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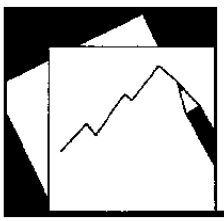

IMF Working Paper

Monetary and Fiscal Coordination in Small Open Economies

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INTERNATIONAL MONETARY FUND

WP/00/56

IMF Working Paper

Monetary and Exchange Affairs Department

Monetary and Fiscal Coordination in Small Open Economies[1]

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March 2000

Abstract

This paper is concerned with the design of institutional arrangements for low inflation in small open economies. In the real world of information asymmetries, uncertain expectations and changeable preferences, it is not enough to create an autonomous and publicly accountable central bank. In addition, the central bank and the treasury must work together on the design, implementation, monitoring and, when necessary, the revision of macroeconomic policy, and on providing the public with information on ongoing economic developments and interpretation of the macroeconomic strategy.

JEL Classification Numbers: E63, E58

Keywords: Monetary Policy, Central Bank Independence

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[1]The arguments developed in this paper were first presented in Worrell and Belgrave (1997). I have benefited from the comments of the participants in the UN ECLAC seminar on fiscal policy, Santiago, January 1997. I am also grateful to Simon Cueva, Maxwell Fry, George Iden, Luis Jácome, Gene Leon, Alfredo Leone, Tonny Lybek and Janet Stotsky for their helpful comments and suggestions. All views expressed are those of the author and do not necessarily represent the official view of the International Monetary Fund.

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I. INTRODUCTION

It is generally accepted that low inflation is welfare enhancing, and, economically desirable. The prevailing opinion, which is not without its critics, is that an autonomous central bank is the most hopeful mechanism for achieving low inflation, though it is less than an ideal solution.[1] The central bank should be empowered by law and precedent to apply the tools of monetary policy without prior approval of the treasury,[2] prohibited by law and custom from lending to government or quasi-governmental organizations on non-market terms, and accountable to parliament. Ideally, monetary policy ought to be fully integrated with fiscal policy and other elements of macroeconomic strategy, but in the real world perfectly coordinated policy is unknown.[3] Fiscal and monetary authorities should share information with each other and with the general public, and should be in regular contact on the analysis of current events and the formulation and monitoring of policy. However, final responsibility for monetary policy should be distinct from the responsibility for fiscal policy, and should rest with the central bank because of the danger that the treasury would otherwise pressure the central bank into inappropriate monetary policy.[4] Indeed, there are numerous examples of just such an outcome.

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[1]The concepts of autonomy and accountability, which appear in recent IMF publications, are more explicit than the more commonly used word "independence." In guidelines prepared for use in its technical assistance work, the IMF envisages the following arrangements for accountability and autonomy: the publication of inflation, exchange rate or monetary targets, authority for the central bank to determine quantities and interest rates on its own transactions without interference from government, a clear and open process for resolving conflicts between the central bank and government, and administrative and financial independence for the central bank. See Lybek (1998).

[2]In this paper the term "treasury" is used to refer to the agency that draws up the government budget, receives government revenues, controls the disbursement of expenditures within limits approved by a parliament, and manages the government's cash flow and financing. The term is used interchangeably with "ministry of finance."

[3]If fiscal and monetary policy were "perfectly coordinated and chosen" there would be no need for an independent central bank. But in the real world political systems are myopic (Fischer, 1996).

[4]Theoretical arguments for central bank independence (CBI) derive mainly from public choice perspectives that central banks are more conservative than governments and that fiscal deficits will be monetized if fiscal policy dominates monetary policy; and from time inconsistency perspectives, that present plans may no longer be optimal at the time of implementation, and that central banks have longer horizons than governments. Theoretical arguments have as their point of departure Rogoff (1985), Persson and Tabellini (1993), Kydland and Prescott (1977) and Barro and Gordon (1983). Among the caveats and objections to propositions in favor of CBI are (1) difficulties may arise because of credibility

(continued...)

While this is a balanced interpretation of, and practical advice for large industrial countries, and perhaps large developing countries as well, typically central banks in small economies do not try to attain monetary targets that are inconsistent with the fiscal stance, even when targets are outside the range they prefer. This study is motivated by experience and observation of central banks in small countries with a history of low inflation that in practice have not ever taken monetary initiatives without treasury approval. They include Aruba, the Bahamas, Barbados,[5] Belize, the Netherlands Antilles, the countries of the Organization of Eastern Caribbean States (OECS),[6] and Trinidad and Tobago in the Caribbean; Fiji, Kiribati and Vanuatu in the South Pacific; and Mauritius[7] in the Indian Ocean. Other small countries have brought inflation under control under similar institutional arrangements, designed to ensure that monetary policy initiatives are fully endorsed by the treasury before they can be put into effect (and frustrating monetary proposals that are not approved by the treasury). Among them are the Dominican Republic, Guyana, and Jamaica in the Caribbean. Empirical results of tests of the effectiveness of central bank independence (CBI) for developing countries, most of which are small and open, are consistent with this

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of policy announcements, not time inconsistency (Forder, 1998); (2) it is difficult to achieve CBI if government changes targets, when there is a credibility problem (Lippi, 1998); (3) CBI may be endogenous (Posen, 1993, Eijffinger, 1997); (4) the central bank may share government's (and markets') short time horizon; and (5) shallow financial markets may incapacitate monetary policy. Furthermore, it can be shown that a central banker who has no concern for inflation may maximize social welfare, if wage setting is highly concentrated (Velasco and Guzzo, 1998).

[5]The Central Bank of Barbados has had a high degree of legal independence from its inception in 1972. The Bank's Board of Directors has final responsibility for monetary policy, although it must inform the Minister of Finance, who may overrule the board but must then seek parliamentary approval, submitting both the central bank's views and his own to parliament. Barbados has achieved sustained growth, low inflation, and a credible long lasting exchange rate peg, despite the fact that the central bank has studiously avoided any of the provisions that allowed it to distance its activity from the ministry of finance, even when excessive fiscal deficits resulted in borrowing from the central bank in excess of statutory limits.

[6]The Eastern Caribbean Central Bank (ECCB), the central bank of the OECS, is among the most highly regarded of very small central banks, notwithstanding the fact that the Monetary Council, its highest policymaking body, is composed entirely of ministers of finance.

[7]Fry, Goodhart and Almeida (1996) note the crucial importance of a cooperative institutional framework of monetary-fiscal coordination for successful policymaking in Mauritius.

experience, failing to detect any significant association between a variety of indices of CBI and low inflation.[8]

Moreover, the theoretical justification for central bank independence weakens in the case of small economies, which, as they become less subsistence-oriented, become more open. Monetary and exchange rate policies are the opposite sides of the same coin in open economies. Therefore, if the central bank is to have final responsibility for monetary changes, it may in effect determine the exchange rate. Economists have pointed out that central banks in open economies are not independent, in fact, unless they have final authority over the exchange rate.[9] Furthermore, fiscal policy changes affect both monetary and exchange rate targets and outcomes, and these effects are especially strong in small economies because, as explained later, it is difficult to close the capital account. In effect, monetary policy targets are always conditional on fiscal policy, and especially so for open economies. This trivializes the notion of CBI, in circumstances where government follows an inappropriately expansionary fiscal policy. An independent central bank in these circumstances is at liberty to use any instrument it chooses, but an acceptably low inflation target is unattainable.

The implication is that effective monetary-fiscal cooperation in the formulation and execution of policy and in monitoring its effects and reacting as necessary is the only framework within which policy may be successfully conducted in small open economies. Support for this view is growing, not only in the case of small open economies, for which the strongest case may be made. In a study of developing countries Fry (1997) arrives at essentially this conclusion. Demertzis, Hughes Hallett and Viegi (1999) also argue in favor of a cooperative framework between the central bank and the fiscal authority. Allsop and Vines (1998) argue that it is "more sensible" for the European Central Bank to adopt a cooperative approach than to attempt to discipline other aspects of policy, including fiscal and labor market policy. Eiffinger and de Haan (1996) emphasize the importance of

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[8]While some studies do find an association between low inflation and central bank independence, it is usually not possible to determine whether CBI is the cause or effect, and there is some evidence that contradicts the proposition that CBI promotes low inflation. See, for example, the results of tests on an extensive sample of countries by Cukierman, Webb and Nyapti (1992) and Cukierman and Webb (1995). Wood (1992) finds that CBI does deliver low inflation, but is not essential for low inflation. Posen (1993) argues that it is the political muscle of interest groups that delivers low inflation. Siklos (1994) points out that East Asia had better inflation performance than Latin America, with less independent central banks. Tullio and Ronci (1996) find that CBI contributed to containing inflation in Brazil, but it was not a major factor.

[9]Allowing a free exchange rate float does not escape this dilemma, as the exchange rate outcome may be inconsistent with monetary targets, for example where high inflation results. Put another way, it is impossible to assign monetary and exchange rate policies to different objectives (Johnston and Sundararajan, 1999).

coordination of monetary and fiscal policy for ensuring credibility. Valila (1999) recognizes that inconsistency of monetary and fiscal policies is a source of lack of credibility, and recommends that central banks' conservative nature be consistent with other policies. Mas (1995) suggests a focus on financial reforms to bolster opposition to inflation and support for direct imposition of fiscal discipline.

This paper argues that the institutional arrangements for low inflation policy in small open economies must make provision for several situations—effective coordination of monetary and fiscal policies, communicating with the public, and ensuring that economic targets reflect public preferences. This study further supports the view that the central bank should have powers of decision making in the monetary sphere, and that it be accountable for its actions to the public. It is equally important that arrangements be in place to ensure that monetary and fiscal policies are consistent with each other, ex-ante, if the central bank's actions are to have credibility. The treasury must also build a reputation for competence and financial discipline. Together with the central bank, the treasury should jointly inform the public on economic developments and economic policy and they must read the public pulse to reflect social preferences with respect to trade-offs between economic targets. The second section reviews the features which make fiscal-monetary cooperation vital for small open economies. The third section suggests institutional arrangements that address the problem of coordination when financial market prices do not provide the information required for that purpose.

II. Interdependence of Monetary and Fiscal Policies in Small Open Economies

A. Limited Effectiveness of Monetary Policies in Small Open Economies

It is widely agreed that monetary policy is ineffective in small open economies with fixed exchange rates. In such cases, any displacement of monetary equilibrium results in capital flows rather than changes in expenditure that might alter prices or output, even in the presence of capital controls. In the short-run, controls may inhibit capital movements, but eventually avenues will be exploited to get around controls, including the creative use of trade credit and the development of parallel market institutions. Admittedly capital flows will not respond to relatively small changes in interest rates, which are too small to compensate for the costs of foreign currency transactions. There may therefore appear to be some narrow scope for monetary policy, but expenditure is typically not sensitive to small interest rate movements.

Small economies with flexible exchange rate regimes have proven susceptible to contagion and exchange rate instability. As a result, a body of opinion has grown in favor of pegged exchange rates for small open economies, supported by consistent fiscal and other macroeconomic policies.[10] To protect such economies against speculative attack or other

[10]IMF, *World Economic Outlook*, October 1997.

sources of exchange crisis it is recommended that the peg be secured with binding commitments, for example in the form of a currency board (Baliño, 1997).

In the absence of information asymmetries and credibility effects, central banks in countries with flexible exchange rate regimes have greater scope for monetary policy. Exchange rate changes may validate monetary policy initiatives or reinforce their effects. For example, if the central bank auctions additional government paper to absorb liquidity, domestic short-term rates increase, wealth holders find domestic financial assets more attractive, capital tends to flow inwards, and the exchange rate appreciates. This provides an exchange rate channel which supplements the direct effects of interest rate changes and effects via money and credit mechanisms.

In practice, however, flexible exchange regimes typically suffer from information asymmetries, and volatility in the exchange rate generally affects the central bank's credibility. In some circumstances, there may not be general agreement of the business and financial community that monetary policy is appropriate or timely, even when monetary objectives are clear. In other circumstances monetary objectives themselves are a cause of dispute. Often there are doubts that the central bank will sustain its policy, especially where it is seen as eroding the country's competitiveness.

Monetary policy loses its effectiveness in any one of the above circumstances. Rather than provoke capital movements which reinforce the thrust of monetary policy, increases in interest rates may cause uncertainty about the future of the exchange rate and inflation. Several scenarios are possible under these circumstances: capital movements may not take place, or they may move in perverse directions; a large domestic interest rate increase may be required to effect the desired capital flow—an increase much larger than the monetary targets would have warranted; or the central bank may defer action, even when monetary targets are in danger of being breached, for fear of the effects of interest rate changes on the volatility of the exchange rate.

A large number of small open economies whose exchange rate is nominally floating maintain de facto pegs, usually to the U.S. dollar, but sometimes to the currencies of major trading partners. For example, McKinnon (1999) shows quantitatively that the currencies of South East Asian countries were effectively pegged to the U.S. dollar before the recent crisis, even though none was so designated officially, and his view is widely shared by international financial markets. The many varieties of exchange rate regimes in the Caribbean—independent floaters such as Guyana and Haiti, managed floaters such as Jamaica, the Dominican Republic and Suriname, and pegged exchange rate countries[11]—have shown identical patterns of unchanged values in terms of the U.S. dollar, interrupted by periodic devaluation in some cases (Worrell, 1998). The Mexican peso, ostensibly floating since

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[11]Categorization according to the IMF(1999a).

1995, in fact, has shown a similar pattern of periods of stability, lasting about 12 months on average, interrupted by bouts of volatility (Carstens and Werner, 1999).[12]

Moreover, most small open economies with flexible exchange rates do manage the rate to a greater or lesser degree, which subsequently constrains their monetary policy to the same extent. It may be that the rate is managed by foreign exchange accumulation or sales of foreign currency from reserves, in which case the impact of monetary changes will appear as changes in foreign exchange reserves, reducing the monetary effects on output and holding down prices to the same degree. Alternatively, management of monetary policy may be given over to adjustment of the exchange rate, to avoid devaluation or to improve competitiveness.

When all of these factors are taken into account, there remain few small open economies where monetary policy is likely to have a significant impact on inflation or output. The prevalence of floating exchange rates among small open economies is more apparent than real, and even when the exchange rate floats it is often necessary to use monetary instruments to stabilize the exchange rate.

B. Financial Discipline on Government Expenditure

In a closed economy, an autonomous central bank imposes financial discipline on government spending through market intervention. When the public sector borrowing requirement rises, the central bank sells government paper, bidding up the interest rate and choking off expenditure until the balance of supply and demand of loanable funds is restored. However, in an open economy, as we have shown in the previous section, rising interest rates may attract capital inflows, which may directly or indirectly finance the increased government deficit.[13] [14] Similarly, attempts by the central bank to ease the fiscal constraint by

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[12]It is a mistake to believe that the preference for exchange rate management is simply obstinacy on the part of governments. In fact, exchange rate instability is abhorred by the overwhelming majority of market participants—pure speculators excepted—for good reason: it makes long-term investment unprofitable and forces wealthholders who would prefer long-term investment to join in speculative activity or hold U.S. dollars.

[13]Where the economy is large, for example in the case of Brazil, Mexico or Russia, growing demand for government finance from the international community might well raise the cost of foreign borrowing (the country premium), so that a domestic interest rate increase will not necessarily cause a capital inflow; but for small countries their government's demand for funds will have no impact on the cost at which they borrow.

[14]Capital controls of the so-called "Chilean type" are effective when economic fundamentals are sound; in this case fundamentals are perceived to be unsound, and the potential gain from exploiting policy inconsistency will almost certainly be larger than the tax on short-term capital flows.

purchasing government paper from the market may well result in an outflow of the proceeds by the agencies that sell government securities to the central bank, rather than a general fall in interest rates.

Financial discipline becomes costly and uncertain when we take account of information asymmetries, expectations and credibility effects. If financial markets come to believe that the public sector borrowing requirement is too high, expectations may arise of an acceleration of inflation and/or a depreciation of the exchange rate. In such circumstances, very high domestic interest rates may be required to avoid capital flight. As a form of financial discipline this is extremely costly, involving a sharp worsening of the trade off between output growth and inflation control.

In the past, international financial markets have been slow to detect when increasing demand for finance from small countries is the result of deteriorating fiscal performance. Increases in the demand for loans that are substantial from the country's viewpoint are often welcomed by international institutions, anxious to avoid a proliferation of small transactions. In due course, the creditworthiness of any particular government may decline, with financing becoming increasingly scarce and costly. Often a country's financial discipline is very tardy and hence extremely severe. Higher standards of disclosure and wider prevalence of ratings by private agencies for countries and financial institutions should alleviate this problem, but neither is likely to eliminate it in the near future.

A prominent item in the recommended constitution of central banks is the provision to limit the central bank's lending to government. Too often in the past monetary targets have been exceeded because governments have borrowed from the central bank in excess of amounts projected. This has occurred in spite of legal limits on government borrowing from the central bank, which have long been a feature of central bank statutes. In spite of these statutes, conscientious governments have used parliamentary majorities to raise the legal limit beyond levels consistent with monetary targets; in other cases the legal limit has simply been ignored. A code of fiscal conduct, recently promulgated, is intended to expose episodes such as these.[15] However, while in some cases this could bring on the sanction of increased costs of foreign finance and loss of access to the international financial markets, domestic sanctions are very uncertain, as is explained in the following paragraphs.

Typically, excess borrowing from the central bank usually is unplanned. What happens is, the government writes checks on its central bank account in excess of the available balances. These checks must be honored, if markets are not to lose confidence in fiscal policy. To cover the deficiency in the government account the central bank offers short-term credit to the government, which usually earns interest at the rate for short-term paper. Public opinion does not always prove an effective sanction on this lending, even when

[15]See IMF,(1999b).

the fact of government exceeding legal limits is well known and publicly debated.[16] The sanction becomes effective only when there has been sufficient deterioration in general economic performance resulting from excess government finance to cause the electorate to reject the ruling party at the time of the next general election. In practice, that link can seldom be demonstrated beyond question, because so much else impacts on economic performance. Sanctions after the fact of government expenditure are unlikely to be effective; to have an effect, financial discipline must be exercised on government spending ex-ante, or before expenditures are needed and central bank loans are spent.

A further reason for ex-ante financial control is the need to manage government deposits with the banking system. The government, its departments and agencies will maintain operating accounts with the banking system, which may be drawn upon to secure finance beyond limits consistent with monetary policy objectives. The decline in bank liquidity which results may induce a rise in interest rates, with consequences for capital flows and the exchange rate, as discussed earlier.

Previously, financial constraints have been evaded through the use of government-owned financial institutions to provide credit to government on terms not consistent with market conditions. In recognition of this, governments are advised against ownership of controlling interests in financial institutions, and the regulatory framework should make no distinction between institutions owned by government in whole or in part, and those in private hands. All should be held to the same prudential standards. Off-balance sheet operations, such as explicit or implicit government guarantees of bank credit to state agencies, and forward contracts in foreign currency, have also been used to avoid limits on government borrowing, or at least to postpone the impact for long enough to render the monetary strategy ineffective. The code for fiscal operations and disclosure standards mentioned above addresses this problem, but it is recognized that in practice it has been difficult to prevent government borrowing from state-owned banks, precisely in those circumstances where financial limits are needed.

While these institutional arrangements are a major step forward in improving the efficiency of government finance and the conduct of monetary policy, it is more effective to remove the need for government to violate financial limits, by agreeing that government financing should be done on an ex-ante basis, with monitoring and reviewing progress executed on an ongoing basis. This has the added benefit of avoiding the buildup of arrears, one of the most significant obstacles to orderly government financial arrangements in many countries.

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[17]This was the case in Barbados in 1989 and 1990. In spite of borrowing from the central bank, which rose to over 17 percent of government revenues, compared with a statutory limit of 10 percent, which was debated prominently in parliament and widely diffused by the media, the incumbent administration retained their mandate with a comfortable majority in the general election of 1991.

C. Coordination and Credibility

The constitutions of many central banks established in the 1970s make provisions for central bank autonomy and accountability which compare favorably with current best practices, though they do not provide for single minded focus on inflation targets. However, both central banks and treasuries in small open economies have gone to great lengths to avoid any overt difference of opinion on economic performance or policy. The invariable consequence of any appearance of conflict among the authorities is an increase in uncertainty in financial markets, a loss of credibility of macroeconomic policies, and an increased probability of price and output instability. The great fear of central bankers and ministers of finance in small open economies is of provoking capital flight by exposing policy differences between the fiscal and monetary authorities.[17]

In well-developed financial systems, markets can be relied upon to coordinate monetary and fiscal policies, albeit with varying degrees of synchronization. This mechanism does not exist in underdeveloped financial markets (Sundararajan, Dattels, and Blommestein, 1997). Such a market-driven process of adjustment, via interest rates, exchange rates, and forward premiums, also does not exist in small countries, whose financial balances are principally driven by cross border flows.

Conflict between the central bank and the treasury may undermine the credibility of macroeconomic policy even if not openly acknowledged by either party. Where government's financing requirements are so large as to be inconsistent with the inflation target, given expected economic performance, central bank action to market government debt may attract short-term capital inflow rather than an increase in domestic finance for government. The exchange rate may appreciate and/or the current account may deteriorate, with a greater proportion being financed by short-term capital. This combination of developments—a rising deficit, higher short-term interest rates, short-term capital inflows and a widening current account deficit—will eventually be perceived by the markets as unsustainable, and the capital flow will be reversed.

D. Uncertainties about Monetary Transmission

In all countries, the causal link between monetary instruments and their targets is difficult to quantify, and subject to a variety of interpretations. The impact of changes in monetary instruments on target variables appears after a lag of uncertain—and possibly variable—duration. During that time, the economic environment changes, and there may be further changes in policy, including changes abroad affecting local conditions (for example,

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[17]However, it is an acknowledged problem for all countries. The low credibility of British monetary policy under the John Major administration is reflected in the ironic moniker for fiscal and monetary policies: 'the Ken (Clark) and Eddie (George) show.'

an increase in foreign debt service costs).[18] The magnitude of monetary policy effects remains open to interpretation because of these simultaneous effects. The credibility of monetary policy depends largely on the central bank's ability to offer a convincing defense of that policy.

In small open economies, monetary policy faces additional uncertainty because of discontinuities in the reaction to interest rates. Small changes generate no reaction, because they do not cover the information and transactions costs of portfolio adjustment or changes in planned expenditure. Moreover, different categories of expenditure react differently to interest changes, and with varying lags. Up to some point, buyers will seek to maintain intended levels of expenditure by arranging for new terms of finance (such as a longer maturity) or by adjusting cash flow. When the limits of such accommodation are reached, investment expenditure is usually the first affected, including housing. Consumption expenditure is usually less elastic to interest rate changes.[19] The ill-defined interest rate threshold makes monetary outcomes more uncertain than they would otherwise be, large interest rate movements mean that the output cost of monetary correction is high, and the greater sensitivity of investment (than consumption) means that these output costs may be long lasting.

In open economies, interest rate changes may affect the proportion of domestic money that is held in foreign currency by altering the domestic currency premium. If that premium falls below the expected depreciation of the exchange rate, an increasing proportion of domestic financial assets may be switched to foreign currency, and vice versa. This creates further uncertainty in the design of monetary policy, since it requires the central bank to estimate the proportion of domestic money which is held in foreign exchange with a view toward the public's perception of future exchange rate movements. Baliño and others (1999) point out that dollarization limits the policy options open to monetary authorities and complicates the choice of intermediate targets. A high degree of dollarization strengthens the case for an exchange rate peg.

E. Central Bank Objectives

In addition to the issues of monetary policy limitations, fiscal dominance, problems of coordination and credibility and uncertainties in the money transmission mechanism—all factors which have proven especially troublesome for small open economies in the conduct

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[18]Svensson (1998), recognizing that the biggest problem facing central banks is their uncertain control of inflation, suggests that uncertainty can be minimized by targeting forecast inflation, which is conditional on macroeconomic assumptions, rather than actual inflation.

[19]For an elaboration of this issue, in the context of a discussion of the transmission mechanism in small open economies, see Worrell (1996).

of monetary policy—there are qualifications to the case for monetary policy independence which apply generally across countries. One has to do with the presumption that central bankers will be more conservative than treasuries, or that a constitution can be so formed that it guarantees, or at least makes probable, the selection of a central banker with a long horizon. Unfortunately, there is little evidence that in practice central bankers are more conservative than treasuries, or that they have longer time horizons.[20] In many countries, it may well be that the treasury shares the central bank's conservatism, but must confront expansionist tendencies of spending ministries.[21] The conservatism of the central bank is ineffective if the treasury does not prevail against the spending ministries, especially if the economy is open and monetary policy is subject to the limitations discussed earlier.

Few central banks—even in industrialized countries—claim to be totally single minded in the pursuit of low inflation. Once they have determined the quantity of money consistent with the inflation target, members of the bank's policymaking body will consider the implications for growth, employment and the balance of payments, before deciding how quickly they should move towards their targets (in cases where the targets are set by other bodies) or whether the targets themselves should be modified (in cases where the central bank is not precommitted to achieve an announced target).

In developing countries, output stability is less important than investment which places the economy on a sustainable expansion path. Tight monetary policies may involve a disincentive for investment, as noted above. Central banks have been unwilling to tighten monetary policy in some circumstances for fear of cutting off investment, while in other cases inflation control has been secured at the price of economic stagnation.[22]

For small open economies, inflation and exchange rate objectives are virtually the same.[23] Where the import content of consumer staples and producer goods is high there is

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[20]It is sometimes argued that long-terms of office for central bankers, timed out of sequence with the political cycle, provide the central bank with a long time horizon. Such arrangements offer the bank a desirable degree of administrative autonomy, but they do not affect the bank's preference function.

[21]That has been the author's own experience.

[22]In Jamaica, in 1990–92, inflation was reduced from about 30 percent per annum to less than 10 percent, using fiscal contraction and positive real interest rates. However, nominal interest rates have remained high ever since, resulting in real interest rates approaching 20 percent per annum. At these interest rates investment is not profitable—except for investment in U.S. dollars, where rates are lower—and economic growth has stagnated.

[23]Put another way, changes in the real exchange rate do not correlate with changes in the nominal rate. The roots of such changes are structural supply changes, factor productivity changes, fiscal policy changes, terms of trade changes, and changes in tastes and technology.

little leverage to contain inflation, other than by moderating the depreciation of the exchange rate.[24] While this removes a dilemma that continues to plague monetary policy in industrialized countries that are very open, it reinforces arguments that monetary policy is not independent of exchange rate policy, and that whichever institution is charged with responsibility for exchange rate policy will in effect establish monetary policy as well. It is very difficult to find examples of treasury departments which will take a hands off attitude to monetary policy under these circumstances.

Another potential source of conflict is the central bank's role as lender of last resort for the financial system. While the central bank may allow small banks to fail, it cannot contemplate the illiquidity or insolvency of a major bank, because of the danger of contagion and systemic crisis. The central bank and government may take steps to alleviate the risk of systemic failure through effective supervision of financial institutions and explicit deposit insurance, while government undertakings to offset the cost of financial restructuring by adjusting expenditures within the fiscal budget targets will preserve an unchanged monetary stance. However, the supervisory measures do not completely eliminate the risk that the central bank may be called upon to bail out a large institution in circumstances where this would increase the supply of money by enough to deflect monetary policy from achieving low inflation. Monetary outcomes also become more uncertain because it is difficult to forecast the ultimate cost of failed financial packages. Furthermore, the expenditure correction—to finance restructuring of failed financial institutions—may take effect with a lag, which may also cause monetary policy to go off track.[25]

F. The Central Bank in the Decision-Making Process

The framework of decision making used for discussion of central bank independence differs fundamentally from what central bankers experience in practice. It envisages a population, including the central bank and treasury, all with known preferences, shared information on economic performance, agreement on the economic outlook and common views on the expected outcome of any policy change. In practice, preferences become apparent only with the evolution of economic events, and many decision makers, not to mention the public at large, may fail to take full account of information that is in the public domain. There is always a range of views on the economic outlook, and the mechanisms by

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[24]In large countries, there may be conflict between the exchange rate and inflation objectives, where monetary policy should be tightened to contain inflation, but tight money results in an appreciated rate which depresses exports. This conflict does not arise in a small open economy because nominal appreciation leaves the real exchange rate little changed, thanks to the high import content of production.

[25]The credibility of government commitment to fully fund financial restructuring by making cuts elsewhere in the budget might also be questioned.

which policies affect economic outcomes are a matter of ongoing research and debate, as are the magnitude and timing of such effects.

In these circumstances, institutions such as the central bank have the skills and authority to collect, analyze and disseminate information that may influence the popular preference function. That is very different from being able to determine what trade-offs the public will agree upon or settle for. Economic policy and economic events will, in the end, be governed by public choices which are not fully within the control of the authorities. However, public choices may themselves be in a state of flux, and may be affected in significant ways by the views of the authorities and the credibility which they enjoy.

The central bank is always accountable to some political authority, in the final analysis, but its role in the process of securing a popularly acceptable economic trade-off goes beyond accountability to parliament. Through the information it gives to the public, the authority with which the governor speaks and the plausibility of its analysis, the bank has the opportunity to make a major impact on public perceptions of economic performance and policy, and therefore on the targets that society, through its representatives, seeks for itself. The quality, timeliness, and accessibility of public economic information, though not easily quantified, is recognized as a vital element in securing credibility for monetary, as well as for fiscal and other policies.

It is unrealistic to suppose that the targets and instruments of monetary policy may be isolated from the process of achieving national understandings about the economic trade-offs that will result. The best route to appropriate monetary and fiscal policies is to inform and influence the agents and institutions who are involved in achieving these understandings. This point may be illustrated with reference to two instruments which have proved extremely sensitive in a wide variety of countries: mortgage interest rates and exchange rates.

In societies where home ownership is widespread, a significant increase in mortgage interest rates may mean a loss in real income for a large number of households. The prospect that such an increase may be successfully implemented depends, not so much on the central bank's independent authority over interest rate policy, as the extent to which those affected may be persuaded to accept the adjustment, however reluctantly, in the interests of the economy as a whole. The same is true to an even greater degree with respect to the exchange rate, particularly in small open economies where the impact of exchange rate changes is pervasive.

III. Coordination and Autonomy

A. Alternative Frameworks for Coordination

The issue, as yet unresolved in the literature, is the design of institutional arrangements for low inflation in countries where financial markets do not provide an effective mechanism for ensuring the consistency of monetary and fiscal policies. Feasible institutional arrangements for countries which have developed financial markets involve the

institutional separation of the objectives, functions and instruments of the monetary and fiscal authorities. The central bank is autonomous and accountable to parliament and the public for the achievement of an agreed-upon inflation rate, monetary or exchange rate target. The operations of the central bank and treasury are carried out in a transparent way, with a clear and open assignment of responsibilities. Financial markets and the general public are kept fully informed of economic developments and policy changes.[26] The coordination of monetary and fiscal policies is achieved by way of financial markets, through changes in interest rates, exchange rates and futures prices, and the responses they elicit from policymakers. Such coordination is not without difficulty, and can sometimes lead to financial market instability, but the market does provide a working mechanism in this case. Sundararajan, Dattels and Blommestein (1997) provide illustrations of the process at work in some OECD countries.

It is unclear, in the existing literature, how monetary-fiscal coordination is to be achieved in the absence of a well-developed financial market which provides reliable signals to policymakers and the public alike. The conventional view, reflected in Laurens and de la Piedra (1998) is that a clear delineation of responsibilities will suffice. The central bank and the treasury should coordinate their objectives and agree on the size of the deficit and how it should be financed. They should also coordinate operating procedures, clarifying for themselves and the general public who has responsibility for debt management, cash management and liquidity forecasting, as well as who is responsible for observing rules insulating the central bank from the government's borrowing requirements.

However, these arrangements lack an adjustment mechanism to reconcile monetary/fiscal inconsistencies, as may be seen by comparing them with the institutional arrangements for countries with well-developed financial markets. If the fiscal deficit is inconsistent with the inflation or exchange rate target, interest rate changes and forward premiums do not move in ways which cause appropriate adjustment, as they would in developed financial markets. The reasons are those discussed in the previous section: capital flows and information asymmetries that limit the interest responses of the financial market, and make it difficult to interpret market signals. Similarly, monetary initiatives, such as open market operations, may not have the desired effects on the extent or sources of financing for government.

The alternative is to coordinate monetary and fiscal policy ex-ante, so that their impact on financial markets is mutually consistent. Sundararajan, Dattels and Blommestein (1997) explicitly acknowledge that this is necessary in the early stage of financial market development because debt instruments are also used for monetary policy, for example in treasury bill auctions. However, the argument extends to all small economies, because they

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[26]See IMF (1999c).

all lack an effective interest rate adjustment mechanism.[27] In effect, fiscal policies must be designed to be consistent with monetary targets, and they must be adjusted as necessary to compensate for any errors in forecasting their effects.

The recommendation for ex-ante fiscal-monetary coordination reawakens the specter of fiscal domination of monetary policy, however. These arrangements do not guarantee that the fiscal and monetary policy mix that is chosen will be consistent with the public's preferences for the rate of inflation, the exchange rate or the rate of growth. The fact that provisions have been made for the autonomy and separate accountability of the central bank will not secure the desired outcome, in the absence of a financial market mechanism which provokes a change in the fiscal stance. The central bank may well declare the deficit beyond the legal limit it may finance, but it can do nothing to prevent the government from securing finance elsewhere, at home or abroad.[28] In these circumstances legal provisions for resolving conflicts between the central bank and the treasury are unlikely to be exercised, for fear that exposure of such conflict will erode confidence, as discussed in Section II.

Institutional arrangements for achieving low inflation involve both institutional separation of objectives, functions and instruments, and an effective financial market mechanism for signaling, together with coordination between the fiscal and monetary authorities. In small economies, and in underdeveloped financial markets, the market mechanism is missing, and the separation of responsibilities by itself will not guarantee the desired outcome. In these circumstances, consistent policies are assured only when the fiscal and monetary authorities share the preference function of the general public. They therefore require institutional arrangements that will attain a consensus on economic policy. This is a dynamic process, involving the interaction of the monetary and fiscal authorities with financial markets and the public, to:

- inform the public about economic conditions and prospects;
- solicit information about public preferences and acceptable tradeoffs;
- jointly commit to targets, which reflect public preferences, and explain the policies to be implemented to support those targets; and finally
- maintain an ongoing dialogue between the central bank, the treasury and the financial markets on economic performance, policy and prospects.

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[27]Conventional wisdom is that as financial markets are opened to external competition, these mechanisms will emerge. In practice, the financial markets of many of the countries listed in the introduction have never been closed to international competition, in spite of which there has been limited competition, where markets are dominated by a few international banks. Moreover, the experience of countries which have liberalized their financial markets is of greater market concentration and less price competition.

[28]In extreme cases, the government can secure financing simply by lifting the legal limits on credit to government by the central bank, or by accumulating arrears.

Such an arrangement provides for fiscal and monetary discipline through the sanction of informed public opinion. In principle, this is quite similar to monetary frameworks in developed financial markets, such as inflation targeting, which also depend on a commitment technology rooted in public opinion. In execution, however, the process is different for small countries, where there can be no separation of fiscal and monetary policymaking because of the absence of a conflict resolution mechanism.[29]

Instead of an institutional device to reconcile the preferences of the monetary and fiscal authorities, the proposal is to make them coincide with national preferences at all times. This is the ideal situation, but one that economists argue that it is unattainable. In fact, versions of this arrangement have worked reasonably well, at least in small countries. Admittedly these arrangements are not completely free of tension and inconsistency because interpretations and analysis may vary, even when objectives are shared. However, the same may be said for the arrangements for central bank autonomy in countries with developed financial markets; they are by no means a guarantee of the seamless and uncontroversial evolution of economic policy. In any event, because there is no mechanism for reconciling fiscal and monetary policies, small economies have little option, other than to take a single point of departure for both policies at all times if they are to avoid loss of credibility. Moreover, the targets of policy must reflect the socially desired trade-off, if they are to benefit from the social sanctions that prevent policy deviation and, more important, the expectation of policy deviation.

B. Institutional Arrangements for Low Inflation in Small Economies

Reading and informing the social consensus

The social consensus on the economic trade-offs is what provides sanctions to ensure the consistency of fiscal and monetary policies and to motivate adjustment when necessary to achieve the targets. The better informed is this consensus, with respect to economic developments and the processes of economic interaction, the more effective are the sanctions. In the best of circumstances, there will remain differences of opinion and open debate on the feasible trade-offs and the desirable policies. However, an ample supply of data and analysis at least minimizes debate on the facts, and may help to narrow the range of conflicting opinion on policy. Both the central bank and the treasury may play an active role in providing information, a task to which other government departments with economic responsibilities may also contribute.

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[29]The need for social sanctions in developed financial markets is well recognized. For example, Cottarelli and Giannini (1997) point out that the key issue for monetary stability is the creation of an ethos of price stability. This ethos, embedded in the social consensus, is the foundation on which the monetary framework stands, and no commitment mechanism can take precedence over the social consensus.

The authorities will inevitably influence the process by which social consensus is achieved. This is achieved by the quality and timeliness of the data the authorities provide to the public, the quality and accessibility of their economic analysis and projections, and the frequency and reliability with which information is provided. As the public's confidence in the information received grows, along with its understanding of economic processes, trade-offs that involve risky or unattainable targets are neglected in the popular debate. Central banks and government economic departments, which possess or develop a reputation for technical competence, also act as catalysts for the development of a social consensus that efficiently constrains economic policy to be consistent with social preferences.

Preparing and publicizing the economic outlook

The economic forecast is the basic tool used to set economic targets and determine policy strategy. The preparation of the forecast is the joint responsibility of the central bank and the treasury, using methodologies developed in both institutions. There should be a medium-term forecast, which is used to set growth and inflation targets, contingent on international interest rates, international rates of inflation and the growth of the world economy; and a short-run forecast to set targets for such financial information as government expenditures, government financing, monetary expansion, and the accumulation of foreign reserves. Forecasts are typically prepared, adjusted, and agreed upon in an interactive process, which begins with a quantitative framework, involving as much behavioral input based on past experience, as is available. This undergoes one or more rounds of adjustment, especially for the short-term forecast, to incorporate recent information from the markets, anticipated special circumstances, and experienced judgement.

Forecasts should be prepared with a periodicity that fits into government's budgetary cycle and allows for monetary and fiscal adjustment within that cycle. Major fiscal initiatives, normally introduced through the annual government budget, should be designed on the basis of a forecast prepared at the beginning of the budget process, and should incorporate the latest updates on economic prospects and reviews of economic targets. Forecasts prepared at more frequent intervals—preferably quarterly—would keep the public aware of inform changes in monetary policy and adjustments in fiscal policy. Only in crisis situations might policies need to be changed more frequently than once per quarter, and forecasts revised accordingly.

The economic outlook, incorporating forecasts, targets and policies, should be published and explained, as one of the documents which informs and shapes the national consensus on economic policies. It is also helpful to publish and discuss nontechnical descriptions of the assumptions and methodology on which the forecasts are based. This helps to reduce the extent of unproductive debate based on inconsistent outcomes and unrealistic expectations, and also provides feedback to the designers of forecasting models on behavioral relationships, especially with respect to forming expectations. The tasks of communicating the outlook to the general public may be shared between the central bank and the treasury, through a range of media events, publications, meetings and seminars. It is vital

that these all proceed from a shared pool of data, analysis, forecasting and policy formulation, which ensures their internal consistency at all times.

Reconciling expenditure and tax policy with fiscal constraints

The treasury and the spending ministries of government are the main protagonists in the design of the tax, expenditure and financing elements of the budget. However, the central bank is intimately involved because the process of budgeting is influenced by the economic outlook, which, among other things, sets forth the limit of government finance which is consistent with targets, assumptions and current policies. This forecast is re-cast jointly by the treasury and the central bank to include changes in tax policy and any monetary policy changes which might be needed to complement them. Tax changes, which are the responsibility of the treasury, are decided upon with the help of simulations carried out within the forecast framework.

Bargaining takes place between the treasury and the spending ministries on the allocation of the expenditure budget, the limit for which is determined by the projections for tax revenue and project finance for government, incorporating changes in tax and monetary policy. Two or more rounds may be necessary to fit expenditure within this limit. If, as is often the case, agreement is reached on a level of expenditures which breaches the limit, the treasury and central bank's forecasters must produce a new outlook, based on which policymakers at the two institutions should decide on which of the available options to take for the revision of the economic outlook—further policy changes or a modification of the targets. In this way, the budget reflects fiscal policies (taxation, expenditure and financing) which are consistent with monetary policies and economic targets.

The treasury monitors expenditure and revenues on an ongoing basis, and manages financing in association with the central bank. This data is fed into the forecasting process, so that the forecasters may discern early signs of any deviation from economic targets. The treasury has the authority to keep spending within the authorized limits, and if necessary, to slow down authorized spending. A great deal of fiscal flexibility is available through this mechanism, and the economic impact of expenditure adjustment may be very quickly felt.

The degree of precision with which fiscal policy may be programmed should not be exaggerated. Many elements of expenditure cannot be adjusted at the margin. Wages and salaries are an example, at least for the government's permanent staff. Expenditure on major works usually moves on a time path dictated by the project, and the only choice available, if expenditure runs ahead of budget, may be to suspend the project altogether. Forecasts of tax revenues often go astray, especially in the wake of major tax reform, necessitating further changes in tax policy. Some countries maintain the archaic practice of determining levels of expenditure and tax changes in separate legislative presentations, at different times. Invariably, spending ministries submit requests for supplementary expenditure. These will all become inputs to the joint central bank treasury forecasting machinery, informing the economic outlook and highlighting deviations from targets and the need for policy adjustment.

Modifying monetary and fiscal policy

Fiscal and monetary policy changes will not always be made at the same time because their effects appear with different lags, but changes in one invariably have implications on another. As argued above, there are no market mechanisms in small countries and in countries with underdeveloped financial systems that will reconcile fiscal and monetary policy. In such economies, therefore, it is essential to have an institutional arrangement for joint policymaking by the central bank and the treasury, even though the policies will be separately implemented at different times by the two agencies.

The joint policymaking body will be directly related to the organizations responsible for producing the economic outlook, and will typically oversee that activity. Action by this body might be triggered by the periodic forecasts of the outlook team, by the outcome of government's budgetary process, or by unexpected events at home or abroad that have major economic impact. Members of the joint policy team will include the chief spokespersons on economic policy at the treasury and the central bank. Their membership of the team ensures that they are able to properly represent the motivations for official policy.

The danger in the operation of a joint policy arrangement is that the central bank loses autonomy over monetary policy. That should create no inconsistency, since monetary policy is framed within an overall policy stance that is effected by the economic outlook and targets. Problems arise in the absence of the economic forecasting machinery, and where there are no institutional mechanisms for communicating policy to the public and receiving feedback. The arrangements work well only if all elements are in place: a process of informing and reading the social consensus; a joint treasury-central bank mechanism for preparing and publicizing the outlook and information on economic performance; a process of reconciling the objectives of the treasury and the spending ministries backed by effective treasury control on spending; and a high-level joint policymaking body, which employs the outlook as its information base for decision making.

Institutional arrangements

It is difficult to prescribe institutional arrangements that will ensure that the tasks just summarized will be effectively undertaken. Identical institutions may operate in radically different ways in different societies, depending on history, culture, time of establishment and personalities. However, one may attempt to distill helpful features from other country experiences.

A joint economic policy committee, headed by the Governor of the Central Bank and the Chief Technical Officer of the Treasury,[30] has worked well in the author's own

[30]In most countries the treasury is headed by a minister, elected or chosen through a political process; we are using the term chief technical officer to refer to the career head of the treasury. In Barbados, he is the Director of Finance and Economic Affairs.

experience. The committee formulated fiscal and monetary policy on the basis of forecasts prepared quarterly by the central bank, with input from the treasury, and published, in highly abbreviated form, by the central bank. All policies were communicated to the Minister of Finance by the Governor and the Chief of the Treasury before implementation. In the case of the annual budget, the Minister of Finance is responsible for reconciling the Treasury's limits to the spending ministries' requests, a process which usually has required two iterations between the treasury and the spending ministries. A revised forecast then has been prepared to incorporate the Minister of Finance's final decision on the budgetary outcome. In the case of fiscal and monetary policies outside of the budget, differences between the central bank and the treasury have been within the committee. However, on occasion the committee's decisions has proved unpalatable to the Minister, and on those occasions the committee presented alternatives, including missing economic targets. This arrangement did not guarantee sound policy in every instance, and there were times when the Minister of Finance consciously chose risky options, with public endorsement, but on the whole the economy has experienced stable growth, with few disturbances.

There is a great variety of experience with respect to the coordination of monetary and fiscal policymaking. Few countries have a formally constituted body, and many of those that exist meet infrequently, to decide only on major shifts such as targets for the medium term, overall debt strategy or the pace of trade and financial liberalization, rather than ongoing changes in monetary and fiscal policy. In many countries, there is a formal link through membership of treasury officials on the board of directors of the central bank, but no reciprocal provision for the central bank to participate in fiscal policy decisions. In the majority of countries, the governor maintains regular informal contact with the head of the treasury and the minister of finance. This arrangement works as well as any other, provided all the other elements (forecasting, publishing, and expenditure control) are in place.

Provisions that insulate the tenure of the central bank governor and board of directors from political influence, that assign all operational responsibility for the bank to its board of directors as the final authority, and that explicitly require the central bank to report to parliament and the public, are important means of ensuring that the central bank has the expertise and incentive to effectively fulfill its roles as forecaster, policymaker and information broker. Central banks, which do not run their own affairs, very often fail to develop this expertise. However, the central bank's influence on the determination of policy—and on the public preferences which determine the targets of policy—depends on the soundness of its analysis, its reputation based on past performance, and the reputation of its governor and principal spokespersons. Central bank autonomy and accountability are useful to the extent that such arrangements promote high quality output by the central bank.

Moreover, it is equally important that the treasury have strong technical capability. Poor tax policy analysis, deficient expenditure control, bad cash management and inadequate monitoring and information systems for fiscal operations all critically affect the uncertainty of policymaking. If, as in many countries, there is no joint policymaking body, the treasury

needs to develop its own capacity to formulate and articulate policy. Often the central bank becomes by default the mouthpiece for fiscal as well as monetary policy.[31] Appropriate arrangements to protect the treasury from political bias, and to make its operations transparent, are as important for ensuring high quality analysis, as in the case of the central bank.

In many countries there is a monetary policy committee (MPC), usually responsible for liquidity management within policy guidelines set by the central bank's board of directors, although sometimes the committee does have a role in the formulation of policy. The MPC needs to have close coordination with the treasury, especially regarding debt management, but actual practice varies widely(see Sundararajan, Dattels, and Blommestein (1997)). Practice also varies with respect to the locus of debt management responsibilities, which sometimes reside with the central bank, other times with the treasury and still others are shared.

There is little uniformity among central banks in the preparation of economic forecasts. Often, the unit or department that prepares the forecast reports to the monetary policy committee, but with no formal input from the treasury. Since the MPC is not always the locus of monetary and fiscal decision making the forecast may not be well integrated into the policy framework, and policy decisions may suffer from a lack of information. It is preferable that forecasts be prepared jointly by the central bank and the treasury, or by one agency with relevant input from the other, and that this forecasting system be directly linked to a joint monetary/fiscal policy coordinating body, such as was suggested earlier. The forecast is the principal tool which authorities have available for ensuring that fiscal and monetary policies are mutually consistent and that the economy is on course to achieve its targets. In order to use the forecast effectively in this manner, there must be an ongoing process of interaction, update and revision among those responsible for deciding and implementing policies, and those who are tracking and recording economic performance and reflecting it in projections.

It is helpful if there is some institutional mechanism to communicate social preferences to the authorities and to conduct discussions on economic performance, the implications of economic structures and the effects of policies. Some countries have evolved a system of consultations including representatives of commercial sectors, workers' representatives, the central bank and representatives of government ministries to undertake some of those responsibilities. Parliamentary processes generally satisfy these requirements, but it has proven useful to have such arrangements to supplement parliamentary debate on economic policy.

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[31]Jácome (1999) reports this as the experience of the Banco Central del Ecuador.

IV. Concluding Remarks

The problem of institutional arrangements to secure low inflation is real: revealed preferences are for low inflation, and, less convincingly demonstrated, a willingness to bear the implied costs. Despite this factor, countries regularly suffer bouts of high inflation. The prevailing tendency, adhered to with varying degrees of conviction, is to design a constitution which gives the central bank authority to pursue low inflation with the use of monetary instruments and makes the central bank accountable to a publicly elected body for its performance.

Unfortunately, in small open economies monetary instruments will not suffice to achieve the inflation target. Only in cases where exchange rates are flexible but stable, the proportion of foreign currency in the domestic money supply is low, fiscal policy is credible and expectations are stable, will the central bank have control of the money supply in the sense that the effect on monetary balances of a given change in interest rates may be predicted within a given probability range. Even in this case, monetary policy is limited by government's financing requirements, rather than the other way round. Moreover, credibility is eroded if a public perception arises that fiscal and monetary policies are at cross purposes. In small open economies, monetary changes may lead to capital flows and currency substitution rather than changes in output and prices, whatever the exchange regime; in any case, the transmission of monetary changes to output and prices is seldom clear cut, and the trade off between inflation and other economic objectives is often the subject of controversy.

However, there are workable arrangements for anti-inflation policies, more commonly used than might be supposed, which depend on cooperation, admittedly much less than perfect, between the central bank and the treasury in the formulation, implementation, monitoring and adjustment of fiscal, monetary and associated policies, provided the ensuing policies are supported by a strong information base, and are responsive to economic developments in private markets. Policies developed in this framework not only satisfy public preferences, they may affect the public preference function. In particular, the central bank, if it demonstrates strong technical and informational capability, may help to clarify public preferences by identifying policy combinations which are within the envelope of the maximum achievable transformation curve.

Central bank autonomy and accountability is useful if it facilitates cooperation between the central bank and treasury and increases the incentive for compromise. A critical element for the achievement of stable low inflation is the quality of public information and analysis. The central bank's reputation for soundness is its best guarantee of influence, and of policies that are sufficiently conservative to achieve the inflation target. In this sense, its influence goes beyond monetary policy to all other aspects of macroeconomic adjustment.

Similar arguments hold for the treasury, the central bank's partner in the formulation of policy for the financial sector. Recent discussion has not focused sharply on a long-standing issue in the design of fiscal policy: the relationship between the political leadership which expresses, in some sense, popular preferences, and the bureaucracy, whose

responsibility, in the classical scheme, is to provide decision makers with a range of feasible options. Just like the central bank, the treasury needs a reputation for dependable information and realistic analysis.

As is often recognized in the design of macroeconomic programs, an effective mechanism (such as a social compact) for molding national consensus among opinion leaders, the authorities, and organized interest groups is generally desirable. The processes of coordination, cooperation and consensus building are inherently full of tension, and the institutions of cooperation sometimes break out into open conflict. However, experience suggests that these processes, even when flawed, may be the only effective design for low inflation policy, at least in small open economies.

REFERENCES

Allsopp, Christopher and David Vines, 1998, "The Assessment: Macroeconomic Policy after EMU," *Oxford Review of Economic Policy*, Vol. 14, No. 3 (Fall).

Baliño, Tomás, and others, 1999, *Monetary Policy in Dollarized Economies*, (Washington: International Monetary Fund).

———, and others, 1997, *Currency Board Arrangements: Issues and Experiences*, (Washington: International Monetary Fund), (August).

Barro, Robert J. and David B. Gordon, 1983, "Rules, Discretion and Reputation in a Model of Monetary policy," *Journal of Monetary Economics*, Vol. 12, pp. 101-121.

Carstens, Agustin and Alejandro Werner, 1999, "Mexico's Monetary Policy Framework Under a Floating Exchange Rate Regime," Banco de Mexico, Working Paper, (May).

Cottarelli, Carlo and Curzio Giannini, 1997, *Credibility without Rules? Monetary Frameworks in the Post-Bretton Woods Era*, (Washington: International Monetary Fund).

Cukierman. Alex, Stephen B. Webb and Bilin Nyapti, 1992, "Measuring the Independence of Central Banks and its Effect on Policy Outcomes," *World Bank Economic Review*, Vol. 3, No. 3, pp. 353-398.

Cukierman, Alex and Stephen B. Webb, 1995, "Political Influence on the Central Bank: International Evidence," *World Bank Economic Review*, Vol. 9, No. 3, pp. 397-423.

Demertzis, María, Andrew Hughes Hallett, and Nicola Viegi, 1999, "An Independent Central Bank Faced with Elected Governments," University of Strathclyde, (March).

Eijffinger, Sylvester, Ed., 1997, *Independent Central Banks and Economic Performance*, Northampton, Mass: Edward Elgar.

Eijffinger, Sylvester and Jakob de Haan, 1996, "The Political Economy of Central Bank Independence," Princeton Special Papers In International Finance, No. 19, (May).

Fischer, Stanley, 1996, "Central Banking: the Challenges Ahead—Maintaining Price Stability," *Finance and Development*, (December), pp. 34-37.

Forder, James, 1998, "Central Bank Independence—Conceptual Clarifications and Interim Assessment," *Oxford Economic Papers*, Vol. 50, No. 3, (July), pp. 307-334.

Fry, Maxwell, 1997, "Assessing Central Bank Independence in Developing countries: Do Actions Speak Louder than Words?" Bank of England, Working Paper (October 7).

Fry, Maxwell, Charles Goodhart and Alvaro Almeida, 1996, *Central Banking in Developing Countries: Objectives, Activities and Independence*, New York: Routledge.

International Monetary Fund, 1999a, *Annual Report on Exchange Arrangements and Exchange Restrictions, (Washington, DC)*

———, 1999b, Code of Good Practices on Fiscal Transparency—Declaration of Principles," April.

———, 1999c, Code of Good Conduct Practices on Transparency in Monetary and Financial Policies,"

Jácome Hidalgo, Luis, 1999, "Independencia del Banco Central del Ecuador: La Experiencia de los Primeros Meses," Seminario sobre Independencia de la Banca Central en América Latina, Quito, (February).

Johnston, Barry and V. Sundararajan, 1999, *Sequencing Financial Sector Reforms: Country Experiences and Issues*, (Washington: International Monetary Fund).

Kydland, Finn E. and Edward C. Prescott, 1977, "Rules Rather than Discretion: The Inconsistency of Optimal Plans," *Journal of Political Economy,* Vol. 85, No. 3, (June), pp. 473-491.

Laurens, Bernard and E. de la Piedra, 1998, "Coordination of Monetary and Fiscal Policies," Working Paper (March).

Lippi, Francesco, 1998, "On Central Bank Independence and the Stability of Policy Targets," *Scandinavian Journal of Economics*, Vol. 100, No. 2, pp. 495-512.

Lybek, Tonny, 1998, "Elements of Central Bank Autonomy and Accountability," IMF Monetary and Exchange Affairs Department, Operational Paper, (February).

Mas, Ignacio, 1995, "Central Bank Independence: A Critical View from a Developing Country Perspective," *World Development*, Vol. 23, No. 10, (October), pp. 1639-1652.

McKinnon, Ronald, 1999, "The East Asian Dollar Standard; life after death?" Economics Dept, Stanford University, February 1999. Presented to an IMF seminar, March 3, 1999

Persson, Torsten and Guido Tabellini, 1993, "Designing Institutions for Monetary Stability," Carnegie-Rochester Series on Public Policy, Vol. 39, (December), pp. 53-84.

Posen, Adam, 1993, "Why Central Bank Independence Does not Cause Low inflation," *Central Banking*, Vol. 4, No. 2, (Autumn).

Rogoff, Kenneth, 1985, "The Optimal Degree of Commitment to an Intermediate Monetary Target," *Quarterly Journal of Economics*, (November), pp. 1169-1189.

Siklos, Pierre, 1994, "Establishing Central bank Independence: Recent Experiences in Developing Countries," Wilfred Laurier University, Working Paper.

Sundararajan, V, Peter Dattels, and Hans Blommestein, 1997, *Coordinating Public Debt and Monetary Management*, (Washington: International Monetary Fund).

Svensson, Lars, 1998, "Open-Economy Inflation Targeting," NBER Working Paper, (May).

Tullio, G. and M. Ronci, 1996, "Brazilian Inflation from 1980-1993: Causes, Consequences and Dynamics," *Journal of Latin American Studies*, Vol. 28, No. 3, (October), pp. 635-666.

Valila, Timo, 1999, "Credibility of Central Bank Independence Revisited," IMF Working Paper, (January 1999).

Velasco, Andres and Vincenzo Guzzo, 1998, "The Case for a Populist Central Banker," NBER Working Paper (November).

Wood, Geoffrey, 1992, "Further Evidence on Central Bank Independence," *Central Banking*, Vol. 3, No. 2, (Autumn).

Worrell, DeLisle and Anton Belgrave, 1997, "The Treasury and the Central Bank: Independence or Consensus?" Ninth Regional Seminar on Fiscal Policy, UN Economic Commission for Latin America and the Caribbean, January 27-29.

Worrell, DeLisle, 1998, "The Political Economy of Exchange Rate Policy in the English-Speaking Caribbean," Institute of Social and Economic Research, University of the West Indies, Working Paper, (July).

———, 1996, "Monetary Policy in Small Open Economies," *Central Bank of Barbados Economic Review*, (September).