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FINANCIAL LIBERALIZATION AND CENTRAL BANKING
IN INDUSTRIALIZING ECONOMIES

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While there are important controversies about both the rate and the sequencing of financial liberalization,^{2/} there can be no disagreement that the trend as economies develop is towards the full internal and external liberalization of the financial sector. That trend is an essential part of the globalization of capital markets that has taken place since World War II.

The past decade has seen a significant increase in the attention paid to monetary policy and particularly to issues relating to the independence of the central bank. Central bank independence in several industrialized economies, including Canada, France, New Zealand, and the United Kingdom has been strengthened. At the same time, academic research has shown that, for the industrialized countries, the more independent is the central bank, the lower is the average inflation rate. Not only that, the evidence suggests that the improved inflation performance does not come at the cost of worse performance on some other front, such as output behavior.^{3/}

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^{2/} See McKinnon (1982, 1991), Guitian (1994) or Johnston (1991) for perspectives on the question of the optimal speed and sequencing of financial liberalization.

^{3/} Evidence on these two propositions is contained in Fischer (1994) and in Alesina and Summers (1993).

Central banks in industrializing economies, including Chile, Mexico, and South Africa, have also had their legal standing enhanced in recent years. But for the developing countries, there is no significant relationship between inflation and the extent of legal independence of the central bank.^{4/} Presumably this is because the actual power of central banks in these countries differs from their legal power.

In this lecture, I will discuss the case for greater central bank independence in developing economies. I start by briefly reviewing the process of financial liberalization, which provides the context in which the issue has to be analyzed. I then turn to the general case for central bank independence, the institutional structure that is needed to support it, and alternative targets and operating procedures for monetary policy that an independent central bank might choose.

I. Financial Liberalization and Development

Financial liberalization is part of the more general trend towards the greater reliance on markets that occurs during the development process. But the financial markets differ in important respects from other markets, for instance in the pervasiveness with which financial developments affect the economy, in the key role of information and disclosure in ensuring the efficient operation of financial markets, and in the speed with which they react to new information. For these among other reasons,^{5/} financial markets are regulated in all countries, and the degree and range of financial liberalization amongst even the most advanced economies varies.

^{4/} See Cukierman (1992) and Cukierman *et al* (1992).

^{5/} The most important other reasons are that governments regulate financial markets for fiscal reasons and to control patterns of resource use in the economy.

For example, Germany has tended to place more restrictions on new types of financial business than other advanced economies, while the U.S. still-- though probably not for much longer--maintains more functional restrictions (e.g., through Glass-Steagall) than other countries.

There are also major differences in the structures of financial markets among the major industrialized countries, particularly in the relative roles of the banking system in corporate ownership and control (continental versus Anglo-Saxon banking systems), and in the relative sizes of the markets for different financial assets. There has been much debate over the effectiveness of these alternative structures, which are themselves evolving. Given these differences, the structure towards which liberalization is tending, as well as the speed of liberalization, is bound to differ among countries.

Still, the process of financial liberalization is broadly similar across countries. Typically it includes six main interrelated elements:

- liberalization of interest rates, including the removal of interest rate controls and implicit interest rate subsidies;
- liberalization of portfolio allocation decisions, including removal of controls on both the overall amount and sectoral allocation (including to public sector securities and enterprises) of credit an individual institution may provide;^{6/}
- moves to market based methods of monetary control and financing of government deficits, including government debt auctions, and open market management of the monetary base and interest rates by the central bank;
- measures to strengthen competition in financial markets, including more open licensing of good quality banks, more equitable regulatory and tax treatment of different financial institutions and

^{6/} Liberalization also typically includes the reduction of required reserve and liquidity ratios; required reserve ratios are retained in most but not all of the industrialized countries while liquidity ratios are not.

instruments, and privatization or corporatization of state owned banks;

- strengthening of the legal framework and the system of financial supervision and control, including measures to improve governance and monitoring by owners, creditors and market analysts, minimization of systemic risk in the payments system, reduction of moral hazard problems from implicit or explicit government guarantees, strengthened prudential supervision of banks and other financial intermediaries, and measures to ensure orderly failures and to clarify property rights (e.g., the legal frameworks for bankruptcy and debt recovery);
- liberalization of foreign exchange systems and markets, including removal of exchange controls on current and eventually capital account transactions, inward as well as outward.

This lengthy list of measures, many of which are extremely difficult to design and implement, and some of which continue to be problematic in the industrialized countries, makes it clear that financial liberalization is a protracted and difficult process. And because liberalized financial markets can react to events very rapidly, mismanaged financial liberalization can be very expensive.

Genuine concern over financial problems that might result from premature liberalization, as well as reluctance to lose control over financial resources and their allocation, and to pay market prices for credit, have led many governments to liberalize at a glacial pace. In some cases, governments maintain controls over external capital transactions, inward as well as outward, until late in the structural reform process. But why should they liberalize at all? In the first instance, controlled financial systems typically allocate resources inefficiently; the information demands for efficient allocation of savings and investment are far too great to be handled in a centralized fashion. This problem becomes all the more marked as the sophistication of the production structure of the economy increases in the process of development. And second, markets find

their way around controls, which therefore tend to lose their effectiveness over time. Often, informal or black markets and fringe financial institutions develop, but because they are operating around controls, they are less efficient at allocating financial resources, and often also less sound than a well developed formal financial sector would be.^{7/} Hence, the major gain from liberalization is likely to be an increase in the efficiency with which savings is allocated. If financial repression is particularly severe and widespread, liberalization may also increase the overall level of financial saving.^{8/}

Financial reforms often also have a macroeconomic objective. Interest rates in a financially repressed system are often too low and too inflexible, so that a key part of the monetary policy transmission mechanism becomes ineffective. Coupled with a lack of fiscal discipline, the consequences can include endemic inflation and frequent balance of payments or exchange rate weakness. Financial liberalization measures are therefore often needed to improve the effectiveness of monetary policy, and as such, may sometimes be a necessary part of a macroeconomic stabilization program.

The urgency of financial liberalization depends on how well monetary policy is managed and savings is allocated in the existing system. If the general level of controlled interest rates is positive in real terms, incentives for the avoidance and evasion of controls and lack of financial saving may not be major problems. If the economic policy makers allocate

^{7/} Repression of the formal financial sector hinders its ability to compete effectively against the informal sector, as well as restricting competition within the formal sector. Both effects result in losses in overall economic efficiency. In addition, the underlying soundness of the formal financial sector may be damaged by controls, with subsequent liberalization bringing weaknesses out into the open.

^{8/} See, for example, Galb (1989) for some empirical evidence on these effects.

resources according to flexible but hard-nosed assessments of evolving profit prospects, efficiency losses may be small. Nevertheless, as an economy grows more complex, and with it the informational requirements for an efficient allocation of resources, there is likely to be a continuing decline in the ability of public officials to pick winners and adapt controls sufficiently flexibly to avoid significant efficiency losses. The efficiency gains from liberalization thus become increasingly important as development proceeds, which is why the leading industrialized economies all have liberal domestic and external financial systems.

II. Central Bank Independence

As financial markets are liberalized, and the implementation of monetary policy shifts to reliance on indirect, market-based methods, questions about the operation of monetary policy and the role of the central bank come to the fore. The central bank in a modern economy has two main sets of functions. The essential function is monetary policy, management of the supply of money and credit. Typically monetary policy is set the goal of maintaining the internal and external values of the currency; in some legislation, the central bank is also required to attempt to maintain full employment and promote growth.

In addition, the central bank is responsible for a variety of functions relating to the operation, supervision and development of the payments and financial systems. It generally serves as the bankers' bank, including in most economies a lender of last resort function. In some countries, the central bank fulfills a variety of quasi-fiscal functions for the government. Typically, but not always, the central bank is the government's bank. In addition, in many countries, the research department in the

central bank may be one of the few, if not the only, places in which serious analysis of the state and prospects of the economy is undertaken; this function is likely to be more important the less developed is the economy. The inflationary bias of macroeconomic policy

I will concentrate first on the monetary policy function of the central bank, which relies on its control over the supply of money and credit, and interest rates. The modern theory of central banking starts from the presumption that there is an inflationary bias in the making of monetary policy, that inflation rates are on average higher than they need to be.

Two types of model provide a theoretical basis for this assertion. First, in a model with a short-run Phillips curve, the government is tempted in the short run to expand the economy to take advantage of the short-run tradeoff; but because expectations of inflation adjust to take this temptation into account, the economy ends up in an equilibrium with higher inflation and no more output than would have obtained had the government been able to precommit to not taking advantage of the short-run tradeoff. Alternatively, and additionally, the temptation to expand the economy may derive from a fiscal motive, the inflation tax.^{9/}

To evaluate the prediction that inflation is generally higher than it should be, we need to compare actual with optimal inflation rates. Inflation rates in a group of 122 developing countries over the period 1979-1993 averaged 24 percent; for 20 OECD countries over the same period they averaged 7 percent.^{10/} How far are these rates from optimal? I will discuss four factors that should influence the optimal inflation rate--three relating to the possible benefits of inflation, the fourth the costs of

^{9/} This argument is developed at greater length in Fischer (1994).

^{10/} The data are reported in Fry, Goodhart, and Almeida (1995).

inflation. The first is the Phillips curve, the notion that the average unemployment rate is lower the higher is the average inflation rate. The evidence on this issue is by now decisive: there is no long-run tradeoff between inflation and unemployment, but there is a short-run tradeoff, in the sense that a contractionary monetary or fiscal policy that is undertaken to reduce inflation will generally also cause a reduction in output and temporary increase in unemployment. This short-run tradeoff is an essential element in explaining why it is politically difficult to reduce inflation, and why the monetary policies of politicians looking ahead to the next election may suffer from an inflationary bias, but it does not justify a positive inflation rate.

The second factor is the relationship between inflation and growth. It was for a time believed that a little bit of inflation was good for growth. In some formal models, inflation increases growth by shifting portfolios from money to physical capital, thereby increasing investment; in price terms, the argument is that real interest rates are lower at higher inflation rates.^{11/} It has also been argued that because nominal prices are inflexible downwards, some inflation is needed to accommodate the relative price changes that are an essential component of the growth process.^{12/} But there are also reasons why inflation may be bad for

^{11/} Strictly speaking, this shift would increase the growth rate only in a transitory phase, unless there were effectively constant or increasing returns to capital.

^{12/} In some of the rapidly growing East Asian economies, and more recently in successful transition economies, rapid increases in productivity have led to rising real wages. With a fixed exchange rate, the nominal prices of traded goods are given, and the rising real wage tends to translate into a rising nominal wage, which in turn raises the nominal price of labor intensive services. The CPI then tends to rise quite rapidly, so that domestic inflation is the mechanism through which the change in the relative price of labor is accommodated.

growth, for instance that inflation reduces the efficiency of the price system.

The empirical evidence on the inflation-growth relationship implies that inflation is not positively associated with growth. The evidence very strongly supports the view that inflation in excess of 40 percent per annum is bad for growth, and strongly supports the existence of a negative relationship in the 10-40 percent inflation range. There is more controversy over the relationship at inflation rates below 10 percent. In Fischer (1993), I found to my surprise that the relationship in that range was also negative. More recently, Robert Barro has reported that he finds no relationship in that range. In either case, there is no evidence of a positive relationship between inflation and growth in any range, though there are theoretical reasons to believe that zero or negative inflation might be worse for growth than a low positive inflation rate.^{13/}

The third factor is seigniorage, the resources the government obtains by creating money. Governments that have difficulty collecting taxes in other ways are likely to rely more heavily on the inflation tax.^{14/} For this reason, inflation tends to be higher in developing countries, where the

^{13/} This argument is developed further in Fischer (1994).

^{14/} Three distinct concepts need to be distinguished in discussions of seigniorage and the inflation tax. The first is the real value of the increase in the stock of non-interest bearing government liabilities, typically currency plus bank reserves (although the latter may sometimes pay interest). This is the amount of resources the government obtains within a given period by creating money, and corresponds to seigniorage. The inflation tax is generally calculated as the real stock of non-interest bearing government liabilities times the inflation rate. This represents the tax that inflation imposes on holders of these assets. Only by accident is the inflation tax equal to seigniorage. A third concept is the profits of the central bank, which include current seigniorage, interest earned on government liabilities (corresponding to previous high-powered money creation), and profits and losses from other operations, including those in foreign exchange and government-ordered credit subsidies, etc.

overall tax system is less efficient than in the industrialized economies. The data do indeed show a decline in both the ratio of seigniorage revenue to GDP and even more strongly, the ratio of seigniorage to other tax revenues, as per capita GDP increases. Extending the discussion beyond seigniorage, governments frequently obtain resources through inflation and the central bank in other ways, for instance by requiring the central bank or commercial banks to buy government paper at low nominal interest rates, or by allocating credit at negative real interest rates. Thus the inflation-fiscal link extends beyond seigniorage.

The argument for a positive inflation rate thus is essentially fiscal. The fiscal advantage has to be offset against the many costs of inflation, among them the inefficiencies inflation induces in the price system, its impact on the distribution of income (the inflation tax is regressive), and the distortions produced by interactions between inflation and institutions --such as the tax system--that are built on the assumption of a stable value of money. These costs themselves vary, depending on the extent to which the institutional structure of the economy has adapted to the existence of inflation. An economy can for a while learn to live with inflation by indexing virtually all long-term contracts. While that course looked attractive in the 1970s, at a time when both Brazil and Israel were growing fast with moderate rates of inflation, both those countries later suffered serious growth crises, that eventually forced them to confront inflation rather than live with it. The lesson is that while pervasive indexation makes it possible to live with inflation for a while, it only puts off the need to stabilize. This result can be understood if one asks what purpose the inflation is serving in the economy in the first place, and by realizing

that as the economy adapts to a given rate of inflation, the inflation rate has to rise to achieve that purpose.

Comparing the costs of inflation with the fiscal benefits, it is hard to believe that an average inflation rate as high as 7 percent is optimal in the industrialized countries, or that a 24 percent average inflation rate is optimal in developing countries. Rather it is likely that optimal inflation rates in industrialized economies are below three percent, and in developing economies below 10 percent.^{15/}

Independence of the central bank

The essential case for an independent central bank is that the political system tends to produce more inflation than is optimal, and that the economy needs an institutional mechanism to prevent that. A pegged exchange rate, which I will discuss in the next section, is one such mechanism. An independent central bank, given the explicit task of preserving the value of the currency, is another. I will now discuss aspects of central bank independence, drawing on the distinction between goal independence and instrument independence (DeBelle and Fischer, 1995).

A central bank has goal independence when it has the right to define the goals of monetary policy. It has instrument independence when it has the right to deploy the tools at its command in whatever way it believes best in pursuit of its goals. Central banks should not have goal independence. Their tasks should be precisely defined. Central bank charters of the 1930s typically had such a plethora of well-intentioned goals that they provided no clear guide to policy. The goals should be very

^{15/} These are estimates of optimal target inflation rates. There is a separate question of how rapidly a country should try to reach these targets if inflation is higher. I return to these issues below.

specific, and they should be to preserve the value of the currency, or to maintain low inflation.

Central banks do need instrument independence. Once the goals of policy are specified, it should be left to the central bank to do its best to attain them, given the instruments at its command. It should not be the task of the outside economist, or the rest of the government, to also prescribe to the central bank how to run monetary policy, for instance by following a monetary rule. The central bank is a technical institution, which has been given specific powers and resources, and it should be held responsible or accountable for using them in the best possible way--that is, it should have instrument independence.

What are the instruments that the central bank needs? The empirical evidence^{16/} suggests that the most important determinant of the central bank's ability to keep inflation low is whether it is required to finance the government budget. If the Finance Ministry can require the central bank to finance the budget, then it is the Finance Ministry rather than the central bank that has the power to determine money growth; the evidence suggests that the power is typically used, and produces higher inflation. The quasi-fiscal financing that is often imposed on central banks, for instance by requiring them to provide subsidized foreign exchange insurance, is also destructive of effective central bank independence.

The other critical power that the central bank needs is the right to set interest rates. The Bank of England has very little independence, because it is the Chancellor of the Exchequer who has the prerogative of setting the interest rate. In most countries, the central bank determines

^{16/} See the evidence in Fry, Goodhart and Almeida (1995); similar results for industrialized countries are found in Fischer (1994).

market interest rates. It is clear that central banks which have the right to determine interest rates are far more effective in helping impose fiscal discipline on the Treasury.

Of course, giving an institution a legal right does not ensure that it will be used.^{17/} For instance, the central bank may finance the budget deficit indirectly by buying up government paper in the market as it attempts to prevent interest rates from rising, even if it has the right not to finance the deficit. Or, the Finance Ministry may in practice dominate the central bank despite the formal legal situation.

To make independence effective, the central bank needs to be held accountable for achieving the goals assigned to it. Accountability is necessary not only to provide the right incentives to the central bank, but also because there appears to be something slightly undemocratic about an independent central bank. Methods for ensuring accountability vary. In New Zealand there is a formal agreement between the central bank Governor and the Finance Minister, under which the Governor can be dismissed if he fails to achieve the inflation target.^{18/} In other countries, the central bank is accountable to the legislature. The most successful central bank, the Bundesbank, does not formally report to any other government body, but clearly regards itself as accountable to the general public. However the real incentive for most central bankers to perform their duty is not the

^{17/} On average there is a (weak) positive relationship between the degree of legal independence and the average inflation rate among developing countries. As suggested in the introduction, this is most likely because the actual powers of the central bank in these countries differ from their legal powers.

^{18/} In New Zealand the inflation target is adjusted for changes in indirect taxes and for terms of trade shocks.

statutory consequences of failure, but the effects of their performance on their reputation.

The role and make-up of central bank boards, and appointment and dismissal procedures for directors and governors can also be very important in determining the effective independence of the central bank. Terms need to be longer than election cycles to preserve independence; dismissals need to be only for very well defined reasons, including the failure to meet the central banks' statutory objectives; board members should not be direct representatives of government or sectoral interests; and involvement in the appointment and dismissal process by more than one arm of government, and of parties outside government (such as the board itself), in the appointment-dismissal process are all likely to be important.

To avoid the risk that its policy independence might be eroded over time, an independent central bank needs to have a significant degree of financial independence. At the same time, it has to demonstrate that it is at least as responsible in terms of its own expenditure as any other public sector organization. For most central banks today, financial independence is derived from their access to various forms of seigniorage revenue, and their ability to set their own expenditure budgets without direct approval by outside parties.^{19/}

Finally, the range of functions assigned to the central bank should not conflict with its monetary policy goal. This most obviously applies to the quasi-fiscal obligations that have often been imposed on central banks. But it also applies to less obvious conflicts, for instance the question of

^{19/} However, other arrangements to assure the financial independence of the central bank are also possible. For example, it may be possible to have a multi-year budgeting arrangement approved by government to avoid short-term political pressures being exerted.

whether the central bank should manage the government debt. That is a job that is on balance better left to the Treasury, so that the central bank does not have to face the conflict between determining interest rates in the interest of controlling inflation and in the interest of minimizing the cost of government borrowing.

Bank supervision

Most central banks have some responsibility for supervising banks and other financial institutions, but in other cases the responsibility is placed with a separate, independent institution. The issue is an interesting one because the arguments are finely balanced.

Knowledge and information about the overall state of the financial system derived from bank supervision can be useful in formulating monetary policy: more formally, there may be complementarities between prudential and monetary policy. For instance, a tightening of monetary policy might be more deflationary than intended if the financial sector as a whole is excessively fragile and over-exposed, say, to some interest-sensitive sectors. In principle, the central bank could get this information from an independent supervisory authority, but it could be argued that the information flow would be better if the central bank were also undertaking bank supervision.

However, there are also dangers in monetary policy becoming too oriented to the health of individual financial institutions, rather than to that of the system as a whole, and those dangers are increased if the central bank also undertakes bank supervision. A related concern is that a central bank responsible for bank supervision may become too vulnerable to political pressures in the event of an actual or potential failure of a financial institution. Because supervision can never predict or prevent all

such failures, there is always a risk of undesirable fallout for a supervising central bank.

On balance, this is not an issue on which there is a definite a priori answer. There are arguments both for and against the central bank having the main supervisory responsibilities, and the decision should be made in light of the country's history and institutions. The placement of this function is not crucial to good monetary policy performance, provided the central bank has reasonable access to the relevant information.

Central bank independence in industrializing economies

It is tempting to argue that establishing an independent central bank need not be a high priority in the early stages of development--that because there is typically more need to use the inflation tax, it is less urgent to keep inflation low. While the optimal inflation rate is likely to be higher in developing countries, the evidence is nonetheless clear that inflation is typically too high in developing countries. Nor is there good reason to think that inflation is much less costly in such economies than in more developed countries. I therefore believe that there is a strong case for independence of the central bank in developing countries as well as in industrialized countries.

However, for central bank independence to become effective, the government has to show forbearance by not pressing the central bank for low interest rates, inflationary finance, and quasi-fiscal activities. Similarly, when financial markets are heavily controlled, it is likely to be difficult for the central bank to carry out monetary policy. But, as the economy grows and becomes more complex, and as financial markets are liberalized--and particularly as wholesale interest rates become market

determined and significant international capital flows become possible, the case for an independent central bank becomes increasingly pressing.

III. Monetary Policy Targets and Procedures

There are two basic choices for a monetary policy that aims to preserve the value of the currency: pegging the exchange rate to a stable currency or basket of currencies; or adopting an inflation target. An intermediate regime in which a crawling peg exchange rate regime is used as a nominal anchor in a system in which inflation is the ultimate target of monetary policy is also used in several countries.

Exchange rate anchors

The choice of exchange rate regime is generally made by the government and not the central bank. A successful pegged exchange rate regime ensures low inflation,^{20/} but of course fiscal and monetary policy have to be supportive of the peg if it is to be maintained. One argument in favor of a peg is indeed that it helps focus the mind of the government on a very clear constraint on policy, and thus helps bring about more responsible policies.

Pegs are rarely permanent. This was true even under the gold standard, when countries would occasionally have to suspend convertibility. However, an adjustable peg regime too may help reduce the inflation rate. Countries with a pegged rate regime have on average had lower inflation in the period 1979-1993 than those with floating rates^{21/}, but the direction of causality in this case is hard to determine. Nonetheless, I judge that a

^{20/} Inflation rates in some transition economies have remained above 20 percent per annum even with a fixed exchange rate. In part this is because the exchange rate was undervalued to begin with; in part it results from an increase in the productivity of labor; however, in some cases the domestic inflation may result in an unsustainable exchange rate.

^{21/} The reference is again Fry, Goodhart and Alveira (1995).

country's willingness to accept even a temporarily fixed rate is an indicator of the seriousness it attaches to a low inflation goal.

This is not the place to review the debate over fixed versus floating exchange rates. It has to be noted though that maintenance of a fixed rate becomes more difficult as financial liberalization is undertaken. In particular, countries attempting to maintain a fixed rate or a crawling peg often have to deal with the inconsistency between the foreign interest rate and the interest rate they would prefer from the domestic viewpoint. This is the capital inflows problem that beset so many countries as United States interest rates declined in the period up to early 1994.^{22/}

One popular and suspiciously neat formulation argues that as capital mobility increases, only the two extreme regimes, of pure floating or of truly fixed exchange rates, are viable. A currency board arrangement provides one example of an arrangement more nearly approaching a truly fixed rate regime, but the extent of the adjustments that might have to be made in the event of major swings in confidence may be very large. In such a system, monetary policy should become essentially automatic, and provided confidence is maintained, domestic interest rates should approach those of the anchor currency. It is however becoming increasingly clear that the maintenance of a currency board arrangement may both depend on and put severe demands on the health of the domestic banking system.

An exchange rate peg may be used as a nominal anchor by a country that is stabilizing from high inflation. This approach was used successfully in

^{22/} The capital inflows problem can be dealt with in a variety of ways, including sterilized intervention that increases foreign reserves while keeping the monetary base constant, fiscal contraction that tends to reduce the interest rate differential that lies behind the capital inflow, appreciation of the currency, and controls on capital inflows. Each method has its costs and benefits, and they may be used in combination.

Israel in 1985, Poland in 1990, and--with variations--in Brazil in 1994; it is also being used by several other transition economies.

One major difficulty with exchange rate pegs that has received a great deal of attention in the wake of the ERM and Mexican crises is that the system appears crisis-prone: often, a peg or the pegged rate regime itself is changed too late, and in a crisis. The problem of choosing an optimal time to change the peg or the regime has been named the "exit strategy". Analytically, the question of when to change a peg must depend in large part on an estimate of the sustainability of the current exchange rate, and thus on an estimate of the equilibrium exchange rate. It is conceptually straightforward to define an equilibrium rate from the viewpoint of the current account, but less simple to estimate an equilibrium rate in the presence of capital flows.

While the issue of the exit strategy has not yet been carefully analyzed, it is unlikely that any precise formula for when to exit will be developed: more likely, it will be necessary to form a judgment about the sustainability of the current rate (and the advisability of trying to sustain it), based on projections of the current account, the real exchange rate, and the sustainability of capital flows. In considering how to exit, it will be necessary to analyze cases of successful exit, such as those by Israel and Poland, as well as the lessons from crises. The cost-benefit analysis of pegging will also have to offset the gains on inflation and domestic macroeconomic policy during the non-crisis period against the potential costs of crises.

To summarize, an exchange rate peg may serve as a useful nominal anchor in countries where capital flows are controlled, or in stabilizing from high inflation. A peg to a stable currency may help provide credibility to

monetary policy and impose discipline on fiscal policy, but whatever credibility and discipline is sought, will have to be validated by the subsequent actions of the monetary and fiscal policymakers. And with liberalized international capital flows, the needs of domestic policy may differ from the macroeconomic policies needed to maintain the peg. The policymakers have to learn at least two lessons: never to say never in discussing the possibility of devaluation; and to adjust the exchange rate sooner rather than later.

Inflation targeting

While the general argument for a price stability goal for monetary policy is clear, the existence of a short-run Phillips curve means that day-to-day policy choices need to be more finely specified. One way to deal with this problem is to state that price stability or low inflation is the main goal of policy, but to specify subsidiary real output goals. Another is to specify the inflation goal in the form of a desired path for inflation over the next few years, and to adjust the desired path each year. Yet another way, the Bundesbank way, is to maintain a long-term inflation goal (for example 2 percent per year), and to leave it to the discretion of the central bank as to how rapidly it attempts to reach that target.

There are indeed good reasons for the primacy of a low inflation or price stability goal for monetary policy in the medium-term. Monetary policy is essentially a single policy instrument, and while a poor monetary policy can adversely affect real variables, the evidence suggests that achieving and maintaining price stability is the best contribution monetary policy can make to healthy and sustainable economic growth. In addition, giving the central bank multiple targets makes it difficult to judge the success of monetary policy, and therefore reduces the accountability of the

central bank. By clearly defining the responsibility of monetary policy for low inflation, and by making the central bank accountable for achieving it, the government sets up the right incentives for a low-inflation policy that will gain credibility as it is implemented.

This general goal has to be translated into practice. For some time, it was argued that money growth targeting was the best way to produce low inflation. However, as financial markets have been liberalized, previously reliable empirical relations have broken down in many countries, causing problems for the operation of monetary policy. Such breakdowns have occurred even in a number of the industrialized countries in the face of financial innovation. This is the main reason that money growth rules have fallen out of use, and why central banks in the mid-1990s place more emphasis on interest rates and on a whole array of financial indicators -- the "checklist approach" -- than on the growth of particular monetary aggregates.

One approach to the short-run policy problem is to specify that the central bank should be given a nominal income growth target. This has attractions, particularly in ensuring the right short-run tradeoff when supply shocks hit, but because the public does not pay much attention to nominal GDP growth, and because the data come out late and are frequently revised, this approach is not the right one. Rather, the most practical approach is for the central bank to be required each year to present its goals to the public, showing an inflation path (within a range of inflation rates) by which it intends to reduce inflation to its long-run target level over a period of a few years. The institutional question of how this report is to be presented--whether to the legislature, the general public, or as in

Canada and New Zealand in an agreement with the Finance Minister--has to depend on the country's political structure.

I will conclude by taking up two practical problems in inflation targeting. The first is how to deal with exogenous shocks, such as the oil price shock or changes in indirect taxes or subsidies, to the domestic price level. One possibility is to target a core or underlying inflation rate, rather than the officially measured inflation rate, for example inflation in the consumer price index excluding food and energy prices.^{23/} A preferable alternative, used in both Canada and New Zealand, is to focus mainly on the official measured inflation rate, but to attach explicit caveats to the inflation targets, indicating that the measured inflation rate may temporarily be permitted to go outside the established target band if certain large pre-defined shocks occur.

Finally, I want to take up a few issues relating to the target inflation rate itself. Why not target zero inflation? Note first that a distinction needs to be drawn between an inflation target and a price level target. With a price level target, the central bank is committed to try to get back to the same price level path after each shock. Such an approach, if successful, minimizes uncertainty about the long-run level of prices, and thereby encourages long-run nominal contracting. A zero inflation target by contrast would aim to have zero inflation each period, but would not aim to offset past price shocks. In the long run, the price level would follow a

^{23/} In some countries the official price index inappropriately includes the direct effect of interest rate changes. This problem should be dealt with by correcting the price index, specifically by including the implicit rental cost of housing. If this is not done, a tightening of monetary policy would have the effect of boosting the measured inflation rate excessively, and also inappropriately signal the need for a further monetary tightening.

random walk, as the effects of past shocks cumulatively drive it away from its initial level.

While a price level target has the advantage of keeping uncertainty about the price level in the more distant future at a minimum, such a policy produces less long-run variability in the price level at the cost of greater short-run variability. I therefore believe that a low inflation target approach is preferable.^{24/}

A zero target inflation rate has the benefit of clarity. However, attainment of such a target would require that the economy operate with negative inflation much of the time, and that creates certain problems. In addition, there are biases in the measured inflation rate. The two most commonly recognized biases are quality bias, which refers to the undercorrection for quality changes in new products or new models, and substitution bias, which refers to the typical undercorrection for substitution from higher price to lower price competing products or outlets. It is believed that the bias in the United States is about one percent per annum, with some estimates ranging as high as two percent. Recent work for Canada suggests that the biases there may be less than one percent per annum.^{25/}

In order to leave room for relative price changes, and to take account of the bias in measured inflation, the target inflation rate in the industrialized countries should be about 2 percent, with a target range of 1-3 percent, to be adjusted for exogenous shocks. The target range could be higher--but not by very much--in industrializing countries.

^{24/} This issue is developed at greater length in Fischer (1994).

^{25/} See Crawford (1993). The Reserve Bank of New Zealand (RBNZ) has indicated that a similar quantitative judgement underlies its 0 to 2 percent inflation target. (RBNZ Monetary Policy Statement, June 1994, p.9.)

IV. Concluding Comments

The case for central bank independence is a strong one, particularly in the context of liberalization of financial markets. To operate effectively, the central bank needs to be given a clearly defined task, and the instruments to achieve its goals. In particular, it has to be free of any obligation to finance the government budget, or to take on quasi-fiscal activities. It is essential that the central bank be held accountable for achieving its targets.

In all cases, the central bank should include among its goals the preservation of the value of the currency. In some circumstances, this can be done best by pegging the exchange rate. Where such an approach is not sustainable or advisable, it is best to operate with explicit inflation targets, specified in the form of a target path for the inflation rate that may adjust for exogenous shocks.

The optimal inflation rate for an industrialized economy is probably around 2 percent per annum; for an industrializing country, the optimal rate may be higher, but not by very much. The operating procedures for monetary policy have to deal with the short-run Phillips curve tradeoff, both in deciding how to adjust for supply shocks and tax effects, and in deciding how rapidly to try to reduce inflation. This is best done by specifying a target path over time for the inflation rate, within a range.

In some countries, central banks are given the responsibility for supervising the banking and financial systems. The central bank is bound to take an interest in the financial system, but the argument for whether banking supervision should be located within the central bank is finely balanced.

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