform. The subsequent defeat of the Coalition resulted in central bank independence being taken off the immediate political agenda, but the political independence of the RBA continued to be controversial.[2] More recently, the new Coalition Government has sought to reaffirm the independence of the RBA and codify its informal inflation targeting practices. This was done via an agreement between the Treasurer and Governor of the Bank on 14 August 1996 (see Kirchner, 1996). In total, some twenty-five countries have enhanced the independence of their central bank since 1989 (Cukierman, 1995: 2).

In addition to these reforms to central banking institutions, a related development has been the increasing use of explicit formal and informal inflation targets designed to better focus monetary policy on the achievement of price stability and provide increased policy credibility. Inflation targeting need not be coupled with greater central bank independence, but in a number of countries, such as New Zealand and France, it has been an integral part of the independence and accountability formula for the newly independent central bank. The following table summarises the recent inflation targeting practices of a number of countries:

Table 1.1 shows the extent to which the goal of price stability has increasingly come to guide the conduct of monetary policy in a number of industrialised countries. This partly reflects a growing acceptance that improved inflation performance is an important element of broader economic performance and economic competitiveness. However, before we can discuss why low inflation is important to economic performance, we need to address some definitional issues around the question of monetary stability.

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[2] See, for example, 'Fraser supports Labor, says Opposition,' *Sydney Morning Herald*, 27 September 1995: 9.

Table 1.1
Inflation Targeting

Inflation Targets in Selected Countries

Country	Date of Adoption	Current Target Rate and Horizon	Price Index	Other Details
New Zealand	March 1990	0 - 3% through the 5 year tenure of the Governor of the Reserve Bank.	Consumer Price Index (CPI), excluding interest cost components, indirect taxes and subsidies, government charges, and significant price effects from changes in the terms of trade.	Target set in Policy Target Agreement (PTA) between the Minister of Finance and the Governor of the Reserve Bank of New Zealand.
Canada	February 1991	1-3% through 1998.	CPI	The measure of underlying inflation used by the Bank of Canada for operational purposes is the CPI excluding food, energy, and the effect of indirect tax charges. Target set by the Minister of Finance and the Governor of the Bank of Canada.
United Kingdom	October 1992	Lower half of the 1-4% range by Spring 1997; 2½% or less thereafter.	Retail price index excluding mortgage interest payments (RPIX).	Target set by the Chancellor of the Exchequer.
Sweden	January 1993	2% (with a tolerance band of ±1%) in 1996 and beyond.	CPI	Target set by the Bank of Sweden
Finland	February 1993	About 2% in 1996 and beyond.	CPI excluding indirect taxes, government subsidies, house prices, and mortgage interest payments.	The target rate has no explicit band. Target set by the Bank of Finland.
Australia	1993	Underlying inflation of 2-3% on average, over the cycle.	CPI excluding the impact of interest rates on mortgage and other interest payments, indirect tax charges, and certain other volatile price items.	Target set by the Reserve Bank of Australia, and endorsed by the government, in the statement on the Conduct of Monetary Policy by the Treasurer and the Governor of the Reserve Bank.
Spain	Summer 1994	Less than 3% by late 1997.	CPI	Target set by the Bank of Spain.

Source: IMF, 1996: 110.

Defining Monetary Stability

Monetary stability can be defined in a number of ways. One method is to look at the rate of inflation, that is, the rate of increase in the general level of prices as measured by some price index. Monetary stability can thus be defined in terms of either the inflation *rate* or some

particular general *level* of prices. Monetary instability is typically thought of in terms of a high and variable rate of inflation. *Price stability* refers to a situation in which there is no tendency for change in the general level of prices, or an inflation rate that is close to zero. Definitions of price stability vary, but a rate of inflation between zero and two percent is widely considered to be consistent with price stability.[3] Price stability can be achieved in different ways. The monetary authorities could seek to keep the rate of inflation as low as possible, but accept any increases in the price level that may result. Alternatively, they could seek to stabilise around a specific level of prices, which may necessitate periodic inflation or deflation in order to maintain prices at this level. As Fischer (1995b: 204) notes, inflation rate targeting as opposed to price level targeting promotes more certainty about the price level in the short term, at the expense of greater uncertainty about the price level in the long term. Inflation rate targeting is generally considered preferable to price level targeting, since it should result in less short run variability in output due to periodic policy-induced deflations.

Monetary stability can also be conceived in terms of *monetary equilibrium*, that is, an equality between the supply of money and the demand to hold real money balances. Monetary equilibrium represents a more formal definition of monetary stability, used more frequently in monetary theory rather than in everyday discussion of the economy. Monetary equilibrium is conducive to price and other forms of monetary stability. In this monograph, 'monetary stability' will be used as a generic term for these different ways of conceiving of essentially the same phenomenon. More specific terminology will be used when called for, but in much of the following discussion, these terms will be used interchangeably. It is not necessary to favour any one definition of, or approach to, monetary stability. As we will see in the following section, what is important is the implications of monetary stability for generating predictability in the future value of the monetary unit.

[3] This definition would logically suggest that a rate of inflation of between *minus* two and zero percent would also be consistent with price stability. However, the deflationary economic conditions implied by this more consistent definition make it much less popular as a policy target. Improvements in the quality of goods and services are thought to be responsible for an upward measurement bias in inflation of around one percent.

The Costs of Monetary Instability and Criteria for the Evaluation of Monetary Systems

There is an extensive literature on the welfare costs of monetary instability, particularly the costs of inflation.[4] Most of this literature focuses on inflation as a tax on holdings of money balances and seeks to quantify these costs at specific rates of inflation. There is considerable disagreement about the size of these costs, although there are good reasons for thinking that these costs can be very large, even at low rates of inflation (see e.g. Dowd, 1994a). There is also a fundamental asymmetry in the costs and benefits of inflation. Whereas the benefits of inflation are widely acknowledged to be temporary, the costs are ongoing. Also, the costs of eliminating inflation in terms of forgone output and employment are one-off in nature, whereas the benefits of monetary stability are cumulative (Selody, 1990: 12). This asymmetry in the costs and benefits of inflation suggests long term economic benefits from monetary stability.

The literature on monetary instability largely agrees that its costs are more severe when unanticipated. Perfectly anticipated inflation has lower costs, other than those 'menu costs' associated with regular changes in prices, since economic actors can adjust their behaviour accordingly. This suggests that inflation per se is less of a problem than the uncertainty it generates. Economists who estimate the costs of inflation to be small typically adhere to a model in which such inflation is more or less, and sometimes perfectly, anticipated and acts as a mildly distortionary tax on holdings of cash balances. However, as Glasner (1989: 210) and others argue, these models abstract from prevailing institutional realities in which monetary policy is conducted in a way that makes the future path of the price level uncertain. Under current institutional arrangements, there has been considerable variability in the rate of inflation.[5] As Leijonhufvud has remarked, 'The

[4] For a concise and authoritative overview of the costs of inflation, see Fischer (1995a: 11-23).

[5] As Grenville (1995: 50-51) notes, 'Taking each of the four decades between 1955 and 1994 individually, standard deviations of inflation in each of the G7, Australia and New Zealand were almost always greater than 100 basis points. For the period as a whole, standard deviations of inflation were, on average, over 400 basis points. Even excluding the inflationary period 1973-1982, standard deviations were rarely less than 100 basis points, and averaged 250 basis points for the group taken together. All countries except Germany were outside a +/- 100 basis points range around their mean inflation more often than they were within that range.' That rates of inflation are positively correlated with inflation variability has been established by Chowdhury (1991), among others.

price level 10 years into the future is a subject for joking, not for rational discussion. Yet, of course, in an economy such as ours people are forced to bet on it all the time' (1987: 134).[6]

Leijonhufvud and others instead invite us to examine the costs of this uncertainty rather than the costs due to inflation per se. These costs are the resources routinely devoted by economic actors to speculation, hedging and rent-seeking and other unproductive activities to offset the effects of price uncertainty.[7] The uncertainty that is an intrinsic property of monetary instability also renders ineffectual some of the proposed remedies to inflation. For example, it is often claimed that extensive indexation of wage and price contracts would offset many of the effects of inflation and that the absence of such indexed contracts indicates that inflation is not a serious problem. However, this absence arguably owes more to the fact that given uncertainty about the future path of prices, economic actors have divergent expectations about that path, resulting in disagreement about how to index their contracts (Glasner, 1989: 212-213). This problem is particularly serious when the contracts are for trade in goods and services that may not be included in the relevant indices, or are differentially weighted in those indices (Leijonhufvud, 1981: 236-237). Price inflation is heterogeneous across different goods, contributing to variability in relative prices and increased transactions costs (Carlton, 1991: 453).

The importance of monetary stability lies in the fact that it promotes certainty in the future conditions surrounding economic exchange. Buchanan has consequently suggested that 'the most

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[6] As Leijonhufvud (1981: 263) also argues: 'Future inflation rates are not to be drawn from one of Nature's Urns. Decisionmakers can hardly assume that current observations are drawn from some "normal distribution." What the rate will be five or ten years down the road is "uncertain," but it is not uncertainty in that domain of their "natural" expertise where transactors have learned to make (implicit) probability judgements. Farmers cope with uncertain harvest outcomes. In speaking theoretically of "decisionmaking under uncertainty" as a general rather than specific skill we tend to blind ourselves to important aspects of behaviour. To have learned to manage rationally despite the vagaries of weather, however, will not leave much experience applicable to coping with the consequences compounded from the vagaries of voters in future elections, of legislatures and governments, and of Central Bank responses to the contingencies that the polity produces. Nor do "rational expectations" models provide assurance. They require an underlying, relatively swift and sure "survival of the fittest" process anchored in relatively stable conditions of "real scarcities" for their results to be plausible. Do we have something of the same sort governing the price level?' Leijonhufvud suggests not.

[7] For a discussion of some of these costs, see Leijonhufvud (1981: 244-254).

meaningful criterion for monetary policy ... is predictability in the value of the monetary unit, or, reciprocally, in the general level of prices' (1962: 156). Buchanan notes that 'there should be relatively little difference in the social costs of organising a monetary system that would, for example, produce stability in the product price level, one that would produce a gradual decline in the product price level and a system that would produce a gradual increase, provided that the predictability was equivalent in the several cases' (1962: 159). Buchanan argues that given predictability in the level of absolute prices, the actual course of change in the absolute price level would be irrelevant. However, it should be apparent from Buchanan's reference to 'gradual' change in the price level that predictability in the value of the monetary unit is not unrelated to the stability of its value. A highly unstable monetary unit that fluctuated considerably in value would be inherently unpredictable. Monetary stability, variously defined, is thus conducive to predictability in the value of the monetary unit and thus minimising the costs of price uncertainty. A monetary system that maximises the stability and predictability in the value of the monetary unit is to be preferred over one that does not.

There are also some important normative reasons for favouring monetary stability that stand apart from questions of pure economic welfare, considerations that are typically omitted from the discussions of economists. The effects of monetary instability in generating arbitrary and inequitable redistributions of wealth and its corrosive effects on the rule of law and other important social institutions have long been recognised (Leijonhufvud, 1981: 227-269). The rule of law, certainty in contracting and security of property are not only conducive to economic efficiency, they are also important in respecting the rights of individuals to make the plans and pursue the projects that define them as morally responsible beings (Lomasky, 1990). According to Frankel, monetary stability is 'a condition of civility, a code of civil monetary behaviour, an ideal – the pursuit of trust' (1977: 100). As the institutional embodiment of exchange relationships, money contributes 'to the extension of individual personality and facilitates the development of an ever widening circle of economic interdependence based on the dispersion of trust' (Frankel, 1977: 14). Money expresses, incorporates and symbolises the contractual relationships between individuals: 'There is an intimate relationship between money and freedom; between the keeping of promises and the certainty of contracts; between social function and the rule of law' (Frankel, 1977: 12).

Buchanan accordingly argues that 'predictability in the value of the monetary unit is within the direct sphere of responsibility of the protective state, in a sense precisely comparable to the provision of security of private rights to property and the enforcement of voluntary contracts' (1989: 299). In this view, the monetary system is an essential part of the framework for economic and social decision-making and should not be treated as an economic policy variable in its own right, to be manipulated for reasons of state or for the benefit of specific economic and political interests. The potential vulnerability of the monetary system to political influence, highlighted by the debate over the independence of central banks, leads to Buchanan's suggestion that we 'organise the institutions of private decision-making in such a way that the desired monetary predicability will emerge spontaneously from the ordinary operations of the [monetary] system' (1962: 164), rather than relying on the goodwill and fallible judgements of the monetary authorities to secure this result on our behalf.

This normative understanding of the role of monetary stability in underpinning economic and social interaction is clearly at odds with the prevailing discretionary conduct of monetary policy found in most countries, which is based on the view that monetary policy is an instrumental variable of government economic policy, to be utilised for the purposes of macroeconomic management. This view of monetary policy eschews the goal of predictability in the value of the monetary unit in favour of policy flexibility and makes a virtue of the ability to conduct policy in secrecy and to surprise economic actors with policy changes. As Havrilesky has argued in the case of the US, 'today's monetary arrangements exist primarily to enable the Federal Reserve to create monetary surprises. Therefore, socially costly uncertainty and misdirection are essential elements of monetary policy' (1993: 326). If predictability in the value of the monetary unit is to be the principal economic and normative criterion by which we evaluate a monetary system, then highly discretionary policy, policy secrecy and monetary surprises must be judged undesirable on both counts. As Mayer and Willet (1988: 402) have observed, one person's policy flexibility is another person's policy uncertainty.

Recent Inflation Performance

Inflation has become less of a problem in the major industrialised economies since the early 1990s. As Table 1.2 shows, average inflation in the OCED countries between 1990 and 1994 was 7.6 percent, down

Table 1.2
Average Inflation in OECD Countries 1960 - 94

Country	1960-94	1960-69	1970-79	1980-89	1990-94
United States	4.82	2.34	7.1	5.56	3.64
Japan	5.18	5.35	9.08	2.53	2.02
Germany	3.4	2.39	4.88	2.91	3.46
France	6.18	3.88	8.92	7.39	2.56
Italy	8.56	3.73	12.3	11.19	5.2
UK	7.45	3.54	12.65	7.44	4.64
Canada	5.12	2.52	7.38	6.51	2.78
Australia	6.39	2.46	9.83	8.41	3.04
Austria	4.23	3.35	6.1	3.84	3.44
Belgium	4.63	2.67	7.15	4.9	2.84
Denmark	6.51	5.34	9.29	6.9	2.08
Finland	7.03	5.04	10.43	7.3	3.32
Greece	11.9	1.95	12.3	19.49	16.22
Iceland	23.92	10.7	29.64	39.4	6.38
Ireland	7.9	3.99	12.75	9.34	2.66
Luxembourg	4.27	2.16	6.49	4.72	3.16
Mexico	27.18	2.71	14.7	69.05	16.34
Netherlands	4.48	4.18	7.11	2.87	2.86
New Zealand	8.03	3.23	11.48	11.86	2.56
Norway	6.21	3.5	8.37	8.35	2.7
Portugal	12.42	4.01	17.13	17.64	9.08
Spain	9.46	5.78	14.13	10.25	5.56
Sweden	6.63	3.77	8.57	7.93	5.78
Switzerland	3.8	3.11	4.98	3.28	3.86
Turkey	32.52	3.5	23.32	52.01	73.76
OECD Average, 1960-94	9.13				
OECD Average, 1960-69	3.81				
OECD Average, 1970-79	11.04				
OECD Average, 1980-89	13.24				
OECD Average, 1990-94	7.6				

Sources: OECD Economic Outlook; IMF International Financial Statistics

from 13.2 percent for the period 1980-89, 11 percent for 1970-79 and less than the OECD average for the period 1960-94 of 9.1 percent, although still significantly higher than the 3.8 percent average achieved in the period 1960-69. Recent results for the G-7 Group of countries are even better. As Fischer noted in 1993, 'In the G-7 as in almost all the industrialised countries, inflation is now as low as it was during the golden age of 1960-73' (1994: 31). Recent improvements in inflation performance may partly reflect the increased focus on price stability that has characterised monetary policy in many countries in recent years, as well as the absence of substantial inflationary pressures due to depressed economic conditions during the early 1990s. It may also partly reflect the discipline imposed by increased competitiveness in international financial markets and reduced cost pressures due to improved productivity growth in a number of leading industrial countries.

This improved inflation performance has led a large number of commentators to herald a new era of low inflation as a more or less permanent feature of the economic landscape.[8] Of course, the fact that this particular economic development was largely unforseen by most economic commentators should make us sceptical that predictability in the value of the world's major currencies has actually been enhanced. As Debelle and Stevens (1995: 12) note in the Australian context, both private and public sector forecasters failed to anticipate the reductions in inflation that took place in the early 1990s and they continued to be too pessimistic on inflation subsequently. Moreover, this is not the first time that inflation has been declared beaten. Similar claims were made in the wake of lower inflation in the early 1980s, only to be followed by a resurgence in inflation in the late 1980s. Apart from this historical experience, there are a number of reasons for continuing concern with inflation and the potential for its resurgence. Perhaps most importantly, the costs associated with lowering inflation in the early 1990s have been very high in terms of forgone output and high unemployment. Avoiding these costs in the future should thus be a high priority for policymakers. There is debate about the cause and effect relationship implied here, since low inflation could simply be a reflection of depressed economic conditions. However, as this monograph will

[8] See, for example, 'Is inflation dead?' *Euromoney*, September 1995, in which US Fed Vice-Chairman and noted monetary economist Alan Blinder is quoted as saying 'As we move through the next decade, it's going to continue to sink in to Americans that we're in a low inflation world' (p. 77). See also 'What happened to inflation?' *The Economist*, 16 September 1995.

argue, these costs associated with reducing inflation can be attributed to the recent conduct of monetary policy, in particular, to a lack of credibility on the part of existing monetary institutions in many industrialised countries, including those with independent central banks (see Chapters Two and Three). Institutional reforms aimed at promoting greater policy credibility can serve to consolidate existing gains on behalf of monetary stability and eliminate the need for costly disinflations in the future.

This lack of credibility should not be entirely surprising given that the policymaking institutions which presided over reductions in inflation in the early 1990s were largely the same institutions that were responsible for high rates of inflation in the 1970s and 80s. The public thus have good reason to doubt the recent conversion of the authorities to the goal of price stability. The apparent consensus on the part of monetary authorities in favour of price stability is a fairly recent development, requiring at the very least time for the expectations of economic actors to adjust to this apparent change in preferences on the part of the authorities. At the same time, the support for price stability on the part of the monetary authorities may consist in part of an *ex post* rationalisation of the recessionary conditions of the early 1990s. The authorities in many countries have acted opportunistically to take advantage of negative supply and favourable cost shocks to ratchet down inflation (Fischer, 1994: 37), subsequently claiming credit for low inflation rates as the outcome of a deliberate medium term policy strategy. This is arguably the case in Australia following the 1990-92 recession (Kirchner, 1996: 11-12).

The low rates of inflation in many industrialised countries may thus be more a reflection of current macroeconomic policy expediencies than the outcome of monetary institutions geared to the task of achieving and maintaining price stability. With the exception of those countries that have already established independent central banks, there are few significant institutional barriers to a resurgence in inflation in most countries. Instead, they rely on the discretionary macroeconomic stabilisation policies of the government of the day to secure price stability, along with a range of other macroeconomic policy objectives. This is despite widespread recognition that governments are attempting to realise a large number of other economic and non-economic policy objectives in their conduct of economic policy. These objectives may be at odds with any interest the government has in promoting price stability. If low inflation is to become a more permanent feature of the economic landscape, closer attention needs

to be paid to the institutional determinants of monetary policy.

Monetary Institutions and Monetary Regimes

This monograph is largely concerned with evaluating the ability of alternative monetary institutions and monetary regimes to promote monetary stability, and thus predictability, in the future value of the monetary unit. In the neo-institutional economics literature, an institution can be defined as those formal rules, informal constraints, customary practices and enforcement procedures that govern human interactions, particularly their exchange relationships. The economic importance of institutions stems from the way in which they define the opportunity set and incentive structures for economic interaction. Institutions thus have important implications for economic performance, a fact that mainstream economics has tended to neglect until very recently (North, 1990). Neo-classical economic theory tends to treat institutions as inscrutable exogenous variables, rather than a subject of economic interest in their own right.

Monetary institutions consist of all those formal and informal structures that together define the way in which a given monetary system functions. Together, these institutions define a 'monetary regime' or 'monetary standard', although neo-institutional economics would also define a monetary regime as a type of institution. A monetary regime can be distinguished from a monetary institution in having specific objectives. 'A monetary regime can be thought of as a set of rules governing the objectives and actions of the monetary authority. A gold standard is one example of a monetary regime – the monetary authority is obligated to maintain instant convertibility between its liabilities and gold' (Glasner, 1989: 206). A purely discretionary monetary policy regime, or 'random walk' monetary standard, by contrast, has as its objective permitting the authorities to exercise considerable policy flexibility.

From the perspective of neo-institutional economics, the principal role of institutions is to overcome the coordination problems and transaction costs that otherwise limit our ability to capture the gains from trade and so enhance our economic welfare (North, 1990: 27). This role stems from the crucial fact, frequently neglected in the models of neo-classical economics, that economic exchange is not costless. Complex institutional arrangements are needed to measure what is being exchanged, to carry out transactions and to enforce agreements across time and space. Of all economic institutions, monetary institu-

tions are perhaps the most fundamental, since a modern exchange economy cannot function without money. Money in its roles of *numeraire* and medium of exchange permeates virtually every economic transaction. This makes all the more curious the inability of neoclassical and other schools of economic thought to adequately account for the role of money in the economy (see Horwitz, 1992: 15-39). Money can, however, be understood in terms of transaction costs and thus given an institutional explanation (see Eggertsson, 1990: 231-244). From an institutional perspective, money is analogous with, and second only to, language as a social institution underpinning economic and social order (Horwitz, 1992).

North (1990) draws a crucial distinction between institutions that promote productive, welfare-enhancing activity and those that promote unproductive and redistributive, welfare-reducing activity. Different economic and political institutions can create incentives for both types of activity. The ability of institutions to promote welfare-enhancing activities depends in part on their role in promoting certainty in the conditions surrounding economic exchange. Monetary institutions and the associated monetary regime will be welfare enhancing to the extent that they facilitate capturing potential gains from trade by promoting predictability in the value of the monetary unit via which such trade must take place. But to the extent that these institutions promote uncertainty in the future value of the monetary unit, they will tend to increase transaction and enforcement costs and encourage speculative, redistributive and other forms of unproductive activity, and thus be welfare-reducing. From a neo-institutional perspective, it is difficult to justify monetary institutions that limit our ability to capture, or reduce, the potential gains from trade.

Monetary Institutions and Monetary Stability

This monograph is thus principally concerned with the institution of central banking and its role in promoting monetary stability. Having established a framework and criteria for the evaluation of monetary institutions, it seeks to evaluate proposals to increase the independence of central banks from governments in order to improve their ability to promote monetary stability. At the same time, the monograph is also concerned with the role of these institutions in providing for the realisation of other macroeconomic policy goals such as economic growth and employment.

Chapter Two begins by delineating some of the important institu-

tional characteristics of central banks. In particular, it seeks to define what it means for a central bank to be independent of government and introduces a number of important distinctions between different types of independence and between the ends and means of monetary policy. It then proceeds to examine the public accountability of central banks and the potential for conflict between greater institutional independence and public accountability in the determination of monetary policy. The implications of central bank independence for macroeconomic policy coordination are also assessed.

Chapter Three examines the theoretical underpinnings of the case for central bank independence. It evaluates the implications of a number of related bodies of theoretical and empirical literature for the debate over central bank independence and other proposed reforms to monetary institutions.

Chapter Four evaluates the implications of greater central bank independence for economic performance. The empirical evidence in support of central bank independence, in particular, the observed correlation between central bank independence and low inflation and its implications for real economic performance are subjected to critical scrutiny. This Chapter also addresses the endogeneity issue and whether there is a causal relationship between greater central bank independence and monetary stability. While the endogenous nature of central bank independence undermines the causality of this relationship, the independence of central banks is still found to have important implications for economic performance.

Having established the wider context for the debate over greater central bank independence, Chapter Five examines the 1989 reforms to the Reserve Bank of New Zealand Act. This Chapter seeks to assess the strengths and weaknesses of the new framework for the conduct of monetary policy in New Zealand in light of the preceding discussion. The New Zealand case serves to highlight the conflict between independence and accountability identified in Chapter Two and the importance of the commitment properties and credibility of policymaking institutions under a discretionary monetary policy regime discussed in Chapter Three. Chapter Six then seeks to evaluate the implications of the 1989 reforms for New Zealand's recent economic performance and to test the credibility of monetary policy under the new arrangements.

The monograph concludes with some speculations on the likely future direction of monetary reform. In particular, it argues that the current concern with greater central bank independence, along with

recent developments in electronic money and innovative payments technologies, are likely to lead the world's monetary systems inexorably in the direction of more competitive, free banking-like monetary institutions and regimes. The current preoccupation with the independence of central banks may thus be only a precursor to some more fundamental changes in the nature of monetary systems.

Chapter Two

Central Bank Independence and Accountability

This Chapter seeks to identify those institutional characteristics and other factors that contribute to the independence and accountability of central banks. It proceeds on the basis of two important distinctions: that between institutional and behavioural independence; and between independence in relation to the means and ends of monetary policy. It then examines the extent to which greater central bank independence may be in conflict with demands for public accountability in the conduct of monetary policy. In particular, it finds a conflict between the desire to insulate monetary policy from political influences and recognition that monetary policy has political implications stemming from its effects on the real economy. It is argued that this conflict can only be reconciled by minimising the impact of monetary policy on the real economy. This directs our attention to the question of the monetary regime to be promoted by an independent central bank. It is argued that a monetary regime geared to securing inflation outcomes that are predictable within a narrow range may serve to reconcile some of this conflict. The ability of greater central bank independence to give effect to such a regime is further addressed in the following Chapter. This Chapter also addresses the implications of central bank independence for the use of other macroeconomic policy instruments.

Defining and Measuring Central Bank Independence

The independence of central banks can be defined with reference to a range of central bank characteristics. A common distinction is made between the institutional and behavioural independence of central banks (see e.g. Goodman, 1991: 330-331). Institutional independence refers to the extent to which a central bank's institutional structure and legislative framework enable it to define and pursue policies without reference to other authorities, in particular, the executive branch of government. Behavioural independence, on the other hand, refers to

the extent to which the observed behaviour of central banks is found to be at variance with the preferences of the authorities and other economic actors, despite its formal institutional framework. These two forms of independence may be observed together, or individually. A central bank with institutional independence may display dependent behaviour, suggesting that the authorities have informal mechanisms by which they can influence the bank's behaviour. For example, Havrilesky (1993) has shown statistically that the US Fed periodically responds to public signalling of monetary policy preferences by the executive, Congress and the financial community, suggesting dependent behaviour on the part of the Fed, despite its notionally independent legislative framework. Although there are no formal mechanisms apart from the appointments process by which the Fed is accountable to the Presidency, the authority of the President is such that Fed Governors must give consideration to Presidential economic policy in their decision making. By the same token, behavioural independence may be observed despite a dependent institutional framework for the central bank, suggesting that the institutional framework is less than fully effective in subordinating central bank behaviour. The Bank of Japan, despite being formally subordinate to the Ministry of Finance, displays a substantial amount of independence in its conduct of monetary policy, which has earned it a reputation as 'Asia's Bundesbank.'[1]

A number of institutional characteristics of central banks are said to be conducive to their independence from government. The most important of these characteristics are the bank's formal charter and its overall legal framework, which set out the formal responsibilities of the bank in managing the monetary system. Central banks with a sole mandate to pursue price stability are generally considered to be more independent than those charged with pursuing a range of objectives, of which price stability may be one. An exclusive price stability mandate may help the bank resist political pressure to pursue other objectives, although by itself does not guarantee that it will do so. As Cukierman notes, a price stability mandate 'does not therefore reflect ... the general level of independence from government. It proxies instead for the legal independence of the central bank to elevate the target of price stability above other objectives ... it measures how strong

[1] For a comparison of the Fed and the BoJ in terms of their relative institutional and behavioural independence, see Cargill and Hutchison (1990). See also 'Central Banks: America v Japan,' *The Economist*, 25 January 1992, pp. 19-21.

is the "conservative bias" of the CB as embodied in the law' (1992: 377).[2]

Arrangements for the appointment, removal and term of office of the central bank governor and members of the central bank board also have important implications for the bank's independence from government. The more secure central bank governors are in their job and the longer their term of office relative to that of the political authorities, the more independent the central bank will be from external political influence. The composition of the bank board, the extent of government representation on the board and the means of appointment of board members may influence the independence of the bank. A central bank's charter and legislative framework will usually indicate the extent of its role in the formulation and implementation of monetary policy. It will also indicate any formal arrangements for the resolution of conflict between the bank and the government in the case of disagreement over the appropriate target for monetary policy or the choice of policy instruments, whether the government can override the bank's policy decisions and whether it is obliged to do so publicly rather than privately. Central banks are considered to be more independent, the greater their role in the formulation and implementation of monetary policy and the greater their scope to resist or dissent from government decisions and to make public their objections to government policy directives. Limitations on the ability of the government to finance its activities by borrowing from its central bank and the independence of the bank's own budgetary process are also conducive to the institutional independence of central banks. The role of the bank in supervising the financial system may also affect its formal independence (this issue is discussed in the following Chapter).

These aspects of central bank charters and legislation are considered to be the most important factors in determining the relative independence of central banks and are easier to quantify than some of the less tangible, behavioural aspects of central bank independence. As a result, 'practically all existing attempts at the systematic characterisation of central bank independence rely solely on legal aspects of independence' (Cukierman, 1992: 371). Even so, as Cukierman also notes, '[T]here are generally substantial differences in the focus, scope, and degree of detail of various central bank laws ... Ranking of central bank charters by their degree of legal independence is therefore a

[2] 'Conservative' here is meant to imply anti-inflationary, following Rogoff's (1985) terminology.

difficult task involving an inescapable amount of subjective judgement' (1992: 371), particularly in assigning relative weights to different institutional factors.

These methodological difficulties stemming from the need to make subjective judgements about the relative importance of different institutional characteristics are compounded when examining some of the less tangible, behavioural aspects of central bank independence. The formal characteristics of central bank laws and charters only capture some of the factors that contribute to their independence, which is also a function of numerous qualitative factors that are not expressed in formal institutional arrangements. As Cukierman notes:

> Actual, as opposed to formal, CB independence depends on the degree of independence conferred on the bank by law but also on a myriad of other less structured factors such as informal arrangements between the bank and other parts of government, the quality of the bank's research department, and the personalities of key individuals in the bank and other economic policymaking organs like the treasury ... CB laws are usually incomplete in the sense that they do not specify explicitly the limits of authority between the CB and the political authorities under all contingencies. These voids are filled by informal practices, tradition, and the like. Second, even when the law is quite explicit, actual practice may deviate from it (1992: 369).

Many of these qualitative factors are difficult, if not impossible, to observe, measure or quantify. For example, an important behavioural variable determining the independence of central banks is the relative strengths of the personalities of those involved in the setting of monetary policy, something Tietmeyer (1991) has referred to as the 'personal independence' of the central bank. A central bank governor with a strong personality will be able to run a more independent monetary policy. The personality of the Governor of the Bank of Japan, Mr Mieno, contributed strongly to the independence of the BoJ during his term of office from December 1989.[3] While personalities will be an important influence on policymaking, it must also be recognised that these personalities will still respond to the incentives inherent in policymaking institutions and that institutional arrangements may augment or detract from personal strength. Rather than relying on the personality of a 'strong' or 'conservative' central bank

[3] See 'Central Banks: America v Japan,' *The Economist*, 25 January 1992, pp. 19-21.

governor to conduct an independent monetary policy, it is better to design institutions which afford the governor a measure of institutional strength so that policy does not depend on the vagaries of personality.

There are few direct formal tests for the behavioural independence of central banks. We are often obliged to rely on insider accounts and other forms of anecdotal evidence in assessing a central bank's behavioural independence. These difficulties explain the preference for formal legal characteristics as the basis for most of the existing attempts at measuring central bank independence. It is, however, possible to capture some of these less tangible variables with various proxy measures. For example, Cukierman (1992) utilises actual turnover of central bank governors and the propensity for a change in governorship at times of political transition as behavioural proxies for central bank independence. These proxies give somewhat different results from those that would be expected from a formal reading of the relevant central bank laws (see Chapter Three). Behavioural independence can also be assessed through an examination of the way in which the monetary policy instruments employed by central banks respond to changes in various economic and political variables.

The difficulties in observing and measuring the many factors that contribute to central bank independence result in very different conclusions about the relative independence of particular central banks. Central banks are assigned different rankings in terms of their relative independence by different authors focusing on different factors to which they have assigned different weights and measures (see Chapter Three). Conclusions about the relative independence of central banks therefore require the exercise of considerable judgement. Some central banks will enjoy greater independence along some dimensions, and less independence along others and these dimensions will vary in importance depending on the issues under consideration. Central bank independence is thus a relative rather than an absolute concept. These methodological problems become more salient in a later Chapter, when we evaluate the econometric evidence for the proposition that central bank independence contributes to improved economic performance.

Ends and Means in Monetary Policy

Monetary policy can be seen to operate on at least three levels (Roll, 1993: 19). The first level consists of the underlying objectives of policy, for example, whether monetary policy is directed primarily towards the

achievement of price stability, or full employment, or a range of objectives. The second level is that of policy targets for economic variables, which translate the underlying objectives into short and medium term objectives to be realised in a given time frame in terms of targeted values for given variables. The third level is the day-to-day conduct of policy, which involves the control of monetary policy instruments such as interest rates to achieve the second level policy targets. These three levels of monetary policy allow us to distinguish between the ends and the means of monetary policy. The ends of monetary policy are to be found at the first and second levels of policy, while the means of monetary policy are found at the third level.

Most central banks enjoy considerable independence at the third level of policy in terms of the means they employ to achieve given monetary policy targets. This largely reflects the superior knowledge and expertise of central banks in the operational aspects of monetary policy. Governments generally defer to this expertise. The more important issue is the independence of central banks at the first and second levels of policy. As Banaian et al note:

> The central banks of most developed economies do not show much independence in the determination of monetary policy. Although central banks are almost always charged with the execution of monetary policy and some scope for disagreement with government exists, they are usually subordinate to the treasury or finance ministry in the formulation of policy (1983: 203).

The underlying objectives of monetary policy are generally determined by the government and set out in the central bank's legislative charter. Although different policy goals are considered to be more or less conducive to the independence of the central bank, these underlying objectives are usually determined by the government rather than the bank itself.

The more important issue for the independence of the central bank is its role at the second level of policy, its ability to define and pursue specific policy targets within the framework of the underlying objectives given to it by its formal charter. This involves the independence to decide the time frame and the means by which these targets will be realised via the day-to-day conduct of monetary policy. For example, the Bundesbank has a legislative mandate to pursue price stability as its underlying objective and enjoys substantial independence in deciding the specific targets for policy as well as the instruments used to realise these targets. The RBNZ also has a legislative

price stability mandate, but is less independent in the formulation of policy in that it must negotiate a specific Policy Targets Agreement with the government of the day. The RBNZ also enjoys considerable independence in its use of monetary policy instruments (see Chapter Five).

The process of setting policy targets to achieve underlying objectives may involve trade-offs with other policy objectives. For example, an underlying objective of price stability can be translated into an inflation target to be realised in a given time frame. The choice of time frame will have implications for the levels of output and employment in the presence of a short-run Phillips curve. As will be seen later in this Chapter, these issues of timing and policy trade-offs can be more controversial and politically charged than the determination of the overall goal for monetary policy, in which these trade-offs are often latent. There is also the question of the extent to which a central bank is formally or informally obliged to accommodate the government's overall economic policy, particularly where it might have inflationary implications, and to coordinate its conduct of monetary policy with the government's use of other policy instruments such as fiscal and exchange rate policy. These issues are also addressed in later sections of this Chapter.

There are a range of views on the appropriate degree of independence that should be exercised at the second level of policy. Some see the freedom of central banks to formulate policy and set monetary policy targets as a prerequisite for central bank independence. Capie et al., for example, define central bank independence as 'the right to change the key operational instrument [of monetary policy] without consultation or challenge from government' (1994: 50). Similarly, Neumann argues that:

> Trivially, there is no independence if the central bank receives and has to follow instructions issued by the government or other authorities ... the governing body of the central bank ... should be explicitly provided with the *undivided authority* to decide on the target of monetary policy, on instruments and implementation procedures (1991b: 100, emphasis added).

This statement is a good description of the position currently enjoyed by the Bundesbank and that proposed for the European Central Bank. Other commentators view such a high level of independence in the formulation of policy as either undesirable or unrealistic: undesirable, because the goals and targets of monetary policy should as a matter of democratic principle be kept under political control (see e.g. Barry,

1985); and unrealistic, because governments are unlikely to surrender substantial control over an important economic policy instrument. A less rigorous position holds that the central bank should be able to decide on the targets for monetary policy, but for the government to retain some consultative role in the formulation of policy and with provision for the government to publicly override the bank in the event of conflict. This is in line with the New Zealand approach to central bank independence. The Bundesbank and the RBNZ, the two principal models of central bank independence, thus occupy different positions in a matrix of central bank independence and accountability. As will be seen in the following section, the question of the appropriate degree of independence in formulating monetary policy raises questions about the level of public accountability of central banks and important normative issues about which authorities should be responsible for the determination of monetary policy. In later Chapters, we will also see that the degree of independence in the formulation of policy and freedom from government override have important implications for the credibility of monetary policy and its effectiveness in promoting price stability and other macroeconomic objectives.

Central Bank Accountability

While there has been increasing concern with making central banks more independent of government, there has at the same time been a strong desire to ensure that central banks are held publicly accountable for their performance and for the economic consequences of their policies. Public accountability entails the central bank being answerable to some combination of the executive, the legislature and the judiciary. In many respects, greater independence and accountability are complementary principles. The greater the autonomy and responsibilities of the central bank, the more important it is for the bank to be accountable for its actions. As the Governor of the Bank of Canada has observed, 'the greater is the responsibility assigned to the central bank, obviously the more important it is to have sound arrangements for accountability' (Crow, 1993: 7). At the same time, however, arrangements for the public accountability of central banks imply that they should be answerable in some way to the political authorities for their conduct of monetary policy and other central bank functions and that these authorities should be able to bring sanctions to bear for non-performance or non-compliance. Arrangements for public accountability may thus be used to bring political pressure to bear on the

central bank and obtain leverage over bank policy. There is thus also potential for conflict between the institutional requirements for greater central bank independence and accountability.

There is one sense in which central banks are highly accountable to government and which may compromise their independence at a fundamental level. Central banks owe their existence to the governments that legislate them into existence to carry out various governmental functions and policies. The political legitimacy of the central bank's role in monetary policy depends in large part on this relationship with government. The willingness of a government to forgo some of its influence over monetary policy does not change the fact that the bank is ultimately dependent on the government for its existence. Whatever amount of formal legislative independence the government affords the central bank can be quickly taken away in the event of some fundamental conflict between the central bank and the government. A central bank that relies on a legislative majority for its independence must thus always take into consideration the views and likely reaction of government and legislators to its decisions. Where there is serious potential for conflict with the government over monetary policy, the bank may decide that its continued 'independence' is more important than a particular policy stance and therefore make concessions to the government. Paul Samuelson has suggested that, for this reason, the US Fed is a 'prisoner of its independence' (cited in Mayer, 1990: 6). This problem could perhaps be solved through entrenching central bank independence at the constitutional level, a proposal examined in a later Chapter.

The advocates of greater independence for central banks highlight the way in which the accountability of central banks can be enhanced through measures that also increase central bank independence. For example, assigning the central bank a price stability mandate, while giving it the freedom to determine policy targets, can enhance the accountability of the bank by giving it a firm bottom line against which its performance can be assessed. Multiple objectives or a vague mandate allow a central bank to fudge accountability and generates uncertainty about likely economic outcomes and policy responses. Poor performance in relation to one objective can always be rationalised with reference to better performance in realising another. There is less of a principal-agent problem when the agent can be instructed to achieve a single, quantifiable and easily understood outcome (Goodhart, 1994c: 1427). The lack of independence from government on the part of many central banks has thus not necessarily facilitated

their accountability to the public. Indeed, the lack of institutional separation between government and central banks in the formulation of monetary policy allows governments and central banks to conduct policy in secrecy, while buck passing allows them to shirk responsibility for policy outcomes. With clear responsibility for the conduct of monetary policy and a bottom line in place in the form of a specific mandate, central bank accountability can be enhanced in conjunction with greater independence from government. As we will see in Chapter Five, the 1989 reforms to the RBNZ Act along these lines did more to increase the accountability rather than the independence of the RBNZ, by establishing a specific price stability mandate and imposing a penalty on the central bank governor for sub-standard inflation performance.

There are a number of other dimensions along which the requirements of central bank independence may come into conflict with those of public accountability. We have already seen that it is considered important to the independence of a central bank that its governor enjoy a substantial measure of job security. At the same time, however, it is important that the governor be held accountable for the performance of the central bank in its conduct of monetary policy and other central bank functions. If the governor is not personally accountable for the conduct of the bank then there are few incentives for the governor to ensure the bank's performance, and it becomes unclear just who exactly is to be held accountable for that performance. This suggests that the government should have the ability to penalise or dismiss the governor for non-performance. Most central bank governors effectively hold office at the pleasure of the government of the day, subject only to political constraints on their removal from office. These constraints include the public controversy that may result from the dismissal of the central bank governor and the government's potential loss of policy credibility were it to sack a governor with good anti-inflation credentials. The security of the governor's tenure in office, and the independence of the central bank, will thus depend heavily on the political constraints operating on the government of the day and the value it places on policy credibility. Without a strong commitment to central bank independence on the part of the government, the political nature of the appointment and dismissal process for the central bank governor will facilitate the bank's subordination to political considerations on important issues. The desire for reappointment on the part of the central bank governor may also encourage some accommodation with the government's monetary policy prefer-

ences as the expiry of the governor's term draws closer.

A bank located in a formally independent legislative framework can always be de facto subordinated by appointing a governor who is of like mind with the government and can be relied upon to implement the government's monetary policy preferences, without formal instruction from the government. For example, some commentators criticised the 1989 appointment of Bernie Fraser as RBA Governor on the basis that his former role as Treasury Secretary and his close association with the then Treasurer meant that he was too closely identified with Labor Government policy to have independent policy preferences. Fraser's oft repeated claim that the RBA has not been subject to direct political influence is thus irrelevant. The real issue is the preferences of the Governor and Board and whether these differ significantly from those of the government of the day. The case of Bernie Fraser illustrates Beck's observation that 'One does not get to be central bank governor by ignoring the preferences of the central government' (1994: 210). There is thus a need to ensure that central bank officials can be penalised for poor performance, but without opening up avenues for political influence. This suggests the desirability of some sort of independently enforceable performance contract, a proposal that is examined in detail in the following Chapter. Such a contract could be coupled with a central bank governor appointed and removable by the central bank board rather than the government, as is already the case in some countries.

Central banks are responsible for the management of a large portfolio of assets on behalf of the public and the return on these assets can make a sizeable contribution to the government's budget. Central banks themselves are typically financed by one of two methods: either they retain a proportion of the revenues generated by their holdings of government securities and open market operations; or they receive funds through the government's regular appropriations process. The latter method of financing is often considered to be inimical to the independence of central banks, since there is scope for the government to influence policy through its control of the bank's budget. As Banaian et al. have argued 'making the Fed's budget subject to the normal appropriation and review processes ... would increase the scope for direct political leverage over the Fed' (1988: 492). At the same time, however, allowing the bank to fund its activities through revenue retention might give the bank a pecuniary interest in promoting inflation and promote cost-padding in the bank's operations (this possibility is examined in more detail in the following Chapter). As we

will see in Chapter Five, the 1989 RBNZ Act addressed this problem by providing for a fixed five-year funding agreement between the RBNZ and the Government that is subject to ratification by Parliament. This reduces the possibility of the RBNZ's budget being manipulated for political purposes, and coupled with the Bank's performance contract, eliminates any inflationary incentives the Bank might have through its funding arrangements.

Information and reporting requirements are another important accountability measure. The more information the bank is obliged to supply to the public and the more regularly it must do so, the easier it becomes to scrutinise the bank's performance and ensure its accountability. Many central banks make key policy decisions in secret and minutes of bank board meetings are either not released or only released after some considerable delay.

Central banks will also sometimes deliberately send false signals to mislead economic actors as to the true stance of monetary policy. For example, the RBA and the Government played down the significance of official interest rate increases in 1988 (Tingle, 1994: 28). This served to mislead people as to the likely future stance of policy and contributed to the subsequent 1990-92 recession. Indeed, it is only since 1990 that changes in official interest rates have even been publicly announced by the Bank. This lack of policy transparancy is at odds with promoting accountability in the conduct of monetary policy and predictability in the future value of the monetary unit. Greater transparency in relation to the bank's balance sheet, its open market operations and its use of monetary instruments increases accountability and reduces the scope for the monetary authorities to institute a monetary surprise.

Testimony before parliamentary or congressional committees by central bank officials might also promote accountability of the central bank, by allowing politicians to question the performance of the bank and the direction of monetary policy. But these hearings may also provide opportunities for governments, legislators and interest groups to bring public pressure to bear on the central bank with a view to influencing policy in favour of sectional interests. Strong reporting requirements can be expected to result in greater public accountability than parliamentary oversight, which is typically geared to political point-scoring rather than the public's need for information, and reduces the risk of political pressure being brought to bear on monetary policy.

Central Bank Accountability and Macroeconomic Policy

The question of central bank accountability becomes more important and more complicated when we consider independence in relation to policy formulation and the macroeconomic impact of monetary policy. These macroeconomic implications make governments reluctant to relinquish control over policy, since they are ultimately held accountable by the electorate for national economic performance. On the other hand, governments are increasingly recognising that there are potential economic benefits from surrendering some control over policy to an independent central bank, thereby enhancing the credibility of policy.

The independence of central banks from government also seems to have some bearing on the extent to which the latter can avoid being held accountable for prevailing economic conditions. Governments sometimes use the independence of their central bank to avoid accountability for monetary policy outcomes. For example, according to a widely held interpretation of US monetary policy, the blurred lines of responsibility for the conduct of policy as a result of the notional independence of the Fed is used as a device whereby Congress and the Presidency can avoid accountability for tough monetary policy measures and conditions by blaming the 'independent Fed,' while still claiming credit for any monetary policy successes. The Fed acquiesces in this process to preserve its institutional independence and bureaucratic privileges and has its own devices for shirking accountability for its conduct of policy (Kane, 1988).[4]

In Australia, by contrast, the relative dependence of the central bank ensures that the government rather than the central bank is more likely to be blamed and held accountable for the impact of monetary

[4] This interpretation is shared by Havrilesky, who observes that, 'transactions between Congress, the Administration, the Federal Reserve, and the financial sector can fruitfully be seen as a rather costly morality play. Costuming calls for Federal Reserve leaders and politicians to don the garb of public servants. Thus attired, the entourage is required to make sanctimonious references to the evils of unemployment and inflation. Dramatic tension rises whenever the protagonists, politicians, periodically attack the villains, Federal Reserve leaders, for changes in interest rates or exchange rates. The villains, in turn, must tacitly accept blame, even as they plead to the audience that the true determinants of these variables are cosmic forces far beyond their mortal control, i.e., nonmonetary variables. Monetary-policy-as-theatre also requires that the villains describe their attempts to wrest command over these forces as being so complex and mysterious as to defy comprehension by an audience of mere mortals' (1993: 339).

policy on the economy.

The inherent tendency of both governments and bureaucracies to avoid being held accountable for their less successful policies suggests a strong risk of accountability for monetary policy falling into a kind of limbo between the government and the central bank in the presence of central bank independence, as it arguably has in the US. This is one of the reasons Milton Friedman and others have opposed greater independence for the Fed (see the following Chapter for monetarist attitudes to central bank independence). It is important that arrangements for central bank independence and accountability clearly specify which authorities are to be made accountable for the conduct of monetary policy and the mechanisms by which this accountability is to be effected. This assignment of accountability should reflect the actual assignment of responsibility for the conduct of monetary policy. There is no point in holding a central bank accountable for monetary policy outcomes if its decisions reflect direction by the political authorities.

There is an even more fundamental normative issue at stake in determining the appropriate levels of central bank independence and accountability, however, and that is the extent to which monetary policy as a matter of democratic principle should be subject to political control and democratic decision. The prevailing public interest conception of economic policy holds that the government should be responsible for the overall direction of policy, which entails a monetary policy and a central bank subject to government direction. As the President of one of the US Federal Reserve Banks has observed, 'I think we would all agree that central banks neither can nor should be fully independent of government, since it is governments – and not central banks – that hold final responsibility for the economic and financial policy of the country' (McDonough, 1994: 5). These sentiments reflect the fact that monetary policy, especially a discretionary or activist policy aimed at macroeconomic stabilisation, may have significant, although uncertain, effects on the real economy. These macroeconomic outcomes will in turn have implications for the distribution of income and wealth, with the result that monetary policy is not neutral between different economic actors. The determination of monetary policy will thus entail either implicit or explicit decisions about who benefits and who loses from a given policy stance, although the precise effects of policy in this regard will not always be well understood, given economic uncertainty and the long and variable lags before policy takes effect. The determination of monetary policy is a necessarily political exercise to the extent that it has these wider

consequences for the real economy.

There are also limits on the extent to which a price stability mandate can be pursued in isolation from other economic policy objectives. There are potentially significant trade-offs between different policy objectives in the process of setting monetary policy targets, objectives that may not be part of the formal objectives or responsibilities of the central bank. For example, an underlying objective of price stability needs to be translated into an inflation or price level target to be realised and/or maintained over a given time frame. This choice of time frame will have implications for the levels of output and employment in the presence of a short-run Phillips curve, even though output and employment outcomes may not be part of the central bank's formal responsibilities. An independent central bank cannot escape the political implications of these trade-offs in its conduct of policy. These trade-offs become particularly acute in the context of a supply shock. As Ammer and Freeman observe:

> Supply shocks are particularly problematic for a central bank, of course, because they tend simultaneously to raise inflation and lower output. The central bank then faces the politically sensitive trade-off between counteracting the inflationary effect of the shock, with possible adverse implications for real activity, and accommodating the shock by allowing inflation to rise (1995: 169).

A price stability mandate thus cannot always be pursued in isolation from other economic objectives. Woolley has further elaborated on the political dilemmas facing even the relatively independent US Fed as follows:

> The Federal Reserve's relationships with other actors are marked by a kind of tension between its nominal political independence and the kinds of tasks it is called upon to perform in the economic system. It is asked to be politically neutral while regulating an economic system that is not neutral in its results. It is expected to act on the basis of reflective scientific judgement in an environment that stresses political responsiveness. It is asked to make technically correct decisions despite conditions of economic uncertainty that make it difficult to avoid errors and despite a highly conflictual scientific debate as to what correct policy is (1984: 12).

These dilemmas arguably face all existing central banks. Critics of central bank independence argue that the implications of monetary

policy for the real economy make it unsuitable for determination by a group of unelected central bank officials who, because of their independence from government, are not accountable to the electorate for their decision making and which would make it difficult to hold the government accountable for the overall conduct of economic policy. To the extent that monetary policy has significant implications for real variables and the distribution of income and wealth, it is generally considered appropriate that these issues be resolved in the political arena by democratic means. At the same time, however, there also 'appears to be a widespread, albeit not universal, agreement that we do not wish to make monetary policy via normal political processes' (Beck, 1988: 389). Subjecting monetary policy to the normal political process will not necessarily result in greater democratic accountability, but in policy being influenced to the benefit of politically powerful and sectional interests at the expense of the public interest. The literature on central bank independence and political-business cycles[5] suggests that central banks are frequently subject to too much political influence in their conduct of policy. The thrust of monetary reform efforts in recent years, including the attempt to afford central banks greater independence, has thus been to make monetary policy less vulnerable to political manipulation by reducing the avenues for political influence on central banks. There is thus potential for serious conflict between the desire to free monetary policy from inappropriate political influences, while at the same time recognising the necessarily political content of some aspects of monetary policymaking.

Can Monetary Policy be Depoliticised?

We have seen that the most serious conflict between the independence and accountability of central banks arises from the effects of monetary policy on the real economy and the associated political implications. One way in which this conflict might be resolved is to institute a monetary policy that has minimal implications for the real economy. We saw in Chapter One that this requires a monetary system that promotes a high degree of predictability in the future value of the monetary unit. The conflict underlying the debate about the independence of central banks thus directs our attention to the prevailing monetary regime. In most industrialised countries, including those

[5] Chapter Three contains a more detailed discussion of the political-business cycle literature.

with relatively independent central banks, the prevailing monetary regime is based on the discretionary conduct of a monetary policy aimed at stabilising a range of macroeconomic variables, of which price stability has gained in prominence more recently. This discretionary conduct of policy has been described as a 'random walk monetary standard.' As Leijonhufvud has argued, the degree of politicisation of the central bank is largely a function of this prevailing monetary regime and its associated monetary institutions:

> The redistributive consequences of monetary policy – of *any* monetary policy – in the random walk setting entail also the politicisation of the central bank ... The central bank obviously cannot be 'independent' in the sense of being left alone to make decisions that have large and complex redistributive consequences. It must instead make monetary policy 'a little bit at a time,' watch for the resulting shifts in political pressures upon itself, and bend with them. Since no one group controls it, it may be surrounded by politicians (and economic experts) decrying its 'independence' out of genuine frustration, but the status of this intensely politicised institution really bears no resemblance to the traditional concept of an independent central bank, staffed by professional experts and standing apart from politics (1988: xix-xxii).

A discretionary monetary policy will always have the capacity to influence the real economy in the presence of a short-run Phillips curve with imperfect or asymmetric information on the part of economic actors and the policymaking authorities. As we will see in the following Chapter, a discretionary monetary policy is likely to increase the extent of the short run trade off between inflation and output, while leading to higher inflation in the long run. Affording a central bank greater independence from government, without limiting its degree of policy discretion, is thus likely to result in the central bank making necessarily political decisions which from a normative point of view should perhaps more appropriately be resolved democratically in the political arena.

There are a number of ways of limiting the discretionary powers of the central bank, and thus depoliticising the central bank. As Leijonhufvud suggests:

> To depoliticise money ... means either to find a safe way to privatise the money supply or else choose an objective rule, a monetary constitution, such as could be administered by

> an independent body of accountable professional experts ... A monetary constitution which makes the price level fairly predictable and keeps interest rate movements within reasonably narrow bounds would shackle the redistributive powers of the central bank. That, of course, is the main prerequisite for depoliticising central banking (1988: xix-xxii).

In the following Chapter, we will see how a discretionary monetary policy can be substantially depoliticised, by ensuring that an independent central bank has sufficient institutional incentives at the constitutional level to secure inflation outcomes that are predictable within a narrow range. This would then render monetary policy more suitable for administration by an independent authority and obviate the need for political accountability of the central bank in relation to the wider impact of its policies, as distinct from accountability in relation to the bank's own performance in realising its mandated objectives. However, we will also see that this entails a degree of monetary policy precommitment that goes well beyond that currently provided for by even the most independent of existing central banks.

This increased predictability would not prevent the redistributive implications arising from random exogenous economic shocks that may require a monetary policy response. It will, however, prevent redistributions arising from sectional interests acting through the political process on monetary policy, which is the principal problem from a normative point of view. A monetary regime geared to predictable outcomes that have minimal consequences for the real economy is thus an important element in reconciling the demands for greater central bank independence and accountability and rendering monetary policy more suitable for administration by an independent authority. As the literature on the costs of inflation and inflation uncertainty reminds us, it may also have some important economic benefits.

There are, however, limits on the extent to which central banking institutions can control the money supply, without having some effect on the real economy. With a centralised money supply, the real side of economy must adjust to any monetary disturbance that the monetary authorities have for whatever reason created, have failed to recognise or are either unable or unwilling to prevent. Monetary instability occurs when the supply of money fails to equilibrate with the demand to hold money balances. These disturbances may occur despite, or even because of, central bank attempts to promote price stability and

must work their way through the real economy via changes in relative prices, distorting production and consumption decisions in the process. This occurs because money lacks a market of its own, so that an excess supply or demand for money must be cleared through other markets (Yeager, 1986). The free banking literature, which favours allowing free entry into the note-issue, payment and settlements businesses, argues persuasively that central banking institutions are especially prone to creating such monetary disturbances (see e.g. Selgin, 1988). Free banking institutions, by contrast, ensure that the banking system, rather than the real economy, adjusts to any monetary disturbance, eliminating the effects of these disturbances on the real side of the economy. This renders the monetary system into more of a neutral framework for the real economy, rather than a policy instrument for its manipulation. Contrary to the argument of Posen (1993) and others, an 'institutional fix' to the 'redistributive struggle' over monetary policy is possible, by adopting an alternative set of monetary institutions that eliminate the scope and incentives for such distributional conflict. This can done either through constitutional entrenchment of price stability, or by promoting a competitive monetary system based on free banking.

Central Bank Independence and Macroeconomic Policy Coordination

While an independent central bank may have exclusive jurisdiction over the conduct of monetary policy, the government can be expected to retain control over other key economic policy instruments, such as fiscal and exchange rate policy. It can be shown that there are potential economic benefits from the coordination of monetary policy with other economic policy instruments to produce an optimal overall macroeconomic policy (Pollard, 1993). With an independent central bank, however, it is possible that the bank will have different policy objectives or a different view of the state of the economy than other authorities (indeed, this is part of the rationale for such independence), resulting in the discoordination of policy instruments and suboptimal macroeconomic outcomes. The prevailing exchange rate regime will have implications for the central bank's degree of control over the money supply, giving rise to the possibility of conflict between the requirements of external and internal monetary stability. In a world of highly mobile capital and floating exchange rates (albeit subject to occasional intervention by the monetary authorities) monetary and

exchange rate policies are necessarily linked. While this linkage is recognised at a theoretical level, it is generally ignored at the institutional level. Thus, although some governments are affording central banks greater independence over monetary policy, they have generally retained responsibility for exchange rate policy (Cottarelli, 1994: 331). Even in the case of the Bundesbank, exchange rate determination is the responsibility of the German Government. This is in contrast to the way in which recent central banking legislation has sought to address the potential for conflict between monetary and fiscal policy, through such mechanisms as setting limits on central bank financing of government.

The potential for conflict between monetary and exchange rate policy depends on how much control the government seeks to exercise over the exchange rate. Given a freely floating exchange rate regime, there should be little or no conflict between the requirements of internal and external stability. However, most governments periodically seek to influence the external value of their currency and some countries are locked into more or less rigid exchange rate regimes, such as the European Exchange Rate Mechanism. The potential for conflict between the government and an independent central bank in these circumstances has led some to suggest that the central bank should also be given control over exchange rate policy. As Cottarelli argues, 'Under a floating regime, [the central bank] should control the formulation and implementation of [exchange rate] intervention policies and should not be allowed to receive or seek exchange rate policy directives from the government. If a fixed rate regime is chosen (either at the international or individual country level), central bank independence requires that the choice of parities, the currency to which to peg, and the timing and amounts of realignment should be the central bank's responsibilities' (1994: 346-347). As with monetary policy, the government may wish to retain the option of overriding the independent central bank under certain circumstances.

In the absence of appropriate institutional constraints, there may be conflict between different policymaking authorities. For example, the government's fiscal policy can undermine the credibility of monetary policy if the government runs unsustainable budget deficits which have to be monetised. The Sargent and Wallace (1981) 'unpleasant monetarist arithmetic' argues that tighter monetary policy thus leads to higher inflation in the presence of large fiscal deficits. This has led some to suggest that central bank independence is otiose, since it depends on a government committed to price stability for its

effectiveness. If a government is so committed, then there is no need to rely on an independent central bank for this commitment (Buckle and Stemp, 1989).

However, these arguments underestimate the extent to which an independent central bank may be in a position to force an accommodation with a monetary policy aimed at price stability. This will depend on the relative institutional strengths of the government and the independent central bank. For example, the Bundesbank has at various points in its history prevailed over the German Government's preferred policy when there has been a conflict between the government's determination of fiscal and exchange rate policy and the Bundesbank's responsibility for monetary policy (Goodman, 1992). By contrast, a government with greater institutional authority to override the central bank could be expected to prevail in such a conflict. This occurred in the conflict between the German Government and the Bundesbank over the reunification of Germany, where the Bundesbank lacked the formal institutional responsibility to decide the issue of the exchange rate between the Deutschmark and the Ostmark. The German Government could thus legitimately ignore the Bundesbank's advice.

More generally, Parkin (1987) examined data from 12 industrialised countries and found that countries with independent central banks have lower long-run average fiscal deficits with smaller variability than do countries with more dependent central banks. Parkin also shows that the Sargent and Wallace (1981) 'unpleasant monetarist arithmetic' only arises when the monetary authorities are unable to make credible commitments to pursue low inflation outcomes.

This can be remedied through the adoption of more complete forms of commitment. Various institutional devices can also be used to precommit in relation to fiscal policy in order to assist the credibility of the monetary policy run by an independent central bank. In Chapter Five, we will see how New Zealand, through its Fiscal Responsibility Act, has been able to make commitments in relation to fiscal policy that reinforce the credibility of monetary policy. There is thus no necessary conflict between an independent central bank and macroeconomic policy coordination, given the right mix of exchange rate and fiscal policy regimes and the institutional allocation of policy responsibilities.

Conclusion

This Chapter has sought to identify those factors that contribute to the

independence of central banks. It found that central bank independence is a relative, not an absolute concept, requiring careful and necessarily subjective judgements about the relative importance of different factors to the issues under consideration. These methodological difficulties will become more salient in a later Chapter, when we consider the econometric evidence in favour of central bank independence as an approach to monetary stability. The independence of central banks was shown to be most significant at the intermediate level of monetary policy formulation, where decisions are made about policy targets designed to give effect to the underlying objectives of monetary policy.

The desire to afford central banks greater independence raises important issues about their public accountability, both for the performance of the bank and for the effects of monetary policy on economic outcomes more generally.

Central bank independence was shown to both complement and conflict with the requirements of public accountability along different dimensions. The most serious conflict arises from the potential for monetary policy to affect the real economy and the distribution of income and wealth. To the extent that monetary policy has these effects, it is necessarily implicated in the political process.

However, it is widely accepted that monetary policy should also be insulated from political influences to some extent, to ensure that policy is not conducted for the benefit of politically powerful sectional interests and is better able to focus on the goal to which it is best suited: the promotion of monetary stability. Greater independence for the central bank has the potential to insulate monetary policy from the political process, but cannot by itself eliminate the conflict with principles of democratic accountability that arises from the ability of monetary policy to affect the real economy.

The solution to this conflict lies in minimising the real and distributional effects of monetary policy, in such a way as to make it appropriate for regulation by an independent authority. This requires monetary institutions capable of producing inflation outcomes that are highly predictable over the longer term and therefore largely neutral in their implications for the real economy. As the next Chapter will demonstrate, this may be possible in the context of an independent central bank and a discretionary policy regime, provided the central bank has sufficiently strong institutional incentives to make credible commitments in relation to preferred policy outcomes.

Chapter Three

The Rationale for Central Bank Independence

Several distinct strains of economic thought have contributed to the current interest in central bank independence. The monetarist literature of the 1950s and 1960s and the public choice, rational expectations and game theory literature since the 1970s have had a profound influence on thinking about macroeconomics and the role of monetary policy. Public choice theory has also had an important impact on thinking about the role of the public sector in promoting economic welfare. All of this literature has as its common theme a focus on the economic, political and other incentives faced by the monetary authorities in their regulation of the money supply and the role of policymaking institutions in shaping those incentives. The literature suggests that existing policymaking institutions generate incentives that may differ from those required to ensure adherence to policies that promote the notional objectives of the authorities and the public, most notably, the goal of price stability. The advocates of greater independence for central banks maintain that changes in the relationship between governments and their central banks aimed at altering these institutional incentives will ensure better adherence to desired policy objectives.

This Chapter examines the implications of this literature for the relationship between governments and their central banks and the role of central bank independence in promoting monetary stability. It considers the extent to which the monetarist, public choice and game-theoretic dynamic inconsistency literature support greater central bank independence and the implications for what forms central bank independence should take. In so doing, it seeks to delineate the institutional requirements for a viable commitment to monetary stability given a monetary regime defined by fiat money and a discretionary monetary policy.

Monetarism and Price Stability

The current debate over central bank independence owes much to the monetarist revival of the 1950s, 60s and 70s. Monetarists argued that

monetary policy could have no effect on real economic variables in the long-run. Short-run fluctuations in output and employment could be secured through an activist monetary policy exploiting a short-run Phillips curve, but only at the expense of greater instability in the level of prices. Unless inflation was to be sustained indefinitely, inflationary economic growth would have to be followed by deflationary economic slumps. In place of a discretionary policy aimed at promoting a range of macroeconomic objectives, monetarists argued that the focus of monetary policy should be on promoting price stability through the adoption of monetary rules, usually a *k* percent growth rule in some monetary aggregate such as base money.

It is notable, however, that many of the supposedly monetarist-inspired fight-inflation-first monetary policies of the late 1970s and early 1980s did not use money supply growth rules. Emphasis was instead placed on targeting the level of monetary aggregates, using a range of policy instruments to achieve the target. Considerable discretion was exercised in regulating the supply of money, reserve requirements and interest rates to reach the target and in determining and adjusting the target itself. The widespread acceptance of monetarist theory was thus not matched by a commitment on the part of the authorities to monetarist policy prescriptions, inspiring the savage criticisms of US monetary policy on the part of the monetarist Shadow Open Market Committee.

Nevertheless, monetarism highlighted the importance of price stability as a prerequisite for macroeconomic stability. This increased emphasis on price stability as the most appropriate goal for monetary policy has subsequently provided much of the impetus for making central banks more independent. Because central banks are thought to have an institutional bias in favour of low inflation, it is argued that they are more likely to pursue price stability if freed from political interference in their conduct of policy. This assumption about the inflation preferences of central bankers may not be warranted, however. As the public choice literature discussed below suggests, central bankers may in practice be subject to incentives from a range of sources that promote inflationary policy preferences. Giving central banks greater independence without addressing these incentives may give them greater scope to indulge these preferences at the expense of other policy goals preferred by the government or public.

A frequently neglected question in the literature on central bank independence is whether an independent central bank should be bound by adherence to monetary rules or be allowed to exercise the

discretion formerly allowed the political authorities in their direction of the central bank. The monetarist literature suggests that the principal problem with the conduct of monetary policy is the use of discretion rather than the absence of independence for central banks. Friedman (1962: 227) argues against central bank independence on the grounds that it is undemocratic, placing too much discretionary power in the hands of a small number of individuals. He maintains that such independence disperses responsibility for the conduct of policy between the independent central bank and other authorities such as the treasury, resulting in a loss of public accountability. It also allows monetary policy to be captured by the financial community, so that excessive emphasis is placed on the effects of policy on the credit market rather than on monetary aggregates (1962: 232-239). In Friedman's view, the US Fed, for example, already enjoys excessive independence from government, which should be remedied by the Fed's subordination to the US Treasury.

Instead of central bank independence, Friedman has advocated 'legislating rules for the conduct of monetary policy' (1962: 239). Friedman neglects the problems associated with enforcing such legislative rules, particularly when the authority they seek to constrain, namely the government, is also charged with interpreting and implementing them. An independent central bank might be useful in separating the monetary authority charged with the implementation of monetary rules from the political authorities responsible for legislating and enforcing them. Friedman does not seriously consider the possibility of a rule-constrained independent central bank, except to suggest that 'the whole notion of independence could be rendered merely a matter of words if in fact the constitutional provision setting up the bank established the limits of its authority very narrowly and controlled very closely the policies that it could follow' (Friedman, 1962: 230). Friedman here interprets independence as the ability of the central bank to do what it likes, rather than as independence from political influence while subject to institutionally generated constraints on its behaviour. There is also the question of whether the monetary authorities have the ability and the incentive to default on their adherence to a monetary rule. As will be seen below in the discussion of the dynamic inconsistency literature, there is a major question mark over the ability of the monetary authorities to make binding commitments in relation to their future conduct. Unless the authorities can be bound to their pre-announced rule, the rule will lack credibility, especially when the ability to default is coupled with an obvious

political or economic incentive to do so. As will be seen in this Chapter, greater independence for central banks may have an important role to play in assisting the authorities to precommit to a policy rule.

A further problem with the money supply rules advocated by monetarists, with or without an independent central bank, is that they lack flexibility in dealing with shocks to supply and money demand, which may result in price stability being secured at the expense of greater short run variability in output and employment. The temporary output and employment losses associated with such shocks could be quite severe if not accommodated by monetary policy. Some monetarists are prepared to concede a limited amount of discretion or a feedback rule to the authorities in dealing with such shocks. But even a limited amount of discretion can be seen as undermining the credibility of monetary policy and feeding into inflationary expectations. The rules versus discretion debate largely turns on this conflict between the need for policy credibility and policy flexibility, a problem that is addressed below in the discussion of dynamic inconsistency and central bank contracts.

Monetarist thinking has focused attention on the role of discretionary monetary policy in promoting price and macroeconomic instability. Monetarism suggests that it is the discretionary conduct of policy rather than a lack of central bank independence that is the principal problem in promoting price stability. As we shall see in the following discussion, however, central bank independence may have a role to play in overcoming the dynamic inconsistency problems associated with the discretionary conduct of monetary policy and give greater credibility to a rule-based monetary policy.

The Rational Expectations Hypothesis

The introduction of the rational expectations hypothesis (REH) to macroeconomics during the 1970s also had important consequences for thinking about monetary policy. The REH argued that economic behaviour is not independent of the rules of the game and that the prevailing policy regime is a more important determinant of economic behaviour than the particular policy choices made within that regime. In particular, it served to show how expectations can be an important determinant of the aggregate price level and how these expectations are in turn conditioned by prevailing institutions (Ammer and Freeman, 1995: 166). The 'rational expectations revolution' and the new classical

economics extended monetarist thinking by postulating that monetary policy has no real effects, even in the short run, in so far as it operates systematically. Given rational expectations and perfect information on the part of economic actors, the systematic component of policy would be fully anticipated, rendering policy ineffective. The REH argued that there was thus no exploitable trade off between inflation and unemployment. A trade-off could only be secured through non-systematic monetary surprises that economic actors could not anticipate. The policy-ineffectiveness proposition extended the monetarist case against discretionary monetary policy and in favour of monetary rules.

A number of reservations are in order about the rational expectations hypothesis. It depends on the unrealistic assumption of perfect information. Given imperfect or asymmetric information on the part of economic actors, there will still be scope for monetary surprises to have short-run real effects, particularly if the monetary authority has an informational advantage over the private sector, and wages and prices are inflexible. Moreover, as Hoover notes, 'many of the key propositions of the new classical economics are simply not true: expectations are not, in fact, rational; markets are not perfectly competitive and do not clear; both the policy maker and the public play a pretty unsophisticated game; money is not neutral; and technology shocks do not drive the business cycle' (1995: 92). While these assumptions are analytically useful for the purposes of general equilibrium modelling, they abstract from the institutional realities in which we are principally interested. Relaxing the assumptions of the REH is likely to give more realistic insights into the role of expectations in price determination. The game-theoretic literature examined below makes use of a more realistic 'bounded rationality' assumption that sheds greater light on the role of institutions in shaping the relevant economic incentives.

Taken on its own, the policy-ineffectiveness proposition does not have obvious implications for whether central banks should enjoy substantial independence from government or what forms such independence should take. If policy is ineffective, it would not seem to matter if a dependent central bank is being used by the political authorities in an attempt to manipulate economic variables. On the other hand, it is not clear why the government would want to retain influence over monetary policy if it could not influence real variables and could instead enjoy the enhanced credibility and improved inflationary performance associated with an independently conducted monetary policy. The importance of the REH lies instead in highlighting the effects of different institutional and informational structures for

monetary policy determination on the expectations of economic actors and thus on the time consistency and credibility of policy. These implications are further discussed in a later section of this Chapter.

Public Choice Theory

Implicit in much of the traditional discussion of monetary policy and its role in promoting economic welfare has been a highly unrealistic model of central banks and their relationship with government. This public interest conception of monetary policy determination held that central banks, as part of the government, acted as benevolent social planners, conducting monetary policy so as to maximise a single, well-defined social welfare function for the good of the whole community (Cukierman, 1992: 27). It is difficult to reconcile the actual behaviour of central banks with this model, since central banks frequently bring about policy outcomes that are inconsistent with widely expressed preferences for low inflation, as evidenced by the persistence of inflation throughout much of the industrialised world in the post-war period. By contrast, public choice theorists seek to identify the institutional and other factors that give rise to a demand for, and supply of, inflation.[1]

The rise of public choice theory and the private interest theory of regulation has enabled the development of positive theories of central bank and government behaviour, in which governments and central banks are modelled as economic and political actors in their own right. As Green notes, 'because the monetary authorities in most economies can prevent – or choose not to create – inflation, any theory of inflation either implicitly or explicitly involves a theory of monetary authority behaviour' (1987: 169). Yet many of the prevalent theories of inflation are characterised by their 'failure to analyse the determination of monetary policy' (Green, 1987: 170). The discussion of the monetarist, rational expectations and game-theoretic literature in this Chapter finds that governments may have an incentive to promote inflation for the purposes of short-term gains in output and employment. Inflationary incentives may also stem from a desire to increase government revenue, improve the balance of payments or to smooth interest rates (Cukierman, 1992: 16-21). These observations are consistent with the public choice insight that governments and bureaucrats often act on behalf of private interests rather than in terms of some well-defined

[1] For an early public choice analysis of the supply and demand for inflation, see Gordon (1975).

public interest.

The observation that central banks are subject to incentives from private political and economic interests raises the possibility of central bank independence as a possible solution to these incentive problems. As Havrilesky notes, 'public choice and political economy reasoning and related tests suggest that more attention be paid to the conditions surrounding the appointment, reappointment and tenure of central bankers, i.e. their partisan allegiances and monetary policy preferences, as well as their exposure to pressures of varying intensity upon them from executive, legislative and private sector sources' (1993: 343). Greater independence for central banks may reduce the scope for politicians and other actors to exercise influence over the bank's policies. At the same time, however, it may increase the scope for central bankers to pursue their own private interests unless careful attention is paid to the full range of incentives facing central bankers and the institutional constraints on central bank behaviour.

It should be readily acknowledged that central bankers and governments are not solely motivated by self-interest. In practice, central bankers and governments can be expected to be motivated by a broad range of considerations, including the desire to promote the public good, however that may be defined.[2] There are a number of good reasons, however, for modelling these actors *as if* they are largely self-interested in their behaviour when we are engaged in the comparative evaluation of different monetary institutions and monetary regimes. As Brennan and Buchanan argue, we need to make different assumptions about individual motivation in evaluating alternative institutions from those made when making empirical claims about the behaviour of individuals within particular institutions:

> *homo economicus* rightly belongs in the analytical derivation of normative propositions about appropriate institutional design. In other words, the model of human behaviour that we might properly use in choosing among alternative institutions may be different from the model that would be more appropriate in making predictions about behaviour within existing institutional structures (Brennan and Buchanan, 1981b: 159).

The self-interest postulate is thus adopted for the purposes of 'comparative evaluation of alternative institutions rather than the

[2] There are different conceptions of what the 'public good' entails, and since the definition of the public good is itself subject to political determination, we can also expect private interests to enter into its definition.

development of purely predictive theories of political behaviour' (Brennan and Buchanan, 1983: 103).

This reflects a strong prudential argument that public institutions should be based on the worst-case assumption that economic actors are narrowly self-interested. Institutions are designed to constrain people in their behaviour across a range of unpredictable contingencies and people need to be constrained most when they are at their self-interested worst. As Brennan and Buchanan argue, 'the model of human behaviour appropriate for comparative institutional analysis will generally be one that generates worse outcomes (i.e. outcomes further from some conceptual optimum) than the empirical record would justify' (1983: 103). Paradoxically, institutions designed on the basis of this assumption may well facilitate more public-spirited behaviour, by removing institutional disincentives to pursuing more general interests. As Brennan and Buchanan argue:

> The question we are interested in posing about any particular social order is whether the rules by which individual actions are coordinated are such as to transform actions undertaken by participants in their own *private* interests into outcomes that are in the interests of others. We know that this curious alchemy is in fact worked by the *market* – that the invisible hand operates, under certain more or less well-defined conditions, to convert private interest into public interest. The prime task of comparative institutional analysis is to enquire whether other institutions do the same, and, if so, whether those institutions do so under more or less restrictive conditions ... .One calls forth the *homo economicus* assumption, not because it is necessarily the most accurate model of human behaviour but because it is the appropriate model for testing whether institutions serve to transform private interests into public (1981b: 160-161).

Much of the rational choice theory examined in this monograph, far from endorsing self-interested behaviour, has as its explicit or implicit normative purpose the minimisation of the unwelcome consequences of such behaviour in the determination of monetary policy.

There is also a strong argument on the grounds of consistency for employing the rational economic actor postulate as the basis for the evaluation of different institutions. Social scientists generally, and economists in particular, routinely assume that individuals act in a self-interested manner in their private market behaviour. Public choice

theory argues that people do not automatically shed their private interests when they enter the public domain. They can, however, be given some positive incentives to act in publicly beneficial ways and public choice theory seeks to identify the institutional requirements for translating the pursuit of private self-interest into publicly beneficial outcomes. In addition to these analytical and normative considerations, public choice analysis presents us with two bodies of empirical literature with a major bearing on the institutional determinants of monetary policy. These are the political-business cycle literature and the theory of bureaucracy.

Political-Business Cycles

A large body of public choice-inspired literature has sought to identify a political-business cycle (PBC), showing the influence of political factors such as elections and partisanship on economic variables and the use of economic policy instruments.[3] The PBC literature also seeks to identify a distinct political-monetary cycle (PMC), demonstrating the influence of political factors on the supply of money and other nominal variables. This literature suggests that economic policy and economic variables are overly responsive to political considerations rather than being concerned with maximising a broader social welfare function independent of such considerations. To the extent that we can identify a distinct PBC or PMC, we have reason to question the independence of a central bank's conduct of monetary policy and its interest in promoting monetary stability. However, this literature has tended to neglect the role of the central bank in the determination of these cycles (Siklos, 1994: 7). Only a few authors have explicitly sought to model central bank behaviour in the context of a PBC/PMC (see e.g. Johnson and Siklos, 1994).

In examining the role of relative central bank independence in promoting politico-cyclical behaviour in economic variables, it makes sense to concentrate on the PMC literature, given the greater role of central banks in the determination of monetary variables. The evidence on the existence of a PMC in leading industrialised countries is mixed and is fraught with methodological difficulties. While Grier (1987) and Kiel (1988) have found evidence of a PMC in the case of the US and UK respectively, other authors using different models have failed to find such a cycle in a wide-range of countries, including the US and the UK. Those studies that have found a PBC or PMC have also

[3] For an overview of this literature, see Nordhaus (1989).

produced results that are seemingly inconsistent with the findings of the literature on central bank independence. Grier and Kiel were able to demonstrate a PMC stemming from the actions of both the Bank of England and the Fed, despite the fact that they are widely thought to differ in the amount of independence they enjoy from their respective governments. In his original paper, Nordhaus tested the proposition that 'the optimal partisan policy will lead to a political business cycle, with unemployment and deflation in early years followed by an inflationary boom as elections approach' (1975: 185). Nordhaus obtained positive results for Germany, the US and New Zealand, all of which had very different degrees of central bank independence in the period examined. These results were recently confirmed by Alesina and Roubini (1992: 680) in the case of Germany and New Zealand (using data prior to the enactment of the new RBNZ Act in 1990). Johnson and Siklos (1994: 158) found that interest rate changes in Germany, Switzerland, the US and the Netherlands are consistently influenced by political considerations, suggesting that the central banks of these countries are still prone to political influence, despite their notionally independent institutional frameworks. The available empirical evidence thus suggests that political-business/monetary cycles are insensitive to the degree of central bank independence.

One possible explanation for these inconsistent results is that the notional institutional independence of the Fed, the Bundesbank and the central banks of other countries where a PBC/PMC has been found conceals dependent behaviour designed to preserve the institutional independence and bureaucratic privileges of the bank, by occasionally giving in to the demands of the political authorities. As we saw earlier, this argument has long been made in the case of the US. Another possible explanation for the mixed findings of this literature is that they capture a range of variables which, taken together, are more significant than the independence of the central bank in determining the nature of the cycle. This points to a fundamental methodological difficulty with this literature. These models cannot fully account for the effects of the many political and institutional variables on a similarly large number of economic variables that together determine the nature of the cyclical behaviour in economic variables and typically do not seek to isolate the effects of central bank independence. As Nordhaus observed in his review of the literature, 'given the variety of institutions, party structures, sources of shocks, and degrees of rationality and competence, it is most unlikely that any clear pattern of politico-economic behaviour will emerge' from these models (1989: 6). Beck reaches similar

conclusions in his survey of the literature, arguing that, for these reasons, '[t]he evidence for PBCs will never be totally persuasive' (1990: 116).

However, the attempt to identify politico-cyclical behaviour in macroeconomic variables reflects the widespread view that economic policy is strongly driven by political considerations, a concern that is also reflected in the literature on central bank independence. There is an obvious need to better link the results obtained by the PBC/PMC literature with those obtained by the literature on central bank independence. This may result in a more coherent theory of the political influences on monetary policy. In the meantime, however, the PBC literature strongly suggests that central banks are not the only policymaking institution that needs to be considered when assessing the influence of political on macroeconomic variables. Institutions other than the central bank and its relationship with government may have an important impact on inflation outcomes. The possible existence of a PBC is also important in that it serves to negate the REH, since it implies that the authorities have the ability to manipulate the real economy in a systematic way through changes in nominal variables. More recently, there has been an attempt to synthesise the REH and PBC literature, by showing that PBCs can still emerge in the presence of rational expectations (Alesina and Roubini, 1992: 664).

The Theory of Bureaucracy

Public choice theory suggests that governments are not alone in being motivated by private interests. Bureaucrats, including central bankers, have their own private interests that may not be in accord with those of their political masters or the public they are meant to serve. These private interests may include the desire for larger budgets, power and prestige, a quiet life, the ability to shift blame for policy failures on to others while claiming credit for policy successes, and minimising cognitive dissonance stemming from policy failures. All of these private interests on the part of central bankers can be expected to have an impact on the conduct of monetary policy in the absence of countervailing influences. The theory of bureaucracy suggests that it is not enough to look only at those incentives that stem from the relationship between central banks and their governments. It is also necessary to look at the incentives that are generated by a central bank's own internal structures and its relationships with other actors. There is no point in making a central bank independent of political influence if central bankers then proceed to substitute their own

private interests and preferences, or those of other actors, for those of the political authorities.

Central bankers are assumed to have an institutional bias in favour of low inflation, reflecting in part the long-standing association between central banks and the financial community. The interest of the financial community in price stability stems from the effects of unanticipated inflation in transferring wealth from creditors to debtors and in causing capital losses to bond holders. Central banks and the financial community are often said to be the only organised and influential constituency in favour of low inflation, since they are the only interest group that bears the costs of inflation in sufficiently concentrated form to make active opposition worthwhile. Central bankers are assumed to have longer time horizons and different trade-offs between price stability and other macroeconomic variables from politicians (Cukierman, 1992: 349). The significance of central bank independence depends largely on the existence of these different policy preferences on the part of politicians and central bankers (Goodman, 1991: 329). Otherwise, there would be little point to making central banks more independent. Whether these assumptions are borne out in practice will depend on the prevailing incentives to which central bankers are subject.

The budgetary process for funding central bank operations is potentially an important source of incentives for self-interested central bankers. Central banks are typically funded either by way of annual appropriations in the manner of other government agencies, or by retaining a share of the earnings from the bank's own revenue-generating activities that would otherwise be passed on to the treasury. There has been concern that this latter method of financing might enable the central bank to engage in discretionary profit-seeking and expense preference behaviour that would impart an inflationary bias to monetary policy. Since central bank revenues stem from their holdings of government securities and open market operations, a central bank that is able to engage in discretionary profit-seeking would have an incentive to supply a larger amount of base money to increase the size of the profits available for capture. Even if all of the bank's profits are passed on to the treasury, a proportion of these profits could be captured through cost-padding in the bank's operations. Where the amount of profit to be retained is subject to negotiation with the treasury, the central bank may be in a position to misrepresent its funding needs, so that the fiscal authority allows the bank to retain more of its revenues than is necessary for the cost-minimising conduct

of central bank functions. This will especially be the case if there is a principal-agent problem between the government and the central bank. The government may lack the ability to adequately monitor central bank costs, especially if the central bank enjoys some degree of autonomy from the government. Toma (1982), Shughart and Tollison (1983) and Boyes et al (1988) have all found evidence for discretionary profit seeking and expense preference behaviour on the part of the US Fed. The potential for an inflationary bias to be introduced into the determination of monetary policy might be substantially reduced where the central bank has little role in monetary policy decisions, i.e. where it lacks independence from government. However, most governments rely at least to some extent on advice from the central bank in their decisions about monetary policy and this advice may be biased by expense preference behaviour on the part of the bank.

The possibility of discretionary profit seeking on the part of the central bank also has social welfare implications through the effects of cost padding on the efficiency of the monetary system. Central banks typically enjoy a monopoly over note issue and other aspects of the monetary system. The lack of competition in the provision of such services increases the opportunities for cost-padding in central bank operations. For these reasons, it is desirable that the institutional framework for the central bank should minimise opportunities for discretionary profit seeking and expense preference behaviour.

Another way in which the theory of bureaucracy is relevant to central banking concerns the close relationship between the central bank and the financial community. This relationship is typically thought to be the source of the anti-inflationary bias of central bankers. However, this relationship may also result in the central bank being captured by the interests of the financial community. Friedman has noted the tendency of central banks to 'put altogether too much emphasis on the credit effects of their policies and too little emphasis on the monetary effects of their policies' (1962: 238), most notably, their preoccupation with targeting and smoothing interest rates, rather than controlling monetary aggregates. Friedman argues that this reflects undue influence on monetary policy on the part of the financial community. However, as Goodhart (1994c: 1425) notes, this may instead simply reflect central bank preferences in relation to policy instruments, particularly given the often unacknowledged difficulties associated with the use of monetary aggregates such as base money as policy instruments. Nevertheless, several studies have identified a correlation between the interests of the financial community and

corporate sector and the policies of the US Fed (see e.g. Skaggs and Wasserkrug, 1986; Epstein and Schor, 1990). Havrilesky (1993: 251-284) has also shown that the Fed periodically responds to signalling of monetary policy preferences by the financial sector. This probably reflects the representation of private banks on the boards of the banks that make up the Federal Reserve System. There have also been criticisms of the Bank of England for being too close to the City of London, particularly in promoting London as a world financial centre.[4]

The close relationship between the financial community and central banks partly reflects the responsibilities of central banks for prudential supervision of financial institutions and the payments system. The conduct of monetary policy and the supervision of financial institutions are often regarded as complementary functions, with potential benefits from the coordination of policies in these areas. At the same time, however, there is potentially a conflict between the role of the central bank in promoting monetary stability and its role as partial guarantor of the stability of financial institutions through its lender of last resort function. In the event of a financial crisis involving one or more financial institutions, the central bank may ease liquidity to assist these institutions and so compromise its role in promoting monetary stability. During the late 1980s, when corporate indebtedness reached high levels throughout the industrialised world, a number of economists such as Ben Friedman expressed concern that at the margin of policy choice, central banks such as the Fed would pursue a looser monetary policy to avoid precipitating financial crises.[5] Those fears were subsequently borne out in reality, with the Fed lowering short-term rates while maintaining higher long-term rates in order to enable banks to repair their balance sheets.[6] Indeed, following the stock market crash of October 1987, central banks in the major industrialised countries eased monetary policy considerably to avoid precipitating a wider financial crisis. This contributed to world-wide asset price inflation, the unwinding of which played a major role in the recessions that hit the industrialised countries in the early 1990s. This conflict is likely to be more pronounced where the lender of last resort function of central banks and deposit insurance arrangements have created moral hazard problems and where the financial community has undue influence over central bank policymaking.

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[4] 'A Central Bankers' Charter,' The *Economist*, 10 October 1992, pp 16-18.

[5] 'How to handcuff a central bank,' *The Economist*, 5 May 1990, p. 95.

[6] 'Is inflation dead?' *Euromoney*, September 1995, p. 80.

This potential conflict has led some to argue that supervision of the financial system should be the responsibility of a separate agency. Posen argues that institutional separation strengthens opposition to inflation, by ensuring that the financial community and the central bank have a unity of purpose. By contrast:

> where the monetary authority ... has supervisory responsibilities for banks, financial firms may come into conflict with the central bank. They may seek to limit the central bank's powers; they may lobby for a general credit easing to circumvent specific regulatory limits, despite the inflationary effect. When the central bank does not have these responsibilities, the financial sector has no distractions from its support of the central bank's commitment to price stability (Posen, 1993: 48).

Table 3.1 shows that in countries where prudential supervision is the responsibility of a separate agency, inflation is on average less than half that in countries where supervision is the responsibility of the central bank or ministry of finance, and almost half the OECD average. These countries also tend to have independent central banks, suggesting that the separation of prudential supervision from the central bank is part of the independence formula for these banks and contributes to improved inflation performance. Using more formal methods, Posen (1993) also finds a statistically significant relationship between such separation and both greater central bank independence and improved inflation performance. Since there is no necessary conflict between financial and price stability in the conduct of monetary policy (Toma, 1995), any such conflicts must be institutionally generated by conflicting regulatory responsibilities and the regulatory framework for financial institutions and markets, particularly those arrangements that cause moral hazard problems for financial institutions. Greater central bank independence may thus require some combination of institutional separation of monetary and financial system responsibilities, plus a reformed regulatory framework for financial institutions to ensure that central banks have the desired anti-inflationary incentives.

Our examination of the theory of bureaucracy argues that it is not enough to rely on the supposedly anti-inflationary preferences of central bankers, or on a 'strong' or 'conservative' central bank governor to conduct an anti-inflationary monetary policy. As Havrilesky notes:

> many game-theoretic models would applaud the transfer of power to the apparently autonomous chairman [of the Fed] and away from formal constraints as the substitution of a

Table 3.1
Prudential Supervisory Arrangements & Average Inflation in OECD Countries, 1960-94

Central Bank Supervision	Average Inflation	Ministry of Finance Supervision	Average Inflation
France	6.2	Japan	5.2
Italy	8.6	Austria	4.3
UK	7.5	Mexico	27.2
Australia	6.4	**Average Inflation for MoF**	**12.23**
Finland	7.0		
Greece	12.0	**Other Agency Supervision**	**Average Inflation**
Iceland	24.0	US	4.8
Ireland	7.9	Germany	3.4
Luxembourg	4.3	Canada	5.1
Netherlands	4.5	Belgium	4.6
New Zealand	8.0	Denmark	6.5
Portugal	12.4	Norway	6.2
Spain	9.5	Sweden	6.6
Turkey	32.5	Switzerland	3.8
Average Inflation for CB	**10.77**	**Average Inflation for OA**	**5.13**

Sources: Tuya and Zamalloa (1994); OECD Economic Outlook; IMF International Financial Statistics.

discretionary conservative central banker for precommitment to monetary rules on the grounds that rules are more easily broken by politicians than the resolve of the central banker. In contrast, public choice approaches and related testing would suggest that an ostensibly conservative central banker, being so subjected to the carrots and sticks of interest groups and politicians, is a far weaker

> defence against inflationary excess than a breakable monetary rule (1993: 343).

The public choice literature suggests that any attempt to increase the independence of central banks needs to ensure that the independent central bank has incentives to secure the desired low inflation outcomes and is free of pressures from government and other sectional interests. This requires that close attention be paid to budgetary and other incentives in the design of the bank's institutional framework and the regulatory framework for the monetary and financial system as a whole.

Dynamic Inconsistency and Monetary Policy

A major development that has come to have an important role in discussions of central bank independence and monetary policy has been the advent of game-theoretic approaches to the analysis of economic behaviour. Game theory has been used extensively in the analysis of the rules versus discretion debate. An obvious problem with the earlier advocacy of rules over discretion is that a desirable rule could be adopted by discretion and adhered to for as long as it was considered to be desirable, thereby securing the benefits of both rules and discretion. If this were the case, then discretion would always dominate rules. The introduction of the problem of dynamic inconsistency into macroeconomics by Kydland and Prescott (1977), however, served to explain why discretion introduces a credibility problem that imparts an inflationary bias to monetary policy. In particular, it explains why policymakers pursue inflationary policies, despite the fact that monetarist and rational expectations approaches to the analysis of monetary policy suggest that such policies can have no lasting effects on the real economy and result only in further inflation.

Dynamic inconsistency refers to situations where the best policy planned currently for some future period is no longer considered the best when that period actually arrives (Cukierman, 1992: 15). A frequently cited example of this problem concerns the strategic interaction between monetary policy determination and the wage/price setting process. Policy makers are assumed to have objectives that give positive weight to employment stimulation and a negative weight to inflation. Workers aim at a certain real wage rate by contracting a nominal wage that embodies the expected rate of inflation for the contract period. The government then determines the rate of inflation that maximises its objectives, taking nominal wages as

given. The government's best rate of inflation is the one that minimises the combined costs of inflation and low employment. Since the marginal costs of both are increasing, the minimising rate of inflation is positive (Cukierman, 1992: 17-18). Assuming that workers know the government's objectives, they can contract in anticipation of the government's preferred rate of inflation, thereby obtaining their desired real wage and eliminating the effect of the positive inflation on employment. A zero rate of inflation in this model would require that the government credibly commit itself to zero inflation prior to the signing of wage contracts. It is only when governments have the discretion to choose the rate of inflation after the settlement of contracts that inflation arises. Whereas prior to the determination of nominal contracts the government's best rate of inflation is zero, once these contracts have been set, the best rate of inflation is positive (Cukierman, 1992: 18). Short-term increases in employment are not the only factors that motivate governments to inflate. Revenue considerations, the balance of payments and the desire to smooth interest rates and promote financial market stability also give governments reasons to inflate. In each case, the dynamic inconsistency analysis explains why, in the absence of credible commitments on the part of the authorities, there is a tendency toward inflation (Cukierman, 1992: 18-25).

The dynamic inconsistency analysis explains why monetary policy may also lack credibility when based on a monetary rule that monetarists argue is conducive to price stability. If the monetary authorities[7] can renege on a rule at little cost, and have some positive incentive to do so, the dynamic inconsistency literature predicts a higher equilibrium rate of inflation than would otherwise be the case. Recognition of the inflationary incentives facing the monetary authorities on the part of rational economic actors undermines the credibility of the authorities' original commitment to that rule or policy. A monetary rule on its own is thus insufficient to establish policy credibility. Some device is needed to enable the monetary authorities to make credible, time consistent commitments to pursue a policy conducive to price stability.

Kydland and Prescott originally suggested that economic theory be used to evaluate alternative policy rules, and that rules should be selected so that:

[7] 'Monetary authorities' here refers to both the government and central bank. The term 'political authorities' is sometimes used to describe the government (executive and/or legislature) exclusive of the central bank.

> it is obvious when a policy maker deviates from the policy. There could be institutional arrangements which make it a difficult and time-consuming process to change the policy rules in all but emergency situations. One possible institutional arrangement is for Congress to legislate monetary and fiscal policy rules and these rules to become effective only after a two-year delay. This would make discretionary policy all but impossible (1977: 487).

Central bank independence is another institutional arrangement designed to solve the time inconsistency problem of the authorities. As Cukierman notes:

> The conveyance of authority to the CB [central bank] by political authorities can be viewed as an act of partial commitment. By delegating some of their authority to a relatively apolitical institution, politicians accept certain restrictions on their future freedom of action ... By delegating some of their authority to the CB, political authorities try to reduce the set of circumstances under which price stability is sacrificed in order to achieve other objectives. The higher the independence of the CB, the stronger will be the commitment (1992: 350).

Central bank independence is meant to solve the government's credibility problem, by making it excessively costly for the government to override the bank's independence and force it to change policy. The need to override the independent central bank also means that policy changes become more visible to economic agents, reducing the scope for, and benefits from, monetary surprises.

The effectiveness of central bank independence in establishing policy credibility depends crucially on whether this cost-benefit calculus can be sustained and is widely perceived by other economic actors. It depends on the government's ability to tie its hands in relation to the future independence of the bank and the conduct of monetary policy and whether the central bank can be similarly bound in its future conduct, given that it too may suffer from credibility problems arising from dynamic inconsistency in its conduct of policy.

The delegation of authority to the central bank is based in part on the view that central bankers have lower inflationary preferences than politicians. This assumption is explicit in Rogoff's (1985) model, in which society deliberately appoints a 'conservative' central banker who places greater weight on inflation rate stabilisation than on social welfare. Certainty about the central banker's preferences enables

delegation of policy discretion to the central bank, while maintaining the flexibility of a discretionary policy regime.

A number of commentators have criticised this *deus ex machina* role of the 'conservative' central banker (Minford, 1995: 206) Realistically, there is likely to be some uncertainty about the independent central banker's preferences, giving rise to a credibility problem requiring even a conservative central banker to have some commitment device. As we saw in the discussion of the theory of bureaucracy, the actual preferences of central bankers will be conditioned by the economic and political incentives they face from a range of sources. The political nature of monetary policy means that central bankers will typically seek to realise a range of objectives and balance a number of competing interests, in addition to their own bureaucratic interests. The desire for reappointment on the part of central bank governors, for example, will give them a strong incentive to pursue policies agreeable to the government of the day (Fratianni et al 1993: 1).

Recent attempts at affording central banks greater independence have been aimed at giving greater scope to the anti-inflationary preferences of central bankers. No central bank will be completely insulated from such pressures, however, and given its public responsibilities and ability to affect the real economy and the distribution of income and wealth, this is widely considered to be desirable. Greater central bank independence might even serve to further politicise the role of the central bank, by drawing attention to its responsibility for the determination of monetary policy, a responsibility that is more diffuse when the government has a greater role in the determination of policy (Goodhart, 1994a: 11). For example, the RBNZ has come under considerable pressure for presiding over tight monetary condtions in New Zealand in recent years. Such public pressure may be more intense than that brought to bear by the government and may become a vehicle by which the government seeks to influence an independent central bank. In any event, the anti-inflationary preferences of the central bank cannot be taken for granted.

In the absence of certainty about the anti-inflationary preferences of the independent central bank and the possibility that political pressure may be brought to bear for more inflationary policies, the central banker may need to be given some incentives to realise society's low inflation preferences. These incentives could include a penalty imposed on the central banker's remuneration for deviations from preferred inflation outcomes, as proposed in the literature on central bank contracts examined below. It is also necessary to ensure

that the central bank does not itself profit from inflation, through the retention of profits on its holdings of government securities and open market operations. Even if the central bank can be made independent from government in a way that solves the latter's credibility problem, the central bank itself will need to establish the time consistency of its own policies, which would require the elimination of any incentives it might have to promote inflation. An anti-inflationary policy that is optimal for an independent central bank in the current political and economic environment may not be optimal when that environment changes in a future period.

Can Governments Precommit?

Using central bank independence to solve the problem of dynamic inconsistency depends on governments and central banks being able to make credible commitments in relation to their future conduct. A difficulty arises from the fact that there are limitations on the ability of sovereign entities such as governments to precommit. As Neumann notes, 'there is widespread agreement that under realistic conditions governments have no device for precommitment' (1991b: 98). Indeed, the inability to precommit is widely regarded as an intrinsic property of economic policymaking. Grossman explains the problem as follows:

> in order to establish a monetary standard, whether it be a commodity standard or a fiat standard, and to control the value of money, as well as to undertake other essential functions, the government must have the sovereign power to act as the ultimate enforcer of contractual commitments. But, this sovereign power precludes the existence of a higher authority capable of enforcing commitments about future policy choices. Consequently, any policy rule, even one that allows for state-contingent flexibility, can be viable only as long as it is expedient for the policy authority to follow it (1991: 336).

This problem is often thought to limit the ability of central bank independence to act as an effective precommitment device, since governments are responsible for enacting and enforcing the legislative arrangements for central bank independence. Existing legislative provisions for central bank independence often include explicit provisions for the government to override the central bank in the case of a disagreement over policy, as is the case in New Zealand (see Chapter Five). Where there is no provision for the government to legally

override the bank (as is the case with the Bundesbank), the government can change (or threaten to change, as did Chancellor Schmidt in 1982) the legislative basis for the bank's independence.

If central banks are modelled as self-interested bureaucracies, as the public choice literature suggests they should, then we can expect them to avoid pursuing policies that are likely to threaten the long-run viability of their independence and bureaucratic privileges. As Willet and Keen have observed in the case of the US, 'ironically, in order to maintain the Fed's independence, Fed officials often have bowed to political pressure' (1990: 17). It is significant that freedom from government override outperforms other measures of central bank independence in predicting inflation performance (Banaian et al. 1995). While overriding the central bank or changing its legislative framework may be politically very costly and result in a long-term loss of policy credibility, the question is whether these costs are likely to exceed the benefits the government might be able to secure as a result of these actions.

Important to much of the literature on central bank independence is the assumption that politicians have a shorter time horizon than central bankers. A politician's time horizon may extend only as far as the next election (reputational considerations are dealt with in a later section). Central bank independence is potentially valuable in increasing the costs associated with politically expedient changes in monetary policy. However, it is likely to fail in those circumstances when it is needed most, i.e. when a government desperate for reelection or responding to electoral pressures seeks to override or overturn the independence of the central bank.

The imperfect ability of governments to precommit to central bank independence and price stability via legislative means explains why existing central banks whose independence depends upon legislative provisions seem to lack a 'credibility bonus' in their conduct of monetary policy, in particular, the sacrifice ratio associated with disinflations. The sacrifice ratio can be defined as the loss in output below trend during the disinflation divided by the reduction in inflation (Debelle, 1995: 15). An independent central bank should be able to lower inflation at less cost in terms of output and employment because inflationary expectations adjust more rapidly to its more credible policy actions. However, these a priori expectations are not supported by the available empirical evidence from the existing institutional structures for central banks. Ball's (1994b: 170) calculations of average sacrifice ratios for the industrial countries show that the more independent

central banks tend to be associated with higher sacrifice ratios.

Table 3.2:
Average Sacrifice Ratios by Country: 1960-87

Country	Average Sacrifice Ratio
Australia	0.32
Austria	0.47
Belgium	0.98
Canada	1.2
Denmark	0.56
Finland	0.72
France	0.22
West Germany	2.52
Ireland	0.72
Italy	1.48
Japan	0.23
Luxembourg	0.53
Netherlands	0.31
New Zealand	0.53
Spain	0.9
Sweden	0.45
Switzerland	0.86
UK	0.68
US	2.3

Table 3.2 shows that Germany and the US suffer the highest sacrifice ratios, despite having relatively independent central banks. More formally, Fischer (1995a: 49-50) compares the sacrifice ratio in recessions since 1962 against the Grilli et al. (1991) measure of central bank independence and finds a positive and statistically significant relationship between them. The more independent central banks on average pay a higher price per percentage point of inflation to reduce the inflation rate, with a similar, though weaker positive relationship holding between the output loss in recessions and central bank independence. Fischer concludes that 'there is no credibility bonus in the labour markets for more independent central banks: they have to prove their toughness repeatedly, by being tough' (1995a: 50). Similar results are obtained by Posen (1994: 17) and by Fischer and Debelle in comparing the output costs of recessions in Germany and the US since

1973. The output loss and sacrifice ratio for Germany is found to be higher than that for the US, despite the fact that the Bundesbank is widely considered to be more independent than the US Fed (Debelle and Fischer, 1994: 9-10). Debelle has used the same approach in comparing the costs of recent disinflations in Canada, Australia and New Zealand and found that greater central bank independence in New Zealand has not yielded the expected reduction in the costs of disinflation (1995: 15-17; see also Chapter Five). This is consistent with results obtained by Gordon (1982) in the case of the US, Germany and Switzerland, showing that disinflations in these countries have been more costly than the literature on central bank independence would suggest.

These results indicate that the existing legislative basis for the independence of the Fed, the Bundesbank and the RBNZ has not secured the credibility benefits that the theory would suggest. At the same time, however, it should be conceded that there are a number of methodological difficulties associated with this use of sacrifice ratio data. It does not account for the many other factors apart from monetary policy credibility which may contribute to output and inflation outcomes. The calculation of trend output and the dating of disinflation periods is necessarily arbitrary, giving different results depending on the assumptions made. Sacrifice ratios also fail to take into account the potential long-term benefits for output growth from lower inflation (Mayer and Chapple, 1994). Nonetheless, the evidence from this examination of sacrifice ratio data suggests that central bank independence as it is currently practised is inadequate to the task of ensuring policy credibility.

The problems faced by even a highly independent central bank in establishing and maintaining its credibility are illustrated by the Bundesbank in the wake of German reunification in 1989. The German Government's decision to set the exchange rate between the Deutschmark and the Ostmark at one for one should not have had monetary policy implications, since the resulting one-off increase in the price level should not have affected the underlying rate of inflation, the Bundesbank's principal policy target. However, the perception that the Government had overridden the Bundesbank in deciding this issue weakened the credibility of the Bank. This was despite the fact that the Bank had no formal authority to determine the exchange rate in question, although it advised against the one for one conversion rate. These credibility problems were further exacerbated by conflict between the Bank and the Government over fiscal and wages policy.

These perceptions obliged the Bundesbank to adopt an overly restrictive monetary policy in order to reassert its anti-inflationary credentials and maintain its future credibility, even though such a response was not warranted by prevailing monetary conditions or its institutional position relative to the Government, and came at the cost of lower rates of economic growth. After reviewing this experience, von Hagen concludes that 'there is a real cost of imperfectly credible central bank independence' (1994: 243). These costs can only be avoided through the adoption of more perfect forms of commitment that deliver higher levels of credibility.

Constitutional Solutions to Precommitment Problems

The government's sovereign power does not preclude the possibility of it being subject to a higher authority which would enable it to precommit to upholding the independence of a central bank. While the government is the ultimate enforcer of contractual commitments and the source of laws providing for the independence of central banks, governments themselves are, unless specifically exempted, also generally subject to the rule of law. Governments can thus bind themselves through the law and leave themselves open to legal sanctions for violating the law. Modern democracies with independent judiciaries should be able to institute constitutional provisions which give legal status to central banks that prevents them from being overridden by the government's actions. Such constitutional provisions could also help solve the central bank's own precommitment problem, by making both the government and the bank subject to the higher law of the state in the determination of monetary policy.

Fischer (1991: 1174) notes that there is a continuum running from discretion, to rule, to law, to constitutional law in the determination of policy. Each stage in the continuum involves increases in the costs of changing policy. Central bank independence should be instituted at the level at which these costs outweigh the likely benefits to the government from defaulting on its commitment to an independent central bank pursuing a price stability mandate. Again, these costs and benefits will depend on the government's objectives. The benefits to government from defaulting on its commitment to central bank independence and low inflation outcomes may be quite high. Central bank independence may become a victim of its own success. If central bank independence is successful in producing low rates of inflation,

price and wage contracts will increase in duration, resulting in greater nominal rigidities in the economy. This will tend to flatten the Phillips curve, increasing the short-run trade-off between inflation and unemployment (Eijffinger and de Haan, 1995: 47). This will increase the short-run macroeconomic benefits of a surprise inflation to a level that may exceed the costs associated with defaulting on existing commitments. Although such an override of the independence of the central bank would be very visible, allowing economic actors to adjust their inflationary expectations accordingly, many would be limited in their ability to renegotiate wage and price contracts. There would thus still be scope for short-run improvements in output, which may entail considerable political benefits for the government that engineers it.

An independent central bank can suffer from dynamic inconsistency problems of its own if it has preferences other than price stability. This might be overcome by adopting, at the constitutional level, a contract between the bank and society that penalises central bankers for failing to achieve preferred outcomes or requires them to adhere to fixed rules of conduct which are enforceable at law. The former approach seems more promising, given the inability of fixed monetary rules to fully anticipate the economic shocks to which the central bank might have to respond. The literature on rules versus discretion has found that there is an important trade-off between policy credibility and policy flexibility. However, a discretionary policy regime could be made credible by ensuring that the central bank suffered sufficient penalties for deviating from preferred, predetermined target ranges for inflation. As Walsh has argued:

> The optimal contract is able to eliminate the inflationary bias of discretionary policy while still achieving the optimal policy response to shocks. This contracting approach suggests that central banking structures should be designed to allow the central bank a great deal of independence to respond to economic disturbances while, at the same time, creating incentives (via reporting requirements and targeting strategies) that serve to limit average inflation (1993: 300).

This approach avoids the need to make the difficult choice of the costs that should be associated with attempts to change constitutionally entrenched monetary rules in responding to economic shocks. Given the uncertainties inherent in monetary theory and policy and the lack of consensus on the desirability of any one policy rule, the contracting approach would seem to have distinct advantages over fixed constitu-

tional monetary rules. The implications of the contracting approach are elaborated on more fully in a later section of this Chapter.

Reputation Building

An extension of the dynamic inconsistency literature considers the possibility that a monetary rule can be enforced solely by the policy maker's desire to maintain a reputation in relation to future conduct, thereby establishing a reputational equilibrium behind that rule. As originally suggested by Barro and Gordon (1983b: 102):

> Because of the repeated interactions between the policy maker and the private agents, it is possible that reputational forces can support the rule. That is, the potential loss of reputation – or credibility – motivates the policy maker to abide by the rule. Then, the policy maker forgoes the short-term benefits from inflation shocks in order to secure the gain from low average inflation over the long term.

This model of monetary policy credibility has the advantage of not requiring an enforcement mechanism other than the reputation of the policymaker. It also has the advantage of allowing the policymaker to retain flexibility in responding to unanticipated economic shocks. As Rogoff notes:

> if it is indeed possible to rely on reputation to enforce optimal policy rules, then a very good case can be made for preferring this solution to one involving written legal contracts (constitutional amendments). It is virtually impossible to foresee every type of problem that society may face and to design a fully contingent law. Reputation provides a far more flexible mechanism for dealing with circumstances that could not have been imagined (or would be prohibitively expensive to think about carefully) at the time the law was written (1989: 237).

This model suffers from a number of problems, however. The first difficulty is that there may be more than one equilibrium. The multiple equilibria that emerge from the model make it difficult to determine which one will prevail and thus to determine the policymaker's likely future behaviour (Barro and Gordon, 1983b: 119-120; Barro, 1986b: 3-4). The other problem with this approach is that a reputational equilibrium depends on an infinite time horizon in the interaction between the policy maker and private agents. Otherwise, the incentive to cheat in the final period serves to unravel the entire solution (Barro,

1986b: 3). Barro (1986b) later developed a model including uncertainty about the policymaker's preferences and technology for making commitments which has the advantage of generating a unique perfect equilibrium and which does not depend on an infinite time horizon. These models require a high level of abstraction in modelling the processes determining monetary policy and break down under more realistic specifications of these processes. The model is also obviously false to the facts of persistently high inflation throughout the industrialised world for much of the post-war period, although it does raise the interesting question as to why reputational forces were seemingly more effective in countering inflationary bias prior to the great inflation of the post-war period (Grossman, 1991: 340). It is likely that the differences between pre- and post-war inflation performance are more attributable to changes in monetary regimes, in particular, the move away from domestic gold convertibility before the war and away from the international gold standard following the collapse of the Bretton Woods System in the early 1970s. This may in turn have had an adverse impact on the reputations of monetary authorities. Bordo (1993) persuasively accounts for the superior inflation performance of the pre-war gold standard in terms of the superior commitment technology available to the authorities under this monetary regime. A gold standard is costly to abandon because of domestic and international political and economic pressures that support its retention. These pressures were such that governments could temporarily go off the gold standard in time of war and yet still sustain expectations that convertibility would be resumed at a later date.

The infinite time horizon problem is particularly acute when the policymaker is a democratically-elected government with a limited term in office. Elections with potential and actual changes in government introduce discontinuities into the interaction between the policymaker and private agents which may prevent the establishment of a reputational equilibrium. The prospect of electoral defeat will cause the political authorities to heavily discount the future and resort to inflationary surprises in their efforts to secure reelection. This points to a possible role for an independent central bank. An independent central bank with substantial responsibility for the formulation and implementation of monetary policy introduces a greater degree of continuity to the conduct of monetary policy. The notional terms of central bank governors and central bank officials can be made to span the term of office of more than one government and the composition of central bank boards is generally changed piecemeal over time rather

than wholesale with every election. An independent central bank is thus better placed to establish a reputational equilibrium in its interaction with private economic agents than a government subject to replacement by the electorate in the near future. The possibility of a reputational equilibrium may also explain the observed correlation between low inflation and political stability. One of the explanations offered for low inflation in Japan despite its dependent central bank is the continuity stemming from Japan being governed by the same party for most of the post-war period.

The fact that changes to the institutional arrangements for the conduct of monetary policy are being considered in a wide range of countries suggests that reputational factors alone are insufficient to ensure policy credibility and price stability. North and Weingast have noted that 'appropriately chosen institutions can improve the efficacy of the reputation mechanism by acting as a constraint in precisely those circumstances where reputation alone is insufficient to prevent reneging' (1989: 808). Appropriately chosen institutions in this case may include central bank independence with its superior reputation-building ability. As we have seen, however, an independent central bank with a reputation for securing low inflation outcomes could still have its credibility enhanced by constitutional arrangements that secure it against the possibility of government override and time inconsistency in its own conduct of policy.

Principal-Agent Models and Central Bank Contracts

There is a growing literature which seeks to model the relationship between the public and the central bank as a principal-agent problem, which suggests the possibility of contractual solutions to the problem of the time-inconsistent inflationary bias of the monetary authorities. This literature highlights the importance of regulatory and institutional design in achieving monetary policy credibility. It argues that a performance contract between the public and central bank can eliminate inflationary bias on the part of the bank without the need for an elaborate institutional framework to establish central bank independence (Fratianni et al. 1993), while allowing an optimal policy response to economic shocks. In this model, the central banker's compensation package depends on the central banker meeting predetermined policy targets. Persson and Tabellini seek to show how the problem of monetary policy credibility 'may be altogether resolved by

a remarkably simple performance contract that imposes a linear penalty for inflation on the central bank' (1993: 55). The idea is to ensure that the central bank leadership 'perceives a clear tradeoff between social welfare and the "transfers" spelled out by the central bank contract' (Persson and Tabellini, 1993: 61). These transfers may affect the central banker's remuneration or some other aspect of their well-being. The Reserve Bank of New Zealand Act 1989 can be interpreted in this way, since the Governor can be dismissed for failure to reach the Policy Targets Agreement negotiated with the government of the day. Persson and Tabellini suggest that '[a] governor with career concerns would internalise the loss of prestige resulting from such a dismissal' under the New Zealand legislation (1993: 61).

While such contracts represent an attractive theoretical possibility and reflect some aspects of existing monetary institutions, there are some fundamental practical problems with the successful implementation of such contracts below the constitutional level. One problem stems from the fact that the public is unlikely to be the principal in the periodic negotiations with the central bank (transaction costs would make this prohibitively expensive), but will instead be represented by the government, either in the form of the executive or legislature, so that there is also a principal-agent problem between society and the government in negotiating the performance contract. Neither the executive nor the legislature is a perfect agent for society. Both will have their own private interests and/or be subject to electoral or partisan incentives and these interests will influence, and be incorporated into, the contract with the central bank (Persson and Tabellini, 1993: 71-74). The contractual relationship between government and society is underspecified and lacking enforcement mechanisms geared to ensuring performance in relation to specific policy objectives. The only enforcement mechanism available is to replace the government at periodic elections, despite the fact that it might be performing well in relation to other policies. Continual contracting between the government, public and the central bank may also be costly in terms of negotiation, monitoring and enforcement costs. As Fratianni et al. note 'a once-and-for-all adjustment of the legal framework of the central bank establishing independence may be more efficient than trying to adjust the central banker's compensation package on a period-by-period basis' (1993: 24).

The existence of a contract between the government and the central bank also implies the subordination of the bank to the government in the enforcement of the contract. Such a contract would

thus diminish the independence of the central bank and would not help solve the government's precommitment problem. There is a need for an independent enforcement mechanism such as a constitutional entrenchment of the terms of the contract. The literature on central bank contracts assumes that the contract will be carried out. As Fischer notes, however, 'the principal faces the temptation to behave in a dynamically inconsistent way by changing the contract *ex post*. The model therefore carries an implicit assumption that it is costly to change the contract' (1995a: 40). This is more likely to be the case with a contract that has been implemented at the constitutional level than one embodied in legislation or some other agreement between the government and the bank. As McCallum (1995) and Waller (1995) note, unless central bank contracts can increase the costs of reneging on preferred policies, they merely relocate the government's dynamic inconsistency problem to the central bank rather than solve it.

If the government and the central bank are to solve their respective credibility problems, the contractual relationship governing monetary policy determination needs to be referred to the constitutional arena, where legal sanctions can be independently brought to bear against the failure of the agents to adhere to predetermined rules of conduct or to secure desired policy outcomes. The existing literature on central bank contracts focuses on giving central banks the right incentives, but neglects the principal-agent problem between the government and society and the dynamic inconsistency issues that arise around the need to enforce the contract. The constitutional entrenchment of a one-off central bank contract may serve to overcome these problems.

Monetary Constitutions and the Endogeneity of Central Bank Independence

Constitutional arrangements designed to protect the independence of the central bank and to promote monetary stability require widespread and continuing support to be enacted and upheld over time. While their principal advantage is that they are costly to change, this reflects the fact that they are also costly to implement. This raises an interesting paradox. Constitutional arrangements are most likely to be forthcoming in societies where there is already very substantial support for the rights and protections these arrangements seek to uphold. To the extent that these arrangements represent a simple codification of existing practice, they might even be considered redundant because of

the existence of an implicit constitution that binds through adherence to norms of policy conduct. This is arguably the case in Germany, where commentators have referred to an implicit economic constitution and price stability norm that underpins the independence of the Bundesbank (Kennedy, 1991: 9). Constitutional arrangements are more likely to be needed in societies where such rights and protections are not well established, yet it is precisely in these societies that such arrangements will be difficult to establish and maintain.

The literature on central bank independence has identified the possibility that the observed correlation between central bank independence and low inflation may be an endogenous phenomenon (see e.g. Pollard, 1993). Both may in fact be a reflection of a political consensus in favour of low inflation which has in turn generated institutions that reflect these preferences. The independent central banks and low inflation records of Germany, Switzerland and Austria, for example, may reflect a deeper underlying commitment in German-speaking countries to political and economic stability (Busch, 1993). Fischer notes what he refers to as an 'extreme position' that:

> the possibility of reverse causation is sometimes used to argue that the legal position of the central bank is hardly relevant to inflation performance: if a country is inflation averse, then it will have low inflation whatever the legal status of the central bank; if the country is not inflation averse, then the political system will always be able to get around the legal status of the central bank ... The implicit recommendation is that educating people about the costs of inflation is the best way of reducing inflation (1995a: 47).

The adoption of legislation to make the central bank more independent from government to curb inflation requires a sufficiently strong consensus in favour of price stability to establish and sustain the independence of the bank, especially in difficult periods. Such a consensus often follows from periods of monetary and macroeconomic instability. Cukierman has observed a tendency for central banks to acquire greater independence following the implementation of successful macroeconomic stabilisation programs. This reflects the fact that 'once they have experienced the disruptions associated with high inflation and its stabilisation, competing interest groups become more acutely aware of the benefits of avoiding those painful cycles altogether' (1992: 455). This is certainly true of New Zealand and a number of other countries. Indices of central bank independence have been shown to be positively correlated with historical experience of

inflation between 1900 and 1940 (de Haan and van 'T Hag, 1995). The prospects for greater central bank independence may thus be assisted by a learning process in relation to the costs and benefits of inflation.

Even where a strong consensus emerges, however, a legislative approach to central bank independence will be vulnerable to being overturned by future changes in that consensus. Although a consensus in favour of central bank independence emerged in New Zealand, resulting in the changes to the RBNZ Act in 1989 obtaining nearly unanimous support in the New Zealand Parliament, this may only be a temporary phenomenon. As the Governor of the Reserve Bank of New Zealand has noted, the Act 'remains open to political reversal and as such it is not a permanent rearrangement of the institutional structure for monetary management' (Brash, 1992: 106). This suggests that constitutional entrenchment of central bank independence may have an important role to play in preventing society from acting in a dynamically inconsistent way with respect to its own institutions. While an existing consensus or ruling majority coalition may be sufficient to sustain a legislatively based independent central bank in the current period, this consensus or ruling coalition could be undone by future changes in political and economic conditions that undermine its long-term anti-inflationary preferences in favour of short-run improvements in economic conditions. Constitutional entrenchment of independence for the central bank and a commitment to price stability may be necessary to solve the dynamic inconsistency problem facing society as a whole, and so may still have a role to play in societies where a consensus in favour of price stability might otherwise be thought to render such an entrenchment redundant. It is no doubt for this reason that the Germans, for example, jealously guard the independence of the Bundesbank. The potential endogeneity of central bank independence still raises important issues about the direction of causality between greater central bank independence and improved economic performance and for the relative importance of institutions as determinants of economic outcomes. These questions will be considered more fully in the following Chapter.

Chapter Four

Central Bank Independence and Economic Performance

One of the principal claims made for greater central bank independence is that it can improve a country's inflation performance at little or no cost to economic performance. To evaluate this claim, this Chapter examines some of the major studies of the relationship between central bank independence and economic performance. It begins by considering the methodological difficulties associated with attempts to measure the relative independence of different central banks, highlighting the implications for subsequent efforts to demonstrate a relationship between independence and economic outcomes. The econometric evidence for these relationships is then subjected to critical scrutiny, demonstrating its inadequacies and some contradictory findings in the existing literature. The issues of causality and the endogeneity of central bank independence are then examined in the light of the available evidence.

Indices of Central Bank Independence

Most of the studies that seek to demonstrate a link between central bank independence and improved inflation performance begin by attempting to quantify the degree of independence enjoyed by particular central banks as the basis for cross-country comparisons. This gives rise to a number of methodological problems. The most serious difficulty is that not all of the factors contributing to the independence of central banks are readily observable or quantifiable. Even those factors that are more easily observed and quantified require the exercise of considerable judgement as to their relative importance in contributing to a given bank's independence. Furthermore, the same factors that contribute to the independence of one central bank may be less important in contributing to the independence of another bank. We saw earlier that central bank independence is very much a relative rather than an absolute concept.

Despite these methodological difficulties, several authors have attempted to establish relative rankings of central banks along different dimensions of independence for the purposes of cross-country comparisons. To the extent that different authors using different methods can nevertheless manage to reach broadly similar conclusions about the relative rankings of a given set of central banks, we have a good basis on which to evaluate the effects of central bank independence on economic performance. Where these authors fail to agree on the relative independence of given central banks, we have reason to question any studies that depend on these rankings for their results.

Among the first authors to examine the issue of central bank independence were Parkin and Bade (1978). This original study has subsequently been revised (Parkin and Bade, 1988) and supplemented by a number of other authors (e.g. Alesina, 1988). Parkin and Bade immediately ran into the problem that there are many dimensions along which central banks may be independent, giving rise to a multiplicity of different combinations of institutional characteristics by which central banks can be differentiated (Parkin and Bade, 1988: 17). However, they were able to narrow these combinations down to manageable proportions by considering the characteristics of a small sample of 12 central banks from leading industrial countries. This sample suggested four main types of central bank independence along the dimension of policy formulation and four main types along the dimension of financial independence from government. Of these 16 possible combinations, as shown in Table 4.1 only seven were found to occur in practice:

Central banks are more independent the closer they are to the lower right corner of the table. In policy independence, which Chapter Two identified as the most significant aspect of central bank independence, we find Germany and Switzerland together with the highest ranking, followed by the US and Japan in the second grouping. Seven other industrialised countries are grouped third and Australia is singled out as the least independent of these central banks. These rankings were supplemented by Alesina (1988), who added Denmark and Norway to the second group and New Zealand (prior to the 1989 reforms) and Spain to the fourth group.

Grilli et al. (1991) distinguish between the political and economic independence of central banks. They composed two indices of central bank independence based on one or two points being assigned to each of the factors thought to contribute to political and economic independence. The results are shown in the following tables 4.2 and 4.3.

Table 4.1
Parkin and Bade's Central Bank Types

FinancialType/ Policy Type	1	2	3	4
1		Australia		
2		France Sweden	Belgium Canada Italy Netherlands	United Kingdom
3	Japan	United States		
4			Germany Switzerland	

Financial Types

1. Government approves budget, determines board members' salaries and profit allocation.
2. Bank determines budget allocation (and reports to government); government determines board members' salaries and profit allocation.
3. Bank determines budget and board members' salaries; profit allocation determined by statute.
4. Bank determines budget, board members' salaries and profit allocation.

Policy Types

1. Government is final policy authority, has official on bank board and appoints all board members.
2. Like 1, but no government official on bank board.
3. Bank is final policy authority but all board appointments made by government.
4. Bank is final policy authority and some board appointments made independently of government.

Table 4.2
Political Independence of Central Banks

	Appointments				Relationship with government		Constitution		Index
Countries	**1**	**2**	**3**	**4**	**5**	**6**	**7**	**8**	**9**
Australia		*					*	*	3
Austria						*	*	*	3
Belgium				*					1
Canada	*	*					*	*	4
Denmark		*				*	*		3
France		*		*					2
Germany		*		*	*	*	*	*	6
Greece			*					*	2
Ireland		*				*	*		3
Italy	*	*	*		*				4
Japan							*		1
Netherlands		*		*	*	*	*	*	6
New Zealand									0
Portugal					*				1
Spain				*	*				2
Switzerland		*			*	*	*	*	5
UK					*				1
US				*	*	*	*	*	5

Notes: 1. Governor not appointed by government; 2. Governor appointed for >5 years; 3. All the board not appointed by government; 4. Board appointed for >5 years; 5. No mandatory participation of government representative in the board; 6. No government approval of monetary policy formulation is required; 7. Statutory requirements that central bank pursues monetary stability amongst its goals; 8. Legal provisions that strengthen the central bank's position in conflicts with the government are present; 9. Overall index of political independence.

Table 4.3
Economic Independence of Central Banks

	Money financing of budget deficit					Monetary instruments		Index
Countries	**1**	**2**	**3**	**4**	**5**	**6**	**7**	**8**
Australia	*	*	*	*	*	*		6
Austria			*	*	*	*	**	6
Belgium		*		*	*	*	**	6
Canada	*	*	*	*		*	**	7
Denmark		*			*	*	**	5
France				*	*	*	**	5
Germany	*	*	*	*	*	*	*	7
Greece				*		*		2
Ireland		*	*	*		*		4
Italy				*				1
Japan	*		*		*	*	*	5
Netherlands			*	*	*	*		4
New Zealand			*	*		*		3
Portugal				*		*		2
Spain			*	*		*	*	3
Switzerland		*	*	*	*	*	**	7
UK	*	*	*	*		*		5
US	*	*	*	*	*	*	*	7

Notes: 1. Direct credit facility: not automatic; 2. Direct credit facility: market interest rate; 3. Direct credit facility: temporary; 4. Direct credit facility: limited amount; 5. Central bank does not participate in primary market for public debt; 6. Discount rate set by central bank; 7. Banking supervision not entrusted to central bank (**) or not entrusted to the central bank alone (*); 8. Overall index of economic independence.

Plotting the two indices against each other shows that these two dimensions of independence are only weakly correlated, with countries scoring highly on one index not necessarily scoring well on the other. This led the authors to conclude that 'a ranking that pays attention to only one of the two dimensions can give rise to very misleading international comparisons' (Grilli et al., 1991: 370).

Several subsequent attempts to quantify central bank independence were based on the Parkin and Bade-Alesina and Grilli et al. indices. For example, Alesina and Summers (1993) developed an index based on the average of Alesina's (1988) supplementation of the Parkin and Bade index and the Grilli et al. index, which was then converted to a common scale based on Parkin and Bade.

By far the most sophisticated and ambitious attempt to measure the relative independence of different central banks has been undertaken by Cukierman (1992), who developed three main indicators of independence. The first is based on measures of legal independence similar to those employed by previous authors. The other two measures of independence are designed to measure the actual or behavioural independence of central banks as distinct from their notional legal independence. Cukierman is thus one of the few to have given quantitative expression to the behavioural dimension of central bank independence. The actual turnover of central bank governors per annum is used on the basis that turnover and independence above some threshold level are thought to be negatively related (1992: 369). This need not always be the case, however. For example, a very accommodative central bank governor is unlikely to be replaced by the government (Banaian et al., 1995).

The other measure of actual independence is based on the results of a questionnaire sent to specialists on monetary policy in the various central banks 'designed to identify factors that may induce divergences between the central bank charter and actual practice' (Cukierman, 1992: 370). Cukierman concedes that an 'obvious drawback of the questionnaire method is that it is, to some extent, based on the subjective judgement of qualified but different individuals at various central banks' (1992: 386). One might also argue that central bank officials have an incentive to overstate the degree of independence they enjoy from government, given that this has implications for the credibility of policy and their prestige relative to other policymaking authorities. A similar survey of knowledgeable and interested parties in the financial sector and government might yield different results. Nonetheless, as Cukierman argues, this approach 'is an efficient

Table 4.4
Cukierman's Indices of Central Bank Independence: Industrialised Countries

Legal Independence*		Questionnaire*		Governor's Turnover**	
Switzerland	0.68	Germany	1	Iceland	0.03
Germany	0.66	Italy	0.76	Netherlands	0.05
Austria	0.58	Finland	0.75	Italy	0.08
United States	0.51	Australia	0.73	Luxembourg	0.08
Greece	0.51	Denmark	0.7	Norway	0.08
Denmark	0.47	Luxembourg	0.67	Germany	0.1
Canada	0.46	France	0.65	UK	0.1
Turkey	0.44	UK	0.6	Canada	0.1
Netherlands	0.42	Belgium	0.53	United States	0.13
Ireland	0.39	Ireland	0.51	Belgium	0.13
Luxembourg	0.37	Turkey	0.48	Finland	0.13
Iceland	0.36			Switzerland	0.13
Mexico	0.36			France	0.15
UK	0.31			Ireland	0.15
Australia	0.31			New Zealand	0.15
France	0.28			Sweden	0.15
Finland	0.27			Japan	0.2
New Zealand	0.27			Spain	0.2
Sweden	0.27			Denmark	0.5
Italy	0.22				
Spain	0.21				
Belgium	0.19				
Japan	0.16				
Norway	0.14				

* ranked from 0 (least independent) to 1 (most independent)

** central bank governors' turnover per annum, 1950-89

method for discovering serious divergences between actual and legal independence' (1992: 386). The three main indices developed by Cukierman are presented in Table 4.4

Cukierman's rankings also differ from previous studies in more carefully weighting each of the various attributes that contribute to central bank independence. For example, the longer the notional term of the central bank governor, the greater the weight given to this measure in the index of legal independence (Cukierman, 1992: 373). The result is a more highly differentiated ranking of central bank independence. Cukierman also considered a much wider range of countries, including all the developed countries and up to 49 less developed countries (LDCs) in his study. Cukierman is thus able to make distinctions between the effects of central bank independence on economic performance in developed and developing countries (1992: 370-371).

With the exception of Cukierman's two behavioural proxies, all of these rankings of central bank independence are based on institutional rather than behavioural characteristics. In this monograph, we are primarily interested in the effects of different institutions on economic performance. As Grilli et al. note 'to assess the effect of institutional design on policy performance we need to keep institutions and behaviour as distinct as possible' (1991: 366). While behavioural variables have important implications for the independence of central banks, we are interested primarily in the effects of institutional parameters, not least because institutions have an important role in shaping behavioural variables through the incentives they generate for economic actors. Cukierman's two indices of behavioural independence also have some significant limitations. The questionnaire-based index omits a number of important industrialised countries, such as the US, while the governors' turnover index proxies for only a very narrow dimension of central bank independence and, as mentioned earlier, may give misleading results. For example, the turnover index ranks Denmark's central bank least independent among industrialised countries, despite the fact that it is widely considered to enjoy a substantial degree of independence. It should also be noted that the sample period for these studies predates the recent changes to the institutional frameworks of a number of central banks in the early 1990s, most notably in the case of New Zealand and France. They also predate recent experience with inflation targeting in a number of countries. The economic implications of the recent changes to central banking legislation in New Zealand are discussed in Chapter Six.

Before considering the effects of central bank independence on economic performance, it is important to compare the various indices of independence to see if they give consistent and meaningful results in ranking the relative independence of various central banks. This allows us to establish the extent to which there is a consensus on the relative independence of given central banks as the basis for empirical analysis of the effects of that independence on economic performance. Table 4.5 compares the rankings given to the central banks of a number of industrialised countries. In order to obtain more consistent rankings, only the countries contained in the study with the smallest sample, Grilli et al. (1991), are used. It should be noted that although these indices have been converted to Cukierman's 0-1 scale, the Parkin and Bade-Alesina index makes use of a more limited scale with only five rankings. Cukierman's behavioural indices are omitted because they do not contain a comparable sample of central banks.

Table 4.5
Comparative Rankings of Central Bank Independence by Author

Parkin & Bade-Alesina (1988)	Rank	Grilli et al. (1991)*	Rank	Cuklerman (Legal) (1992)	Rank
Germany	1	Germany	1	Switzerland	1
Switzerland	1	United States	2	Germany	2
United States	2	Switzerland	2	United States	3
Japan	2	Canada	3	Denmark	4
France	3	Netherlands	4	Canada	5
UK	3	Australia	5	Netherlands	6
Canada	3	Denmark	6	UK	7
Belgium	3	France	7	Australia	7
Denmark	3	Belgium	7	France	8
Netherlands	3	UK	8	New Zealand	9
Italy	4	Japan	8	Italy	10
Australia	5	Spain	9	Spain	11
New Zealand	5	Italy	9	Belgium	12
Spain	5	New Zealand	10	Japan	13

* Grilli et al. is the sum of the political and economic indices

Table 4.6
Independence Measures: Rank Correlation Matrix

	Parkin & Bade-Alesina (1988)	Grilli et al (1991)	Cukierman (1992) Legal	Cukierman (1992) Questionnaire
Parkin & Bade-Alesina (1988)	1			
Grilli et al. (1991)	0.71	1		
Cukierman (1992) legal	0.68	0.86	1	
Cukierman (1992) Questionnaire	0.64	0.76	0.45	1

The three indices consistently rank Germany, Switzerland and the United States as the three most independent central banks. However, there is little agreement in ranking the remaining banks, although those of Denmark, Canada and the Netherlands are consistently ranked highly. These results are in accord with the widely held perception that the central banks of Germany, Switzerland and the US enjoy a greater measure of independence than other central banks, although as we saw in Chapter Two, there is considerable debate about the real significance of the independence of the US Fed. Since these indices are constructed differently, they necessarily measure independence differently and so it is to be expected that they should give somewhat different results for some central banks. However, the significant differences shown in Table 4.5 illustrate the elastic and judgemental character of central bank independence, even when measured by relatively concrete institutional rather than behavioural criteria. Several other authors have made detailed criticisms of these indices, on matters of both fact and interpretation, demonstrating the difficulties associated with accurately quantifying these institutional characteristics (see e.g. Eijffinger and de Haan, 1995; Banaian et al., 1995). On the basis of these results, only the central banks of Germany, Switzerland and the US would seem to be unambiguously more independent than other central banks, with those of Germany and Switzerland commonly being regarded as more independent than the US Fed. The remaining central banks would seem to be insufficiently differentiated to produce reliable rankings of their relative independence, although the rank correlation matrix (Table 4.6) shows the measures of legal independence to be reasonably correlated.

Given these inconsistencies in the relative rankings of different central banks, we need to be extremely cautious in drawing conclu-

sions from studies that rely on these rankings for their results. Any correlation between independence and some aspect of economic performance may be spurious if it is based on an inaccurate or incomplete characterisation of the central bank's relative independence. One explanation for some of the results of marginal statistical significance examined in the following sections is that, below some threshold level of independence, central banks may be insufficiently differentiated in their relative independence to yield meaningful results about their effects on comparative economic performance. Only those central banks that are sufficiently differentiated by an unambiguously independent institutional framework, such as Germany, Switzerland and the US may support the expected relationships. This is consistent with our expectation, based on the institutional economics literature, that the greater the institutional differences, the more pronounced their impact should be on relative economic performance.

Central Bank Independence and Inflation

Having established an approximate basis for ranking the relative independence of different central banks, it is now possible to examine whether these institutional differences have implications for comparative economic performance. In so doing, we need to be mindful of the reservations highlighted in the previous section about the methodological difficulties in measuring central bank independence and the resulting inconsistencies in the ranking of different central banks. The principal claim made on behalf of central bank independence is that it results in lower rates of inflation. This claim is now widely accepted by policymakers and economists. This section examines this proposition based on evidence obtained from the most frequently cited studies of this relationship. The following section assesses the implications for real economic performance.

Using data for the period 1972-86, Parkin and Bade (1988) were able to establish that the German and Swiss central bank type was strongly significant in explaining inflation performance. They were not, however, able to establish similar results for the other central bank types (1988: 23-24). This result they attributed to the two factors that distinguish the German and Swiss central banks in the Parkin and Bade ranking: statutory provision of policy independence and the appointment of board members not being entirely controlled by the government (1988: 24). These results are consistent with the argument in the previous section, that central bank independence may only be effective

above some threshold level. The Parkin and Bade results suggest that this threshold is related to these two institutional characteristics.

Grilli et al. (1991) regressed their measures of central bank independence on cross-country differences in inflation rates for the period 1950-89 and various sub-periods. Statistically significant results were obtained for the index of economic independence for the entire period and for the 1970-79 and 1980-89 sub-periods, showing that independence was positively related to lower inflation. The index of political independence, however, gave similar results only for the period 1970-79 (1991: 372). Although all of the independence coefficients had the expected negative values for the whole period and for each of the decadal sub-periods, we can only draw firm conclusions about the negative effect of central bank independence on inflation in relation to the index of economic independence. The poor performance of the index of political independence is particularly surprising. The authors also regressed the fiscal deficit on the political variables and the combined index of central bank independence, with the result that independence was an insignificant determinant of the budget deficit (1991: 374). This result is contrary to the theory that an independent central bank should act as a break on deficit financing and the evidence presented by Parkin (1987) that was examined in Chapter Two. Although the Grilli et al. study has the virtue of controlling for political variables in determining inflation performance, the results are not nearly as strong as would be expected from the theoretical literature on central bank independence.

Alesina and Summers (1993) took the average of the Parkin and Bade-Alesina index and the sum of the two Grilli et al. indices and plotted it against cross-country measures of economic performance for the period 1955-88. They found a negative correlation between average inflation and inflation variability and their index of central bank independence. These graphs are interesting and suggestive, but as Alesina and Summers readily concede, 'our empirical procedure is extremely simple' (1993: 154), lacking appropriate statistical tests of significance. Despite being a widely cited study, such casual observation, similar to that employed by Parkin and Bade (1988) in drawing some of their conclusions, is far from giving definitive results. In particular, it fails to account for the numerous other factors that may contribute to a country's inflation performance.

Cukierman (1992) once again attempts the most sophisticated investigation of the correlation between his indices of central bank independence and inflation. Cukierman made use of all of the

industrialised countries and a large number of developing countries for which measures of independence could be constructed and a sample period covering 1950-89. Cukierman's dependent variable was the rate of depreciation in the real value of money. Cukierman begins by regressing this dependent variable on disaggregated measures of legal independence, with and without the governors' turnover variable, for all countries and for the developed and developing countries separately. Of the eight legal independence variables, only one was found to be individually statistically significant. The governors' turnover variable was significant. However, when the sample was divided into developed and developing countries, the turnover variable is found to be significant only in the developing countries. Cukierman plausibly attributes these disappointing results to the high level of correlation between the individual independence measures (1992: 419).

In an attempt to overcome this problem, Cukierman turns to an aggregate index of the legal independence variables. Cukierman also introduces a 'compliance' variable, defined as the ratio of governors' actual average term in office in a country/sub-period to the corresponding legal term of office (1992: 420). Cukierman's hypothesis is that the depreciation dependent variable is negatively related to compliance. The aggregate measure of legal independence was found to be of marginal significance for the developed countries, but insignificant for the developing countries and for all countries combined. The compliance measure is significant for the developing countries, as well as the combination of all countries. These results are consistent with the expectation that adherence to legal norms is stronger in developed than in developing countries, where informal practices fill the gap left by the absence of well developed legal rules (Cukierman, 1992: 421). It also strongly suggests that central bank independence is not a panacea for countries with poor inflation records as well as weak adherence to legal norms. These norms may have to be established before central bank independence can have the desired impact on inflation performance.

Cukierman repeated these regressions for the questionnaire-based measures of central bank independence. Only two of the seven questionnaire variables were found to be individually significant. The aggregate of the questionnaire variables is significant in the presence of the turnover variable, which is also individually significant. The addition of the aggregate index of the legal variables to the questionnaire variables does not produce statistically significant results. The questionnaire variables thus only add information in the presence of

the turnover variable (Cukierman, 1992: 426).

The key result of Cukierman's study is the marginally significant coefficient on the aggregate measure of legal independence for developed countries. As Goodhart has observed of these results, 'it is pretty feeble stuff on which to base a policy campaign [for greater central bank independence]' (1994b: 112). Thus, the most extensive and sophisticated examination of the effects of central bank independence on inflation yields disappointing results. Cukierman readily concedes that his results are not 'a final verdict on the issue' (1992: 430), but his expectation is clearly that these results can be improved in the direction of strengthening the association between central bank independence and lower inflation.

The evidence on the relationship between central bank independence and inflation performance is less than overwhelming. While the results are certainly suggestive of some correlation between central bank independence and improved inflation performance, they are far from being robust to the choice of sample period or alternative model specification. This may of course be attributable to the methodological difficulties highlighted earlier, rather than the absence of the expected relationships between independence and economic performance. These studies may be too ambitious in trying to make meaningful distinctions between such a large number of central banks, particularly in the case of Cukierman's indices. Where these studies do produce the expected relationships, they are often very sensitive to the numerical value of these indices (Schaling, 1995: 135), yet we have seen that attempts to give precise quantitative expression to central bank independence are fraught with difficulty.

Furthermore, most of these empirical studies omit consideration of the wide range of political and economic factors apart from central bank independence that may have an impact on inflation performance. The Grilli et al. study is one of the few to control for some of these factors and for the effects of European Monetary System membership. Most of the empirical studies give little or no consideration, except occasionally through choice of sample period, to the impact of different exchange rate regimes on the degree of control the central bank exercises over monetary policy. The sample period for some of these studies includes the Bretton Woods fixed exchange rate regime, under which only the US Fed could be considered to have a significant degree of control over domestic monetary policy. Only those studies that give separate consideration to the post-Bretton Woods period could be said to reliably test for the influence of central bank

independence on monetary policy. Johnson and Siklos (1994: 158), for example, found that central banks behaved differently in the post-Bretton Woods period, while Siklos (1994: 9) notes that the correlation between central bank independence and inflation performance is improved for this period. A number of countries currently peg their exchange rate to other currencies (e.g. Austria and the Netherlands to the Deutschmark) or follow some other exchange rate rule which limits the degree of central bank influence over the domestic money supply. Correcting for these omissions seems to improve the correlation between central bank independence and inflation performance.

Banaian et al. (1995) have gone some way to overcoming these problems, by adopting a more rigorous definition of central bank independence. In their work, they define only the central banks of Austria, Germany, Switzerland and the US as being independent, while controlling for a limited range of economic variables. These central banks have in common a substantial degree of freedom from government override in monetary policy formulation, which was identified in Chapter Two as the most significant aspect of central bank independence. Banaian et al. find that this way of measuring central bank independence significantly outperforms other measures as a statistically significant predictor of low inflation performance. A number of other studies have sought to control for the presence of corporatist political structures (which are thought to limit inflationary pressures from sectional interests), with the result that central bank independence remains a significant determinant of inflation performance (Havrilesky and Granto, 1993; Al-Marhubi and Willet, 1995). Whether similar results can be obtained from controlling for a broader range of political and economic variables remains to be seen. There would seem to be a strong case, however, for such studies to base their definition of independence on relatively strict criteria, such as freedom from government override in monetary policy formulation, which would entail comparing a smaller sample of independent central banks, with a larger sample of 'non-independent' (rather than a ranking of 'less independent') central banks.

A major methodological criticism of these studies is that central banks are often weighted as more independent to the extent that they have a mandate to focus on price stability. In Cukierman's study, for example:

> Central banks in which the only or main objective of policy (as specified in the charter) is price stability are classified as being more independent on this dimension than central

> banks with a number of objectives in addition to price stability. These banks are in turn classified as being more independent than banks with a large number of objectives or banks in whose charter price stability is not mentioned as an objective at all. This classification of the 'objectives' variable is designed to capture the legal mandate of the bank to single-mindedly pursue the objective of price stability. (One of the few central banks in which such an unequivocal legal mandate exists is the Bundesbank) (1992: 377).

Cukierman (1992: 433) also develops an inflation-weighted index of central bank independence, in which the various proxies for independence are assigned weights in proportion to their contribution to explaining variations in inflation. Where central bank independence is defined to include a price stability mandate, the finding that greater independence leads to lower inflation is already to some extent built into the definition of independence. This is obviously the case with Cukierman's inflation-weighted index, where the index is judged according to its ability to predict inflation performance. This makes it inappropriate for demonstrating any sort of correlation or causal relationship between central bank independence and inflation. However, the practice of defining a central bank as more independent if it has a price stability mandate is defensible to the extent that such a mandate does indeed contribute to independence and allows the central bank to better focus on inflation. A price stability mandate is widely considered to be an integral part of central bank independence. But the mutually reinforcing character of independence and a price stability mandate raises important issues about the direction of causality between independence and inflation and the potential endogeneity of central bank independence, issues that are addressed in a later section of this Chapter.

It should also be recalled from Chapter One that there is a difference between improved inflation performance and price stability which, strictly defined, entails an inflation rate of between zero and two percent. The ability of greater central bank independence to secure improved inflation performance relative to other countries is not the same as securing monetary stability, unless inflation is reduced to very low levels. The data in Table 1.2 (page 13) shows that inflation in Germany averaged 3.4 percent between 1960 and 1994. Indeed, in none of the decades since 1960 has German inflation averaged below the two percent inflation rate commonly regarded as consistent with a

regime of stable prices. This is despite the Bundesbank being widely regarded as the world's most independent central bank and the one most committed to price stability. Thus, while central bank independence might be conducive to lower rates of inflation, examination of the inflation data in Table 1.2 demonstrates that the more independent central banks have not been able to consistently support monetary stability more strictly defined. Critics of central banking have accordingly argued that if central bank independence is unable to secure monetary stability in a country like Germany, with the Bundesbank's high level of formal independence and a strong commitment to low inflation, then it is unlikely to work elsewhere either (see e.g. Dowd, 1994c: 56).

Central Bank Independence and Real Economic Performance

A consideration of the economic costs and benefits of central bank independence also requires examining its impact on real economic performance. Improved inflation performance via central bank independence is less desirable if it is secured at the expense of lower levels of output and employment. Grilli et al. (1991) were among the first to investigate the implications of greater central bank independence for the real economy. They were unable to find a statistically significant effect of their two indices of independence on the real growth rate of output or on the rate of unemployment. These results included consideration of their three additional political variables. Alesina and Summers (1993) were unable to find a relationship between their index of central bank independence and the average or the variance of real GNP growth. Cukierman et al. (1993) found that central bank independence had no effect on growth in the industrialised countries, but had a positive effect in the developing countries. This study has the virtue of controlling for a number of structural factors that are widely thought to influence growth rates. The common conclusion drawn by these authors on the basis of their cross-sectional studies is that 'having an independent central bank is almost like having a free lunch; there are benefits but no apparent costs in terms of macroeconomic performance' (Grilli et al., 1991: 375). These findings are more robust in terms of their statistical significance than those relating to the effects of central bank independence on inflation. But they are subject to the same reservations about the methodological difficulties inherent in any attempt to define and measure relative central bank independence and

relate such independence to economic performance. With the exception of the Cukierman et al. (1993) study, there is also a failure to control for other factors that might explain real economic performance.

There is conflicting evidence from cross-sectional studies about the implications of central bank independence for the inflation-output trade-off. The theory examined in Chapter Three would lead us to expect an improvement in the terms of inflation-output trade-off as a result of greater central bank independence, although this would depend on the trade-off not then being exploited opportunistically by the authorities, thereby undermining policy credibility. Froyen and Waud (1995) regress some of the previously examined indices of central bank independence on estimates of the inflation-output trade-off for a wide range of countries for the period 1948-1986. They found that greater central bank independence is associated with a significant improvement in the terms of the inflation-output trade-off for the industrialised countries, although no relationship was found in the case of the developing countries. However, we saw in Chapter Three that there is also a positive and statistically significant relationship between central bank independence as defined by Grilli et al. (1991) and the sacrifice ratio in recessions for the industrialised countries since 1962 (Fischer, 1995a). We also saw that similar results are obtained for comparisons of Germany and the US (Debelle and Fischer, 1994), Canada, New Zealand and Australia (Debelle, 1995) and by Posen (1994). These differing results can be explained by their different methodologies, but they also suggest that central bank independence can have significant real costs in the context of a disinflation. This is a disappointing result, because it is in a disinflation associated with a recession that the enhanced credibility from central bank independence should be most useful in limiting the costs of lost output and employment. However, it would appear that the credibility of the central bank is most strained when it is needed most, perhaps because of the growing expectation in a recession that the authorities will attempt to exploit whatever inflation-output trade-off is available to them. The evidence from New Zealand considered in the following Chapter also argues that there has been a significant output and employment cost associated with the introduction of central bank independence in that country.

These costs would seem to be attributable to a lack of credibility on the part of these central banks and their specific monetary policies. Chapter Three argued that there are considerable limitations on the ability of the authorities to precommit via legislation to a regime of

central bank independence and an anti-inflationary monetary policy. Central bank independence may thus be associated with significant costs in real economic performance to the extent that it represents an inadequate commitment technology that fails to significantly enhance the credibility of monetary policy. Consequently, there may be benefits for real economic performance from adopting more perfect forms of precommitment in the form of constitutional entrenchment of central bank independence and a price stability mandate.

Causality and the Endogeneity of Central Bank Independence

A serious difficulty with most of the studies purporting to show a correlation between central bank independence and lower inflation is that they typically do not establish the direction of causation. In particular, they do not take into account the possibility that higher inflation may undermine the independence of the central bank or that lower inflation might reinforce independence. Cukierman is an exception in recognising that 'a high rate of inflation is likely to result, at least after a while, in a lower level of independence for the central bank' (1992: 428). Persistently high inflation can be expected to damage the credibility and the authority of the central bank, regardless of its institutional framework. Also, higher inflation might lead to the replacement of the central bank governor, so that turnover in central bank governorship might be a symptom of inflation rather than a cause. This would render Cukierman's turnover index an inappropriate proxy for central bank independence. Cukierman (1992: 429) has established that, at least with respect to the governors' turnover independence proxy, there is a contemporaneous significant effect of independence on inflation. However, Cukierman also found two-way causality between inflation and governors' turnover. Cukierman concludes on the basis of these results that 'low central bank independence and [low] inflation reinforce each other' (1992: 430). While this is no doubt the case, it is not very helpful in forming a judgement about the relative importance of central bank independence in reinforcing low inflation. The fact that central bank independence and low inflation are, at least to some extent, jointly determined again suggests that central bank independence is not the panacea it is sometimes billed to be. The symbiotic relationship between central bank independence and inflation suggests that greater independence is likely to be most effective in consolidating existing gains in the direction of monetary stability and

preventing future departures from such stability. It is likely to be less effective in instituting monetary stability in the presence of high rates of inflation and in the absence of the ability to make credible commitments and a strong societal consensus that such stability is desirable. The role of greater central bank independence in halting hyperinflations in several countries in the interwar period, documented by Sargent (1993), would seem to depend on the latter two requirements.

This raises the more serious issue about the potential for 'joint endogeneity between economic outcomes and institutions' (Alesina and Summers, 1993: 159). In particular, we saw in Chapter Three that central bank independence may be an endogenous variable in countries where there is already a strong political, historical and cultural commitment to price stability. Giannini (1995: 233) notes that the debate over central bank independence tends to take anti-inflationary preferences for granted, yet it is the absence or subordination of these preferences that is the fundamental problem. These considerations might be thought to diminish the importance of institutions as determinants of economic outcomes. For example, Posen (1993) argues that independent central banking institutions reflect the clash of interests between pro- and anti-inflationary constituencies in society. It is this clash of interests and inflationary preferences in the democratic arena that determines both the relative independence of central banks and inflation outcomes. There is an 'ongoing market in the power and prospects of the institutions themselves ... democratic politics is by nature an ongoing process, interacting with, not settled by, institutions' (1993: 46). This might help explain the absence of a fixed relationship between central bank independence and economic performance, since both are implicated in this ongoing democratic political struggle (Posen, 1993: 47). Posen argues that interests delimit institutions and that institutions by themselves do not explain economic performance.

But this is to underestimate the extent of the interactions between institutions and interests. The fact that institutions are embedded in the interests and preferences of economic and political actors does not mean that these institutions do not also play an important role in shaping these interests and preferences. Otherwise, there would be no need for political conflict over institutions. Indeed, there would be little or no role for many important economic institutions if everything were continually up for grabs through the political process. Institutions play an important role in determining the domain of politics and thus the scope and incentives for distributional conflict. The fewer the

institutional constraints on the domain of politics, the more important such distributional conflict becomes. Part of the rationale for central bank independence is precisely to place limits on the scope for political conflict over inflation. We have seen that whether central bank independence can be successful in this regard depends on its ability to precommit the authorities and to minimise the implications of monetary policy for the real economy. This in turn depends on its ability to promote predictability in the future value of the monetary unit, something that is only possible in a given institutional context. The admittedly politically contingent nature of central bank independence means that it is only a partial 'institutional fix' to political conflict over inflation, but it is no less important for that. We have also seen that such independence can be made less politically contingent, through more robust forms of precommitment such as constitutional entrenchment, although this requires a degree of political consensus that would seem to imply at least a temporary abatement in, or a desire to subordinate, distributional conflict over inflation. A more complete institutional fix depends on more fundamental changes to prevailing monetary institutions and the monetary regime.

Posen's (1993) claims about the insignificance of institutions for economic outcomes are in fact contradicted by his own study. Posen seeks to show that both greater central bank independence and lower inflation are the result of the relative strength of opposition to inflation on the part of the financial sector in a given country. But he also argues that the strength of this opposition is determined by the characteristics of a country's banking system, the extent of the central bank's regulatory responsibilities for the financial sector, the degree of fractionalisation of a country's party system, and whether or not the country has a federal system of government. Yet these are all important economic and political institutions and, according to Posen, serve to determine the anti-inflationary preferences of the financial sector. All Posen has demonstrated is that a different set of institutions may contribute to improved inflation performance (and greater central bank independence) than is commonly supposed. Posen thus successfully demonstrates the role of institutions in either promoting or subordinating underlying anti-inflationary preferences and their subsequent role in giving material effect to these preferences.

Conclusion

This Chapter has evaluated the empirical evidence on the relationship

between central bank independence and economic performance. The methodological difficulties associated with measuring and quantifying central bank independence identified in Chapter Two were shown to give rise to some significant inconsistencies in ranking the relative independence of the central banks of the major industrialised countries. These inconsistencies are partly attributable to the inability to make meaningful distinctions between central banks below a threshold level of independence associated with freedom from government override. These difficulties show the need for caution in drawing conclusions from empirical studies that rely on these measures of central bank independence for their results. A number of significant shortcomings were identified in the existing literature in attempting to demonstrate a relationship between greater independence and superior inflation performance. The statistical significance of many of the empirical findings is low and insufficiently robust to choice of sample period or model specification. There is often a failure to control for other factors that may have a bearing on inflation outcomes, such as prevailing exchange rate regimes and the role of other political, economic and institutional variables. More importantly, existing attempts at central bank independence have failed to secure price stability strictly defined, given the commonly accepted definition of price stability as an inflation rate of between zero and two percent.

The cross sectional evidence on the relationship between central bank independence and real economic performance is mixed. Casual observation and more sophisticated econometric studies have been unable to demonstrate a relationship between real economic performance and greater central bank independence. However, more specific examinations of central bank independence in the context of disinflations suggest that there have been some significant costs in forgone output and employment from more independent central banking institutions. This is also suggested by the evidence obtained from the introduction of central bank independence in New Zealand examined in Chapter Six. There would appear to be a credibility problem with existing approaches to central bank independence stemming from inadequacies in the associated legislative commitment technologies. There may thus be benefits for economic performance associated with institutional arrangements that involve higher levels of precommitment, such as constitutional entrenchment of central bank independence and a price stability mandate.

There is also a major issue around the direction of causality between central bank independence and economic performance and

the potential joint endogeneity of economic outcomes and central banking institutions. Unfortunately, there is no way to completely separate out the effects of central bank independence from the many other factors that determine economic performance. We have seen that both central bank independence and the associated economic outcomes may be determined by more fundamental underlying political and economic interests and preferences. However, we have also seen that policymaking institutions nonetheless have an important role to play in determining the scope and incentives for political and distributional conflict. Central bank independence can be seen as an attempt to limit the scope for such conflict in the determination of monetary policy. Central bank independence is thus a partial institutional fix to the distributional conflict generated by the implications of monetary policy for the real economy and the distribution of income and wealth. The completeness of this fix will depend in part on the degree of precommitment embodied in these more independent central banking institutions.

Chapter Five

Central Bank Independence in Practice: The Reserve Bank of New Zealand

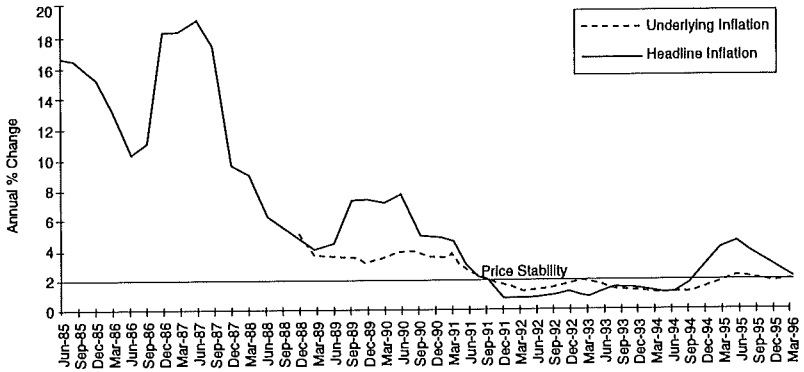
The Reserve Bank of New Zealand Act 1989 is the most ambitious of recent attempts to put the theories associated with central bank independence into practice. New Zealand was the first of several countries to reform its central bank legislation in recent years. The New Zealand reforms are also significant in being the only attempt to institute a form of performance contract that penalises the central bank governor for poor inflation performance. The Act thus seeks to establish positive institutional incentives for the RBNZ to secure low inflation outcomes. The New Zealand case highlights many of the problems associated with central bank independence that were identified in previous Chapters, in particular, the potential for conflict between the principles of central bank independence and accountability and the limits to establishing monetary policy credibility given imperfect commitment technology.

The RBNZ Act of 1989 was part of a much broader program of economic reform instituted in the mid-1980s. These reforms included extensive deregulation of the financial system, labour and products markets, reform of the public sector including widespread privatisation and corporatisation, tax reform and changes to the stance and processes for the determination of fiscal policy. As this Chapter will make clear, many of these reforms complement those made to the RBNZ Act, although there is debate over whether these reforms were instituted in the most appropriate sequence.

The Reserve Bank of New Zealand Act 1989

New Zealand experienced some of the highest rates of inflation in the OECD in the 1980s, along with some of the lowest rates of economic growth. Inflation in New Zealand averaged nearly 12 percent per annum between 1980 and 1989 (see Table 1.2). As part of the then government's wider program of economic reform, the New Zealand Parliament passed the Reserve Bank of New Zealand Act 1989, which came into effect in February 1990. According to the Finance Minister's 1988 Budget speech, in which the reform was announced, 'the Government's intention [was] to place the Reserve Bank on a more

Figure 5.1
Headline and Underlying Inflation



autonomous basis that will improve the medium term consistency of monetary policy [and] require the Reserve Bank to formulate and implement policies that make the maximum possible contribution to achieving and maintaining a stable general level of prices' (cited in Buckle and Stemp, 1989: 5). The RBNZ Act had been preceded in the mid-1980s by a change in the stance of monetary policy that 'was directed deliberately and explicitly at reducing inflation over the medium term' (Lloyd, 1992: 207). The Act was an attempt to give a stronger institutional framework to the continued conduct of this anti-inflationary monetary policy. The legislation was also preceded by the extensive deregulation of New Zealand's financial system. This included the floating of the New Zealand dollar, which gave the RBNZ greater control over domestic monetary policy.

The most significant change embodied in the new legislation was to the statutory objectives of the RBNZ. The previous 1964 legislation had stated that: 'For the purposes of this Act, the Minister may from time to time communicate to the Bank the monetary policy of the Government, which shall be directed towards the maintenance and promotion of economic and social welfare in New Zealand, having regard to the desirability of promoting the highest level of production and trade and full employment, and of maintaining a stable internal price level' (RBNZ Act, 1964: Section 8). The former Act thus provided for direct Ministerial control over monetary policy. The multiple and potentially conflicting statutory objectives meant that the Bank lacked a clear focus

for monetary policy and a firm bottom line against which its performance could be assessed. Accountability for the conduct of monetary policy and New Zealand's inflation performance suffered accordingly.

In its place, the 1989 legislation instituted a single statutory objective for the Bank. According to the new Act, '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' (RBNZ Act, 1989: 9). This statutory objective is qualified, however, by the crucial proviso that the Act would continue 'to recognise the Crown's right to determine economic policy' (RBNZ Act, 1989: 3). The Act permits the RBNZ to formulate and implement monetary policy, subject to the statutory price stability objective and a Policy Targets Agreement (PTA) negotiated between the Governor of the RBNZ and the Minister of Finance (RBNZ Act, 1989: 9-10). The PTA must include a specific policy target consistent with the price stability objective. The Act thus does not contain a formal definition of price stability. The Bank's operational definition of price stability is left open for negotiation with the government.

The Policy Targets Agreements that have been negotiated since the Act came into force have defined price stability as annual inflation of between zero and two percent, a definition which has also come to serve as the Bank's ongoing policy target (see the Appendix for the first and latest PTA texts). However, the most recent PTA negotiated with the new coalition government, and signed on 10 December 1996, has increased the target range by one percent, to zero to three percent. The new PTA also expands on the price stability objective, by requiring that the Bank maintain 'a stable general levels of prices, so that monetary policy can make its maximum contribution to sustainable economic growth, employment and development opportunities within the New Zealand economy.' While this may be seen as a watering down of the exclusive focus on price stability, Governor Brash has said that 'I reiterate my absolute commitment to continue operating monetary policy towards the goal of maintaining price stability ... Maintaining price stability is – as the new Policy Targets Agreement affirms – clearly the best contribution the Bank can make to the prosperity of all New Zealanders.'[1]

In setting monetary policy, the RBNZ now compares its inflation forecasts with the inflation rate target in the PTA to determine whether

[1] 'Inflation Outlook has Allowed Conditions to Ease,' RBNZ Press Release, 17 December 1996.

policy should be changed, and if so, in what direction. These Agreements have thus targeted the rate of inflation, rather than a given price level. This entails focusing on the underlying, rather than the 'headline,' rate of inflation. The PTAs negotiated since 1990 have made allowance for the headline rate of inflation to exceed the zero to two percent target range as a result of one-off increases in the general level of prices due to major supply shocks or as a result of significant changes in relative prices such as a shift in New Zealand's terms of trade. The PTAs have permitted the Bank to accommodate the first round effects of these shocks, on the grounds that fully offsetting them would result in economic costs in excess of the benefits from greater short-run price stability. Allowance is also made for the effects of the interest cost component of the CPI. This reflects the fact that a tightening of monetary policy can initially increase the inflation rate through the impact of higher interest rates. However, this distinction between the underlying and headline rate is not a precise one, and requires that the public is also able to make the distinction in order for policy to have the desired impact on inflationary expectations (Roger, 1994).

The RBNZ is not obliged to implement a government exchange rate directive which the Governor considers to be inconsistent with the statutory price stability objective. Where a government directive is inconsistent with the PTA, the Governor may request that a new agreement be negotiated and is absolved from meeting the existing target (RBNZ Act, 1989: 16). A new agreement must be negotiated if there is a change of Governor. A new PTA can also be negotiated if there is agreement between the Governor and the Minister to do so. However, the Act gives the government the power to override the statutory price stability objective by means of an Order in Council for a period of one year. The override can be renewed at the end of each year. The government can thus substitute a new economic objective, such as reducing unemployment, at any time, and renew this objective by Order in Council every twelve months. Where use of the override provision conflicts with the current PTA, it must be abandoned and a new one negotiated (RBNZ Act, 1989: 11-12).

The RBNZ's independence in the formulation of monetary policy is thus limited. The broad policy goal of price stability has been enshrined in legislation, while more specific policy targets are subject to negotiation with the government. The RBNZ's independence to pursue these goals has been enhanced to the extent that it now has the authority to publicly defy some government directives inconsistent

with its statutory mandate and its prior Agreement with the government. In all other respects, however, specific policy objectives are assigned to it in negotiation with the government and the statutory price stability objective is subject to government override. The Minister is in a controlling position in these negotiations, since the Governor can be removed for failure to reach agreement with the government over a Policy Target (Robertson, 1993: 86). The override provision effectively secures the government's ultimate authority over monetary policy and acts as a conflict resolution procedure in the event of serious disagreement between the government and the Bank. The override provision is viewed as a safety valve, designed to ensure the sustainability of the new legislative framework over the longer term (Hansen and Margaritis, 1993: 33). The override provision can also be used as an escape clause in the event of an economic shock not anticipated in the extant Policy Targets Agreement, which would make the maintenance of price stability excessively costly.

Accountability Under the New Act

The independence and accountability formula devised for the RBNZ is designed to conform with Westminster principles of democratic accountability. The doctrines of Parliamentary sovereignty and ministerial accountability are thought to place limits on the extent to which key aspects of economic policy can be surrendered to an independent policymaking authority. The Act's recognition of the government's final authority over economic policy requires that monetary policy should be part of the overall Westminster framework of accountability. The application of these Westminster principles ruled out the adoption of more thorough-going forms of central bank independence, such as the Bundesbank model, which is located within a very different constitutional framework. It is this compatibility with Westminster principles that has resulted in the New Zealand legislation being proposed as a model for creating a more independent Bank of England (see House of Commons, 1993; Roll, 1993). The Conservative government in the UK has used conflict with Westminster principles as one of its main arguments against greater independence for the Bank of England. In New Zealand, the new legislation is seen as striking the right balance between independence and accountability in the conduct of monetary policy. However, we will see in a subsequent section that the New Zealand approach also contains some potentially significant weaknesses in its ability to promote monetary policy credibility.

The Act instituted a number of measures designed to make the RBNZ more accountable to the government and the public for its performance. The Governor of the Bank is made personally responsible under the Act for the achievement of the PTA with the government (RBNZ Act, 1989: 25). The Board of the RBNZ has no policy-making function under the Act. Its role is to monitor the Bank and its Governor on behalf of the government. As Lloyd notes, this means that the Board 'acts as an agent of the government' (1992: 214) and ensures that responsibility for meeting policy targets is not diluted among central bank officials. The Minister can dismiss the Governor for failure to meet the PTA and the Board has the ability to recommend dismissal to the Minister on similar grounds (RBNZ Act, 1989: 28-30). The Governor is thus made deliberately vulnerable to removal from office for non-performance, which ensures the Bank's accountability to the Government, but which may also serve to compromise its independence. In formulating the new legislation, it had also been proposed to link the pay of senior officials of the Bank to their success in meeting the policy target. This was rejected, however, on the grounds that it would be politically untenable for RBNZ officials to be seen to be profiting from monetary policies that might be inflicting hardship on the rest of the community (Goodhart, 1994c: 1432).

The Act places no formal limitations on RBNZ financing of the government. However, the Bank's price stability mandate and PTA with the government are thought to be sufficient to constrain the Bank from being forced to monetise the government's budget deficits, thereby making such formal limitations redundant (Lloyd, 1992: 216). The government now also faces the additional constraint of the 1994 Fiscal Responsibility Act (FRA), which, inter alia, requires the government to maintain prudent debt levels and ensure that its operating expenses do not exceed its operating revenues over the medium to long term. The FRA was accompanied in 1994 by the first budget surplus in 16 years. The FRA is an important complement to the RBNZ Act, in that it reduces the scope for conflict between the fiscal and monetary authority, which might otherwise threaten the ability of the Bank to maintain a monetary policy focused on price stability. The government's willingness to partially precommit in relation to the future conduct of fiscal policy thus also helps secure the credibility of its commitment to a low inflation monetary policy. It should be noted, however, that the FRA contains no legal sanctions for a government that might seek to evade it and so relies heavily of the goodwill of the government of the day for its effective operation. It is thus a good deal

less constraining than the provisions of the RBNZ Act.

The Act provides for a fixed five-year funding agreement between the Government and the Bank that is subject to ratification by Parliament. This provides an institutional safeguard of the budgetary independence of the Bank and gives it a further anti-inflationary incentive (though not, it should be noted, an anti-deflationary one), since the agreement is fixed in nominal terms. The fixed funding agreement also ensures that the Bank does not have an inflationary bias through its revenue-generating activities. This funding agreement has seen an impressive reduction in Bank costs. The agreement set an upper limit to Bank expenditures of $NZ56.7 million. Actual operating expenses have fallen from $NZ56.2 million in the 12 months to March 1991 to $NZ38.6 million in the 12 months to June 1996. Staff numbers have fallen from 345 in 1991-92 to 290 in 1995-96.

Recent changes to the role of the RBNZ in supervising the banking system have also served to reduce any potential for conflict of interest between the Bank's role in promoting monetary and financial system stability. While New Zealand has never had formal deposit insurance arrangements, there has been a perception of an implicit government guarantee of bank deposits. The new supervisory arrangements beginning in 1996 have sought to minimise this perception of an implicit guarantee, by placing primary responsibility for prudential supervision on a regime of public disclosure by financial institutions and individual responsibility for assuming financial risks, a regime in which the Bank plays a very minimal role (Ledingham, 1995; Banking System Department, 1995). These reforms reduce the moral hazard problems that might otherwise be faced by New Zealand's financial institutions and enable the authorities to more easily resist public pressure for a bail out of an insolvent institution or to ease liquidity to prevent the failure of financial institutions. While New Zealand still complies with Basle Accord standards for the regulation of its financial system, it has adopted what is perhaps the world's least interventionist supervisory regime.

The Act requires the Bank to produce detailed, six monthly Monetary Policy Statements to explain the current stance and future direction of monetary policy. These public statements are automatically referred to the relevant select committee of Parliament for consideration. They serve to increase the transparency with which monetary policy is conducted and assist the public in understanding current policy developments and in anticipating the likely future course of monetary policy. The Act also subjects the Bank's operations

and finances to regular Parliamentary scrutiny.

Together, these measures are widely acknowledged to have made the RBNZ the world's most accountable central bank. The changes to the RBNZ Act are consistent with the wider public sector reforms that have been adopted in New Zealand, which have emphasised the need for greater transparency and accountability in public administration.

The Bank enjoys a greater degree of independence in pursuing its new statutory responsibilities and those objectives determined in negotiation with the government. However, its independence in the formulation of monetary policy is curtailed by the need to reach agreement with the Government on a target for policy, the government's ability to override the price stability mandate and the vulnerability of the Governor to removal from office. In making the Bank more accountable, the government has thus significantly constrained its independence. This is the product of the prevailing view that since monetary policy potentially involves making significant policy trade-offs between competing economic objectives, it should continue to be subject to overall political direction. As Lloyd argues in the context of the New Zealand legislation, 'the main trade-offs [in the conduct of monetary policy] are essentially political ones, and it is appropriate that they be made clearly at the political level' (1992: 210). The Act thus reflects 'a balance between explicit recognition that monetary policy is ultimately a government responsibility (rather than a responsibility of unelected officials), and the government's wish to constrain its own scope for monetary policy freedom in the future, and to thereby improve monetary policy credibility' (Lloyd, 1992: 211).

The Bank seeks to reduce these trade-offs by timely monetary policy action to preempt demand pressures that might have inflationary consequences (Mayes and Riches, 1995: 33). These trade-offs have not been entirely eliminated, however, as illustrated by the recent controversy in New Zealand over the tightness of monetary conditions, which has been blamed for slowing the economy's growth potential and which has resulted in an exchange rate appreciation that has fallen particularly hard on exporters.[2] The conflict between central bank independence and accountability has thus been resolved largely in favour of greater accountability, but supplemented by greater policy transparency and the enhancement of the Bank's ability to resist

[2] See, for example, 'No end in sight to the squeeze in NZ,' *Business Review Weekly*, 27 March 1995, p. 37; 'Critics abound in good times and bad,' *Financial Review*, 28 September 1995; and 'Tight Reserve Bank policy choking NZ economy,' *Financial Review*, 29 March 1996.

government demands at odds with its price stability mandate and its prior PTA with the government.

Strengths and Weaknesses of the New Framework

New Zealand embarked on an anti-inflationary monetary policy prior to the commencement of the new RBNZ Act in 1990 and so the Act gave legislative backing to policy commitments that were already in place. As Figure 5.1 shows, headline inflation in New Zealand had already fallen from around 16 percent at the end of 1987 to around seven percent by 1990. The key to the reform was the government's willingness to adopt a policy of price stability and then precommit itself to future adherence to that policy by delegating monetary responsibility to an independent central bank and introducing greater transparency in policy formulation and implementation.

The short-term macroeconomic benefits of inflation to the government have been reduced by ensuring that the public are better able to anticipate inflationary policy changes. As the Governor of the RBNZ has noted 'politicians have actually made it difficult for themselves to abandon or emasculate the price stability objective, by making any reversions very public. They have the right under the Act to change the policy targets agreement, but they have to do it in a totally public way' (Brash, 1992: 105). The level of precommitment to an anti-inflationary monetary policy has thus been enhanced, by making it politically and economically costly for the government to default on its commitment to price stability.

The new Act does not rely on giving greater policy independence to the central bank, except in so far as it has been given the ability to defy the government in specific instances of conflict over the achievement of pre-determined policy objectives, which would require the government to publicly override the Bank. Were the government not itself genuinely committed to price stability, it is difficult to see how an anti-inflationary monetary policy could be maintained, even in the presence of a statutory commitment to price stability. The government could negotiate a more generous PTA, invoke the override provision indefinitely, dismiss the Governor or change the Bank's legislative framework with a simple parliamentary majority. The strength of the New Zealand reform thus lies largely in the willingness of the current government to precommit itself to, and hold the Bank accountable for, a policy of price stability. The institutional design of the RBNZ Act facilitates this commitment, but by itself cannot guarantee it. The new

framework thus does not entirely alleviate the government's precommitment problem.

The greatest potential weakness of the reform lies in the paradox that the more apparently credible the government's commitment to price stability, the greater incentive the government has to default on this commitment to obtain the temporary macroeconomic benefits of a surprise inflation. Recognition of this incentive on the part of private economic agents may in turn undermine the credibility of this commitment, feeding into inflationary expectations. Surprise inflation has been made more difficult by greater policy transparency. However, the benefits of inflation to the government and other sectional interests have not been eliminated, particularly once inflexible wage and price contracts come to embody lower inflationary expectations.

Furthermore, the government can only precommit for the remainder of its term in office. It cannot make commitments on behalf of alternative governments that may subsequently assume power, although opposition parties can promise to uphold existing agreements and otherwise signal their policy intentions. The PTA between the Governor and the government was modified when there was a change in government in 1990, as a result of which the time frame for the achievement of the then policy target was extended by one year by the incoming National Party Government (RBNZ, 1991: 3), although this had also been signalled in the National's policy platform.

Inflationary expectations under these circumstances must have a limited time horizon. There is evidence that the duration of labour contracts in New Zealand has increased as a result of the combined effects of lower inflation and the Employment Contracts Act, but most collective employment agreements are still less than one year in duration (Fischer, 1993: 25). To the extent that the new Mixed Member Proportional (MMP) voting system in New Zealand results in unstable coalition or minority governments, the PTA between the Governor and the government of the day may not be a useful guide to future policy and have little impact on inflationary expectations. The discontinuities in the interaction between the public and policymakers introduced by elections also work against the establishment of a reputational equilibrium of the type suggested by Barro and Gordon (1983b) and examined earlier as a possible constraint on government behaviour. Inflationary expectations in New Zealand need to incorporate a significant likelihood of default on current policy on the part of current or future governments faced with different economic and political circumstances.

Conclusion

The success of the RBNZ Act in curbing inflation thus depends heavily on the continuation of the government's commitment to price stability. The government has made it more difficult for itself to abandon its commitment to price stability, but future governments could be expected to do so if it were found to be in their electoral interests. As the Governor of the RBNZ has himself noted, 'the system remains open to political reversal, and as such it is not a permanent rearrangement of the institutional structure for monetary management' (Brash, 1992: 106). The continued success of the new framework will thus depend in part on the sort of political pressures the New Zealand public brings to bear on its political leaders. However, it would appear that New Zealanders have learned through painful experience the costs of failing to maintain a regime of price stability. Moreover, a decade of thoroughgoing economic reform has resulted in a sea change in New Zealand public culture, in particular, the attitude of New Zealanders to government. This experience would suggest that New Zealanders now have lower inflationary preferences. The commitment of the government to price stability is thus underpinned by public support. New Zealand can perhaps be viewed as enjoying an implicit economic constitution, not unlike that which underpins the independence of the Bundesbank (Kennedy, 1991: 9). However, the anti-inflationary preferences of New Zealanders are subject to the same dynamic inconsistency problems that potentially confront the government and the RBNZ. The reforms to the RBNZ Act may be perceived differently at some future date. The most recent PTA has relaxed the inflation target and sought to place a stronger emphasis on the level of economic activity, although not at the expense of low inflation. This suggests the desirability of some more fundamental precommitment in relation to New Zealand's monetary and fiscal institutions, possibly including some form of constitutional entrenchment of existing reforms. Given recent political developments, however, this would seem to be highly unlikely.

Chapter Six

Economic Performance under the New Act

New Zealand is a potentially valuable source of data on the implications of central bank reform for economic performance. Most of the studies examined in Chapter Four made use of somewhat unreliable cross-country comparisons of central bank independence, a methodology we saw yields disappointing results. The New Zealand case, by contrast, enables us to examine the effects of institutional change on economic performance in a single country, eliminating the need for accurate cross-country quantification of central bank independence and ameliorating some of the endogeneity problem that was identified in previous Chapters. We will see that the evidence from New Zealand is consistent with the findings of Chapter Four. Central bank independence in New Zealand has yet to consistently secure monetary stability strictly defined and the inability of the Bank and government to make more complete commitments in relation to their future conduct has created difficulties in establishing monetary policy credibility and resulted in some costs to real economic performance.

Institutional Change and Economic Performance

Most of the studies that have sought to link central bank independence to improved economic performance have consisted of cross sectional studies. An alternative way of examining the implications of central bank independence for economic performance is to examine evidence from individual countries following the introduction of more independent central banking institutions. This approach avoids the problems associated with making accurate cross country comparisons of central bank independence. It also serves to ameliorate the endogeneity problem to the extent that we can distinguish effects on economic performance that cannot be explained by factors other than the new institutional framework.

However, there is still something of an endogeneity problem in the New Zealand case. As we have seen, New Zealand embarked on an anti-inflationary monetary policy from the mid-1980s, several years

prior to the introduction of the new Act. Given that these policies were already in place, it is difficult to determine which economic effects are attributable to the government's general economic policies and prevailing economic conditions and those that are solely attributable to the new institutional framework for the Reserve Bank. As Mayes and Riches note:

> the fall in inflation which was achieved cannot be attributed solely to monetary policy. Fiscal policy, which has an impact on wages, profit margins and consumption through demand channels, was also tightened over this period ... In addition, the program of liberalisation in the economy, which commenced in 1984 ... contributed directly to downward pressure on prices ... Labour laws were also changed substantially with the Employment Contracts Act ... and contributed to a substantial fall in inflationary pressures from the labour market (1995: 14).

However, we have seen that a monetary policy geared to price stability and inflation targeting are integral parts of the independence and accountability formula designed for the RBNZ. It is thus not unreasonable to attribute post-1990 economic performance at least in part to the operation of the new institutional framework for monetary policy, while at the same time attempting to account for the various other determinants of economic outcomes. It may also be possible to separate out econometrically the effects of the commencement of the new legislative framework.

Figures 6.1 to 6.7 graph New Zealand inflation, interest rates, economic growth and unemployment, as well as price-related expectations from the early 1980s onwards.[1] Figure 5.1 showed both headline and the underlying rate of inflation tracking downwards since the mid-1980s, but most notably since the commencement of the new legislation in early 1990. More recently, there has been a pronounced upward trend in inflation, with both the headline and underlying rate of inflation exceeding the Bank's zero to two percent target range since September 1994. The underlying rate of inflation exceeded two percent in the June quarter 1995 and again in the March quarter 1996. The June 1995 breach of the PTA was attributable to the CPI effects of the previous tightening of monetary policy and a sharp rise in vegetable prices due to the drought. It led to the Minister for Finance calling on the Board of the RBNZ to report on the performance of the

[1] All data have been supplied by the RBNZ.

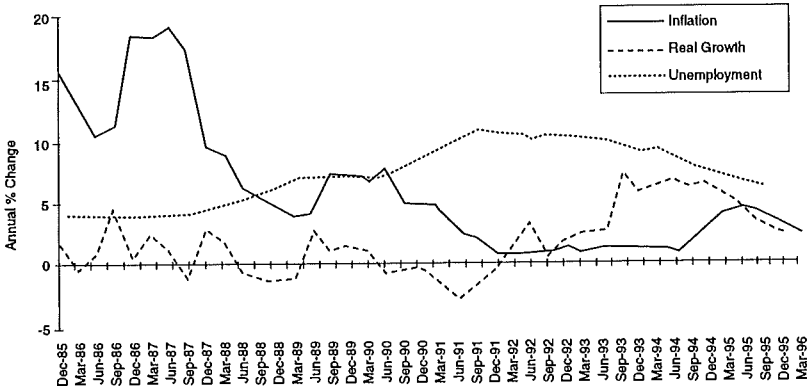
Governor of the Bank. The Board's report argued that the Bank had done its best under prevailing circumstances as a result of which no action was taken against the Governor. Some commentators have suggested that this episode may have even enhanced the Bank's and the government's credibility, by demonstrating 'how seriously they view the importance of price stability by treating a deviation, which would not cause any comment in most countries, as a matter of serious concern' (Mayes and Riches, 1995: 19-20). The Minister for Finance has sought a second report on the Governor's performance from the Board in relation to the most recent breach in March 1996.[2] Despite these recent breaches of the formal requirements for price stability under the then PTA, inflation continues to be consistently lower than in the period prior to the commencement of the new Act. Whereas inflation averaged 12 percent between 1980-89, since 1990 inflation has averaged only 2.3 percent, which is almost consistent with the RBNZ's operational definition of price stability as set out in various Policy Target Agreements, and is consistent with the most recent PTA's zero to three percent range. On the basis of inflation performance alone, the new framework for the conduct of monetary policy would appear to have been successful.

New Zealand's average growth performance has been the worst of any OECD country in the post-war period and in the period since 1984. However, since 1993, New Zealand's economic growth has been among the strongest in the OECD (Hall, 1995: 1). New Zealand was recently nominated as the world's third most competitive economy by the World Economic Forum's Global Competitiveness Report. The WEF nominated central bank reform as one of the factors that had contributed to this result.[3] Figure 6.1 shows that economic growth and the level of employment were weak in the disinflationary period immediately following the introduction of the new legislation, but have recently recovered strongly. An important implication of these indicators of real economic performance is the absence of substantial inflationary pressures in the years immediately following the introduction of the new Act, which would have assisted considerably in securing improved inflation outcomes. This would also serve to explain why a country like Australia, which also experienced a recession, but did not reform its monetary institutions, was also able to

[2] See 'March 1996 Underlying Inflation,' Press Release from the Rt Hon W.F. Birch, Minister of Finance, 17 April 1996.

[3] 'NZ new global economic star,' *Australian Financial Review*, 30 May 1996, p. 6.

Figure 6.1
Inflation, Growth and Unemployment Rates



enjoy similarly low rates of inflation. Inflation has trended upwards with economic growth in more recent years, contributing to the recent breaches of the PTA. It is thus plausible to attribute at least some of New Zealand's recent inflation performance to business cycle effects. Whether price stability can be maintained in the face of stronger economic growth over the next few years will be a key test of the new legislative framework in contributing to the maintenance of monetary stability over the longer term. New Zealand is not the only country with an inflation targeting regime that, after some initial success, is being tested by economic recovery. Inflation in both Sweden and Canada has recently exceeded the upper bounds of their target ranges as these economies have recovered from recession (Freeman and Willis, 1995: 5-6).

Figures 6.2 and 6.3 show nominal and *ex ante* real interest rates for 90 day bank bills, five and 10 year bonds. Interest rates are shown to have tracked downwards since 1990, consistent with a reduction in inflationary risk premia. More recently, however, interest rates have trended up as stronger economic growth and inflationary pressures have resulted in tighter monetary policy from the RBNZ. Moreover, in the following section, we will see that interest rates still embody inflationary expectations in excess of those that should be associated with a credible commitment to an inflation rate of two percent or less.

Figure 6.2
Nominal Interest Rates

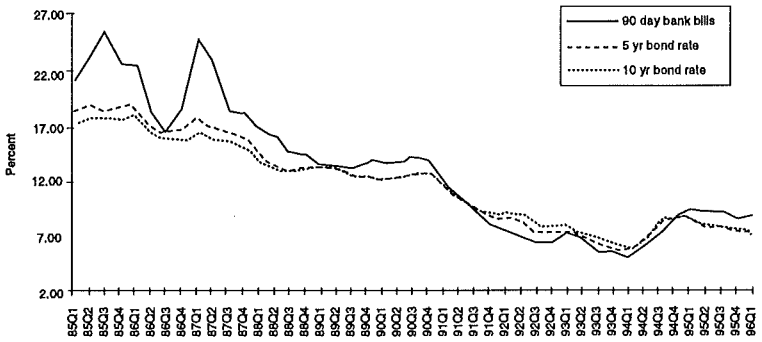
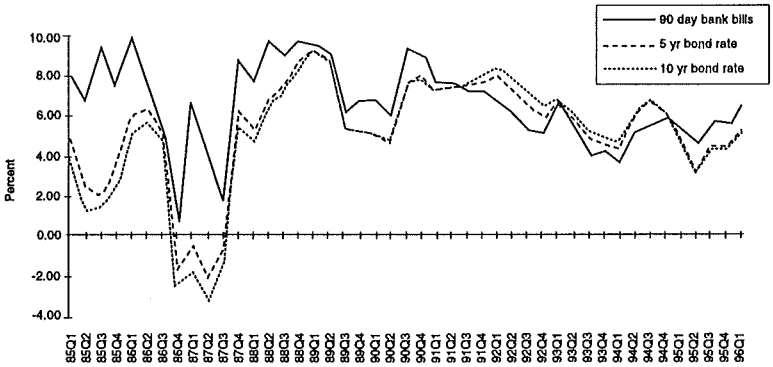


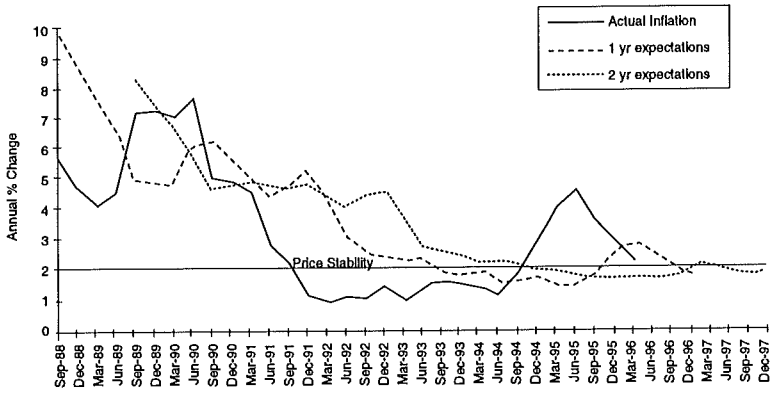
Figure 6.3
Ex Ante Real Interest Rates



Testing the Credibility of Monetary Policy

There are a number of ways of testing the credibility of the government's and the RBNZ's commitment to price stability under the new legislative framework. Figure 6.4 shows headline inflation compared to the one year and two year expectations for inflation outcomes. The figure shows that inflationary expectations have exceeded actual

Figure 6.4
Inflationary Expectations



inflation outcomes for much of the period since the adoption of the first PTA, suggesting that the RBNZ's announced target ranges for inflation were not immediately credible. Actual inflation outcomes did not fall in line with inflationary expectations until September 1994, just as the headline inflation rate began to rise again with economic recovery. Consequently, one year inflationary expectations have once again begun to exceed inflation outcomes and the previous PTA's two percent upper limit for inflation. Two year inflationary expectations have performed better, however, staying within the former PTA's zero to two percent target range.

Figure 6.5 shows the implied inflation forecast error, derived by subtracting lagged one year and two year inflationary expectations from headline inflation. The negative values since the second half of 1990 demonstrate that inflationary expectations have exceeded actual policy outcomes, especially for the December quarter 1991. Since 1994, there have been sharply positive values associated with the unexpected increase in headline inflation. The associated rise in inflationary expectations has seen the implied inflation forecast error return closer to zero more recently.

Figure 6.6 shows short term interest rates against lagged one year expectations for those rates. Again, interest rate expectations are shown to have exceeded actual interest rate outcomes for much of the period since late 1990. A more revealing test of the credibility of an

Figure 6.5
Implied Inflation Forecast Error

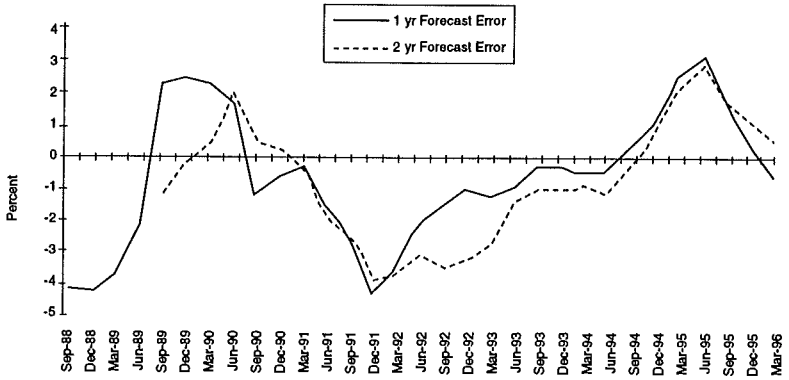
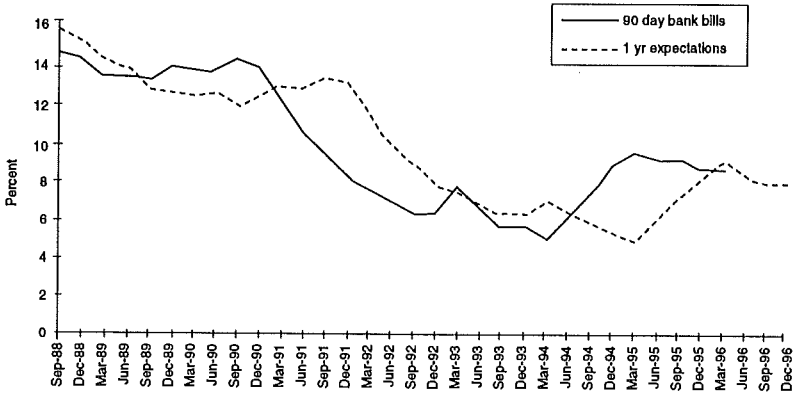
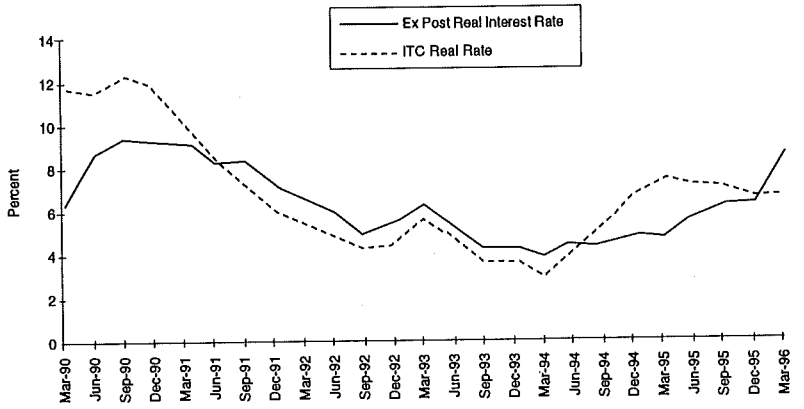


Figure 6.6
Short Term Interest Rate Expectations



inflation targeting regime using interest rates is suggested by Svensson (1993). Inflation target consistent (ITC) real interest rates can be derived by subtracting the upper bound of the inflation target from nominal interest rates. If the inflation target is credible, real *ex post* interest rates should not exceed this inflation target consistent real rate. Figure 6.7 shows the ITC real rate for 90 day bank bills, derived by subtracting the two percent upper bound for the RBNZ's inflation target under the previous PTA from the nominal rate. *Ex post* real interest

Figure 6.7
ITC and Ex Post Real Interest rates: 90 Day Bank Bills



rates are then derived by subtracting current inflation from 90 day bank bills lagged one quarter.

The graph shows that the *ex post* real interest rate has exceeded the ITC real rate for much of the period since the new targeting regime came into force. This test of the credibility of the RBNZ's monetary policy is somewhat excessive for the initial period of the new targeting regime, since under the terms of the first PTA, inflation was not scheduled to fall below two percent until the December quarter 1992. However, since the price stability target was met earlier than expected in the September quarter 1991, it is a reasonable and perhaps somewhat generous test for the period since then. This test does not account for the existence of a default risk premium built into interest rates, but since this premium can be assumed to be more or less constant, it should not distort these results.

Sacrifice Ratio Estimates

Evidence on the credibility of monetary policy under the new legislation can also be obtained through an examination of estimates for the sacrifice ratio. It will be recalled that the sacrifice ratio can be defined as the cumulative loss in aggregate real output divided by the fall in trend inflation. In an earlier Chapter, we saw that prior to the enactment of the new legislation, New Zealand enjoyed a relatively

low sacrifice ratio compared to other countries. Ball (1994b) has calculated sacrifice ratios for several disinflations in New Zealand, with the following results:

Table 6.1
Estimated Sacrifice Ratios for New Zealand (Ball)

Disinflation	Sacrifice Ratio
1971-72	0.5
1975-78	1.3
1980-83	0.2
1986-88	0.1

Comparison with the sacrifice ratios reported in Chapter Three show that these estimates for the pre-1990 period are relatively low compared to other countries. Data for the post-1990 period, however, show a marked increased in the sacrifice ratio. Debelle (1995) estimates sacrifice ratios for the two most recent disinflations in New Zealand, which show a sharp increase in the period since the commencement of the new legislation:

Table 6.2
Estimated Sacrifice Ratios for New Zealand (Debelle)

Disinflation	Sacrifice Ratio
1980:2-1983:4	0.3
1985:4-1993:1	1.2
1989:4-1993:1	2.6

While higher than those obtained for previous disinflations by Ball, Debelle's estimates have been criticised for being 'almost certainly

too low' for the period since 1986 (Hall, 1995: 22). Mayes and Chapple (1994:18) obtain estimates of the sacrifice ratio significantly higher than those obtained by Debelle. For the period 1986:1-1992:4, Mayes and Chapple estimate the sacrifice ratio at between 3.2 and 8.5, depending on the assumptions made in constructing the ratio. For the period 1990:2-1992:1, the first two years of the new legislation, they obtain an estimate of 4.7. Hall (1995: 19-22) compares the 'pre-reform' to the 'reform and beyond' periods in New Zealand, with the following results:

Table 6.3
Estimated Sacrifice Ratios for New Zealand (Hall)

Disinflation	Sacrifice Ratio
Pre-Reform Period 1980:4-1984:1	0.45
Reform and Beyond 1986:3-1992:4	7.67

The sharp difference in his estimates of the sacrifice ratio Hall attributes to the fact that inflation in the pre-reform period troughed at a high and unsustainable level (see Figure 6.1) and to the failure to introduce labour market reform in the early part of the post-1986 disinflation process, which would have otherwise contributed to more flexible wage outcomes. The increase in the sacrifice ratio thus may not be entirely attributable to a lack of policy credibility on the part of the new framework for the RBNZ, but to institutional rigidities in the New Zealand economy that have since been reduced. This has led to some criticism of the sequencing of reform in New Zealand. However, as Kasper (1996: 18-20) argues, successive governments were obliged to implement their reforms in the sequence that was politically feasible rather than that which was most economically desirable.

Nevertheless, these results are consistent with those obtained by Fischer (1995a) and Posen (1994) showing a positive correlation between indices of central bank independence and the magnitude of the sacrifice ratio for a wide range of countries. The data examined here suggests that the anti-inflationary monetary policy and central bank independence in New Zealand lacked immediate credibility, with

some serious short-term costs in terms of real economic performance. Of course, these measures do not take into account the future output gains from the maintenance of price stability and they ignore some of the other potential influences on real economic performance, such as the significant structural changes that have taken place in the New Zealand economy (Mayes and Chapple, 1994). Provided the new framework for the RBNZ is successful in continuing to keep inflation low, these costs need not be incurred again. However, the imperfect credibility of existing monetary arrangements implied by these results suggests that the Bank may have to adopt an overly restrictive monetary policy in order to keep inflation in check. This is evidenced by the recent controversy over the tightness of monetary conditions.[4]

Other Econometric Studies

Ammer and Freeman (1995) use a model based on New Zealand data from 1982 to 1990 to generate predictions for GDP growth, inflation and interest rates. These values are then used to simulate a path for these variables in the absence of the new framework for the RBNZ. The main result is that actual output fell more than five percent below the simulated path during the first two years of operation of the new Act, with the gap being eliminated by early 1994. This amounts to a cumulative shortfall in annual GDP of around 14 percent. Depending on the view taken of the relationship between inflation and economic growth, this high cost in forgone output is consistent with a lack of credibility in the conduct of monetary policy. Inflation was found to be well below the simulated growth path, but real interest rates were found to be above the simulated path until early 1993 and had again exceeded the simulated path by early 1994 (Ammer and Freeman, 1995: 176-178), suggesting continuing high inflationary expectations built into interest rates.

Fischer and Orr (1994) develop a model designed to explain the variation of price-related variables contained in the RBNZ's Survey of Economic Expectations. The explanatory variables include the difference between the RBNZ's inflation forecasts and inflation outcomes and a number of political-business cycle variables that influence price uncertainty. Also included as explanatory variables are dummy variables designed to capture the effect of the commencement of the

[4] See, for example, 'Tight Reserve Bank policy choking NZ economy,' *Australian Financial Review*, 29 March 1996.

RBNZ Act from 1990 and the first Policy Targets Agreement. The model was estimated for the period 1987-1992. The dummy variable for the commencement of the Act was found to be significant, indicating that the Act has contributed to a reduction in price uncertainty over and above the contribution made by the adoption of an anti-inflationary monetary policy from the mid-1980s. An election dummy variable was also found to be significant, however, suggesting that the new Act has not entirely eliminated election generated price uncertainty (1994: 170), although the authors conclude that 'the increased central bank independence inherent in the Act somewhat mitigat[ed] political and business cycle influences on inflation over time' (1994: 173-174). The Fischer and Orr study is particularly valuable in separating out the effects of the new legislation on price uncertainty. Although this uncertainty has clearly been reduced, the evidence from the expectations data and studies of the sacrifice ratio suggest a continuing problem in promoting monetary policy credibility.

Conclusion

The evidence examined in this Chapter argues that central bank independence in New Zealand has had the desired effect of reducing inflation to levels consistent with long term price stability and reducing price uncertainty. The evidence also suggests, however, that this reduction in inflation has been secured at a considerable cost in terms of forgone output and employment. Alternatively, depending on the view taken of the relationship between inflation and economic growth, the poor real performance of the New Zealand economy has contributed to the absence of substantial inflationary pressures. The view taken depends on the assumptions made about the fundamental determinants of inflation and economic growth. The evidence from the expectations and sacrifice ratio data argues that at least some of these costs have been incurred due to a lack of credibility on the part of the monetary policies implemented under the new arrangements. This lack of credibility may in turn be partly attributable to the inevitable uncertainties surrounding the operation of the new institutional framework. But it also suggests that the monetary authorities continue to face a dynamic inconsistency problem around their inability to credibly precommit to a long term policy of price stability. The political uncertainties and the necessarily short duration of the Policy Targets Agreements generated by the election cycle would explain some of this lack of credibility. This is consistent with the theoretical discussion in

Chapter Three, which argued that the limited amount of precommitment obtainable via legislative means and the reputational discontinuities introduced by elections may be inadequate to the task of securing the desired levels of policy credibility. Access to a superior commitment technology might have served to enhance the credibility of the monetary policy conducted under the new arrangements and resulted in a smaller cost in terms of forgone output and employment.

Chapter Seven

Conclusion

This monograph has evaluated proposals to afford central banks greater independence from government as a means of focusing monetary policy more consistently on monetary stability, while providing a framework for realising other macroeconomic policy goals. Central bank independence was assessed primarily by its ability to promote predictability in the future value of the monetary unit. This predictability criterion is based on fundamental economic and normative considerations in favour of monetary stability – in particular, the role played by the institution of money in providing a framework for economic and social decisionmaking, and in overcoming the transaction and coordination costs of economic exchange that would otherwise limit our ability to capture gains from trade.

Greater independence for central banks was found to both complement and conflict with public accountability in the conduct of monetary policy. Monetary policy has the capacity to affect the real economy, and thus the distribution of income and wealth, and presents the authorities with short term policy trade-offs between monetary stability and other macroeconomic policy goals. To the extent that monetary policy has these effects, it is necessarily implicated in the political process that determines who benefits and who loses from a given policy stance. This raises important normative issues about which authorities should be responsible for the determination of monetary policy, given that monetary policy potentially has widespread economic and political ramifications. Governments were shown to be reluctant to surrender their authority over monetary policy to an independent authority, since they are held accountable for the macroeconomic consequences of monetary policy, although greater independence for the central bank can serve to limit the extent of their accountability. Monetary policy has traditionally been seen by the authorities as an instrumental variable, to be used in a highly discretionary manner for the purposes of macroeconomic management.

At the same time, however, there is growing recognition on the part of the political authorities that surrendering some of their control over monetary policy to an independent central bank may have economic benefits, by increasing the credibility with which monetary policy can be directed to the goal of achieving and maintaining price

stability. This involves partially insulating the conduct of monetary policy from distributional conflict on the part of partisan and sectional interests. This monograph has shown that monetary policy can only be insulated from political considerations by ensuring that it has minimal consequences for the real economy. This requires that the central bank secure inflation outcomes that are predictable within a narrow range over the longer term and that its commitment to these outcomes should be highly credible in the eyes of the public. In New Zealand, this conflict has been resolved largely by elevating the goal of greater accountability above that of greater independence. However, as the recent controversy over tight monetary policy in New Zealand indicates, this conflict is far from being entirely eliminated. The ability of monetary policy to be neutral with respect to the real economy under central banking institutions is limited by the requirement that the real economy adjust to any monetary disturbance through changes in relative prices.

The credibility of the commitment of the monetary authorities to pursuing predictable inflation outcomes was shown to be limited by the dynamic inconsistency problems facing governments and their central banks. Central bank independence may help alleviate the government's dynamic inconsistency problem, by increasing the cost of its defaulting on its commitment to price stability via the mechanism of a price stability-focussed independent central bank, with its superior reputation-building ability. However, the prevailing legislative approach to central bank independence may not raise the costs of defaulting on a commitment to an anti-inflationary central bank sufficiently to make monetary policy credible in the eyes of the public. This will especially be the case if policy is successful in lowering inflationary expectations, increasing nominal rigidities in the economy and thus increasing the benefits from a surprise inflation, although greater central bank independence can also make such surprises more difficult, by increasing the transparency of policy through the need to publicly override the independence of the central bank. It also fails to resolve the dynamic inconsistency problems that face the central bank itself, given that it too may lack sufficient incentives to secure low inflation outcomes. These conclusions were supported by some empirical evidence that central banks whose independence is based on a legislative mandate appear to lack a 'credibility bonus' in their conduct of monetary policy.

These problems suggest at least two solutions. Central bank independence could be given constitutional status, to further raise the

costs to government of defaulting on their commitment to an independent central bank and its price stability mandate. The central bank could also be given additional anti-inflationary incentives, in the form of a performance contract that would penalise central bankers for their failure to secure preferred policy outcomes. This contractual approach is more likely to resolve the respective dynamic inconsistency problems of the government and the central bank at the constitutional level. It also raises some important issues around the question of the endogeneity of central bank independence. A constitutional commitment to an independent central bank and price stability would require a broad political consensus on its desirability. Such a broad consensus in favour of monetary stability might be thought to render such a constitutional commitment redundant. However, constitutional entrenchment may have a role in giving material effect to such a consensus and in preventing society itself from behaving in dynamically inconsistent ways with respect to its own institutions.

Having examined the theoretical underpinnings of central bank independence, we then considered some of the empirical evidence on the effects of greater central bank independence on economic performance. In particular, we questioned the claim that greater central bank independence can lead to improved inflation performance, without any costs to real economic performance. The literature on this question was found to be overly dependent on unreliable cross-country comparisons of the relative independence of different central banks. Only a small number of the world's central banks, notably those of the German-speaking countries, were found to be unambiguously more independent than those of the remaining industrialised countries. However, the principal studies of the effects of central bank independence on economic performance made use of a wide range of central banks that are poorly differentiated in terms of their relative independence.

The finding that greater central bank independence leads to improved inflation performance was shown to depend on results of marginal statistical significance. These results were also shown to be insufficiently robust to the choice of sample period or alternative model specification. There is also a general failure to take into account the many other economic and political factors that may influence inflation performance. This is suggested by the superior results obtained by those authors who have sought to make allowance for such factors as prevailing exchange rate regimes and the degree of corporatism in political arrangements. A stricter definition of central

bank independence was also found to enhance these results. This suggests that the weak statistical significance of some of these results may be a function of remediable methodological difficulties, rather than the absence of the supposed relationships between greater independence and improved economic performance. The widely accepted conclusion that greater central bank independence leads to improved inflation performance is, however, only weakly supported by the available empirical evidence. Moreover, there is an important difference between improved inflation performance relative to other countries, and long-term adherence to a regime of price stability. If price stability is defined strictly as an inflation rate of between zero and two percent, then not even the world's most independent central banks have consistently promoted a regime of stable prices in the post-war period, including the low inflation 1990s.

The prevailing view that central bank independence comes at little or no cost to real economic performance was also found to be overly dependent on the same unreliable cross country comparisons made in assessing the implications of greater independence for improved inflation performance. These results are also contradicted by studies which suggest that greater central bank independence can, in the context of a disinflation, result in the significant costs of forgone output and employment. In New Zealand, we find central bank independence associated with a significant improvement in inflationary performance. However, examination of expectations and sacrifice ratio data suggests that the RBNZ's conduct of monetary policy has been somewhat lacking in credibility. This lack of credibility may have been responsible for some significant costs to real economic performance

The role of different policymaking institutions in determining aspects of economic performance invites us to broaden our consideration of the range of institutional alternatives available for the conduct of monetary policy and the regulation of the monetary system. In particular, the finding that monetary policy may be best referred to the constitutional arena raises the question of whether the monetary system is an appropriate subject for political determination and whether it should be retained within the public sector at all. It suggests that we give consideration to whether the principal alternative to central banking institutions, free banking, might yield better monetary stability results and provide a more appropriate nominal framework for the real economy.

This possibility is also suggested by an examination of the historical record. Free banking had a successful track record up until

it came to be almost universally replaced by government currency monopolies administered by central banks (see e.g. Glasner, 1989). The replacement of free by central banking lacked any contemporary rationale in economic theory or practice other than meeting the exigencies of state finance (Smith, 1990). The subsequent development of central bank responsibilities for macroeconomic management and the stability of the financial system produced a number of *ex post* rationalisations of these developments. Once a more competitive monetary system was precluded by the advent of government currency monopolies, a process of institutional path dependence ensured that central banking institutions would come to predominate, regardless of their efficiency relative to the free banking alternative. Both monetary theory and practice came to be almost entirely predicated on these prevailing institutional realities.

Central bank institutions worked reasonably well while they were constrained by monetary regimes such as the gold standard. However, the demise of the gold standard, especially since the collapse of Bretton Woods, has increased the scope for central banks to abuse their monopoly powers and the discretionary conduct of policy has left it open to political influence on behalf of sectional interests, at the expense of the more general interest in price stability. The resulting high inflation of recent decades and poor economic performance more generally has prompted attempts to increase the independence of central banks and to limit their discretion through the adoption of formal and informal inflation targets and exchange rate regimes. However, as this monograph has demonstrated, there are limits on the extent to which these developments can better promote monetary stability and other macroeconomic policy goals. To be successful, central bank independence may require levels of policy commitment which the political authorities are reluctant to entertain.

Free banking's principal advantage over central banking is its ability to consistently promote monetary equilibrium, the equality between the supply of money and the demand to hold money balances (Selgin, 1988). The free banking literature argues that central banks face a fundamental epistemological problem that prevents them from promoting monetary equilibrium – they cannot reliably anticipate the future demand to hold money balances (Sechrest, 1993). Free banking, by contrast, because it is based on market mechanisms rather than centralised control, is able to coordinate the tacit economic knowledge necessary to promote monetary equilibrium. Under free banking, it is the banking system that adjusts to any monetary disturbance, leaving

the real economy unaffected. This is in contrast to central banking institutions, which are not only inherently prone to causing such disturbances, but require that the real economy adjust to any disturbance through changes in relative prices. Free banking thus eliminates monetary disequilibrium as a source of macroeconomic instability. While different models of free banking have different implications for the determination of the level of prices, they all ensure a high degree of predictability in the future value of the monetary unit and so meet our criterion for the evaluation of monetary systems and are consistent with monetary stability, broadly defined. The free banking approach to monetary stability suggests that the debate over the independence of central banks is somewhat misconceived. The fundamental issue is not whether central banks are appropriately motivated in their regulation of the money supply, although that is a legitimate cause for concern. It is that central banking institutions are simply unable to consistently promote monetary equilibrium and thus certainty in the monetary conditions surrounding economic exchange.

This leaves us with the question of the future of monetary reform. The current experiment with greater central bank independence has yet to run its course and may over time yield better results. However, this monograph has given reasons to believe that the existing approaches to central bank independence may be inadequate to the task of promoting monetary stability at little or no cost to real economic performance. At the same time, it must be conceded that so long as existing monetary institutions function tolerably well and the current low inflation environment continues, there is unlikely to be substantial impetus given to more fundamental reforms to existing monetary institutions.

Nonetheless, free banking institutions may be a logical progression from the existing concern with the independence of central banks, since free banking would resolve the political conflicts and dynamic inconsistency problems that are now widely recognised to affect central banks. A move to a free banking system requires only that the government allow free entry into the note-issue, payments and settlements businesses and remove other regulatory restrictions on financial institutions. The government could freeze the existing stock of government fiat money to act as a base money for this deregulated financial system and maintain its existing notes in circulation. This would eliminate many of the transitional uncertainties that might otherwise affect a move towards a more competitive monetary system. Free banking, far from requiring a massive leap into a new and

unknown world, could be allowed to evolve more or less spontaneously out of existing developments in monetary institutions.

There are also a number of trends in international financial markets and innovative payment technologies which suggest that a gradual shift to more competitive monetary institutions may already be under way. The deregulation and internationalisation of world financial markets has already resulted in greater competition between monetary and fiscal policy regimes in different countries and demonstrated the favourable implications of such competition for economic efficiency. The logic of these developments carries through to domestic financial markets and institutions and suggests the growing irrelevance of monetary sovereignty in the modern world.

Central bank currency monopolies are also being threatened by the incipient use of electronic money and commercial transactions over the Internet. The distinctive feature of electronic money is that it can be backed by any currency, combination of currencies or other valuable assets such as gold or industrially-useful commodities. Issuers of e-money are able to circumvent national boundaries and thus the jurisdiction of legal tender laws, reserve requirements and the compulsory use of central bank clearing accounts which creates the demand for central bank liabilities and is essential to the effective conduct of monetary policy by the central bank (Harper and Leslie, 1995: 27-28). They are in a position to create money in the same manner as existing commercial banks, but without the restrictions currently imposed by central banks on commercial banking institutions. Central banks face potential competition from the widespread use of electronic money and other substitutes for its liabilities, denominated in currencies or assets other than their own and thus the prospect of losing control of a significant proportion of the domestic money supply. A system of free banking may thus emerge spontaneously from existing developments in electronic payments systems, without any deliberate effort on the part of the authorities or anyone else to institute such a system. There would seem to be little the authorities could do to resist these developments, without massively reregulating financial markets and telecommunications systems. A more logical response would be to freeze the existing stock of government fiat money and allow free entry into currency issue and the provision of payments and settlements services. Even critics of free banking have conceded that such freedom of entry is essentially unobjectionable (see e.g. Meltzer, 1987: 217). This would secure all the benefits of free banking in promoting monetary stability and eliminating the effects of the nominal on the real

side of the economy, without the uncertainties of a massive, overnight reorientation of existing monetary and financial institutions that might otherwise be thought to accompany a move to free banking. The current debates over central bank independence may thus be a precursor to much more fundamental changes in the nature of monetary systems and monetary economics.

Appendix

POLICY TARGETS AGREEMENT
2 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 policies 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.

Donald T. Brash
Governor

David Caygill
Minister of Finance

POLICY TARGETS AGREEMENT
10 December 1996

This agreement is signed under section 9(4) of the Reserve Bank of New Zealand Act 1989 (the Act) by the Minister of Finance (the Minister) and the Governor of the Reserve Bank of New Zealand (the Governor). It replaces that signed on 16 December 1992.

In terms of section 9 of the Act, the Minister and the Governor agree as follows:

1. Price Stability Target

Consistent with section 8 of the Act and with the provisions of this agreement, the Reserve Bank shall formulate and implement monetary policy with the intention of maintaining a stable general level of prices, so that monetary policy can make its maximum contribution to sustainable economic growth, employment and development opportunities within the New Zealand economy.

2. Measurement of Price Stability

a) In pursuing the objective of a stable general level of prices, the Bank will monitor prices as measured by a range of price indices. The formal price stability target will be defined in terms of the All Groups Consumers Price Index (CPI), being the measure that is monitored most closely by the public.

b) For the purposes of this agreement, 12-monthly increases in the CPI of between 0 and 3 percent will be considered consistent with price stability.

3. Deviations from the Targets

a) There is a range of possible price shocks arising from external sources, certain government policy changes, or a natural crisis which are quite outside the direct influence of monetary policy. The Bank shall generally react to such shifts in relative prices in a manner which prevents general inflationary pressures emerging.

b) This approach means that the CPI inflation rate can be expected to move outside the 0 to 3 percent range in response to particular shocks. The principal shocks are considered to be:

- significant changes in the terms of trade arising from an increase or decrease in either import or export prices;
- an increase or decrease in the rate of GST, or a significant change

in other indirect tax rates:

- a crisis such as a natural disaster or a major disease-induced fall in livestock numbers which is expected to have a significant impact on the price level;
- a significant price level impact arising from changes to government or local authority levies; and
- a movement in interest rates that causes a significant divergence between the change in the CPI and the change in the CPI excluding the interest costs component.

c) In the event of such shocks, the Reserve Bank shall be fully accountable for its handling of the price effects, and, in particular, for any movements outside the 0 to 3 percent band. In each Policy Statement made under section 15 of the Act, the Bank shall detail fully its estimate of the direct price impact of any such shock and the impact on the Bank's achievement of the price stability target. The Bank shall also detail what measures it has taken, or proposes to take, to ensure that the effects of such shocks on the inflation rate are transitory.

4. Renegotiation of the Targets

The policy targets are established on the understanding that the monetary policy instruments available to the Bank are adequate to achieve the objective. The Governor shall inform the Minister if he considers that any changes in the availability or effectiveness of these policy instruments impair the conduct of monetary policy. The Minister and the Governor may then set new policy targets.

5. Implementation

a) The Bank shall implement monetary policy in a sustainable, consistent and transparent manner.

b) Each Policy Statement released by the Bank under section 15 of the Act shall contain a statement of how the Bank proposes to formulate and implement monetary policy to ensure that price stability is maintained over the succeeding five years.

Donald T. Brash
Governor

Bill Birch
Minister of Finance

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