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Central Bank Independence: Issues and Experience 1/

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Abstract

There has been growing interest recently in the scope for promoting monetary stability through the establishment of independent central banks. This paper reviews the issues involved in central bank independence against the background of arrangements in nine countries. The analysis suggests that detailed institutional arrangements would need to be carefully designed if the potential benefits of central bank independence are to be delivered. Particularly important are the nature of arrangements to resolve various types of conflicts involving monetary policy, and arrangements to promote accountability and public monitoring of monetary policy performance.

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1/ This is a revised and extended version of a paper circulated under the title "Central Bank Independence and Central Bank Functions." The earlier version was distributed for comment to members of the Working Group on the Design of Fund Policy Advice, and was used as a background paper for the International Monetary Fund's 1990 Central Banking Seminar. The paper is likely to be included in the published proceedings of this seminar. The authors would like to thank E. Aguirre-Carrillo, T.J.T. Baliño, A. Basu, A. Cukierman, J. Gautier, S.P. Leite, D.A. Scott and V. Sundararajan for helpful comments on the earlier version. Naturally, any remaining errors are the authors' responsibility. Detailed information on the nine surveyed countries is given in a supplement available from the authors on request.

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Summary

The theoretical rationale for central bank independence derives from the conviction that effective and efficient monetary policy depends on public trust in how monetary policy operates and in what it seeks to achieve, and that central bank independence can contribute importantly to establishing and maintaining such "credibility." However, empirical evidence to date, though suggestive, is less than conclusive in linking the degree of central bank independence with macroeconomic performance. The implication is that the exact nature of institutional arrangements to establish such independence has to be studied, taking into account the possible objectives and motivations of central banks themselves and the interaction with those of political leaders.

This paper discusses the concept of independence and the institutional arrangements needed in practice to bring about a desired degree of independence. Among these factors are the institutional process for determining monetary policy, including legal arrangements for the resolution of conflicts; the nature of objectives specified for the central bank, particularly those articulated in its statutes; accountability and public monitoring of monetary policy performance; the role of central bank boards; procedures for appointment and dismissal of central bank management and directors; rules governing the central bank budget; legal constraints on central bank funding of the government; and legal and institutional constraints affecting the use of monetary policy instruments.

The degree of independence may also be affected by other nonmonetary policy functions assumed by the central bank. These include management of exchange rates, international reserves, and public debt; lender-of-last-resort functions; prudential supervision; deposit insurance; and general financial regulation (for example, licensing). If there are conflicts between such functions and monetary policy, the independence of the central bank may require a reconsideration of the allocation.

The paper also notes that central bank independence by itself cannot guarantee monetary policy credibility, which depends ultimately on the credibility of economic policy as a whole. However, central bank independence may indirectly contribute to restraint in other policies.

I. Introduction

During the 1970s and early 1980s, important changes were made in the way a number of countries operated and presented monetary policy, involving, in particular, moves to explicit public targeting of key monetary variables. A major reason for such changes was recognition of the desirability of increasing monetary policy transparency, and hence "credibility", to achieve policy objectives more effectively and efficiently. Although the enthusiasm for public targeting has since waned considerably in several (though not all) of the central banks involved, it is interesting to note that a closely related concern appears to have been behind recently increased interest in examining the scope for greater monetary policy autonomy for the central bank. Chile and New Zealand enacted new legislation with this effect in the latter part of 1989, and a number of other countries in Latin America (including Argentina) and Eastern Europe (including Czechoslovakia and Poland) have been considering specific proposals. Furthermore, there have been calls for increased central bank autonomy in countries such as Australia, Italy and the United Kingdom. Finally, the moves toward European monetary union have brought forth proposals for an independent supra-national central banking system which require, in the view of some EMS members at least, a prior move to independent national central banks.

Such developments naturally raise fundamental questions about the appropriate relationship between central banks and governments. The last few years have seen a growing volume of literature suggesting on conceptual, and to a lesser extent empirical, grounds that independent central banks may promote improved longer-run inflation performance. But there are relatively few discussions of the issues involved in establishing such independence in practice. These are the issues on which the current paper focusses. The paper also considers how the allocation of certain nonmonetary policy functions to central banks may interact with monetary policy independence.

An initial brief comparison of arrangements in a relatively wide range of countries suggests that it may be more useful to think in terms of a tri-polar classification of the relationship between central banks and governments, rather than considering central bank independence in terms of a simple progression from least independent to most independent. In addition to the two "models" in which the central bank has, respectively, minimal or very substantial independence to make important policy decisions, the third "model" is one which has a particular form of conflict resolution procedure whereby the central bank has signifi-

cant policy autonomy but is subject to some form of government override, which, however, would be exercised publicly. 1/

The paper discusses the issues involved in central bank independence on the basis of a more detailed examination of arrangements in nine countries. Although the sample is relatively small, it nevertheless appears to adequately illustrate the three aforementioned broad approaches and the range of variation between them. 2/ The sample includes Chile and New Zealand because of their recent statutory amendments which are of interest in their own right, even though it is too soon to assess their practical effect. 3/ Two points about these countries are noteworthy. First, the changes to central banking legislation reflected a common perception that monetary policy had been misused in the past, and came in the wake of major stabilization and structural adjustment programs which had already succeeded in reducing inflation significantly. Second, while the changes in New Zealand immediately gained broad support across the political spectrum, we understand this was not initially the case in Chile: until specific appointments to the Central Bank's governing board were finalized, early amendments to the Chilean arrangements seemed a possibility after the then forthcoming election. This comparison of the range of political support raises the issue of longer-term sustainability of arrangements.

The structure of this paper is as follows. Section II provides a highly summarized review of the historical development of central banking and monetary policy as background for the rest of the discussion. Section III discusses the arguments and evidence for and against central bank independence in monetary policy, based on recent theoretical and empirical work in the professional literature. Section IV considers the dimensions of monetary policy independence in practice, based on the survey of arrangements in nine countries. Section V considers the relationship between monetary policy autonomy and other common functions of central banks, again with reference to arrangements in the surveyed countries. Finally, Section VI provides some concluding observations.

1/ Countries which can be considered to fall into this third broad category include Australia, Canada (after 1967), the Netherlands, New Zealand and, to some extent, Austria.

2/ For more extensive surveys, which however do not cover all the aspects examined in this paper, see especially Skanland (1984) and the 1980 report of the Wilson Committee in the United Kingdom. Detailed information on the countries surveyed in this paper is contained in a supplement available from the authors on request.

3/ Also, in the case of New Zealand in particular, there are several key differences with other existing arrangements. The other countries examined in this paper are France, Germany, Japan, the Netherlands, Switzerland, the United Kingdom and the United States.

II. Central Banking and Monetary Policy--A Brief Review

In considering the monetary policy role of central banks, it is useful to keep in mind the rather long history of central banking which, by some definitions, goes back to the second half of the 17th century. 1/ The original impetus to the development in Europe of the first real central banks seems to have come from two main sources. First, often under the pressure of the requirement to finance a war, governments began to realize that they could obtain important financial assistance and advantages in return for supporting a particular bank in various ways. Such favoritism, often supported by legislation, could involve either a private bank (as with the Bank of England (BoE) circa 1700) or a specially established state bank (such as the Prussian State Bank). 2/

The second and associated purpose for forming early central banks was to unify the note issue system, manage and protect the metallic reserve of the country, and improve the payments system. This was particularly the case for example in Germany, Italy, and Switzerland where the note issue systems were regionalized, and seen as costly and inefficient. Although broader economic benefits were seen in such moves--e.g., scale economies and increased confidence from the unification of the note issue--there were also clear political attractions, including particularly access to seigniorage revenue.

Through the first half of the 19th century at least, these two areas largely defined the role of the then existing central banks. Even up to the early 20th century, most economic analysis of central banking concentrated on the merits or otherwise of the note issue monopoly. What followed from these functions of early central banks seems to have been largely unrecognized by policymakers for some time.

Once central banking institutions existed with privileged legal positions as banker to the government (usually) and in currency issue, these institutions began to develop into "bankers' banks." Their position as monopoly supplier of currency and as the government's bank led to a concentration of the banking system's reserves at the central bank. This, in turn, enabled individual banks to call on the central bank for *temporary additional liquidity when required*.

Moreover, as a number of writers have noted, there were marked tendencies for quasi-central banking mechanisms to develop in countries without central banks as such, because of the advantages of a central

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1/ For a more detailed historical analysis of the development of central banking, see especially the very interesting study by Goodhart (1985), on which the following discussion is partly based.

2/ See Annex B to Goodhart (1985). On the Bank of England, see Santoni (1984) for a convenient summary.

source of reserves enabling commercial banks to economize on their own individual reserves holdings. In the United States, for example, clearing house associations and some large commercial banks used to provide these services for other banks. Private Parisian bankers established a separate institution to undertake similar functions in 1797, three years before the creation of the Banque de France with official prompting and support. 1/ This tendency suggests that government intervention to create a specific central bank, or to endow a pre-existing bank with monopoly currency issue and government banking privileges, may have served mainly to determine the particular form of central banking arrangement, including which institution would be the central bank, rather than whether there would be such an arrangement at all.

In any event, their position as the ultimate source of domestic liquidity for the banking system meant that central banks became increasingly tied to two closely related areas of broader concern--a more micro concern for the health of the banking system, and a more macro concern for the state of monetary conditions in the economy in general. Because of perceived conflicts between these broader concerns and their competitive commercial banking operations, central banks eventually had to move out of their former competitive activities and concentrate on the "true" central banking functions. With the BoE and the Banque de France (BdF), for example, this took place in the second half of the 19th century. 2/ For similar reasons, most of the central banks established in the 20th century were set up as entirely new and noncompetitive institutions (and where this was not the case initially, such as in Australia, a separate central bank was subsequently split off).

Only in relatively recent times has a distinctive monetary policy function been built onto the traditional functions of central banks. Specifically, discretionary monetary policy developed into a defining feature of modern central banking following the abandonment of guaranteed convertibility of national currencies into gold at fixed exchange rates. In the absence of an external standard of value, the key determinant of the exchange value of money (i.e., the price level) became the rate of expansion of money itself. Governments were thus faced with the need to manage their currency, to some extent at least, on a discretionary basis.

The idea that central banks should have independence from political influence also has rather deep historical roots and featured clearly in the discussions leading up to the establishment of many 20th century central banks. In the past, the concern was often that limits were

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1/ See, for example, Timberlake (1984), and Goodhart (1985).

2/ However, during the great depression of the 1930s, the Banque de France resumed some of its former commercial activities.

needed on the government's ability to fund itself through seigniorage. The more common contemporary interpretation of the problem is that the political leadership tends to take too short-term a view on the appropriate stance of monetary policy at any particular time: consequently, monetary policy tends to take on a stop-go nature, reflecting an excessive interest in shorter-term macroeconomic fine tuning. Therefore, according to this view, monetary stability is more likely to be achieved over time when monetary policy is in the hands of apolitical central bankers who can afford to take the longer view. However, as discussed in the following sections, there is much more to the issue of independence than this, even at the broadest conceptual levels.

Here, it would be useful to distinguish between different concepts related to central bank independence. In particular, a distinction needs to be drawn between the independence of the central bank in making monetary policy decisions, and the independence of monetary policy. 1/ Since the essence of the matter is the wish to promote a stable monetary environment over the longer term in order to achieve and maintain price stability, this could, in principle, be attained by insulating monetary policy from day-to-day political pressures through the relatively simple expedient of legislating some form of monetary policy "rule". In the past, the gold standard was just such a rule. In recent times, there have been numerous proposals for new types of monetary policy rules to be established, and the literature is extensive on the long-running "rules versus discretion" debate. Under a monetary policy rule, a central bank may or may not enjoy independence from political influence over its decision making. But even if it does have such institutional independence, its freedom to devise and implement its own view of a desirable monetary policy is heavily constrained by the rule.

In the absence of a monetary policy rule, central banks can be endowed with monetary policy independence in a fuller sense when they are both insulated from political pressures and have considerable discretion in the determination and operation of monetary policy, such as could be the case under a floating exchange rate regime. As the subsequent discussion should make clear, however, even in the situation

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1/ It could also be noted here that some writers prefer to use a different expression when referring to central bank independence. Hetzel (1990), for example, prefers to talk about central bank "autonomy", or "autonomy with discretion" because of the risk that "independence" could be taken to imply a lack of constraints. Similarly, Fair (1979) prefers to talk of "independence within Government", rather than "independence from government", and even equates this preferred concept of central bank independence with the provision of independent, professional advice by the central bank, possibly combined with the ability to publicize (or at least signal) a policy disagreement with government. This could perhaps be seen as a minimal desirable level of central bank independence.

where binding monetary policy rules do not apply, there may still be important issues about the extent of a central bank's discretion and how this relates to central bank independence. The central bank itself, for example, may choose to limit its own scope for future discretion by announcing public targets for monetary policy. In general, there is a wide middle ground between complete discretion and completely binding rules: public commitments to monetary targeting, or pegged but adjustable exchange rates such as under the exchange rate mechanism of the EMS, are but two examples of a range of possibilities in this middle ground. 1/

In designing a modern monetary policy arrangement that makes the maximum contribution to building or maintaining monetary policy credibility, two inherent complications in the policy environment need to be taken into account. First, no modern government appears willing to completely concede flexibility by committing itself to a fully binding monetary rule. 2/ Second, there will always be an element of difficulty in monitoring monetary policy performance, because the underlying monetary relationships are only imperfectly understood, do not work mechanically, can change over time (possibly quite sharply), and tend to involve long and variable lags between policy changes and final outcomes. "Noise," in other words, can make it difficult to independently distinguish the extent to which actual developments reflect shifts in policymakers' ultimate objectives, shifts in proximate policy targets or operating procedures without a shift in ultimate objectives, or policy formulation or interpretation errors which may or may not have been avoidable.

III. The Case for Monetary Policy Independence

1. Policy credibility

The conceptual case for central bank independence in monetary policy is based on the view that arrangements to increase the credibility of monetary policy could improve its effectiveness and efficiency. This view has been quite common in one form or another for some time, but it is only in recent years that the concept of policy

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1/ The range of possible regimes can be seen as different responses to the issue of how, and to what extent, the authorities should attempt to pre-commit themselves to achieving a stable future monetary environment.

2/ Nor should it, even on solely economic grounds, given the likely desirability of reacting to at least some unanticipated disturbances in terms of supply shocks or shifts in money-demand-type relationships. See, amongst others, Rogoff (1985). The burden of Rogoff's analysis, however, is that some form of more flexible monetary rule may still have much to offer in terms of promoting monetary stability.

credibility has been defined and analyzed in rigorous terms. 1/ A key feature of the new credibility literature is the explicit modelling of the motives of policymakers and the constraints they face in a world where the public forms expectations about policymakers' behavior and learns from experience. The value of this work is that it directs attention to the central importance of the actual and perceived objectives of monetary policymakers, and the mechanisms for establishing and protecting public trust in the operation of monetary policy.

Starting from the proposition that real output in the economy is invariant to anticipated inflation (and monetary growth) but increases temporarily with unanticipated inflation, it can be shown that when the policymaker has both inflation and employment/output goals, a "time inconsistency" problem arises for monetary policy. Specifically, although the policymaker may adopt an anti-inflationary monetary policy in one period, he has an incentive to reverse that policy at some stage in the future in order to engineer an inflation surprise and achieve short-term output and employment gains. Furthermore, if the private sector recognizes this time inconsistency, and if the policymaker cannot make a credible precommitment to a lasting anti-inflationary policy stance, a period of tight monetary policy (while it lasts) will make slower progress than otherwise in controlling inflation and, in particular, will involve higher real sector costs. The reason is that inflation risk premia will be incorporated into interest rates and price and wage decisions, and inflation expectations will decline only gradually as the credibility of the tight monetary policy regime increases relatively slowly. From a longer-term perspective, the economy would be seen to remain around the "natural rate" of output and employment with an inherent inflationary bias.

The conflict between a shorter-term economic stimulation motive and an inflation objective is perhaps the most common formulation of the time inconsistency problem in monetary policy, and is often associated with "political business cycle" models which assume an underlying re-election motive for the policymaker. However, similar credibility problems arise with other forms of conflicting motivations. In particular, an alternative model views the policymaker as "partisan" or "ideologically motivated," rather than (directly) "office motivated." 2/ Here, an essentially distributional objective is seen for monetary expansion due to attempts by the policymaker to deliver benefits to the particular constituencies whose interests he pursues. Some policymakers represent lower inflation constituencies, others higher inflation constituencies, and the balance between them in these models is variable and difficult for the private sector to discern.

1/ See, amongst others, Cukierman (1986) and Blackburn, and Christensen (1989) for surveys of the now extensive literature in this field.

2/ See Alesina (1988, 1989) for a review.

Moreover, a credibility/inflation bias problem also arises when the policymaker is seen to have a revenue motive for monetary expansion, perhaps associated with a wish to reduce the real government debt burden. 1/

Asymmetric information issues, such as the "noise" problems mentioned at the end of Section II, are at the heart of these monetary policy credibility problems, and closer examination of informational aspects offers further insights into the nature of the problem. 2/ A basic finding is that in many situations, policymakers may have strong incentives to conceal or misrepresent their private information (as to their real preferences, or perhaps as to their interpretation of underlying monetary processes and disturbances). One example is when the private sector is uncertain about the policymaker's "real" objectives--or, alternatively, his degree of commitment to stable monetary policy. This has been modelled in terms of the private sector's difficulty in distinguishing between a "Type I" policymaker, who is strongly anti-inflationary in his preferences and never seeks to create a surprise inflation; and a weaker "Type II" policymaker, who is tempted to create surprise inflations. Such models show that a Type II policymaker has a strong incentive to masquerade as a Type I. 3/ The problem for private agents is then to "extract information about the identity of a policymaker from observations of actual inflation that may reflect the dissembling actions of an imposter." (Blackburn and Christensen, op. cit.)

When inexactness in the monetary control process is taken into account, the scope and incentives for such "dissembling actions" are increased. From the point of view of the private sector, there is always some probability that a bout of higher inflation could be due to

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1/ See, amongst others, Cukierman (1990), which also contains two other interesting examples of somewhat analogous inflation-bias problems arising from conflicts in policymakers' perceived motives. One is the case where the monetary policymaker has an interest rate smoothing objective, perhaps derived from an underlying financial sector stability motive and concern about shorter-term bank profitability. (As Cukierman notes, interest rate smoothing is commonly seen as an accurate representation of U.S. Federal Reserve behavior.) The second is the case where the policymaker has a balance of payments objective which he attempts to achieve through devaluations, expectations of which are built into nominal wage and financial asset contracts. This problem is most likely to arise in small open economies with a high degree of unionization.

2/ See Canzoneri (1985), for example.

3/ The intuition is simple. A Type II policymaker's ability to achieve a surprise inflation is removed if he is recognized for what he is, with private agents accordingly building higher inflation expectations in to their behavior.

a control error on the part of a Type I policymaker, rather than a deliberate action by a Type II policymaker. A further dimension is added to the problem if the monetary policymaker can influence to some extent the degree of inexactness in the control process through his choice of operating procedures (e.g., Cukierman and Meltzer (1986), and Cukierman (1990)). In general, an element of inherent or engineered uncertainty about the monetary control process means that the private sector takes longer than otherwise to learn the nature of the policymaker, and this gives the policymaker a larger margin of flexibility to shift between objectives from time to time. Thus, a very important conclusion (to which we will return) is that a certain amount of ambiguity and/or secrecy in monetary policy may arise from rational optimizing behavior on the part of the policymaker if he wishes to maintain that degree of flexibility. Recognition of this leads the private sector to expend resources on "Fed watching", as it has been termed in the United States.

By the same token, however, a Type I policymaker wishing to increase his credibility might be expected to minimize unnecessary ambiguity and uncertainty and attempt to find methods of signalling his intentions, such as through pre-announcement of monetary policy targets. Cukierman (1990) contains an interesting analysis of this point and, inter alia suggests that a higher degree of precision in, and adherence to, such preannouncements of intentions is likely to exert "a moderating influence on monetary activism, monetary variability and.....the average level of inflation". He also suggests that, ceteris paribus, statements which emanate from a more independent central bank are likely to be more precise.

In the absence of fully binding precommitment, one type of potential solution to the credibility problem employs the concept of a "reputational equilibrium." A policymaker may be motivated to persist with a low inflation monetary policy if the costs of not doing so--damaged reputation, reflected in an upward revision of inflation expectations and an inflationary bias in the future--are sufficient to offset the short-term benefit of a surprise inflation. A slightly different concept of reputation involves a learning process for private agents, rather than (directly) a punishment mechanism for the policymaker, and sees the policymaker attempting to build up a reputation for consistency and determination in monetary policy over time. 1/ The policymaker reveals himself as willing and able to stay on the anti-inflationary course for a sufficiently long time, despite the costs, to

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1/ Cukierman (1990) gives a convenient comparison of these two concepts of reputation.

establish credibility. 1/ In this context, a different concept of credibility is often employed, with credibility defined as the speed with which private agents learn that a shift in the policymaker's preferences has occurred. 2/

The reputational solution, however, begs some important questions. For example, if monetary policy credibility has to be earned by bearing additional real sector costs until the private sector changes its perception of the policymaker's nature, what, if anything, can be done to hasten that process and reduce the costs? Additionally, since the private sector has to believe that the policymaker places a high weight on the cost of a damaged reputation, compared to the temporary gain from reneging on the anti-inflationary policy, what can be done to convince the private sector that this is indeed the case? And finally, what if the reputational considerations are not strong enough to constrain the policymaker (irrespective of whether or not the private sector believes them to be strong enough)?

Such questions lead to the consideration of different institutional arrangements which would hopefully be seen by the public as a more credible precommitment to anti-inflationary monetary policy, given that binding monetary rules are counted out. In some cases, fixing the exchange rate to a low inflation currency can make an important contribution, as suggested by the degree of convergence of inflation rates within the EMS over the last decade or so. But this only changes the nature of the credibility problem rather than eliminating it entirely. Given that the currency links are not irrevocable, attention still has to focus on the credibility of the particular peg chosen by the fixing country, and on essentially the same underlying financial policies. 3/ Moreover, the credibility of monetary policy in the anchor currency country also becomes central in the fixing country.

1/ In doing so, the policymaker may try to accelerate the reputation-building process by adopting measures which "signal" his real nature. If the preferences of a Type I policymaker differ sufficiently from those of a Type II policymaker, the former may be able to signal his real nature by setting a rate of inflation which is so low that no Type II policymaker would ever wish to mimic it. Here, the economy would experience an early recession in return for greater certainty and low inflation at the natural rate of output in the future. Other types of signalling might derive from the policymaker's actions in economic policy areas other than monetary policy itself.

2/ See, e.g., Cukierman and Meltzer, op cit.

3/ More formally, the authorities' apparent degree of commitment to maintaining the fixed exchange rate becomes the center of attention.

In light of this, and given that for many countries there may not be a suitable low inflation currency to peg to, 1/ the general case still suggests the value of considering other possible institutional arrangements. In particular, it might be possible to enhance credibility by ensuring that monetary policy is under the auspices of an independent authority that does not possess the same objectives and incentives as the political leadership.

The key issues, therefore, become how to convince the public that such an authority is in fact independent, does in fact have the appropriate objectives, and is in fact motivated to achieve those objectives. These are not straightforward issues, and the credibility literature itself does not give much guidance here. Some analyses have pointed to the importance of relatively long terms for central bank management and board members, 2/ but perhaps the best known specific suggestion comes from Rogoff (1985). He argues that a suitable institutional arrangement is to appoint a "conservative" individual to head an independent central bank--i.e., one with a stronger preference for low inflation than the society as a whole has. 3/ However, reliance on an individual is at best a tenuous basis for building monetary policy credibility. Such an individual has to first be identified and recruited; has to be recognized as "conservative" by the private sector; has to be able to maintain the force of his convictions in the face of numerous discussions, often behind the scenes, with politicians, government officials, interest groups and other members of the central bank; and so on. And if all these conditions happen to be met, what happens if this particular individual meets an untimely end? Friedman (1985) puts the issue succinctly:

> Sometimes .....[the] particular person in charge may make a major difference to the course of events ..... [but more] frequently, perhaps .....[the] person ostensibly in charge is like the rooster crowing at dawn. The course of events is decided by deeper and less visible forces that determine both the character of those nominally in charge and the pressures on them.

Consideration of more robust institutional arrangements to help build credibility forces an explicit consideration of the actual behavior of central banks. As discussed further in Section III.3 below, studies which have examined actual central bank behavior indicate that

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1/ That is, there may be no low inflation country with a sufficiently similar economic structure and subject to sufficiently similar types of shocks.

2/ See Waller (1989), for example.

3/ However, the individual cannot be "too conservative" given that, as Rogoff notes, there is a need to retain some flexibility to respond to certain unforeseen disturbances.

it cannot be automatically assumed that central banks, independent or otherwise, are motivated to consistently pursue low inflation monetary policy. It seems, therefore, that very careful consideration may need to be given to the exact nature of detailed institutional arrangements.

2. Empirical evidence

There is a limited amount of empirical work which directly tests and lends support to the notion that countries with more independent central banks tend to deliver better inflation outcomes, and also that they have smaller and less variable fiscal deficits. Probably the best known work here is described in a series of papers by Parkin and Bade. 1/ On the basis of relevant legislation, the authors construct a four-level classification of the independence of central banks in 12 of the major industrialized countries according to the relationship between the central bank and government in the formulation and operation of monetary policy, the procedures for appointing and dismissing central bank board members, and the financial relationship between the central bank and the government. Using data for the sample countries over the 1972-79 period, they then examine the correlation between the degree of independence and inflation performance; independence and inflation variability; and independence and the responsiveness of monetary policy to fiscal deficits, output declines, rises in inflation, and external deficits (as reflected in previous reaction function studies). They conclude that the average rate of inflation is significantly lower in countries that have highly independent central banks, and that there is, moreover, "some hint" of a monotonic relationship for the sample. They could not detect any relationship between independence and inflation variability, nor could they draw any conclusion about the implicit targets of monetary policy because the findings of the surveyed reaction function studies were too diverse.

Alesina (1988) uses the central bank classification from the Bade and Parkin work to show (not too surprisingly) the same result applying when two additional industrial countries are added and the inflation data is updated. Burdekin and Willett (1990) also compare inflation performance for a similarly extended group of countries for the 1960-89 period. Using an independence classification which differs somewhat from that used by Bade and Parkin, they find that the more independent central banks are, on average, associated with lower inflation rates both for the period as a whole, and decade by decade. Moreover, unlike Bade and Parkin, Burdekin and Willett also find some correlation between central bank independence and lower inflation variability.

Another attempt by Banaian, Laney and Willett (1983) uses data from 17 industrial countries for the 1960-89 period and regresses two inflation measures and nominal GNP growth against various explanatory

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1/ See, for example, Bade and Parkin (1980).

variables including a dummy to capture central bank independence. 1/ The independence dummy, which was set to one for Germany, Switzerland and the United States and zero otherwise, was found to be significant in each equation, with coefficients indicating that inflation was on average 4 percent a year lower in countries with independent central banks. A somewhat similar methodology is applied by Burdekin and Laney (1988) to examine the experience of 12 industrial countries over the period 1960-83. In this exercise, the independence dummy is set at one for the United States, Germany and Switzerland, as before, and also for Canada in the 1960-67 period. Again, the independence dummy is found to be significantly related to inflation performance.

Finally, Bodart (1990) presents some preliminary work constructing an index of central bank independence using a larger number of indicators than in the other work (although still based on legislated arrangements), and examining the correlation with inflation performance for 19 industrial countries and 20 developing countries over the 1973-89 period. His results are similar to those of Parkin and Bade for the industrial country group, but he finds no relationship between inflation performance and independence for the developing country group. However, for a reduced sample of developing countries (excluding some hyperinflation countries), Bodart examines the degree of deficit monetization, 2/ which he suggests, not entirely convincingly, can be considered as an indirect measure of central bank independence. He finds significant correlations with inflation performance.

In addition to these results, Banaian et al. and Burdekin and Laney also find evidence that countries with more independent central banks are associated with more restrained fiscal policy, a finding supported by Parkin (1987) and, to a limited extent, by Masciandero and Tabellini (1988). Parkin uses the central bank independence classification developed in his work with Bade, and examines the relationship with fiscal deficits over the period 1955-83 for the same 12 countries. He concludes that there are "surprisingly strong links," though noting that the relationship is not precise and there are anomalies. Masciandero and Tabellini discuss the concept of "fiscal dominance"--roughly the obverse of central bank independence--in five Pacific Basin countries over the 1970-85 period, or portions thereof. 3/ This is something of a break with previous measures of central bank independence because in

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1/ The other explanatory variables are a measure of fiscal deficits relative to savings, the degree of unionization, the ratio of imports to GDP as a proxy for foreign inflationary pressures, growth in real per capita incomes, and a Gini coefficient to measure income inequality. The last two variables are intended to capture an "aspirations gap" explanation for inflation.

2/ The relationship between central bank credit to government and the fiscal deficit.

3/ Australia, Canada, Japan, New Zealand and the United States.

addition to legislative arrangements affecting the degree of independence, their fiscal dominance concept includes "economic" aspects such as the involvement of the central bank in deficit financing, the tools of monetary policy that are regularly used and the nature and fiscal repercussions of regulatory controls on the financial system. They find some evidence in the most extreme cases to support the hypothesis that the extent of fiscal dominance is inversely related to the extent of restraint in fiscal policy, but for less extreme cases the evidence is "more ambiguous and harder to interpret."

While these results are suggestive and to many intuitively plausible, closer examination indicates that the evidence so far is less than compelling, as the authors themselves usually acknowledge. 1/ There are a number of more technical grounds on which one could question the reliability of the conclusions, 2/ but the main problems are twofold. First, there is a measurement problem. Formal legislative arrangements are not always a good indicator of actual independence--a number of less formal arrangements and practices may be more important, to the extent that the legislation does not impose some sort of structure on them. It has to be recognized that, irrespective of formal mechanisms, the political leadership often has a range of methods for exerting influence, irrespective of formal mechanisms, and the incentive to use them. As a result of this, perhaps, monetary policy outcomes are often seen to

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1/ There is also some indirect evidence drawn from studies of the end of past hyperinflations--see Blackburn and Christensen for a brief review. However, this work may say more about the value of monetary policy "rules" such as the gold standard, than central bank independence as such. Moreover, desirable arrangements for ending hyperinflations may not also apply to less extreme situations.

2/ For example, many of the studies rely only on rank correlations. This method is inherently less convincing as evidence of causality than an investigation of a more fully specified model of inflation determination would be. Yet the work which does attempt to examine a more fully specified model (Banaian et al. and Burdekin and Laney) does not produce particularly strong statistical results--the independence dummies are significant in the equations reported in these papers (though sometimes only at the 10 percent level), but the $\bar{R}^2$ statistics are only in the 0.2 to 0.5 range. Also, the (0,1) dummy used does not allow any examination of differing degrees of independence. With Bodart's work, there appear to be elements of "double-counting" in the construction of his independence index. In the case of the work by Bade and Parkin and subsequent work drawing on this, the independence of the Bank of Japan is considered to be in the second highest category, along with that of the U.S. Federal Reserve, a classification which seems rather hard to justify (see Section IV below). Burdekin and Willett and Bodart, however, correct this treatment.

depend critically on the particular personalities involved at the time. 1/

Second, there is also a causality problem. Rather than central bank independence leading to lower inflation and better fiscal policy, it may be that both are due to a third factor. For example, it might be argued that the German public's often quoted deep-seated fear of inflation has exerted a strong direct influence on the decisions of policymakers in that country, as well as being behind the creation of an independent Bundesbank. 2/

3. Complications and counterarguments

Although the analytical case for central bank independence is now on rather firmer ground than previously, and although there is some suggestive but not definitive evidence to support the case for central bank independence, the view that such independence is necessarily desirable is far from universal. At one level, the notion of unelected central bankers determining a major element of economic policy is sometimes seen as contrary to democratic principles. At a different level, the value of independent central banks may be questioned on the grounds that they may not actually deliver superior monetary policy outcomes. Friedman, for example, has suggested that, although not ideal, "ending the independence of the Fed by converting it into a bureau of the Treasury Department" would be a "great improvement over the existing situation." In addition, he proposes constraining base money by a no-growth rule. 3/

Although the "undemocratic" view is understandable, it is somewhat misdirected. It ignores the fact that no central bank is ever completely independent of government, if for no other reason than that the government, if it has sufficient political support, can always change the legislation granting independence. On a more day-to-day level, and as already noted, governments can always exert influence over the policies implemented by central banks, over the longer run at least, through a variety of formal and informal mechanisms. (This, however, raises more complex issues, which are discussed later.) A more helpful way of analyzing the independence issue is to ask what is a desirable degree of delegated responsibility for the central bank, and what are

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1/ Recall the earlier quotation from Friedman in this context, however.

2/ Burdekin and Willett, op. cit., refer to a 1988 paper by Ardo H. Hansson which suggests another interesting reason for the better inflation performances in Germany and Switzerland--namely, the presence of a significant number of "guest" workers, who tend to absorb part of the unemployment costs of disinflationary policies.

3/ Friedman, op. cit.

the desirable arrangements to establish it, recognizing that ultimate responsibility rests with the political leadership?

A more substantive variant of the "undemocratic" criticism has to do with possible conflicts between an independent central bank's monetary policy and other areas of economic policy, especially fiscal policy. Where such a conflict arises, some would say, it is inappropriate for monetary policy to be unyielding because the lack of coordination between the two policy areas causes its own problems. A related point in the analytical literature emphasizes that monetary policy credibility (in a broad sense) does not depend on monetary policy alone, but rather upon the government's macroeconomic program in its entirety. In particular, where fiscal policy involves a stream of large deficits while an independent central bank pursues tight monetary policy, the economic program as a whole is not credible because eventually either fiscal or monetary policy has to give way. As Blackburn and Christensen (op. cit.) explain, "it matters considerably for inflation which one of them does so," and, therefore, the coordination problems between monetary and fiscal policy "generate uncertainty for private agents and invite speculation over how and when the conflict between policymakers will be resolved."

A counter to this argument is that it may well be desirable for monetary policy to be independent, notwithstanding the potential costs of conflicts with other areas of policy, precisely because it makes transparent the costs of inappropriate policy in these other areas. For example, depending on the sensitivity of those responsible for fiscal policy to such visible costs, an independent monetary policy may have the advantage of providing a disciplinary check on other policies. As noted in Section III.2, there is some suggestive, but not conclusive evidence in support of this view.

The value of independent central banks may also be questioned on the grounds that they may not actually achieve superior monetary policy outcomes. Insofar as central banks have their own objectives and motivations, these might conflict with the appropriate stance of monetary policy. This is potentially a very important concern because, to the extent it is applicable, credibility and inflation-bias problems analogous to those hypothesized for elected policymakers would persist, albeit for rather different reasons. Examinations of central bank behavior suggest that there may be several aspects to be considered. A common thread in most such analyses, based on bureaucracy theory, is that a central bank's behavior is likely to be colored to some extent by a wish to avoid conflict with the groups that have the power to influence its status, together with a wish to maintain its autonomy and the scope for exercising its discretion. See, for example, Acheson and Chant (1973) for a discussion of this issue in the context of the Bank of Canada.

Consistent with this proposition, a number of studies of the United States Federal Reserve have argued that the Fed values its formal independence highly, and to protect that independence it responds to political pressures in an attempt to avoid alienating Congress or the Administration. In short, though it is usually considered one of the most independent central banks, the Fed's revealed or actual independence may be considerably less than commonly thought. See, amongst others, Weintraub (1978) and Auerbach (1985). 1/ Auerbach's conclusion, for example, based on an examination of the historical record from the Truman to the Reagan Administrations, was that in practice,

> ...[Federal Reserve] officials attempt to preserve its political power by such actions as following the monetary policies of the US President.

Even the Bundesbank is not immune from the implications of such an analysis. Frey and Schneider (1981) construct a "politico-economic" model postulating that although the central bank derives utility from keeping the price level stable, it also concentrates on keeping conflicts with government below a certain level. In the event of a serious conflict, the central bank follows the policy directions undertaken by the government, but with a time lag. The authors test this model against German data for the period 1957-77, with good results.

Such studies are a salutary reminder of political realities. Indeed, if supposedly independent central banks are in fact motivated to follow the monetary policy of the political leadership in a nontransparent fashion, central bank independence may not be much better than a lack of independence is purported to be. As argued by Auerbach and others, formal independence which in fact permits substantial back-door political influence on monetary policy is likely to assist the political leadership to escape responsibility and accountability for monetary policy because of the nontransparency of the actual relationships involved. Monetary policy may still take on a stop-go nature in response to changing political winds, but the pretence of central bank independence could mean that the attention of the public and its elected representatives would tend to be diverted from the medium-term performance of monetary policy so that it does not receive the analysis and review it deserves.

In addition, this sort of situation may cause the central bank to employ nontransparent and suboptimal implementation procedures, raising the same sort of problems as those associated with the dissembling

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1/ More generally, there is seen to be a continuing competition within the political system for control of the Fed. See, for example, Hetzel (1990) for a review of the historical experience of several central banks in this light.

elected policymaker discussed in Section III.1. It has been suggested that the tension between formal independence and actual but unacknowledged dependence may explain the Fed's well-documented preoccupation with secrecy and its "noisy" operating procedures (see amongst others, Cukierman, 1990, op. cit.). Similar conclusions for the Bank of Canada were obtained by Chant and Acheson (1972, 1973). In relation to the choice of instruments and operating procedures, they argue that the Bank of Canada's use of "covert" instruments and the maintenance of an "excessive battery" of instruments are explicable in terms of attempts to obfuscate and unnecessarily complicate their activities so as to make the task of performance monitoring more difficult and reduce the scope for outside interference. In short, to contribute to maintaining the Bank's prestige and autonomy. They also argue that the same motivation lies behind the tendency they see in published Bank of Canada material for the central bank to reduce expectations regarding its own performance, to rationalize its past activities as appropriate, to resist attempts to specify the desired "output" of the central bank, and to deny the efficacy of monetary policy in certain situations.

The tendency for a certain mystique and secretiveness to surround central banking has also been highlighted by a fascinating lawsuit brought against the U.S. Fed in 1975 under the Freedom of Information Act, which forced the Fed to publicly defend its (non-)disclosure policy. 1/ The Fed defended its secrecy on a number of grounds, the main one being that public disclosure of current monetary policy decisions would increase the variability of interest rates. The Fed's defence has been subsequently reviewed by various authors including Goodfriend (1986) and Tabellini (1987). Such authors have questioned the Fed's arguments both in terms of their intrinsic validity and accuracy, and from the broader perspective of the overall social costs and benefits of such secrecy.

1/ The case involved the Fed's policy of not releasing the minutes of its Federal Open Market Committee (FOMC) meetings until about six weeks after the event. When the complainant made his initial request for access to the minutes, the normal delay was about 90 days, but the Fed moved rather quickly to halve this. (Ironically, the FOMC minutes are thought to be rather uninformative anyway--see Cukierman and Meltzer, op. cit.). The U.S. District Court initially found in favor of the complainant, as did the Court of Appeals. The case was taken to the Supreme Court, then remanded to the District Court with certain instructions from the Supreme Court. Finally, six years after the initial request, the District Court ruled in favor of the Fed, essentially on the grounds that the Court was not qualified to overrule the Fed's judgement on a matter of economic theory. An interesting footnote to this episode is that at one stage in the process, the Fed simply stopped taking minutes at the FOMC meetings (Cukierman, 1990, op. cit.).

Central banks' monetary policy behavior has also been modelled by Toma (1982), who suggests that the fundamental reason why the Fed has apparently bowed to political pressures for monetary expansion from time to time may be that the Fed itself benefits financially from inflation. 1/ He examines two historical monetary policy agreements which are consistent with the hypothesis that the Fed conducts open market operations with "an awareness of their wealth transfer effects", and also finds some preliminary econometric evidence for an effect on Fed expenditures from Fed revenue/wealth.

The idea that central banks would deliberately soften monetary policy because of their own financial considerations is perhaps an unnecessarily conspiratorial view, although one could argue that financial considerations may enter the picture in certain marginal cases and perhaps more or less subconsciously. 2/ The more important consideration may be how the public--and politicians--would view a financial incentive structure for central banks which is inconsistent with a low inflation goal. Certainly, in general, it is better practice to reduce possible misalignment in the objectives of principals and agents by eliminating incompatible incentive structures.

The foregoing discussion suggests that for several reasons, there may indeed be a risk that the behavior of central banks themselves could give rise to problems of monetary policy credibility and inflation bias very similar to those which arise when one assumes an elected policymaker. One need not subscribe to a simplistic view of central bank self-interest to recognize this risk--there is ample evidence to indicate that it would be equally simplistic to assume central banks would always pursue low inflation in a least-cost manner. The implication is that the issue of how to establish institutional arrangements promoting monetary policy credibility is much more complex than simply giving a central bank formal independence in the formulation and operation of monetary policy. The details of these arrangements are potentially of fundamental importance as well.

Thus, a country considering the merits of creating an independent central bank would need to address two main questions. The first is,

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1/ The Fed's revenues come predominantly from interest on bonds purchased in the open market.

2/ A complication for this line of analysis is that in many cases central bank revenue exceeds expenditure by a rather comfortable margin, so that there may be little need for a financially motivated central bank to engineer additional monetary expansion in the short-to-medium term. However, in those cases where for one reason or another the financial position of the central bank is particularly weak--a position found in a number of countries outside the industrial country group--there may well be a bias built into the central bank's monetary policy behavior. See Vaez-Zadeh (1990).

what degree of formal independence ("delegated authority") is likely to be considered desirable and realistic by politicians and society in general in the country in question? Even if the credibility argument for central bank independence is accepted in principle, the desired degree of independence is likely to depend on a number of country-specific factors. We could speculate that such factors might include a country's inflation history, the nature of existing checks and balances in the political system, 1/ the level of public awareness and debate of economic issues, the state of development of financial markets, and so on. The second question is, given the intended degree of central bank independence, what are the detailed arrangements which will be needed to put that independence in place, including especially perhaps, the appropriate accountability, monitoring and conflict resolution arrangements? Section IV below examines the practice with respect to these questions.

IV. Dimensions of Monetary Policy Independence 2/

1. Formal monetary policy responsibility and conflict resolution

The central bank's duty to conduct policy at least in consultation with the political authorities is widely acknowledged, but within that, varying degrees of independence for the central bank are possible. At one extreme are central banks with a great deal of formal independence. The Bundesbank has the statutory responsibility to determine monetary policy, but also the obligation to support the general economic policy of the German Government to the extent that this is compatible with the Bank's statutory objectives (see below). This latter provision is fundamental to the Bundesbank's position. 3/ The Swiss National Bank (SNB) is constitutionally independent of the political authorities in its determination of monetary policy, but the SNB and the Swiss

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1/ In the context of political checks and balances, it is interesting to note that the three central banks usually considered most formally independent (i.e., those in Germany, Switzerland, and the United States) have been established in federal systems, where a wish to constrain the powers of the national government has played a central role in political history.

2/ The information in this Section and in Section V is drawn from a number of sources, including the relevant legislation in the surveyed countries and three general surveys--Fair (1979), Skanland (1984), and the United Kingdom Committee ("Wilson Committee") to Review the Functioning of Financial Institutions (1980). A number of other references on more specific subjects are noted in the text. Further country-specific detail on the central banking arrangements described in this and the following section is given in a supplement to this paper, available from the authors on request.

3/ Deutsche Bundesbank (1982), Gleske (1989).

Government are obliged to consult each other before implementing policies. In neither case is approval by the second party necessary. In practice, the SNB and the Government work together very closely.

At the other extreme, such formal independence is explicitly counted out in the legislation of some central banks. In such cases the central bank is the implementing agent for monetary policy and a key advisor, but it does not take the basic policy decisions. In France, for example, the Government, through the Ministry of the Economy, decides on the stance of monetary policy. In the United Kingdom, the Chancellor of the Exchequer is responsible for monetary policy, and the Treasury has the power (so far apparently unused) to issue formal but unpublished directives to the BoE. In practice, there is extensive consultation at officials' level between the Treasury and the BoE on all aspects of monetary policy. The Treasury will normally determine the overall thrust of monetary policy, and the BoE is charged with implementing it.

In between these extremes, the U.S. Federal Reserve Board (Fed) is explicitly independent of the Executive in determining and implementing monetary policy, but must report twice a year to the U.S. Congress. In practice, the Fed is in continuous contact with all policymaking bodies of the Government. Skanland's (1984) survey of central bank relationships with government notes that since the Fed's position is based on a delegation of the powers of Congress, Congress retains the right to instruct the Fed: in general, Congress has restrained itself in this respect but, according to this survey, has, on occasion, expressed itself in a form considered as being fairly close to a directive. In the Netherlands, the Government has the right to issue formal directives to the Netherlands Bank (henceforth NB) but the NB has the right of appeal to the Crown, which would require publication of a conflict of views if one still persisted at that stage. 1/ In practice, the NB has a high degree of independence in the determination of monetary policy (within the limits arising from membership in the EMS). In Japan, the Bank of Japan (BoJ) is given wide powers to formulate and operate monetary policy (formally vested in the Policy Board), and in practice, there is close cooperation with the Ministry of Finance on major policy issues. 2/ The Minister retains a directive power under the BoJ Legislation, but this has never been used. 3/

1/ Unless "contrary to the national interest"--see Eisenga (1983, 1987).

2/ Burdekin and Willet, op. cit., suggest that the reason that Japanese monetary policy has been less policitized than the formal legislative position of the BoJ would suggest is partly that the Finance Ministry's important role in monetary policy is combined with "an unusually autonomous position for that Ministry within the government bureaucracy."

3/ The current legislation was established in 1942.

Turning to the two countries with major recent changes in their central bank legislation, in Chile the Central Bank (BCC) has the authority to design, implement and operate monetary policy, but is required to take into account the general direction of government economic policy. There is no explicit Bundesbank-style limitation to this. The BCC also has a duty to advise the President of the Republic, on request, on matters relating to its functions. In New Zealand, the 1989 legislation gives the Reserve Bank of New Zealand (RBNZ) the responsibility for formulating and operating monetary policy, in line with published policy targets agreed between the Governor of the RBNZ and the Minister of Finance and directed toward the RBNZ's statutory objective of price stability. The Government has the right to override temporarily the RBNZ's statutory objective, or to negotiate revised policy targets, but such actions have to be made public. The RBNZ is required to consult with and give advice to the government and any other parties which it considers can assist it to achieve its statutory objective.

There is considerable variation in the openness of arrangements for the resolution of conflicts between the central bank and government. In terms of formal arrangements at least, such openness is irrelevant in countries with the least independent central banks. 1/ There are also no formal mechanisms for bringing policy conflicts out into the open in the surveyed countries which have the most independent central banks (Germany, Switzerland and the United States), although the Federal Government in Germany can request the Bundesbank to defer a decision for up to two weeks.

However, in a third group of countries, represented in this survey by the Netherlands and New Zealand, the legislation attempts to provide for transparency in the resolution of conflicts. Monetary policy is clearly seen as ultimately the prerogative of government, but the transparency arrangements are potentially a strong safeguard for the central bank and a disciplinary check on the government. As noted at the beginning of the paper, it is useful to consider this approach as an additional "model" of central bank-government relationships, rather than an intermediate step between central banks without formal independence and those with considerable formal independence. Central banks without formal independence in monetary policy, but with some autonomy in practice, may provide a relatively shaky foundation for policy credibility without such a safeguard. Over the longer run and in the absence of some other external constraint, such central banks are more

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1/ Even while implementing the government's desired monetary policy, however, a nonindependent central bank may still have some measure of freedom to publish a view on policy at variance with that of the government. Nevertheless, due to the political pressures likely to come to bear in such a situation, the central bank might normally be expected to deliver its message in a very guarded and probably indirect manner.

likely to be subject to undesirable political pressures as governments, ministers and governors change. In some circumstances, the transparent conflict resolution procedures could even be more sustainable over the longer term than a more extreme form of central bank independence, because they do acknowledge the ultimate responsibility of governments and provide a formal channel for them to influence policy directly.

An important issue arises from the observation that Governments in the Netherlands, and in other countries outside the survey with somewhat similar arrangements, have apparently never used their power to issue public directives to the central bank. 1/ A moot point is whether, or to what extent, this is because the formal mechanisms have actually been effective as a constraint on Governments during their day-to-day contacts and consultations with the central bank. As noted by Eisenga (op. cit.), mechanisms like that in the Netherlands certainly give strong incentives to both sides to resolve any conflict before an explicit directive is needed: the question is where the balance tends to lie in that resolution process. In the case of the Netherlands, the constraints associated with EMS membership may well shift the balance toward a lower-inflation resolution. In New Zealand, the requirement to publish negotiated policy targets, and supporting provisions, is intended to have a similar effect. Other countries, however, have neither of these mechanisms.

A related question arises in the case of the central banks with the highest degree of statutory independence--namely whether the banks actually have sufficient formal and practical independence to resist the government in the event of a conflict behind the scenes, so that transparent resolution mechanisms might not be seen as necessary. 2/ Or alternatively, might the influence of public opinion be sufficient to

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1/ In New Zealand, the equivalent of a policy directive from the Government would be the use of the provision to override the RBNZ's statutory price stability objective, or possibly a major government-initiated change in the negotiated policy targets. A change in previously negotiated policy targets did occur after a new Government came to power in New Zealand in late 1990, but the change was seen as relatively minor.

2/ In this context, it is worth noting again that a relevant consideration for a central bank may be the sustainability of the statutory framework under which it operates. The changes to the Bank of Canada's legislation in 1967, following a very public conflict in 1961, are a reminder of what can happen--see Fair (1979). In the United States, however, proposals to clip the Fed's wings arise regularly: the fact that to date such proposals have not been enacted may support the contention of Toma (1982) and others that the political leadership has an interest in maintaining the current arrangements because they allow it to influence monetary policy while escaping the corresponding responsibility.

impose a direct constraint on governments? A closer examination of other aspects of central banking arrangements, to the extent that these other aspects help to define the incentive and accountability structure under which monetary policy is operated, may shed some light on these issues.

2. Statutory objectives

In general, central banks which have less formal policy independence tend to have objectives which are more broadly defined in the statutes, covering a range of macroeconomic goals (RBNZ pre-1989), or making general references to promoting welfare (the BoE and BoJ), or defined in terms of means or functions, rather than ends (such as "regulating money and credit" for the BdF). 1/ Banks with greater formal independence tend to have a statutory macroeconomic objective with a somewhat narrower focus, emphasizing stability in the domestic and often also the external value of the currency (Germany, the Netherlands, New Zealand and Chile post-1989).

The central banks of Switzerland and the United States might, at first sight, appear to be exceptions to this generalization. Although its legislation includes an employment objective alongside internal and external currency stability, the SNB reportedly considers price stability as its special goal. Skanland (1984) suggests this is an important example of how other regulations or the historical development of institutional relationships can mean that a central bank is given more well-defined responsibilities than a broad statutory formulation of objectives would suggest. 2/ In the case of the Fed, a somewhat generous interpretation of the purpose stated in its legislation is that it approximates a longer-term price stability objective, but the legislation is clearly open to other interpretations in terms of day-to-day policy implementation. This is consistent with the view discussed earlier that the Fed is much less independent in practice than it is usually perceived to be.

The general tendency for more independent banks to have more narrowly defined objectives is what one would expect from conceptual analysis. There are several reasons. First, as the literature discussed earlier amply demonstrates, it is the public perception of risks of policy reversals-- i.e., of policymakers switching between different policy objectives--that weakens credibility in monetary policy and builds in an inflation bias. Multiple or unclear objectives do not, therefore, seem likely to be consistent with the desire for monetary

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1/ Naturally, more specific policy objectives may be defined in practice from time to time.

2/ Empirical evidence on the reaction function of the SNB appears consistent with this. See Burdekin (1987).

policy credibility, which is after all the basis of the argument for central bank independence.

Second, since monetary policy is essentially a single instrument, it cannot be simultaneously assigned to more than one target when there are likely to be conflicts between those targets (e.g., between growth/employment and price stability) in the short term at least.

Third, it is now widely accepted that active monetary policy manipulation cannot achieve sustainable, worthwhile aggregate real sector effects. However, a firm and stable monetary policy is a necessary condition for longer-term price stability. In short, therefore, monetary policy has a comparative advantage in achieving price stability relative to "real" economic objectives.

Fourth, central bank independence in monetary policy does not make much sense if the central bank has multiple macroeconomic objectives, such as growth/employment, balance of payments, or distribution, as well as stabilizing the value of the currency. In this case, different organs of government would then be pursuing different mixes of essentially the same group of objectives. Effective coordination and accountability would then seem to require the central bank to be firmly under government control.

Finally, multiple or unclear objectives would tend to reduce the transparency of monetary policy, and for this reason too, weaken the accountability of both the central bank and the political leadership. With multiple objectives, policy failure with respect to one objective can be too easily excused by reference to other objectives. Similarly, if the objectives are not clearly defined, those responsible for monetary policy cannot be effectively accountable.

An interesting question here is the extent to which the objectives of protecting both the internal and external purchasing power of the currency could be in conflict. As noted above, both of these aspects are covered in the statements of statutory objectives for a number of central banks, including some of the more independent ones. It is generally accepted nowadays that beyond the short term, the real exchange rate--like other real economic variables--is basically determined by factors other than domestic monetary conditions. To the extent that a particular nominal exchange rate is a target of policy, however, there may or may not be scope for important conflicts in the shorter term, depending on the nature of exchange rate arrangements. If the arrangement requires defence of a peg or target exchange rate level relative to a low inflation currency, the conflicts between internal and external purchasing power may be relatively minor; under a different arrangement, however, there may be more important conflicts. These arise because, inter alia, exchange rate interventions are likely to be of limited effect unless monetary policy is supportive (i.e. unless the

intervention is unsterilized). An important complicating factor here is that even with otherwise independent central banks, the major exchange rate policy decisions are almost invariably a matter for the government rather than the central bank alone. 1/

Thus, it is likely to be preferable for the central bank to concentrate on domestic price stability, within the limits imposed by exchange rate policy, rather than give the impression that its task is to meet the two potentially conflicting objectives of internal and external currency stability. This is recognized in the recent discussions of the establishment of an independent central bank for Europe, which concentrate on the price stability objective. 2/ However, as in the case of the SNB, a more narrowly defined responsibility may be generally recognized despite a somewhat broader statutory formulation. This seems to be the case also in both Germany and the Netherlands. For the Bundesbank, the primary task is clearly seen to be price stability. 3/ A 1978 agreement between the Bundesbank and the German Government is indicative--it allows the Bundesbank to "opt out" of supporting a particular exchange rate if it sees an important conflict with domestic monetary objectives. 4/ For the NB, stability of the external value of the currency receives relatively more weight, 5/ but exchange rate policy itself could be thought of, at least in part, as oriented toward domestic price stability, given the nature of the EMS arrangements.

The arguments above point to the desirability of a single, clearly defined price stability objective for an independent central bank's monetary policy rather than a mixture of macroeconomic objectives. 6/ It may be possible to get by with some mechanism other than a narrow statutory formulation for clearly and publicly establishing the

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1/ It has already become somewhat trite to observe that the limits of the Bundesbank's monetary policy independence were demonstrated by the determination of the rate of exchange used to form the German monetary union. Of the central banks surveyed here, the BCC appears to have the greatest degree of formal independence in exchange rate matters.

2/ See, e.g., Tietmeyer (1990).

3/ See Gleske (1989), Deutsche Bundesbank (1982).

4/ See Tietmeyer, op. cit.

5/ See Eisenga (1987).

6/ Interestingly, Burdekin and Willet, op. cit., find some evidence--admittedly weak--supporting this. They note that even less independent central banks tend to be associated with better inflation outcomes when price stability is explicitly mentioned in a statutory statement of objectives, and that inflation performance tends to be further strengthened if the price stability objective is not accompanied by an employment objective. However, they are unable to distinguish any effect from including an external purchasing power objective alongside domestic purchasing power.

objective at which monetary policy will be aimed. 1/ However, it would seem preferable for a single macroeconomic objective to be defined in the central bank's statute for maximum effect. This would be the case particularly for a country looking to make a break with past monetary policy and promote greater monetary policy credibility for the future, as opposed to one where the central bank already has a well-established reputation for monetary restraint.

3. Monetary policy accountability and monitoring

Defining clearly the objective of monetary policy goes only part way toward promoting increased monetary policy credibility. The public also has to have some degree of certainty that an independent central bank is in fact being motivated to achieve that objective. This requires that the public is able to adequately monitor the performance of monetary policy and, directly or indirectly, hold accountable those responsible for its formulation and implementation. 2/ Transparency in monetary policy itself, and also in the relationship between the central bank and the political leadership, is a precondition for effective accountability.

In general, and with the notable exception of New Zealand, the legislation of the surveyed central banks does not establish particularly strong accountability and monitoring mechanisms. In New Zealand, the legislation establishes arrangements which focus more on an individual, the Governor, than on the central bank as a whole. These arrangements are based on published policy targets to be achieved during the Governor's term of office, which are incorporated into what is essentially a performance contract agreed between the Governor and the Minister. The Governor is thus explicitly treated as an agent of the Minister, but with certain very specific and constrained delegated responsibilities. Formal monitoring of performance, relative to the policy targets and the RBNZ's statutory objective, is through the RBNZ's six-monthly "policy statements" to the Minister (tabled in Parliament) through its annual report to the Minister (also tabled in

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1/ In this context, it is worth noting that a recent U.S. Congressional resolution that Congress instruct the Fed to achieve price stability over a five-year period was intended to have this effect. It was publicly supported by some Fed officials on that basis. See Black (1990) and Parry (1990). There are antecedents in the academic literature of course--see, e.g., Hetzel (1985).

2/ Burdekin and Willet, op. cit., make this point in connection with the proposal for a specific inflation target for the Fed.

Parliament); 1/ through the Bank's Board; and through a wide-ranging external "performance audit" which the Minister can arrange from time to time.

For the BoE and the BdF, with no formal independence, a lack of strong accountability mechanisms for the Banks themselves in relation to the direction of monetary policy is perhaps not surprising. There is no doubt that the relevant Minister, and the Government as a whole, bears responsibility for formulation and implementation of monetary policy, and parliamentary review proceeds accordingly. In the United Kingdom, a Parliamentary Committee regularly examines the Governor and senior officials of the BoE on all aspects of monetary policy, though with particular emphasis on its implementation. Parliamentary examination is more rare in France. The banks' annual reports are the main formal instruments of accountability, presented to the President in the case of France, and to Parliament through the Minister in the United Kingdom.

Likewise, in Japan and the Netherlands parliamentary review of monetary policy is somewhat less intense or direct. The BoJ is formally "under the supervision" of the relevant Minister, and reports annually through him to the Parliament. 2/ The NB reports to the Bank Council, which is chaired by a Royal Commissioner, appointed by the Crown to supervise the Bank's affairs and formally accountable to the Crown.

In the United States and Chile, the legislature has an important direct role. The Fed is required to report to Congress semi-annually. While the legislation still requires it to discuss monetary aggregate targets, the Fed is not particularly bound by its statements about the targets. In addition, the Chairman and other members of the Board frequently testify before various congressional committees. In Chile, the BCC reports annually to the President and the Senate, including on the policies and programs to be adopted in the following year.

The central banks of Germany and Switzerland are not formally accountable to any arm of the Government, but have instead put considerable weight on the publication and attainment of monetary aggregate targets since the mid-1970s, thereby facilitating monitoring of monetary

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1/ With the introduction of the policy statements, the policy content of the RBNZ's Annual Reports is now relatively minor. However the Annual Reports do give an analysis of resource usage within the RBNZ which is unusually detailed (for a central bank). For this, the RBNZ report has earned a New Zealand Society of Accountant's award.

2/ Also, the Minister is empowered to appoint a "Comptroller" for the BoJ to oversee its business, but, like the Minister's directive power mentioned earlier, this provision has not been employed.

policy performance directly by the public. 1/ The Bundesbank is required to publish an Annual Report, but it is not presented to the Government or to Parliament. The SNB reports annually to its shareholders (which do not include the Federal Government).

Quantity targets for monetary policy are also set and published in other countries in this survey, although their role is not always as central as in Germany and Switzerland. 2/ In France and the United Kingdom, targets are set and announced by the Government and, in terms of establishing monetary policy credibility, may partially compensate for the lack of an independent central bank. The BoJ publishes "forecasts" of its key monetary aggregate, but since these take account of policy actions by the BoJ, they are similar in nature to targets. 3/ In the Netherlands, Germany and Switzerland, it is the central bank which sets the targets, but in the Netherlands targets are not always published on the grounds that this may not be helpful in terms of the need to maintain exchange rate stability within the EMS. 4/ The new law in Chile does not specify operating procedures for monetary policy, and in practice the BCC sets its own policy targets. It is a legislative requirement for monetary policy targets to be set in New Zealand, but the legislation does not specify the nature of the targets to be set. All the key documents relating to RBNZ accountability (including in particular those setting out the policy targets) have to be published directly and/or tabled in Parliament.

In the United States, the Fed used to stress its quantity targets, but has been de-emphasizing these targets since the early 1980s, citing instability in behavioral relationships due to technological, regulatory and institutional factors. The Fed publishes the minutes of its main decision-making body, the Federal Open Market Committee (FOMC), but with a six-week delay. However, as noted earlier, these are not particularly informative.

Overall, then, it appears to be a common view that it is important to have relatively easily observable yardsticks through which monetary policy accountability can be enhanced, and through which the general objective of the central bank can be translated into a more specific *guide for policy*. *Monetary aggregate targets are not the only option* here. Specific inflation targets, such as those in New Zealand and proposed for the United States, are another possibility. Exchange rate

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1/ Not surprisingly, public targeting of monetary aggregates in these countries has not involved completely single-minded adherence to pre-announced targets. In both countries, exchange rate considerations have also been important from time to time. See, for example Trehan (1988) for Germany, and Rich (1987) and Burdekin, op. cit., for Switzerland.

2/ See, e.g., Batten et al. (1989).

3/ See Ito (1988).

4/ Eisenga (1987).

targets or pegs, as in the Netherlands and France, can also serve the same purpose in some circumstances. There are undoubtedly technical difficulties in specifying and adhering to each of these sorts of monetary policy target, and, in particular, none of them can be fully binding. It appears necessary to retain some element of flexibility for monetary policy. Nevertheless, a number of central banks, including most of the more independent ones, apparently take the view that the gains from increased accountability and transparency outweigh such technical difficulties.

4. Role and composition of central bank boards

The role and composition of central bank boards can have an important influence on the nature of the relationship between central banks and governments. In some cases, the boards are a formal channel for the government to exert some influence directly, albeit temporarily, on central bank decisions. Depending on the details, this may be something of a safety valve for political pressures, or it could be much more than that.

The board structure established by legislation may have up to two or three tiers. In the United States, Germany, and Chile, there are two-tier structures, one level being supervisory, and the other being a regular decision-making (executive) body. 1/ Switzerland and the Netherlands both have a three-tier structure. In the Swiss case, the additional tier (the Bank Committee) is a sub-committee of the full supervisory board (the Bank Council), carrying out a more detailed supervisory function and meeting more frequently. In the Dutch structure, the role of the third tier body (the Bank Council) is to advise the Minister on the guidelines that the NB should follow in its policy. The Council is chaired by the Royal Commissioner, whose role is to supervise the affairs of the NB on behalf of the Government, and to attend meetings of the other two boards in an advisory capacity. In other countries (France, Japan, New Zealand and the United Kingdom), executive committees for day-to-day management generally exist, but are not specifically established by the legislation, which only covers the supervisory board. In New Zealand, the responsibilities of directors are very clearly defined and emphasize the duty to monitor, on behalf of the Minister, the performance of the Governor and the RBNZ as a whole, in relation to the agreed policy targets and the RBNZ's statutory objective.

In all cases, the government effectively appoints the majority, if not all, of the members of these bodies (see below), but there may also be ex officio or advisory board members representing the

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1/ In the United States, the decision-making body (the FOMC) is larger than the supervisory body (the Board of Governors), and includes all the members of the latter.

government/treasury explicitly. In Japan, there are two such ex officio members--although they are nonvoting members, their representation on the BoJ Policy Board occupies a major portion of their time. In Germany and France, the government representative can request that a board decision be temporarily deferred or (in France only) reconsidered. In Chile, the Minister or his deputy may attend meetings of the Supervisory Board and request a temporary deferment, unless at least four Board members insist otherwise. In other countries, (the United Kingdom and New Zealand) explicit government representation is directly ruled out.

The spread of sectoral and regional representation is often seen as an important criterion for the composition of the Board (France, Japan, United Kingdom, Switzerland, United States and the Netherlands), but in other cases general business/financial knowledge and experience (New Zealand), or even "special professional qualifications" (Germany) are specified.

5. Appointment and dismissal of management and directors

The fact that governments have the primary role in the appointment of directors and management in all countries probably reflects a broad recognition that monetary policy is ultimately a government responsibility, even where the central bank has considerable statutory independence. Nevertheless, in banks which have a greater degree of independence, there are generally more limitations on the government's appointment (and dismissal) powers. Such limitations include a proportion of nongovernment appointments; 1/ nongovernment nomination or recommendation of candidates; or terms of office which are relatively long compared to the electoral cycle, and, in the case of board members, staggered to reduce the ability of governments to quickly place their own appointees in a dominating position. It is noteworthy that to some extent at least, such safeguards also apply in countries without independent central banks--see below. The importance placed on the length of terms (emphasized by Waller, op. cit., for example), should, therefore, not be overstated. Other factors may be more important for underpinning the central bank's autonomy.

For the two least independent central banks within the framework of this study, the head of state makes all the appointments, either on the recommendation of (United Kingdom) or in consultation with (France) the

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1/ Nongovernment appointment of board members occurs in countries where the central bank is not fully government owned--Switzerland and the United States, in the current survey. The BoJ is also partly privately owned, but there are no nongovernment appointments. A minor side-issue here is whether ownership of the central bank appears to be important for policy independence. The short answer seems to be that ownership makes little necessary difference: the Bundesbank, which is fully state owned, is arguably the most independent central bank.

Prime Minister or Cabinet, and without formal reference to other parties. The only exception is that one BdF Director is elected by the staff. In the United Kingdom, the Governor and Deputy Governor have five-year terms, and Directors have staggered four-year terms. In France, Directors have staggered six-year terms, and the Governor and Deputies are appointed for indefinite terms which are, in practice, limited to five-to-seven years (the latter of equal length to, but not necessarily concurrent with, the French President's term). In Japan, the Cabinet appoints the Governor and Vice Governor of the BoJ for five-year terms, and Board members for staggered four-year terms with the approval of both Houses of Parliament. 1/

In other countries, the central bank board itself has an important role in appointment procedures. In New Zealand, the Government appoints Directors for staggered five-year terms, and appoints the Governor on the recommendation of the Board, also for a five-year term. The Deputy Governor is appointed by the Board, on the recommendation of the Governor, again for a five-year term. In the Netherlands, individual members of the Governing and Supervisory Boards are appointed by the Government, on the joint recommendation of the current members of these Boards, for staggered terms of seven years for Governing Board members and four years for Supervisory Board members. Four of the 17 advisory board (Council) members are appointed by the Supervisory Board for the remainder of their terms as directors, and 12 others are appointed by the Government for staggered four-year terms. The final member of the Council, its Chairman, is the Royal Commissioner, also appointed and dismissed by the Government.

In Chile and the United States, Board members are appointed by each country's President, subject to Senate approval, for terms of 10 and 14 years, respectively. The President of the BCC and the Chairman and Vice Chairman of the U.S. Fed are appointed by the country's President, subject to Senate approval, from the ranks of the respective Boards for five- and four-year terms, respectively. 2/ In the United States, the Presidents of the regional Reserve Banks who, together with the Board, make up the FOMC, are appointed by the regional Bank Boards. The regional Bank Boards themselves are made up of equal numbers of Directors representing member commercial banks, Directors who are nonbankers but who are elected by member banks, and Directors appointed by the Federal Reserve Board. The regional Bank Presidents have to be drawn from this latter group.

1/ The Minister also appoints a number of executive directors and auditors with the BoJ.

2/ In practice, in the United States, when a vacancy on the Board has arisen as a result of the Chairman resigning, the President has, subject to Senate approval, appointed an individual both as Board member and Chairman.

In Switzerland, the members of the executive body (the Governor and two Deputies) are appointed by the Senate, on the recommendation of the full Supervisory Board (Council), for six-year terms. The Governor and one Deputy become President and Vice President of the Bank Council and Bank Committee (the sub-committee of the Council). Other Bank Committee members have four-year terms, and are appointed by the Council from amongst its own ranks. Of the 40 Council members, 15 are elected by the shareholders, and the rest by the Federal Government.

In Germany, the Bundesbank President, the other members of the Directorate (the executive body), and the Land Bank Presidents are almost invariably appointed for the maximum eight-year term. The President and the other Directorate members (up to eight) are appointed by the German President, on the nomination of the Federal Government, after consultation with the Bank Council, the supervisory body comprised of the Directorate and the eleven Land Bank Presidents. The Land Bank Presidents are appointed by the Federal President, on the nomination of the Federal Parliament, in turn, based on recommendations from provincial governments and after consultations with the Bank Council.

Directors or governors can generally be removed for relatively technical causes such as bankruptcy, criminal offenses, major conflicts of interest and so on. There does not seem to be a clear pattern with respect to dismissal on other grounds. In Germany and the United Kingdom, there are no other grounds for dismissal in the legislation. In Japan, the Governor and Vice-Governor can be dismissed by the Cabinet for policy reasons, but Board members cannot. In France, there is no limit on the President's ability to remove incumbents, and in the United States, the President may remove Board members "for cause". In Chile and the Netherlands, the Government may remove incumbents on the recommendation of the Board (at least three Council members, in Chile) or for a justified cause. In New Zealand, the Government can remove Directors for unsatisfactory performance (relative to the defined role of the Board), and can remove the Governor or Deputy for unsatisfactory performance in relation to achieving agreed policy targets in particular, whether or not recommended by the Board.

6. Limits on financing of government

A potentially important facet of formal monetary policy independence in some contexts is the extent of legal constraints on central bank funding of the government. Of the countries surveyed in this paper, Chile has the tightest legal restrictions: no public expenditure may be financed directly or indirectly by credit from the central bank (except under wartime conditions), and the bank cannot purchase paper issued by the government, its agencies or enterprises. In Germany, Switzerland, and the Netherlands, the legislation sets strict limits on direct central bank credit to Government, but allows government paper to be

acquired in the course of open market operations. 1/ With the Bundesbank, it is explicit that such secondary market purchases can only be for monetary control purposes, and the Bank is not otherwise able to acquire government paper on its own account. 2/ In Japan, the fiscal law prevents the BoJ from direct purchases of longer-term new issue government securities, but there is no barrier to BoJ advances to the Government, or secondary market purchases of government debt. In New Zealand, the United States and the United Kingdom, there are no specific legal limits. In France, limits are agreed between the Bank and the Minister, and presuppose the approval of Parliament.

Notwithstanding the fact that they are quite common, the technical effectiveness of statutory limits on credit to government are somewhat dubious. There are numerous ways in which they can be circumvented, especially in a country with better developed financial markets and instruments. In particular, it is generally not practicable to limit statutorily all central bank credit to government, since the central bank may legitimately need to acquire government debt in its monetary management operations. Thus, except for the case of the BCC, statutory limits do not go beyond advances/overdrafts and purchases of new issue government debt. Furthermore, even if there is a limit on all government (and public sector) debt holdings by the central bank, the government could still instruct the central bank to inject liquidity by other means (e.g., purchasing private sector debt) at the same time as the government issues debt to the private sector. The overall monetary effect would then be the same as if the central bank purchased the government debt itself. Finally, another possibility is that, irrespective of the nature of the statutory limits, they simply may not be observed by the government. 3/

These points suggest that, in essence, statutory limits on credit to government may not be particularly effective when the central bank is nonindependent, and may not be necessary when the central bank is independent, with a clear responsibility for monetary stability. However, two qualifications need to be noted. First, statutory limits could still prove useful in promoting monetary restraint in the case of a nonindependent central bank in a country with relatively less developed financial markets--assuming the limits are actually respected. Second,

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1/ In Germany, the limits on direct Bundesbank credit to Government are fixed in absolute DM terms, and have not been changed since 1967.

2/ Deutsche Bundesbank (1986).

3/ Leone (1990) surveys practices and experiences in this area in a wide range of developed and developing countries. He notes that experience with legal constraints has been diverse: some countries without such constraints have nevertheless demonstrated fiscal and monetary restraint, while limits have proved unsustainable and have been breached in some other countries.

limits might also be useful as an additional buffer, for mainly presentational reasons perhaps, when a central bank is first made independent and needs to establish its credibility. In this case, it might be particularly helpful if the restrictions specify that the central bank's holdings of government debt not covered by the limits (e.g., secondary market purchases) are to be consistent with the goal of monetary stability.

7. Central bank budgetary independence

Most of the central banks covered in this survey have substantial financial independence from government across all of their functions, and irrespective of the degree of monetary policy independence. 1/ This is due mainly to their ability to determine their own expenditures, to issue their own liabilities to fund such expenditures, and to the knowledge that in most cases, there is unlikely to be a revenue constraint on their spending. Among the countries surveyed this is the general case, even where a central bank is required to provide concessional finance of some sort.

Central bank income usually arises from seigniorage revenue in the form of interest earnings on assets backing the note issue. 2/ Often, assets backing nonremunerated reserve deposits at the central bank also provide such revenue. 3/ Central bank profits from such revenue, after allocations to reserve funds and any dividend payments, are invariably transferred back to the treasury. This appears entirely appropriate, given that it is governments which have granted central banks monopoly note issue privileges and the ability to impose binding reserve requirements. There are usually arrangements specified in the legislation for the distribution of central bank profits, though in some cases (e.g., the United Kingdom and France), the distribution is specified by, or negotiated with the Government. An exception is the United States, where the Federal Reserve Banks themselves decide what amounts should be set aside in reserve funds.

There are several issues to be considered in relation to budgetary independence. First, to what extent is such independence required to support policy independence? A potential concern for a bank with policy

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1/ The exceptions are France, Japan and New Zealand.

2/ This is a slightly different notion of seigniorage from that often found in the literature. The literature commonly equates seignorage revenue with the growth in the monetary base rather than the stream of interest receipts arising from the assets backing that growth. However, the former concept is essentially the present value of the latter.

3/ In the United Kingdom, for example, it is widely acknowledged that the cash reserve requirement imposed on depository institutions (now 0.4 percent) is a funding mechanism for the Bank of England, and has no real monetary policy significance.

independence is that, in the absence of accompanying budgetary independence, a government could indirectly exert undue influence on the bank's policy by restricting its access to resources. On the other hand, where a central bank is clearly carrying out the government's monetary policy, there appears to be no compelling policy argument for financial independence.

A second question relates to the form of funding for the central bank. How much does it matter if an independent central bank's revenue appears to provide a financial incentive structure inconsistent with the presumed goal of monetary stability, i.e, if a central bank's revenue in real terms rises with inflation and facilitates similar growth in central bank expenditure? 1/ As discussed earlier, the real concern here may be more to do with how the inconsistent incentive structure might be publicly perceived, rather than about whether independent central bankers would consciously soften monetary policy as a result of revenue considerations.

A third issue is how to ensure that the central bank, if it has budgetary independence, nevertheless achieves the same sort of financial efficiency that is expected of any other public policy organization. The response in most countries has been to rely on the banks' boards to ensure financial efficiency. However, there is always a risk of a board being "captured" by the organization it monitors if the incentive and accountability structure is not well designed. In practice, and justifiably or not, it is sometimes a point of some sensitivity that central banks frequently offer considerably better facilities, salaries, and benefits than the civil service.

In an attempt to seek an appropriate balance between considerations such as the above, the new central bank legislation in New Zealand takes a course on budgetary independence quite different from arrangements in the other central banks surveyed. Reflecting the desire to ensure financial efficiency and remove inconsistent financial incentives, all public policy functions of the RBNZ will be funded under an agreement between the Minister and the Governor, ratified by Parliament. Also in this connection, it is worth noting that the RBNZ legislation specifies that the conditions of the Governor's employment, including remuneration arrangements, "shall not be inconsistent" with the RBNZ's function of

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1/ Alternatively, when the central bank relies heavily on its own securities for monetary management, in some circumstances, its interest expenditures could rise so sharply with any attempt to tighten monetary policy, that loose monetary policy persists. This can occur when the central bank's revenue and general financial position is weak--for example, if the bank is undertaking some types of quasi-fiscal functions on a large scale. As noted in Section III.3, this sort of problem has arisen in some developing countries.

achieving and maintaining price stability. 1/ The funding arrangement is ultimately similar in effect to the budgetary appropriation process for a normal government department, but with one key difference--reflecting the need to support policy independence, the agreement covers RBNZ expenditure over a five-year period, rather than requiring approval of expenditure budgets on a year-by-year basis. 2/

8. Constraints on the use of monetary policy instruments

In some contexts, monetary policy independence could be seriously impaired if the central bank did not have the freedom to manipulate the instruments of monetary policy as it sees fit, and without the need for approval by the government. This does not appear to be a problem for the most independent central banks in this survey, but could be a factor in some of the other countries surveyed. However, this usually has more to do with the general lack of policy independence in these countries, rather than specific constraints on the use of particular instruments. In addition, particularly in some developing countries, the scope for monetary policy independence may be limited by a lack of well-developed financial markets and money market instruments, and the consequent need to rely heavily on either direct credit controls or new issue government debt. For example, the use of treasury bill auctions for monetary policy purposes requires close coordination with fiscal authorities, and this could often constrain the freedom of action by the central bank. Reliance on direct control policies, on the other hand, may increase the vulnerability of monetary policy to political influence.

There are often limits on the ability of central banks to vary reserve requirements, but since the general trend is away from actively using these in monetary policy, this is unlikely to be a constraint for the countries reviewed here. The most obvious example is New Zealand, where reserve requirements were removed in 1985, and new legislation would be required to reintroduce them. The view was that normal legislative procedures should be followed if it was thought necessary to return to an instrument involving compulsion. In the United Kingdom and the Netherlands, the central banks would be able to vary reserve requirements, if they wished, by making "recommendations" to bankers; but if agreement could not be reached with the bankers, government

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1/ At one stage, there was also a suggestion that the Governor's remuneration would be directly linked to success in achieving low inflation. This did not eventuate, however.

2/ Commercial activities, mainly the Reserve Bank's debt registry operation, are required to be fully costed and charged out, and to operate on a fully commercial and competitive basis. The Government is free to take its debt registry business elsewhere on commercial grounds, while the Bank's registry service is free to compete for nongovernment registry business. Also, some three quarters of the cost of banking supervision by the RBNZ is funded by the commercial banks themselves.

approval would be required before legally binding directives could be issued. In France, a change in reserve requirements needs to be approved by the Government, through the National Credit Council, while in Japan the Minister's approval is required for variations within the statutory limit. In Germany, the United States and Chile, the central banks are able to vary reserve requirements freely: the Fed has not varied requirements actively in the past, 1/ but the Bundesbank has.

V. Associated Functions of Central Banks

The major functions undertaken by central banks at different times and in different countries vary in a number of respects. These functions can be broadly divided into those directly involved in monetary policy operations and other associated functions, as shown below. The purpose of this section is to examine the extent to which such associated functions are, or should be, undertaken by central banks, and, if undertaken, the extent to which they constrain or complement monetary policy independence.

a. Functions most closely related to the conduct of monetary policy:

- Bankers' bank;
- Management of the currency issue;
- Government's bank (usually);
- Participation in clearing and settlement systems.

1/ Changes to requirements in the United States have been longer-term measures rather than having a shorter-term orientation.

b. Other functions:

- Carrying out exchange rate policy;
- Lender of last resort; 1/
- Supervision of financial institutions/markets, including foreign exchange market management/control;
- Holding/managing international reserves and debt;
- Fiscal agent/management of domestic public debt;
- Quasi-fiscal functions such as subsidization of specific sectors, equity participation in financial institutions, etc.
- Deposit insurance

In the first group of functions, the bankers' bank role and currency issue are fundamental to central banking, and are at the very core of monetary policy. 2/ In many countries, the role of government banker has also been close to the core of monetary policy, although it is probably not an essential central bank function. Participation in the payments settlement system stems directly from the banker's bank role, though the nature of involvement in the clearing system, as opposed to settlement aspects, varies from country to country.

The functions in the second group listed above are not so intrinsically related to monetary policy but are associated with central banks to varying degrees. The role that in some countries has been given to central banks in promoting money markets and development finance institutions, and in the subsidization of specific sectors through refinance facilities or liquidity guidelines, is not discussed in this paper.

1/ Sometimes the "lender-of-last-resort" role is equated with the central bank's day-to-day liquidity support operations, through its rediscount or advance facilities. Although the exact dividing line between this notion and other concepts of lender of last resort may be a little unclear in practice, we do not consider day-to-day liquidity support in this discussion. Such operations are part of the central bank's general operational arrangements for monetary policy rather than being an "associated function" with a rather different motivation. Also, the use of day-to-day liquidity support facilities for individual banks is generally at the discretion of the commercial bank--at least up to a point. The concepts of lender of last resort discussed in this section, however, are generally at the discretion of the policymaker.

2/ However, this is not to say that a central bank is required to run the currency issue--alternative arrangements have been, and still are, in place in some places. Hong Kong is a case in point. Under such alternative arrangements, however, the scope for discretionary monetary policy tends to be limited.

1. Exchange rate policy

At the broadest level, the practical independence of monetary policy depends on the nature of the exchange rate regime. The more the exchange rate is managed, the less the freedom to choose a monetary policy which differs from that prevailing internationally. As noted earlier, this may or may not be consistent with the attainment of noninflationary domestic monetary conditions. Exchange rate policy and monetary policy are very closely linked, both at the level of targets and at the operating level. For example, the exchange rate can sometimes be used as a major indicator, or even as operating target for monetary policy--not because it is an objective in its own right, but because it is thought to be the best indicator of domestic liquidity conditions. Furthermore, in developed financial markets, intervention in both money and foreign exchange markets can be used to achieve either exchange rate or monetary policy goals. As an example of the closeness of such links, liquidity management operations in Switzerland are mainly carried out through foreign currency swaps, rather than operations in domestic securities. The implication is that the two policies need to be very closely coordinated, if indeed it is still possible to think of them as distinct. Effective central bank independence therefore requires as a minimum that the central bank be closely involved in the choice of exchange rate regime and other major exchange rate policy decisions.

In no country surveyed has the government been prepared to completely delegate authority for major exchange rate decisions to the central bank--either on the regime itself, or on the appropriate level of the exchange rate under anything much less than a "clean" float. Perhaps the clearest example of this is in the New Zealand legislation, which states that the Government retains the right to formally direct the RBNZ to intervene in the market or to fix exchange rates. 1/ In the absence of such directives, the RBNZ can operate in foreign exchange as it sees fit, in relation to its monetary policy targets and its statutory objective. A somewhat similar situation exists in Germany and Chile. In the latter, the BCC, taking into account the general economic policy of the Government, can intervene in the market and even introduce certain restrictions on capital movements. BCC foreign exchange measures are subject to ministerial veto, which can, however, be overridden by unanimous decision of the Central Bank Council.

1/ Note, however, that there are important safeguards. Where such a directive is considered by the RBNZ Governor to be inconsistent with price stability, he can so advise the Minister, and is then not required to implement the directive until there is a formal override of the statutory price stability objective. Where the directive is inconsistent with policy targets, new targets must be negotiated within a month of the Governor so advising the Minister.

Where intervention is required for a reason other than a strictly monetary policy consideration, the central bank usually acts as an agent for the government/treasury. Given the lack of final authority delegated to central banks in this area, it is under a managed float or a fixed rate regime with reasonably wide margins that there is the greatest need for coordination and cooperation between the central bank and the government/treasury. As noted earlier, an important issue here is whether the central bank will sterilize a foreign currency intervention. Sterilized intervention involves offsetting the changes in net foreign assets through open market operations so as to keep the money base unchanged. This will preserve the intentions of monetary policy, but is unlikely to have more than a transitory effect on the exchange rate; conversely, unsterilized intervention has a better chance of influencing the exchange rate but may compromise monetary policy targets.

2. Lender of last resort

In some cases, central banks' legislation does not define or even mention a lender-of-last-resort function. However, from an historical perspective, it can be seen that the lender-of-last-resort function has been one of the most important features of the central bank's role as bankers' bank, the ultimate source of domestic liquidity. 1/

It is useful to distinguish between two very different notions of this function. First, the classical notion of lender of last resort has to do with the central bank temporarily providing extra reserves in the event of a sudden loss of confidence in the banking system, reflected in large cash withdrawals from some, or many, banks, and not redeposited elsewhere in the banking system--the "flight to cash" situation.

In the absence of offsetting action by the central bank, the loss of bank reserves would be translated into a multiple contraction in broad money and credit aggregates. Although rare, such an event can have potentially severe real sector effects. The effects of the failure of the Federal Reserve to suitably fulfill this lender-of-last-resort function in the 1930s demonstrates this. More recently, the stock market declines of October 1987 and 1989 led many central banks around the world to make clear their intention to act as lenders of last resort to prevent any question of confidence in their financial systems from arising.

Acting as lender of last resort in this classical sense can be seen as equivalent to a temporary suspension of previous monetary policy targets to accommodate a sharp change in the public's demand for cash. As such, it is clear that this is a natural central bank function,

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1/ As noted previously, this discussion excludes consideration of a central bank's day-to-day liquidity support facilities, which are part of its normal monetary policy arrangements.

inseparable from monetary policy. Every central bank has this function, whether or not it is explicit in its legislation. 1/ In a few cases (Chile, Japan and New Zealand), this function is explicitly mentioned in the context of concern about the stability of the financial system, which is presumably meant to distinguish the classical meaning from, and perhaps preclude, the second notion of lender of last resort.

The second notion relates to central bank lending to an individual troubled institution when the system as a whole is not troubled (e.g., Continental Illinois in 1984 in the United States). Consistent with the classical guidelines for central banking, few would suggest that it is desirable for central banks to lend (take on a credit risk) to an insolvent financial institution, because of the risks to its own balance sheet, and possibly also on moral hazard grounds. Furthermore, if an individual institution is only illiquid, the grounds for central bank lending when the system as a whole is not perceived to be at risk, are reduced to the extent the institution can still borrow on the market, (assuming that its solvency is recognized by other institutions). Given the political sensitivities which can be involved in decisions on support for an individual institution, there may well be an argument for separating this second notion of the lender-of-last-resort function from the central bank, with the decision on lending clearly being made by the government. For example, it may be preferable for such action to be left for the deposit insurance authority (where applicable), or left to the government and funded directly from the budget. 2/

3. Prudential supervision 3/

While the location of the supervisory responsibility varies among countries, the central bank assumes significant supervisory functions in all of the surveyed countries except Switzerland and Chile. Of the countries included in this survey, the central bank has the sole or major responsibility for bank supervision in the United Kingdom, the Netherlands, and New Zealand. In the United States, responsibility is

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1/ Although it is clear that implementing the lender-of-last-resort function in a flight-to-cash situation is a central bank function, one can conceive of the decision to act as lender of last resort (and to suspend previous money growth targets) being separated from the central bank and being a government responsibility.

2/ Tietmeyer, op. cit., makes a similar point in connection with proposals for a European central bank. In practice, of course, it may be difficult to distinguish between a system problem and an individual bank problem. The central bank would, therefore, still have to be involved in the formulation of a response, even if not having the primary responsibility.

3/ The information in subsections V.3-V.5 is partly drawn from Pecchioli (1987), Board of Governors of the Federal Reserve System (1984b), Cooke (1984), and McCarthy(1980).

shared between the Fed, the Federal Deposit Insurance Corporation (FDIC), and the Comptroller of the Currency. In Japan, the BoJ and the Finance Ministry both have supervisory responsibilities, but the purposes of the two supervisory systems are seen as different--the BoJ's role is defined in terms of maintaining a stable financial system to facilitate the operation of monetary policy rather than the regulation of individual institutions for other reasons.

In France, supervision is the responsibility of the Banking Commission, but this is chaired by the Governor of the BdF and is staffed by BdF employees. Thus, there is a legal, but not practical, distinction between the two. There is also a close relationship in Germany between the Bundesbank and the Federal Banking Supervisory Office (FBSO). Although the latter has overall responsibility, the Bundesbank is the collection point for much of the prudential information required from banks. The Banking Act requires the Bundesbank and the FBSO to cooperate and exchange information of importance to their respective functions, and the President of the FBSO may attend Bundesbank Board meetings in a nonvoting capacity and propose motions. In Switzerland, the Federal Banking Commission has supervisory responsibility; the SNB has limited direct involvement but still maintains an active interest. Similarly, in Chile the Superintendency of Banks and Financial Institutions is in charge of supervision. Although legal/constitutional considerations about who should have the ultimate responsibility for supervision are the main factors behind these arrangements, 1/ they also serve to insulate the central bank itself somewhat from external pressures in a potentially very sensitive area.

The fact that most of the surveyed central banks have an involvement in supervision, even if only relatively minor, as in the Swiss and Chilean cases, reflects the need for the central bank to be at least broadly aware of the prudential consequences of monetary policy, and the implications for monetary policy of prudential developments. The latter includes the need for the central bank to be forewarned in the case of a call on the central banks' last resort facilities, especially as to the solvency of the bank(s) involved; the need to coordinate with supervisors when such a call is actually made; and the possible need to review monetary policy targets and instrument settings in certain circumstances. Central bank involvement may also reflect a wish on the part of central banks to be able to assess the impact of monetary policy on different institutions, as opposed to the system as a whole; or the fact that there are linkages between specific instruments of prudential supervision--liquidity guidelines, accounting standards, capital adequacy rules, etc.--and monetary policy.

1/ These considerations relate to the fact that prudential requirements usually have the force of law, and in the course of implementing prudential policy, the responsible agency interprets the overall law and shapes its application.

A reason often cited for supervision being the primary responsibility of the central bank, rather than the bank having a more limited role, is that there is a potential conflict between supervisory and monetary policy concerns, and coordination between the two would be more efficient if they were both in the same organization. This suggestion appears overstated for the countries surveyed here, however, because prudential difficulties rarely arise from tight liquidity, but rather from poor asset quality, inadequate capital, fraud, and so on.

But even if we accept the suggestion of important conflicts, a very important question is who should make the trade-offs between supervisory and monetary policy concerns? If the central bank has monetary policy independence, having the bank make the trade-off internally would tend to reduce monetary policy transparency and accountability. It might be better for the trade-off to be made at the political level, based on two clear streams of advice from separate organizations, even if the coordination costs are somewhat higher. 1/

An additional consideration is that having supervisory responsibility in the central bank makes the bank potentially vulnerable to considerable political pressure, in the broadest sense, in the event of a bank failure. This could well have adverse effects on monetary policy independence. The Swiss, Chilean, German and perhaps also French arrangements may partly reflect this sort of concern.

Another argument is that there are efficiency gains, akin to economies of scale, from placing supervision in the central bank. Given that a central bank will want to have some involvement anyway because of its traditional last-resort function, there may be efficiencies in the use of resources as well as information, which can be obtained from placing supervision in the central bank. However, there may also be efficiency arguments for placing supervision outside the central bank: namely, where there are other supervisory bodies outside the central bank, concerned with nonbank institutions, securities markets and the like, then there may be greater efficiencies to be obtained by combining bank supervision with these bodies instead of placing it in the central bank. 2/

1/ Other things being equal, and even if the policy trade-off is made at the political level, the coordination benefits arising from the central bank having the primary supervisory responsibility could be greater in the case of a developing country undertaking major financial sector liberalization and reform. Decisions on asset quality assessment and bank balance sheet restructuring, for example, may need to be closely related to monetary policy decisions.

2/ The Belgian Banking Commission, for example, has supervisory responsibilities extending beyond banks as such. In Malaysia, supervision of insurance companies has been combined with bank supervision, but within the central bank rather than elsewhere.

In short, there are arguments both for and against a central bank having the primary responsibility for supervision. The central bank does need to be involved to some extent at least so as to have access to prudential information, but this does not by itself imply that the central bank needs to have the major supervisory responsibility. Other things being equal, the arguments against the central bank having the major responsibility gain more weight for independent central banks, where the need to avoid conflicting objectives and to reduce undesirable political pressure, become particularly important. 1/

4. Deposit insurance

Formal deposit insurance schemes exist in all the countries surveyed in this paper, except New Zealand. 2/ In most of these cases, the central bank is not involved in funding or managing deposit insurance, and separate agencies have been established for that purpose. However, in Japan, the insurance fund is partly capitalized by the BoJ and is empowered to borrow from the BoJ. In the Netherlands and in the United Kingdom, some degree of involvement of the central bank is also observed. In the Netherlands, the deposit insurance scheme is managed, but not funded, by the central bank. In the United Kingdom, the Deposit Protection Fund is managed by a Board including the Governor, Deputy Governor, and Chief Cashier of the BoE.

There are several possible arguments for including a deposit insurance function in the central bank, but these may be of more relevance in some countries with less developed institutions and financial markets. These arguments include the following: that especially when the bank already has a major supervisory function, economies of scale can be obtained; that as with a supervisory responsibility, central bank responsibility for deposit insurance could allow better coordination with last-resort lending; and that central bank responsibility for deposit insurance could remove or reduce doubts about the ability of the insurance fund to cope with major failures.

Counterarguments parallel those related to supervision and mainly revolve around the political and monetary policy risks for the central bank in being involved in deposit insurance. These risks may well be more severe in the case of involvement in deposit insurance than involvement in supervision. When deposit insurance exists as well as supervision, the agency responsible for the former may be the more vulnerable to political pressures because its public profile in handling

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1/ Heller (1990) makes a strong case in this regard. Tietmeyer, op. cit., also makes this point in connection with the proposed European central bank.

2/ However, in Germany, Switzerland and France, the deposit insurance schemes are run by the relevant banking industry associations, rather than an official body.

failing banks is likely to be higher. Similarly, if there are indeed conflicts between prudential and monetary policy considerations, these are likely to be more sharply felt if the central bank assumes deposit insurance functions than if it only supervises. Again, this would be undesirable from the point of view of monetary policy independence and accountability.

5. Other financial sector regulation

Where the central bank has responsibility for supervision already, it can be argued that efficiency gains can be obtained by including other aspects of financial sector regulation amongst the central banks' functions. The most important of these other regulatory responsibilities is licensing of financial institutions. In the United Kingdom, the United States, New Zealand and the Netherlands, the central banks have sole or shared responsibility for bank licensing. In Japan, Switzerland, Chile, and Germany, the licensing authority is the supervisory body mentioned in subsection 3 above; in France, it is the Committee on Credit Institutions (like the Banking Commission, chaired by the BdF Governor).

Although there do not appear to be major problems for monetary policy if a central bank licenses banks, an interesting side issue is whether there might be problems if the same agency were to perform both licensing and supervision. There would be obvious information advantages in combining these functions, but under some circumstances the combination could create a bias toward excessive intervention. For example, to the extent that licensing is seen to imply the licensing body's imprimatur, a supervisor-cum-licensing agency might be inclined to intervene in an institution's affairs because of the fact that the agency licensed the institution, rather than because of the inherent merits of intervening.

Aside from bank licensing, central banks are also likely to have an interest in other financial sector regulatory issues, especially--but not only--if they already have primary responsibility for bank supervision. The boundaries between different forms of financial institutions and markets are continuing to erode internationally, and the linkages between bank supervisory issues and nonbank financial regulation are becoming correspondingly closer. Central banks will, therefore, usually want to have some input into broader financial sector regulation issues. 1/ In the case of the RBNZ, this has been explicitly recognized in its new legislation, where advising the

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1/ In some developing countries, the range of financial institutions regulated and supervised by the central bank has expanded in recent years to include nonbank financial institutions. An example is the arrangement in Malaysia noted previously.

Minister on financial sector policy issues is listed as one of the RBNZ's subsidiary functions.

6. Fiscal agent 1/

Central banks often act as governments' fiscal agents, advising on (in conjunction with the treasury), and implementing domestic and external public debt policy, and managing international reserves. In some countries (such as New Zealand and the United Kingdom), the arrangements relating to domestic public debt policy have been very closely entwined with monetary policy. With such an arrangement, there can sometimes be a tendency toward conflict between the two areas--for example, public debt considerations might suggest the issue of short-term public debt at a time when monetary policy considerations require long-term debt.

Such conflicts are not necessarily major ones, but are not helpful from the point of view of monetary policy independence and transparency. Some separation of public debt policy and monetary policy is often likely to be desirable to allow clearer objectives to be pursued by each. In the United States, Japan, the Netherlands and France, a large measure of separation exists because the central bank does not usually act as the Government's fiscal agent in the issue of government debt instruments. In Germany, the Bundesbank manages government debt, but cannot purchase new issues itself. Some degree of separation has also been achieved recently in New Zealand, with the introduction of central bank bills for liquidity management operations, allowing the emphasis of treasury bill sales to be shifted more toward short-term government funding considerations, rather than serving both purposes.

In most of the countries in this survey, the central bank holds and manages official international reserves. The exceptions are the United Kingdom, where the Treasury owns the reserves but the BoE manages them, and the United States and New Zealand, where reserves are held by both the Treasury and the central bank. Central banks can use these reserves for exchange market intervention on behalf of their governments, and in some cases can also operate in the foreign exchange markets for their own purposes. Of the central banks surveyed, only those in France and Chile have a major role in external debt management, but others may have an advisory role (e.g., New Zealand).

VI. Conclusion

Several countries have either recently made, or have been considering, significant changes to their central banking arrangements aimed at making their banks more independent in the formulation and operation of

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1/ The information in this section draws partly on OECD (1983), and Meek (1988).

monetary policy. In light of these developments, this paper has reviewed the main issues relating to central bank autonomy, based on a detailed examination of arrangements in nine countries, including two where new legislation was introduced in late 1989.

Although the theoretical grounds for central bank independence are now on a rather firmer footing than previously, the empirical evidence is not yet strong enough for definitive conclusions to be drawn about the desirability of formal central bank independence in practice. There are some important "anomalous" cases where inflation performance has been superior--at least over the last decade or so--despite the absence of a central bank with formal independence. Japan and France are major examples. Monetary policy in Japan has been more independent in practice than the legislation might suggest, while in the case of France, the EMS arrangements are no doubt an important external source of discipline and a partial signal of commitment to financial restraint. In the case of the countries with the most independent central banks, a basic issue yet to be adequately resolved is the extent to which ingrained social preferences for low inflation are the real cause of stronger financial discipline and better inflation performances--in which case the separate contribution of central bank independence may be questioned.

Notwithstanding these reservations, central bank independence does have the potential to improve longer-run inflation performance, or to buttress other arrangements which provide a disciplinary check on monetary policy. The major point to emphasize, however, is that the detail of the institutional framework is likely to be an important determinant of the contribution which formal central bank independence makes in practice, and indeed to the sustainability of such formal independence. In particular, a great deal depends on the nature of often informal institutional and political arrangements, and therefore the legislated framework may need to structure as much as possible these less formal aspects of government-central bank relationships. This is likely to be of particular importance for a country attempting to build monetary policy credibility against an historical background of variable and generally insufficient monetary restraint. In this regard, it will be very interesting to review in the future the experiences of Chile and New Zealand, with their different approaches to central bank independence.

The following general propositions can be advanced with respect to the detail of central bank independence arrangements. First, for both practical reasons and reasons of constitutional principle, it is not helpful to think of the ultimate responsibility for monetary policy lying anywhere else than with the political leadership. Governments may, however, chose to impose constraints on the extent of their own monetary policy freedom and that of future governments by delegating certain authority to central banks. The extent to which they choose to

do so is likely to depend on a number of country-specific factors, including past inflation and monetary policy experience, the nature of existing checks and balances in the political system, the economic awareness of the public, and so on.

Second, seen from the perspective of delegated authority, as well as from the perspective of arrangements to bolster credibility, it is clear that central bank autonomy needs to be accompanied by effective monetary policy accountability. Depending on the extent of delegation, such accountability might be to the executive arm of government, to the legislative arm, direct to the public or some combination.

Third, a related point is that there need to be clear, nonconflicting objectives for monetary policy, and mechanisms which help align the motivations of the central bank, as monetary policy agent, with those objectives. Such mechanisms include arrangements which facilitate public understanding and monitoring of monetary policy; which assist the central bank, in its day-to-day operations, to maintain a clear focus on its final objective; and which remove any internal incentives within the central bank which are, or which could be seen to be, inconsistent with monetary restraint. The effective execution of the delegated authority and effective accountability may suffer in the absence of such arrangements. These, considerations are as much a matter of sound management principles as technical considerations from monetary economics.

Fourth, for similar reasons, the respective roles of the central bank and the political authorities need to be clearly set out and consistent, and the relationships between the two need to be transparent. If there are suspicions of back-door influence on the central bank, there may be little gain in monetary policy credibility from a more formally autonomous central bank. The design of conflict resolution procedures is particularly important here. The role and structure of central bank boards and appointment and dismissal procedures for senior executives and board members are also likely to be important, as are arrangements for funding the central bank and for central bank financing of government.

Fifth, if there are conflicts and trade-offs inherent in a central bank's functions, monetary policy independence and credibility might require a reconsideration of the mix of functions allocated to the central bank. Short of that, there need to be transparent mechanisms for the resolution of such conflicts, with decisions preferably made outside the central bank so that the central bank is not seen to be shifting monetary policy objectives. Even if the inherent conflicts with monetary policy are not substantial in themselves, there may sometimes be scope for extreme political sensitivity in relation to some of the nonmonetary policy functions of the central bank, which could impinge indirectly on the monetary policy function. In this case too, the allocation of responsibilities might need to be examined.

Finally, it is worth noting again that central bank independence by itself cannot guarantee monetary policy credibility. This depends very importantly on the credibility of economic stabilization and adjustment policy as a whole. For example, where exchange rate policy or fiscal policy is widely seen as inappropriate, the best that can be hoped for is that an independent central bank may help to make the costs of those inappropriate policies more visible and bring some discipline to bear indirectly before the situation becomes unsustainable.

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