Volume 1
1 9 9 9

INTERNATIONAL ECONOMIC

POLICY REVIEW

**Paul Masson, Padma Gotur,
and Timothy Lane**
Editors

INTERNATIONAL MONETARY FUND

INTERNATIONAL ECONOMIC

POLICY REVIEW

Volume 1
1999

Paul Masson, Padma Gotur,
and Timothy Lane
Editors

I N T E R N A T I O N A L M O N E T A R Y F U N D

© 1999 International Monetary Fund

Production: IMF Graphics Section
Cover Design: Massoud Etemadi
Typesetting: Alicia Etchebarne-Bourdin

ISSN: 1020-7856
ISBN: 1-55775-864-6

Price: US\$20.00

Please send orders to:
International Monetary Fund, Publication Services
700 19th Street N.W., Washington, D.C. 20431, U.S.A.
Tel.: (202) 623-7430 Telefax: (202) 623-7201
E-mail: publications@imf.org
Internet: <http://www.imf.org>

Contents

Introduction	v
 Part I Monetary and Exchange Rate Policy and the Role of the Fund	
Real Exchange Rate Targeting in Developing Countries <i>Peter J. Montiel and Jonathan D. Ostry</i>	3
Designing Disinflation Programs in Transition Economies <i>Sharmini Coorey, Mauro Mecagni, and Erik Offerdal</i>	13
Making a Currency Board Operational <i>Charles Enoch and Anne-Marie Gulde</i>	26
Inflation, Credibility, and the Role of the International Monetary Fund <i>Carlo Cottarelli and Curzio Giannini</i>	40
 Part II Growth, Development, and Financial Liberalization	
Commercial Bank Debt Restructuring—The Experience of Bulgaria <i>Aerd C.F.J. Houben</i>	57
Aid Effectiveness: A Survey of the Recent Empirical Literature <i>Tsidi M. Tsikata</i>	73
Mitigating the Social Costs of the Economic Crisis and the Reform Programs in Asia <i>S. Gupta, C. McDonald, C. Schiller, M. Verhoeven, Ž. Bogetić, and G. Schwartz</i> .	91
Sequencing Capital Account Liberalizations and Financial Sector Reform <i>R. Barry Johnston</i>	111
 Part III Fiscal Policy Issues	
When Is a Fiscal Surplus Appropriate? <i>Richard Hemming and James Daniel</i>	131
The First-Round Monetary and Fiscal Impact of Bank Recapitalization in Transition Economies <i>Timothy D. Lane</i>	139
What Should Be Done with a Fiscal Surplus? <i>Nigel Chalk and Richard Hemming</i>	151

This page intentionally left blank

Introduction

This volume is the first issue of a new series, entitled the *International Economic Policy Review*, that aims to make available to the general public a selection of policy papers prepared by the staff of the International Monetary Fund. The *International Economic Policy Review* is aimed at an audience of economic policy practitioners and complements periodicals already published by the Fund: *IMF Staff Papers*, which includes articles of academic interest, and *Finance & Development*, which is accessible to a wider noneconomist audience. Papers in the *International Economic Policy Review* will offer specific policy-relevant analysis, but at a relatively nontechnical level and with only a limited number of supporting tables and charts. These papers are intended to provide analytical background for IMF-supported programs and more generally to shed light on a range of policy choices facing ministries and central banks.

We have selected for this first volume from a series of discussion papers (Papers on Policy Analysis and Assessment) that were issued from their inception in 1992 until the end of 1998, when they were renamed Policy Discussion Papers (PDPs). These papers were selected to be relevant and topical and of general interest beyond a particular country. Updates and revisions from the previous versions have been made as needed. In the future, we intend to issue annual editions of the *International Economic Policy Review*, each of which will include a selection from the PDPs appearing in the previous year. As mentioned, these papers will be chosen to reflect their general interest and their contribution to one of several topics thought to be especially relevant to the current policy debate.

The papers in this volume are grouped into three general areas: monetary and exchange rate policy and the role of the Fund; growth, development, and financial liberalization; and fiscal policy issues.

Part I of the volume, entitled **Monetary and Exchange Rate Policy and the Role of the Fund**, includes four papers examining several topics intimately related to the IMF's mandate to oversee developments in the international monetary system. The first paper, by Peter Montiel and Jonathan Ostry, considers a monetary regime that many developing countries have adopted: real exchange rate targeting. While standard analysis suggests that such a regime would lead to nominal indeterminacy—or hyperinflation—this has not occurred in at least some of the countries that have adopted it. The paper shows that real exchange rate rules can easily have destabilizing effects on the inflation rate without resulting in hyperinflation and that such effects are difficult to avoid even when real exchange rate targets are supplemented by an appropriate money-supply rule.

In the second paper, Sharmini Coorey, Mauro Mecagni, and Erik Offerdal discuss the implications for disinflation efforts in transition countries of protracted relative price

adjustments—associated, for instance, with ambitious structural reforms. When such relative price adjustments are occurring, an exchange rate anchor is likely to be associated with persistent moderate inflation; bringing inflation down further may thus require a shift to greater exchange-rate flexibility and tighter monetary policy. The paper also notes the risks in this setting of trying to pursue low inflation through tight monetary policy while resisting currency appreciation through sterilized intervention.

The third paper, by Charles Enoch and Anne-Marie Gulde, examines another potential mechanism for establishing credibility: a currency board arrangement. Specifically, the paper spells out what needs to be done to make a currency board operational. While the preparations required vary from country to country, they typically involve changing the central bank law, reorganizing the central bank, devising appropriate guidelines for reserve management, and adapting the government's cash and debt management activities. The paper also discusses the more demanding preparations involved in establishing a currency board in a country with serious banking problems.

Finally, Carlo Cottarelli and Curzio Giannini examine the role the IMF could play in buttressing the credibility of a disinflation program. This may be particularly relevant where domestic mechanisms for building credibility, such as monetary anchors and central bank independence, are vitiated by technical or institutional factors. The paper suggests some possible mechanisms through which the IMF might support programs aimed primarily at disinflation rather than external adjustment.

There are four papers in Part II, on **Growth, Development, and Financial Liberalization**, a broad area of key and increasing importance for IMF-supported programs and the design of structural reforms in industrial and developing countries alike. The first of these papers, by Tsidi Tsikata, surveys the empirical literature on the effectiveness of aid to developing countries. After noting that aid should stimulate growth by filling financing gaps, the author states that empirical studies have seldom identified an association between aid and growth, seemingly because aid appreciated the real exchange rate and substituted for domestic saving, rather than augmenting it. However, a recent study provides some positive evidence in countries where adjustment efforts were sustained; clearly the nature of supporting policies is crucial for aid effectiveness.

A second paper, by Sanjeev Gupta, Calvin McDonald, Christian Schiller, Marius Verhoeven, Zeljko Bogetic, and Gerd Schwartz, considers ways of mitigating the social costs of the recent economic crisis in East Asia, detailing the measures designed to do so in the IMF-supported programs in effect early in 1998 and suggesting ways in which to improve social safety nets. The programs in Indonesia, Korea, and Thailand all include various measures to shelter the poor from the adverse effects of the economic crisis; these measures include subsidies for staple foods and drugs, public works spending, and extended unemployment and welfare assistance. The authors make suggestions for improving the targeting and sustainability of such measures.

The following two papers consider financial sector issues. The first, by R. Barry Johnston, discusses the proper sequencing of financial liberalization. He points out the links between capital account liberalization and the freeing of domestic financial markets; distortions in the latter may be made more visible when the capital account is opened, making it essential to strengthen domestic regulation and supervision. Aside from this, however, there are no simple answers concerning proper sequencing, and measures should be chosen in light of their contributions to the overall efficiency and stability of the economy. Another aspect of the integration of countries into world capital markets is that countries having assumed external debt

may encounter debt-servicing difficulties requiring debt restructuring. Bulgaria is a case in point, and the final paper in Part II, by Aerdt Houben, considers the experience of Bulgaria, which in 1994 reached agreement with foreign creditor banks on restructuring of its debt. This restructuring is generally seen as improving Bulgaria's prospects for external viability and growth, and the details of the way it was done may provide lessons for other countries in similar circumstances.

The three papers in Part III, on **Fiscal Policy Issues**, pertain to topics that have also grown in relevance for the IMF's operational work. The first two papers deal with issues relating to fiscal surpluses, which a number of industrial and developing country governments increasingly have to address—often as they reap the fruits of past fiscal consolidation—and the third paper looks at bank recapitalization in transition economies. The first paper, by Richard Hemming and James Daniel, discusses the appropriateness of targeting a fiscal surplus, and the second, by Nigel Chalk and Richard Hemming, the considerations that guide the choice between alternative uses of a surplus. Noting that a fiscal surplus should not be an end in itself, the first paper identifies two broad situations in which advocating an *ex ante* surplus might be appropriate: first, when a surplus might be consistent with the government's pursuit of its traditional allocation, stabilization, and redistribution functions, and second, when governments want to make effective use of transitory capital receipts in the form of foreign grants, resource revenue, and privatization proceeds. Viewing the government as facing separable saving and portfolio decisions, the second paper argues that there may be good economic reasons for either spending or saving a fiscal surplus. In the latter case, it suggests that surpluses that reflect the exploitation of resource wealth are often saved by purchasing assets rather than paying off public debt, but that this might represent an appropriate response also for surpluses related to other circumstances. Both papers summarize country experience with fiscal surpluses.

The final paper in Part III, by Timothy Lane, discusses whether the first-round fiscal and monetary effects associated with a government's payment of interest on recapitalization bonds are important. It concludes that bank recapitalization may have an important fiscal and monetary impact, but its magnitude and sign depend on the details of the operation and banks' response to it; it will not in general correspond to the interest paid on recapitalization bonds.

The views expressed in the papers are those of the authors and do not necessarily represent those of the IMF.

Paul Masson

Padma Gotur

Timothy Lane

Editors

This page intentionally left blank

I. Monetary and Exchange Rate Policy and the Role of the Fund

This page intentionally left blank

Real Exchange Rate Targeting in Developing Countries

Peter J. Montiel and Jonathan D. Ostry¹

Abstract

Real exchange rate rules have recently been adopted by a number of developing countries as a means of maintaining international competitiveness in the face of high domestic rates of inflation. The conventional wisdom holds that such rules will quickly lead to hyperinflation, an outcome that is not consistent with the experience of at least some of the countries that have adopted them. This paper shows how real exchange rate rules can easily have destabilizing effects on the inflation rate without leading to hyperinflation, and shows that such effects are difficult to overcome even when supplemented by an appropriate money-supply rule.

JEL Classification Numbers: E52, E61, F31, F41

Keywords: Exchange rates, inflation, competitiveness

Authors' E-Mail Addresses: Peter.j.montiel@williams.edu, jostry@imf.org

I. Introduction

The choice of exchange rate regime in developing countries has experienced a significant evolution since the early 1970s. At that time, when the advanced economies abandoned fixed exchange rates, dollar-pegs were still the most common regime adopted by developing countries. Over the subsequent two decades, however, many developing countries moved to adopt more flexible exchange rate arrangements, with the share of such countries pegged to a single currency dropping from nearly two thirds in the mid-1970s to less than one third by the early 1990s. This change undoubtedly reflected a re-evaluation of the relative costs and benefits of pegged

¹Peter J. Montiel is Danforth/Lewis Professor of Economics at Williams College. Helpful comments by Jose Fajgenbaum, R. Barry Johnston, Mohsin S. Khan, Saul Lizondo, Peter Wickham, and an anonymous reader are gratefully acknowledged.

exchange rate regimes, in particular the difficulty of maintaining competitiveness with a fixed rate under circumstances of domestic or international economic instability.

The counterpart to the abandonment of single currency pegs was a corresponding increase in the share of developing countries adopting more flexible arrangements. In the majority of the latter, the official exchange rate is changed frequently in accordance with some rule, which typically links changes in the official exchange rate to the difference between domestic and foreign rates of inflation in order to keep the real exchange rate from deviating too far from its level in some base period. Such rules are justified on the grounds that they help to keep the real effective exchange rate close to its purchasing power parity (PPP) level, and often are adopted in conjunction with stabilization or structural adjustment programs supported by the international financial institutions.

In part, due to dissatisfaction with macroeconomic performance under real exchange rate rules,² a number of developing countries have adopted exchange rate-based stabilization programs. This was the case, for example, in the high inflation Southern Cone countries of Latin America in the late seventies, where PPP-based rules were replaced by a preannounced crawl (the “tablita”), as well as in the near-hyperinflation countries of Argentina and Brazil during the mid-eighties, where “heterodox” stabilization programs featured a fixed nominal exchange rate as a major component.³ In other cases, however, activist exchange rate policies designed to offset inflation rate differentials have been accompanied for long periods by fairly stable and moderate inflation, for example in the Colombian case (see Reinhart and Reinhart (1991)). This suggests that the fear that such rules always lead to hyperinflation may not be warranted, and that the nature of the effects of such rules on inflation merits further scrutiny.

This paper explores the implications of real exchange rate rules for price-level stability. It is organized as follows. Section II discusses the nature of macroeconomic adjustment to permanent real disturbances under real exchange rate targeting, and shows that adjustment is more likely to involve one-time changes in the inflation rate in response to shocks, rather than hyperinflation. Given this result, Section III discusses the role of monetary policy in mitigating the destabilizing effects of such shocks on the domestic price level. Implications of the analysis for stabilization policy and for the desirability of following real exchange rate rules in general, are discussed in Sections IV and V, respectively.

II. Real Exchange Rate Targets and Inflation

The logic of the conventional view that real exchange rate rules lead to a loss of control over the domestic inflationary process is clear enough. Adoption of such rules implies that the nominal exchange rate and, through the balance of payments, the money supply, are both indexed to the domestic price level. Shocks to the domestic price level will therefore tend to be fully accommodated by a faster rate of exchange rate depreciation and a faster rate of monetary growth. Under these conditions, therefore, there is no longer any exogenous nominal anchor to tie down the domestic price level.⁴

²Lipton and Sachs (1990), for example, fault the IMF’s role in Yugoslavia for its support of a PPP-based exchange rate rule, attributing to this rule an important role in the country’s ensuing hyperinflation.

³For the former, see Mathieson and Rojas-Suarez (1992), and for the latter see Végh (1992).

⁴See Adams and Gros (1986).

While no one would dispute the fact that the adoption of a PPP rule for the nominal exchange rate prevents the latter from serving as a nominal anchor, there is room to disagree about the precise nature of the effect on the domestic inflationary process of the types of disturbances typically experienced by developing countries when a real exchange rate rule is in place.⁵ As mentioned previously, the experience of countries that have adopted such rules is diverse, and does not immediately suggest that hyperinflation is the only possible outcome. While hyperinflation appears to be a possible response to shocks, other outcomes—including once-off changes in the rate of inflation—are also possible, and perhaps more likely than hyperinflation in the context of many real-world cases.

To understand how an economy operating with a real exchange rate rule would adjust to shocks, it is useful to begin by looking at the nature of macroeconomic adjustment under fixed nominal exchange rates. The example of a terms of trade shock is both highly relevant in the context of the developing countries and illustrative of the issues under consideration. Consider then the effect of a favorable shock—an improvement in the terms of trade—for a developing country with a fixed exchange rate.⁶ Such shock would tend to raise real income in the country, increasing the demand for all goods in the economy, including nontradables, thereby creating an excess demand for such goods. With a fixed nominal exchange rate, the relative price of nontraded goods would rise to restore equilibrium in the home goods market, that is the real exchange rate would appreciate.⁷

Matters are quite different under a policy of real exchange rate targeting. In this case, the appreciation of the real exchange rate toward its new equilibrium level is no longer possible because the authorities are committed to adjusting the nominal exchange rate in such a way that the price of nontradables relative to importables (the real exchange rate relevant for consumption decisions) is constant.⁸ Thus, while the equilibrium real exchange rate appreciates as a result of the terms of trade shock, the actual value of the real exchange rate is kept constant. The adjustment that would have taken place through movements in the relative price of nontraded goods under a fixed exchange rate regime must therefore occur through a different channel when the authorities target the real exchange rate.

Not surprisingly, this other channel is an adjustment in the overall level of prices. However, the adjustment process will not typically result in hyperinflation. Although a terms of trade shock indeed destabilized the price level, the inflation rate to which the economy ultimately converges is more likely to be stable one. The reasoning is as follows. As under fixed exchange rates, the

⁵Previous studies of the linkages between real exchange rate rules and macroeconomic stability include: Dornbusch (1982); Adams and Gros (1986); and Lizondo (1991). The analytical work underlying the discussion in this paper is contained in Montiel and Ostry (1991, 1992).

⁶The effects of a deterioration in the terms of trade—both under fixed exchange rates and real exchange rate targeting (discussed below) are completely symmetric (that is, opposite) to those discussed here for an improvement in the terms of trade. If the shock were temporary, rather than permanent as assumed here, the effects we describe would occur during the lifetime of the shock.

⁷The discussion assumes that exportables are not consumed domestically. Thus, the real exchange rate referred to in what follows (which is the only relative price variable relevant for consumption decisions) is the price of importables (one of the two tradable goods in the model) relative to nontradables.

⁸The real exchange rate is sometimes alternatively defined as the ratio of foreign to domestic price indices expressed in a common currency, rather than (as here) the ratio of traded (importable) to nontraded goods prices. The two definitions are equivalent under the assumption that the relative price of nontraded goods abroad is exogenous.

favorable terms of trade shock creates excess demand for nontraded goods, thereby causing the price of nontraded goods to rise.⁹ To prevent the real exchange rate from appreciating, the authorities depreciate the nominal exchange rate in line with the increase in the price of home goods. With tradable and nontradable goods prices moving in tandem, the terms of trade shock leads to an increase in the general price level. If this increase in the price level did not alleviate excess demand pressures in the market for home goods, there would be nothing to limit its rate of increase, and hyperinflation would readily result. However, there is an important channel through which price-level increases reduce excess demand pressures in the economy, namely the wealth effect on private consumption.¹⁰ As long as financial assets are not fully indexed to the price level, increases in the latter are likely to depress consumption, reducing demand for all goods including nontradables, and helping to restore internal balance. The magnitude of the required price adjustment depends on many factors, including the degree of indexation in the economy and the size of the wealth effect in consumption. However, as long as indexation is not perfect and the level of consumption—as must be the case—depends on the level of wealth, the logic that price level adjustments can substitute for changes in the real exchange rate—hence avoiding hyperinflation—goes through.

Although hyperinflation is avoided, the rate of inflation will rise. The reason is that the terms of trade shock and reduction in real wealth combine to generate a current account surplus, which causes the private sector to accumulate financial claims on the rest of the world, i.e., it raises the rate at which the private sector accumulates financial wealth. Over time, this creates additional excess demand pressure in the market for home goods, the elimination of which requires an ongoing increase in the general level of prices that is just sufficient to offset the increase in private wealth coming through the balance of payments.¹¹ Thus, the terms of trade shock under real exchange rate targeting leads to an increase in the rate of inflation.¹²

Ruling out hyperinflation, however, requires more than the absence of full indexation and the presence of a wealth effect on consumption. In particular, the nature of fiscal policy can significantly influence the likelihood of hyperinflation. Recall that a higher rate of inflation is required to offset the accumulation of claims on the rest of the world that is the counterpart of the current account surplus generated by the terms of trade shock. The higher inflation rate increases the inflation tax on real monetary balances paid by the private sector, thereby offsetting the increase in the private sector's holdings of nonmonetary financial assets (which are the counterpart of the current account surplus) and helping to keep overall real wealth holdings

⁹The nature of adjustment is similar if the underlying disturbance is an increase in government spending on home goods, or if there is an unfavorable terms of trade shock which the authorities respond to by over-depreciating the real exchange rate target.

¹⁰Wealth is defined to consist of monetary balances, plus holdings of foreign securities, less the value of loans from the domestic banking system. It is assumed that wealth is not fully indexed to price level changes. Nominal wealth deflated by the consumer price index is assumed to be an argument in the consumption function.

¹¹Although the previous discussion has assumed that all prices and wages are flexible, it may be shown that a wage indexation scheme that resulted in (downward) real wage rigidity would not alter the conclusion that the inflation rate reaches a stable level under real exchange rate targeting. In addition, the introduction of collection lags, which result in reductions in real government revenues as inflation rises, would also lead to a determinate solution for the inflation rate under real exchange rate targeting.

¹²The resulting inflation tax offsets the increase in private wealth coming through the balance of payments and implies that in equilibrium the real value of private wealth reaches some constant value.

(which include both monetary and nonmonetary assets) from rising above their equilibrium level.¹³

The key to understanding how hyperinflation can occur even without full indexation relates to the disposition of this inflation tax, which in the first instance accrues to the central bank. If the central bank keeps the proceeds of the inflation tax (using them to accumulate claims on the rest of the world in its own right) or transfers them to the government (which uses them to increase its expenditures), then we have the outcome described above, namely a once-off increase in the rate of inflation, but no hyperinflation. On the other hand, if the central bank transfers the proceeds of the inflation tax to the government which then uses them to reduce its (lump-sum) taxes on the private sector, then it is easy to see that hyperinflation can readily occur. This is because, with the private sector effectively not paying the inflation tax (given the rebates it receives from the government), the accumulation of wealth that is the counterpart of the current account surplus is no longer offset by an erosion of the monetary component of wealth, i.e., the inflation tax. This means that there is no end to the process of wealth accumulation, which puts continuous pressure on the market for nontraded goods, and thereby on the price level.

However, the rebate of the inflation tax to the private sector in the form of increased lump-sum subsidies or reductions in other lump-sum taxes does not seem to be very common in developing countries that typically have resorted to taxing monetary balances to finance the government's budget. Thus, from an empirical standpoint, it would seem that once-off changes in the inflation rate are more likely to be observed than hyperinflation.

A number of developing countries have indeed suffered through prolonged periods of high but fairly stable inflation. A common feature of such episodes is that the inflation rate tends to remain at a high and stable level for some time and then move rather quickly to a new (usually higher), but again stable, level. This phenomenon is often referred to as the "plateau" character of inflation in developing countries. The fiscal explanation of this phenomenon maintains that the plateau character of inflation in effect mirrors discrete changes in the government's call on the inflation tax. An alternative "balance of payments" view suggests that changes in the underlying inflation rate arise from balance of payments crises, which induce exchange rate depreciation. These in turn raise the rate of inflation by increasing expectations of inflation, which are then accommodated by the monetary authorities or through the wage indexation mechanism. The latter would occur if the frequency of indexation increases due to inflationary expectations associated with a devaluation. With more frequent wage adjustments, a higher rate of inflation is required to maintain an equilibrium real wage.

Under real exchange rate targeting, changes in a stable, but high, inflation rate can arise from either fiscal or external shocks, so the issue is an empirical, not an analytical, one. As shown above, an external shock can easily move the economy to a higher inflation rate without the need to posit what seems to be a tenuous direct link between devaluation and expectations of permanently higher inflation. Furthermore, external shocks can move the economy to a higher inflation plateau even in the absence of periodic backward wage indexation or accommodative

¹³It is also relevant to mention that a one-time increase in inflation can also be avoided, at least in theory, by an appropriate fiscal response. Specifically, the increased demand induced by wealth accumulation can be negated by a reduction in government spending on nontraded goods (or an increase in taxes) of the appropriate magnitude. The question of how large a fiscal adjustment is required will depend, however, on detailed knowledge about a large number of structural relationships, something that policymakers are unlikely to possess.

credit policy. There is evidence, in fact, that the jumps in the inflation rate immediately preceding the “heterodox” stabilization programs adopted by Argentina, Brazil, and Israel in the mid-1980s, were prompted by exchange rate adjustments in response to adverse external shocks, followed by a period of real exchange rate targeting. Thus, the policy of targeting the real exchange rate may be a significant factor in accounting for the inflation experience of these countries.

III. Targeting the Money Supply Under a Real Exchange Rate Rule

A natural response to the inflationary effects of shocks under real exchange rate targeting would be to use monetary policy to restore price stability. Under perfect capital mobility, however, the money supply would be endogenous (demand-determined) and sterilization policies could not be used to achieve a target level of the money supply. In this case, in order to mitigate the destabilizing effects on the price level of a terms of trade shock, the monetary authorities could instead seek to follow a policy of fixing (or reducing) the nominal stock of credit, a variable which remains under their control. This, though, would have no effect on domestic inflation.

The reason is that control of the credit stock does not give the authorities a handle on private spending under perfect capital mobility. High capital mobility implies that domestic and foreign assets are close substitutes so that a reduction, say, in the stock of credit, would immediately be offset by the private sector by reducing, on a one-for-one basis, its rate of accumulation of foreign assets, all other aspects of its behavior remaining unchanged. The economy's equilibrium would therefore also be unchanged, except that some of the claims of foreigners previously acquired by the private sector with domestic credit financing would now be acquired directly by the central bank. The income of neither sector would be affected, because the central bank would now simply collect directly from foreigners the interest income that was previously passed on to it by the private sector. Thus, under high capital mobility, the pursuit of a nominal credit target would affect only the capital account of the balance of payments, and would leave the rate of inflation unchanged.

Given this outcome, the authorities might choose to impose capital controls in order to acquire control over the domestic money supply. For concreteness, suppose that the authorities refrain from engaging in foreign exchange transactions for financial purposes, although they continue to operate an official market for commercial transactions. In this case, a parallel foreign exchange market in which private individuals trade foreign exchange at a market-determined exchange rate would be likely to emerge. By targeting the money supply under capital controls and a real exchange rate rule, it might be possible for the authorities to regain control over the inflation rate in the face of real shocks.

As under high capital mobility, a real shock such as an improvement in the terms of trade will continue to require a change in the overall level of prices under a regime of capital controls. Thus, as before, the improvement in the terms of trade will cause the price level to jump upwards, thereby reducing the real value of private wealth, and helping to eliminate the incipient excess demand for nontraded goods and to restore internal balance. Again as before, the lower real value of private wealth will cause the private sector surplus that develops as a result of the improvement in the terms of trade. In order to keep the money supply from rising, the central bank will be forced to contract credit, i.e., to sterilize the monetary effects of the reserve inflow associated with the current account (and balance of payments) surplus.

Clearly, in the first instance, fixing the money supply in this manner can indeed prevent the emergence of inflation, in contrast to the perfect capital mobility case in which the money supply was uncontrollable by the authorities. The problem, however, is that if the terms of trade shock is permanent, so too will be the current account surplus and the required credit contraction. A perpetual credit contraction of this sort will cause agents to sell foreign exchange in the parallel market. Given the fixed stock of foreign assets in the economy, the price of foreign exchange in the parallel market must begin to fall. Moreover, as long as the credit stock is contracting, the parallel market exchange rate will appreciate and, given the stable commercial rate, the gap between commercial and financial rates will widen. This ever-widening gap between the two exchange rates faces agents with ever-increasing incentives to engage in cross-transactions between the two foreign exchange markets, calling into question the separation between the two markets on which effective capital controls are based. In the end, capital controls must break down and, with their demise, the ability of the authorities to control the money supply and inflation ceases.

The analysis shows therefore that capital controls are required to prevent the emergence of inflation when the authorities target the real exchange rate in economies which are subjected to real disturbances. But, when such controls are in place and the authorities do target the money supply to prevent the emergence of inflation, the controls themselves cannot survive for very long because of the incentives of private agents to violate them. Thus, except in the short run, the analysis does not find much support for the view that supplementing real exchange rate rules with an appropriately chosen money supply rule cum capital controls can permanently mitigate the destabilizing effects of real shocks on the price level.

IV. Issues for Stabilization Policy

The interaction between real exchange rate targeting and the inflationary process has a number of implications for stabilization policy in developing countries. Turning first to fiscal policy, our analysis suggests that, contrary to the conventional wisdom, high levels of inflation can be sustained—at least for the medium term—without large budget deficits, or even with a balanced budget. Moreover, even where high levels of inflation are accompanied by large budget deficits, the budget deficits may result from high inflation, rather than vice-versa. This being said, however, it remains true under real exchange rate targeting that expansionary fiscal policy would increase the sustainable level of inflation.

It is easy to see how high inflation can occur without large budget deficits. Our example of the terms of trade shock is again illustrative, since the inflationary outcome in that case did not depend on a change in the fiscal deficit. In fact the rate of inflation would be the same in this case whether the central bank kept the revenues from the inflation tax (using them to accumulate claims on the rest of the world) or instead transferred them to the government, which used to increase expenditure on traded goods and the budget deficit.

If we take first the case in which the central bank uses the inflation tax to accumulate foreign exchange reserves (rather than to increase transfers to the government), the first thing to note is that our result concerning the inflationary effect of a terms of trade shock under real exchange rate targeting is unaffected, even though the fiscal deficit is unchanged. Thus, if the government budget is initially in balance, it will remain so. Inflation, at a possibly high level, would coexist with no budget deficit.

Alternatively, if we consider the case where the central bank transfers the inflation tax to the government, which then spends it on imports, the result would be a higher fiscal deficit and a reduced current account surplus, but the same inflation rate as previously. If this were done at the moment the terms of trade shock materialized, one would see an increase in the fiscal deficit financed by an expansion of central bank credit to the government, together with an increase in the rate of inflation. In this case, though, inflation is not caused by an increase in the fiscal deficit. Rather, the deficit and the increase in inflation are both caused by a terms of trade shock in the context of real exchange rate targeting. Moreover, the inflation rate may not be reduced by a fiscal adjustment. It would not be, for example, if that adjustment took the form of returning government spending on imports to its initial level. The only effect of such a measure would be to alter the disposition of the inflation tax—instead of being used by the government to purchase goods abroad, it would be used instead to amass claims on foreigners.

Finally, none of this suggests that expansionary fiscal policy does not cause inflation. An increase in government spending on nontraded goods would be consistent with the fiscal explanation of inflation. An increase in such expenditures would, like the favorable terms of trade shock, create excess demand for nontraded goods, which would be eliminated by a jump in the price level (necessary to reduce private wealth to a level consistent with internal balance) and an increase in the inflation rate (necessary to offset the increase in private saving resulting from the lower level of private wealth). The result is a higher rate of inflation accompanying an expansionary fiscal policy that also results in an increased fiscal deficit.

Consider now the likely outcome of money-based stabilization programs—i.e., stabilization programs based on using a financial aggregate as a nominal anchor, while relying on a real exchange rate target to maintain competitiveness. Assume, in particular, that the economy to be stabilized finds itself in one of the high-inflation equilibria described above, and that the proceeds of the inflation tax are transferred to the government by the central bank, which also maintains the real supply of credit constant to both the private and public sectors. Thus, high inflation is accompanied by rapid credit expansion and a substantial fiscal deficit.

Suppose then that a stabilization program is adopted along the following lines: the fiscal deficit is removed by curtailing government spending on traded goods, thereby removing the perceived fiscal roots of inflation. This is supplemented by the use of credit as a nominal anchor. To take an extreme case, consider a target of zero for the inflation rate, so that the stock of credit is frozen. To maintain external competitiveness, however, the nominal exchange rate is devalued initially so as to achieve a substantial real exchange rate depreciation, and the authorities commit themselves to not allowing the real exchange rate to get out of line in the event of “slippages” in the rate of inflation—i.e., a policy of active exchange rate management is adopted to keep the real exchange rate at the target level.

As described, the previous analysis suggests that the implementation of such a program would in fact cause the rate of inflation to increase, even though the credit targets were strictly adhered to and the fiscal deficit was eliminated. The reason for this is that the stock of credit cannot provide a nominal anchor to this economy. Inflation increases in this case because the depreciation in the target real exchange rate increases the current account surplus, which must be monetized. The rate of growth of the money supply increases in spite of the credit freeze component of the program, through both the current and capital accounts of the balance of payments. Containing credit growth (through, for example, a credit freeze) would simply give rise to a larger capital inflow. If the rate of growth of credit had been larger, the capital inflow (and

thus the overall balance of payments surplus) would have been commensurately smaller, with no effect on the inflation outcome.

V. Concluding Remarks

This paper has explored some of the macroeconomic implications of real exchange rate targeting in developing countries and has shown that countries that experience real shocks while following such a policy are likely to face problems in controlling the price level, problems that are unlikely to be solved—except in the short run—by following a sufficiently tight monetary policy. Equally, however, the analysis has shown that targeting the real exchange rate is not very likely to lead to hyperinflation in developing countries.

The arguments presented here do not necessarily imply that policymakers in developing countries should, in all cases, eschew management of the nominal exchange rate to achieve a target level of the real exchange rate. They do suggest, however, that should the authorities adopt an unchanging real exchange rate target, the adjustment to real shocks that would otherwise take place through changes in the real exchange rate will instead come about through movements in the rate of inflation. In the face of permanent real disturbances, avoiding these destabilizing effects on the price level requires moving the real exchange rate target in line with movements in the equilibrium real exchange rate. Undoubtedly, countries that follow real exchange rate rules attempt to manage the exchange rate so as to keep target- and equilibrium-real rates from deviating too far from each other. However, given the detailed knowledge of the economic structure that is required, managing the real exchange rate in this way must be regarded more as an art than a science. The advisability of adopting such rules will thus differ across countries depending both on the frequency and magnitude of real shocks as well as on the prospects for identifying the effects of such shocks on the underlying equilibrium real exchange rate.

References

- Adams, Charles, and Daniel Gros, 1986, "The Consequences of Real Exchange Rate Rules for Inflation: Some Illustrative Examples," *Staff Papers*, International Monetary Fund, Vol. 33 (September), pp. 439–76.
- Dornbusch, Rudiger, 1982, "PPP Exchange Rate Rules and Macroeconomic Stability," *Journal of Political Economy*, Vol. 90 (February), pp. 158–65.
- Lipton, David, and Jeffrey Sachs, 1990, "Creating a Market Economy in Eastern Europe: The Case of Poland," *Brookings Papers on Economic Activity*, Vol. 1, pp. 75–147.
- Lizondo, J. Sául, 1991, "Real Exchange Rate Targets, Nominal Exchange Rate Policies, and Inflation," *Revista de Analisis Economico*, Vol. 6 (June), pp. 5–22.
- Mathieson, Donald J., and Liliana Rojas-Suarez, "Liberalization of the Capital Account: Experiences and Issues," IMF Working Paper 92/46 (Washington: International Monetary Fund).
- Montiel, Peter J., and Jonathan D. Ostry, 1991, "Macroeconomic Implications of Real Exchange Rate Targeting in Developing Countries," *Staff Papers*, International Monetary Fund, Vol. 38 (December), pp. 872–900.

- , 1992, "Real Exchange Rate Targeting Under Capital Controls: Can Money Provide a Nominal Anchor?" *Staff Papers*, International Monetary Fund, Vol. 39 (March), pp. 58–78.
- Reinhart, Carmen M., and Vincent Reinhart, 1991, "Output Fluctuations and Monetary Shocks: Evidence from Colombia," *Staff Papers*, International Monetary Fund, Vol. 38 (December), pp. 705–35.
- Végh, Carlos A., 1992, "Stopping High Inflation," *Staff Papers*, International Monetary Fund, Vol. 39 (September), pp. 626–95.

Designing Disinflation Programs in Transition Economies: The Implications of Relative Price Adjustment

Sharmini Coorey, Mauro Mecagni, and Erik Offerdal¹

Abstract

This paper draws implications for the design of disinflation programs of a recent study which analyzed whether inflation in transition economies resulted from insufficiently tight financial policies and wage pressures or from the protracted adjustment of relative prices. Based on the main findings, the paper discusses considerations relevant to the setting of inflation targets—in particular those guiding the choice between rapid achievement of low inflation and acceptance of prolonged moderate inflation to accommodate needed changes in relative prices. Given the dominance of money growth in explaining inflation, implications for the nominal anchor strategy to achieve disinflation are discussed.

JEL Classification Numbers: E31, P52, C53

Authors' E-Mail Addresses: scoorey@imf.org, mmecagni@imf.org, eofferdal@imf.org

Designing Disinflation Programs in Transition Economies: The Implications of Relative Price Adjustment

Although many transition economies have succeeded in lowering inflation from very high to moderate levels of about 20–40 percent annually, there has been limited success in reducing inflation to low levels in the region of 10 percent a year. This has raised an issue of whether Fund-supported programs in these countries should aim for a more ambitious reduction of inflation or target a gradual adjustment path with moderate, but declining, inflation. A particularly important question in this regard is whether the achievement of low inflation has been constrained by the adjustment of relative prices—a necessary aspect of the transition to a

¹The authors thank Susan Schadler, Jack Boorman, Hugh Bredenkamp, Stanley Fischer, Kalpana Kochhar, and colleagues of various departments for valuable comments; and Kadima Kalonji and Fernanda Gusmão for research assistance and document preparation.

market economy—or whether inflation in these economies results only from the traditional factors of insufficiently tight financial policies and wage pressures.

In a recent working paper (Coorey, Mecagni, and Offerdal (1996)), we examined the empirical evidence regarding this latter question for a group of 21 transition economies in Eastern and Central Europe, the Baltics, and the other countries of the Former Soviet Union (FSU). The analysis also provided some insight into the issue of whether continued moderate inflation has been “necessary” to accommodate relative price adjustment. The present paper summarizes the main findings of our empirical work and draws some implications for the design of Fund-supported programs in these countries with reference to two interrelated questions:

- In setting inflation targets, how should considerations such as possible output costs or the buildup of inflation inertia guide the choice between rapid achievement of low inflation and acceptance of prolonged moderate inflation to accommodate needed changes in relative prices?
- To achieve a given path of disinflation, what considerations would guide the choice of nominal anchor strategy?

I. The Approach

In the context of concerns over the persistence of moderate inflation, we set out to analyze the empirical evidence on the sources of inflation in transition economies. Beyond the classic sources of inflation, we focused on the possible role of relative price changes, a feature of transition economies which may make rapid disinflation more costly than in market economies. We adopted the following approach:

- First, based on a review of the existing literature on factors influencing inflation in transition economies and on the relation between relative price variability and overall inflation, a simple analytical model and a basic equation for the estimation of inflation were derived.
- Second, using a database of disaggregated CPI data specially constructed for this purpose, the statistical distributions of the inflation rates of individual goods and services comprising the CPI were analyzed for each of 21 transition economies using six indicators of relative price variability. The definition and characteristics of the various indicators of relative price variability have important implications for the interpretation of the empirical results (see box).
- Third, an equation for inflation was estimated using as regressors lagged inflation (as a measure of inertia), the rate of growth of a nominal monetary aggregate, nominal wage growth, the change in the real exchange rate,² and two selected indicators of relative price variability;³

²Measured as the price of nontradables relative to the price of tradables. The specification selected for estimation (derived from the analytical model) included money growth and the real, rather than nominal, appreciation in light of the relevance of real exchange rate behavior to the policy debate. Because of the duality between money and the nominal exchange rate, the inclusion of all three variables would have created a degree of overdetermination in the estimated equation.

³The fiscal position was not included as a separate variable because in many transition economies the government deficit vastly understates the true extent of fiscal obligations which are better reflected by credit and money growth. A fiscal expansion which is not money financed would be captured in part by the real exchange rate variable.

Box. Issues in the Analysis of Inflation and Relative Price Variability

Changes in relative prices or relative price variability can be measured in terms of the characteristics—or shape—of the distribution of inflation rates of individual goods and services comprising a price index (such as the CPI). The shape of such a distribution is commonly described by the measures of variance and skewness. An increase in relative price variability would result in a greater dispersion of individual inflation rates and a broadening of the distribution—or an increase in variance (Diagram 1). The question of whether relative price adjustment is associated with inflation can thus be analyzed in terms of whether changes in the shape of the distribution are systematically related to shifts in its mean—which correspond to changes in average inflation (Diagram 2). An increase in variance need not lead to an increase in inflation if price increases of some goods are matched by commensurate declines in others—as in a symmetric distribution. When a price distribution is positively skewed, however, large increases in the prices of a few goods are accompanied by small price increases (or even price declines) in other goods, suggesting downward inflexibility in individual prices, which is associated with an increase in inflation (Diagram 3.)

The empirical analysis of the relationship between relative price variability and inflation is complicated by the many ways of measuring relative price variability. It can be measured in terms of variance or skewness (or both). Also, a choice has to be made whether price changes should be weighted by their contribution to the CPI or be unweighted, and if the former, how the weights should enter into the definition of variability. Measured variability thus depends on the characteristics of the sample, particularly the degree of disaggregation of the price data—which influences the dispersion of the weights—and the accuracy of the weights. Hence, any observed empirical link between inflation and variability is likely to be sensitive to the choice of indicator, the characteristics of the sample as well as to the inclusion or exclusion of other variables in the estimated equation.

The variability indicators used in the estimations—the Theil variance, which is commonly used in the literature, and a corresponding skewness measure—were selected because they use the consumer expenditure weights to reflect the relative importance of a price change and assume a zero value when all individual inflation rates are equal.¹ Other variability indicators—such as the unweighted variance and skewness—treat all price changes equally, regardless of their relative importance in consumer expenditures, or do not assume a zero value when all individual inflation rates are equal. The sensitivity of the results to the substitution of unweighted indicators was assessed, however, because—due to subsidies and other price distortions—CPI weights in transition economies often do not accurately reflect the relative importance of certain sectors.

¹The Theil variance is defined as the weighted sum of squared deviations of individual inflation rates from the weighted overall inflation rate. The unweighted variance is the unweighted sum of such deviations from the unweighted average commodity inflation rate, divided by the number of goods and services in the price index.

dummy variables were used to capture the effects of explicit exchange rate anchors. Due to sample limitations, only the short-run effects could be estimated and no distinction could be made between short- and long-term effects. The robustness of the results was explored in various ways, particularly with respect to the stability of the estimates across regions and over time, the sensitivity to different measures of monetary aggregates and relative price variability, and, to the extent possible, problems of simultaneity. Based on evidence of regional diversity in the estimates, separate specifications were obtained for three regional blocks: Eastern and Central Europe, the Baltics, and the FSU.

- Finally, a few specific issues relevant to the analysis of inflation, which are not well-captured by the econometric estimations, were examined in the context of five countries: the Czech Republic, Poland, Estonia, Moldova, and Russia.

II. Empirical Results

The principal empirical results are summarized in Tables 1 and 2 (which report coefficient estimates and diagnostic statistics) and Table 3 (which shows the estimated contributions of the main explanatory variables to inflation).⁴ A number of observations on the nature of inflation, its determinants, and relative price changes are suggested by the data:

(i) Inflation distributions (of the components of the CPI) in transition economies display a high degree of variance, indicating that significant relative price adjustments take place throughout the transition period even well beyond comprehensive initial liberalization. Following an initial sharp burst at the beginning of the transition, variance typically declines, but remains high relative to market economies. There is also widespread evidence that these distributions are positively skewed, consistent with downward price inflexibility and suggesting that a small number of large price increases have led the inflationary process (see box).

(ii) Money growth plays a dominant role in explaining inflation in the 21 transition economies in the sample. It is estimated to contribute, on average, about one half of quarterly inflation in the pooled sample and more than a third in each of the three regions. The monetary aggregates most closely associated with inflation are broad money (including foreign currency deposits) and domestic credit of the banking system.

(iii) Nominal wage growth also appears to have a substantial impact on inflation, accounting, on average, for about a fifth to a quarter of inflation in Eastern Europe and the FSU. Wage pressures do not appear to have been a significant factor in the Baltics.

(iv) Overall, relative price variability has a statistically significant impact on inflation, although—more than in the case of the other explanatory variables—the size of the effect varies by region and over the sample period. Variability is associated with nominal wage shocks in the pooled sample (which is dominated by the FSU) and the FSU. In these cases, relative price variability is estimated to contribute anywhere from a twentieth to a third of inflation depending on whether the equation includes or excludes nominal wage growth. The estimated contribution

⁴For details on the theoretical model, the econometric methodology, and tests of alternative specifications, see Coorey, Mecagni, and Offerdal (1996).

is generally small (less than a twentieth) in Eastern Europe and the Baltics, although variance has a sizeable impact on inflation during the initial liberalization period in Eastern Europe.

(v) The indicator that captures the effect of relative price variability on inflation also varies by region and over the sample period. In broad terms, variance seems to be significant during the initial phase of liberalization—for instance, in Eastern Europe and the FSU. However, skewness rather than variance is significant in the post-liberalization periods in Eastern Europe and the Baltics, suggesting the presence of downward price rigidity at moderate levels of inflation.

(vi) Relative price variability arises from different sources. Sharp increases in relative price variance (which are frequently concurrent with spikes in inflation) early in the transition tend to coincide with periods of intensive trade and price liberalization, wage and administered price increases, tax reform, and terms of trade shocks, at times accompanied by monetary accommodation. The results also offer support for the cost recovery hypothesis⁵—particularly in countries more advanced in the transition: increases in prices of capital-intensive services (housing, utilities, transportation) relative to other prices are evident in these cases and, when combined with downward price inflexibility, suggest that cost recovery may be an important factor influencing relative price adjustment and inflation in the later stages of transition.

(vii) The estimations do not show a significant impact of real appreciation on inflation, except for a small dampening effect (for a given money growth) observed for Eastern Europe. This may reflect the tendency for countries to resist nominal appreciation and to accommodate pressure for real appreciation through endogenous money growth via the balance of payments.

(viii) Strong real appreciation is, nevertheless, an important factor in many transition economies. Our findings suggest that although Balassa-Samuelson effects (Balassa (1964), Samuelson (1964)) could not plausibly account for large real appreciations,⁶ the cost recovery hypothesis may offer an alternative explanation of some of the underlying pressures for real appreciation.⁷

(ix) The estimated equations capture only the partial, impact effects of wage and relative price shocks, including real exchange rate movements, on inflation during a quarter. The total effect of these shocks is difficult to isolate because monetary accommodation can take place contemporaneously or in subsequent quarters and would tend to be captured by the money variable in the estimated equation. Thus, although substantial relative price variability and real appreciation are features of transition economies, a limited estimated impact of these variables on inflation may reflect rapid monetary accommodation through foreign exchange inflows in these small, open economies (particularly in the case of the Baltics).

⁵The cost-recovery hypothesis (see Zavoico (1995)) suggests that the relative prices of capital-intensive, mainly public, services—which tend to be low in the early stages of transition reflecting the absence of debt servicing costs—would increase as real incomes rise, in order to cover the potential costs of new investment.

⁶For large real appreciations, Balassa-Samuelson effects would imply implausibly low—and even large negative—total factor productivity (TFP) growth in non-tradables, even allowing for generous TFP growth in tradables.

⁷The cost-recovery hypothesis implies not only that real appreciation may be an essential aspect of transition and rising real income, but also that the trajectory of real appreciation as real income rises would be steeper than for market economies which already face debt-servicing costs on existing capital.

Table 1. Final Specification: Pooled and Regional Estimates^{1, 2}
(Dependent variable: quarterly CPI inflation rate)

Variable	Pooled Sample	East and Central Europe		Baltics		FSU
	Full sample OLS-HCSE	Full sample OLS-HCSE	Post- liberalization OLS-HCSE ³	Full sample OLS-HCSE	Post- liberalization OLS-HCSE ³	Full sample OLS-HCSE
Constant	13.80 (2.35)**	0.36 (0.29)	1.18 (1.24)	1.56 (0.96)	4.18 (4.80)***	57.51 (3.61)***
Additive dummy for exchange rate anchors	—	—	—	—	—	—
Multiplicative dummy for exch. rate anchor effects on inflation inertia	—	-0.15 (-1.44)	0.03 (0.26)	—	—	—
Inflation rate, lagged	—	0.23 (3.30)***	0.41 (4.68)***	0.25 (3.27)***	0.09 (1.36)	—
Money growth	0.26 (2.94)***	—	—	—	—	0.20 (2.14)**
Money growth, lagged 1 quarter	0.38 (4.08)***	0.32 (2.29)**	0.21 (1.99)**	0.32 (3.82)***	0.23 (4.77)***	0.30 (2.94)***
Money growth, lagged 2 quarters	0.09 (1.78)*	—	—	—	—	—
Nominal wage growth	—	0.21 (3.21)***	0.13 (1.91)*	—	—	0.21 (2.34)**
Nominal wage growth, lagged 1 quarter	—	0.08 (2.72)***	-0.008 (-0.15)	—	—	—

Real exchange rate change (PNT/PT), lagged 1 quarter	—	-0.15 (2.08)**	-0.26 (-5.19)***	—	—	—
Variance of relative prices ⁴	0.04 (6.54)***	0.02 (5.65)***	0.005 (0.57)	—	—	—
Skewness of relative prices ⁴	—	—	—	0.90 (2.59)**	0.89 (2.93)***	—
Skewness of relative prices, lagged 1 quarter ⁴	—	—	—	—	—	5.40 (1.96)*
Seasonal dummies	some significant	—	—	—	—	some significant
Outlier dummy	1,517.3 (89.15)***	—	—	—	—	1,489.27 (82.19)***
R-squared corrected	0.92	0.66	0.58	0.73	0.53	0.94
F-statistics (zero slopes)	380.4***	34.07***	20.50***	30.05***	12.04**	187.46***
Breusch-Pagan test for heteroschedasticity	101.49***	105.59***	75.50***	5.95*	9.55***	37.18***
White test for heteroschedasticity	174.68***	80.60***	53.36**	9.50	6.25	77.11***
Jarque-Bera test for normality of residuals	3,780.98***	407.26***	91.84***	0.66	8.84**	52.72***
Number of observations	260	122	100	33	31	105

¹All variables, other than variance and skewness, are measured in percentage changes. Variance and skewness are expressed in levels calculated using the inflation rates, in log change terms, of the disaggregated commodity groups comprising the CPI (see box). The sample is summarized in Appendix Table 4.

²For the t-statistics reported in parentheses, three asterisks indicate statistical significance at 1 percent level; two asterisks at the 5 percent level; one asterisk at the 10 percent level; — indicates that the variable was not included because of lack of significance in the specification search. OLS-HCSE refers to correction of bias in least squares standard errors and t-statistics using a heteroschedasticity-consistent variance-covariance estimator.

³Excludes period of initial price liberalization (see Appendix Table 4).

⁴Measured by the Theil variance and skewness, respectively (see box).

Table 2. Relative Price Indicators: Alternative Specifications in Pooled Sample and FSU^{1, 2}
(Dependent variable: quarterly CPI inflation rate)

Variable	Pooled Sample		FSU	
	Full sample final specification	Full sample alternative specification: including nominal wage growth ³	Full sample final specification	Full sample alternative specification: excluding nominal wage growth ⁴
Constant	13.80 (2.35)**	17.47 (2.79)***	57.51 (3.61)***	59.80 (3.24)***
Additive dummy for exchange rate anchors	—	-5.64 (-2.19)**	—	—
Money growth	0.26 (2.94)***	0.24 (3.05)***	0.20 (2.14)**	0.23 (2.03)**
Money growth, lagged 1 quarter	0.38 (4.08)***	0.32 (4.10)***	0.30 (2.94)***	0.40 (3.08)***
Money growth, lagged 2 quarters	0.09 (1.78)*	0.09 (1.68)*	—	0.12 (2.20)**
Nominal wage growth	—	0.16 (2.90)***	0.21 (2.34)**	—
Variance of relative prices ⁵	0.04 (6.54)***	0.02 (1.68)*	—	0.04 (4.37)***
Variance of relative prices, lagged 1 quarter ⁵	—	—	—	-0.02 (-2.66)***
Skewness of relative prices, lagged 1 quarter ⁵	—	—	5.40 (1.96)*	7.57 (2.39)**
Seasonal dummies	some significant	some significant	some significant	all significant
Outlier dummy	1,517.3 (89.15)***	1,512.05 (96.41)***	1,489.27 (82.19)***	1,465.4 (60.42)***
R-squared corrected	0.92	0.93	0.94	0.93
F-statistics (zero slopes)	380.4***	358.88***	187.46***	139.77***
Breusch-Pagan test for heteroschedasticity	101.49***	114.04***	37.18***	43.57***
White test for heteroschedasticity	174.68***	206.18***	77.11***	83.62***
Jarque-Bera test for normality of residuals	3,780.98***	2,364.69***	52.72***	152.58***
Number of observations	260	260	105	105

¹All variables, other than variance and skewness, are measured in percentage changes. Variance and skewness are expressed in levels calculated using the inflation rates, in log change terms, of the disaggregated commodity groups comprising the CPI (see box). The sample is summarized in Appendix Table 4.

²For the t-statistics reported in parentheses, three asterisks indicate statistical significance at 1 percent level; two asterisks at the 5 percent level; one asterisk at the 10 percent level; — indicates that the variable was not included because of lack of significance in the specification search. OLS-HCSE refers to correction of bias in least squares standard errors and t-statistics using a heteroschedasticity-consistent variance-covariance estimator.

³If nominal wage growth term is retained at an earlier stage of the specification search (despite being statistically insignificant, as indicated by the t-statistic).

⁴If nominal wage growth term is eliminated (despite being statistically significant) and relative price variance is retained at an earlier stage of the specification search.

⁵Measured by the Theil variance and skewness, respectively (see box).

Table 3. Inflation Decomposition at Sample Mean and Final Year (1995)¹
(In percentage points of inflation)²

Variable	Pooled Sample		East and Central Europe	Baltics	FSU	
	Final specification	Alternative specification	Final specification	Final specification	Final specification	Alternative specification
I. At sample mean						
Actual inflation	41.97	41.97	9.39	9.58	90.01	90.01
Constant and dummies variables ³	5.57	9.81	-0.19	1.56	35.70	24.39
Lagged inflation rate	—	—	2.55	3.58	—	—
Money growth ⁴	24.22	21.19	3.51	4.18	32.10	48.67
Nominal wage growth ⁴	—	6.15	2.50	—	17.76	—
Real exchange rate change (PNT/PT) ⁴	—	—	-0.44	—	—	—
Variance of relative prices	12.18	4.82	1.46	—	—	10.70
Skewness of relative prices ⁴	—	—	—	0.27	4.45	6.24
II. In 1995						
Actual inflation	11.69	11.69	3.89	6.33	20.12	20.12
Constant and dummies variables ³	-5.37	-3.03	-2.18	2.97	-2.67	-8.60
Lagged inflation rate	—	—	1.18	1.86	—	—
Money growth ⁴	12.18	10.67	2.81	2.10	12.80	21.13
Nominal wage growth ⁴	—	2.11	1.37	—	5.30	—
Real exchange rate change (PNT/PT) ⁴	—	—	-0.09	—	—	—
Variance of relative prices	4.88	1.93	0.80	—	—	1.01
Skewness of relative prices ⁴	—	—	—	-0.60	4.69	6.58

¹Based on full-sample equations reported in Table 1 and alternative specifications in Table 2.

²“—” indicates that the variable was not included because of lack of significance in the specification search.

³Includes regression residuals in 1995; residuals are zero at the sample mean.

⁴Combined effect of contemporaneous and lagged variables.

(x) Inertia becomes a more significant influence at moderate levels of inflation and in the later stages of transition in Eastern Europe suggesting that the output costs of reducing inflation tend to increase at these levels.

(xi) The announcement effect of an *explicit* exchange rate anchor has only a marginal effect—which is statistically weak and becomes insignificant over time—in dampening inflation. This does not, however, imply that exchange rate anchors are ineffective in lowering inflation since two of the main channels through which such anchors would work are by disciplining financial policies, hence leading to lower money growth, and by lowering inflation expectations, hence dampening wage pressures.

III. Implications for Inflation Targets Under Fund-Supported Programs

The empirical results indicate that the size of the impact of relative price variability on inflation varies across countries and time periods, so that the potential importance of such an effect has to be assessed in individual country cases. In principle, a significant relative price effect would suggest, other things equal, a worsening of any given trade-off between inflation and output growth (at least at moderate inflation rates), compared with a situation without relative price adjustment. For a given relative price adjustment, rapid disinflation would be associated with a greater output loss to the extent that economic agents resist the downward adjustment of their prices. In these circumstances, inflation targets would need to take the following considerations into account:

- *The short-run positive impact of relative price adjustment on inflation may take place through an increase in velocity (when nominal money growth is controlled for and output growth can be assumed to be fixed during the quarter). The price shock effectively pushes real money balances temporarily away from equilibrium, until such time as agents are able to readjust their money holdings. As with market economies, any longer-term effect on inflation would, in principle, depend on downward price rigidity and the extent of monetary accommodation. The case studies suggest that monetary expansion through foreign exchange inflows can be quite substantial and can accommodate shocks to inflation over the longer term.*

- *Relative price adjustment cannot be said to set a “floor” on inflation, provided there is a willingness to use monetary policy sufficiently aggressively. But sizeable and continuous relative price changes add to the costs to growth of tightening monetary policy sufficiently to achieve low inflation, particularly at moderate levels of inflation where inertia and downward price rigidity play a greater role.*

The evidence indicates that money growth is a dominant determinant of inflation and that relative price effects tend to be larger at higher levels of inflation and in the initial stages of liberalization. This suggests that rapid disinflation from initially high to low levels (say around 10 percent a year) would involve sharply limited monetary accommodation and potential output costs if relative price adjustment continues. Disinflation from high inflation to moderate levels (around 20–25 percent a year) may, therefore, be preferable if relative price effects are important. However, remaining at moderate inflation involves other risks: the evidence suggests that inertia and downward rigidity become significant at these levels—implying increasing output costs of disinflation in the future—and a chance that high inflation would return if the economy is subject to large relative price shocks.

- *The worsening of the trade-off between growth and inflation when relative price changes are important suggests that for a given set of preferences between these objectives, policymakers may choose to tolerate a higher level of inflation in the presence of substantial relative price adjustment. Against this must be set the risks, and opportunity costs, of remaining at moderate inflation levels. While rapid disinflation may still be optimal if the long-term benefits are sufficiently large relative to short-term costs, the presence of relative price shocks tilts the balance in the direction of a more gradual, but sustained, reduction in inflation.*

- *In view of the potential short-term conflict between relative price adjustment and disinflation, programs need to guard against the risk that countries delay structural reforms and the adjustment of*

public service prices in order to achieve low inflation targets. Indeed, structural reforms can aid disinflation by helping efficiency and reducing unit costs.

- The significant impact of nominal wage pressures on inflation in both high and moderate inflation contexts indicates the need for vigilance in programs in the area of wage growth, particularly also with regard to backward indexation which would add to inertia.⁸

- In light of the evidence in favor of the cost-recovery hypothesis, programs may need to anticipate a strong real appreciation—if real incomes are expected to rise—while recognizing that this need not imply an unacceptable loss in competitiveness. However, any attempt to bring about a more immediate adjustment in the relative prices of cost-recovery items—if successful—is likely to entail a substantial contraction in demand or—if unsuccessful—higher inflation.

- Since real appreciation can arise from many sources—some of which could lead to an unsustainable balance of payments—underlying pressures require close scrutiny. Developments in competitiveness, export growth, real wage increases in excess of productivity growth (including due to indexation), and extra-budgetary expenditures are some potentially important indicators.

IV. Implications for Monetary and Exchange Rate Policy

The empirical results suggest that money growth has a significant impact on inflation, whether or not relative price effects are present. Hence controlling money growth, whatever its source, is essential for disinflation. The exchange rate can, of course, provide a useful anchor in high inflation contexts, particularly if the upward pressure on inflation from relative price adjustment takes place in the short run through shifts in velocity. Nevertheless, the evidence also suggests that money growth from capital inflows and reserve accumulation, reflecting official intervention, can be substantial at moderate inflation ranges and can accommodate the upward pressure on inflation from wage and relative price shocks.

This brings to the fore a dilemma for exchange rate policy: an exchange rate anchor may play an effective anchoring role in high inflation contexts, but it can also slow disinflation in transition economies with moderate inflation by permitting monetary accommodation of various nominal and relative price shocks. A money-based anchor could, in principle, limit the money expansion and help disinflation in these latter circumstances, but the resulting nominal appreciation is likely to entail output costs. These considerations suggest the following implications for program design:

- If an exchange rate anchor strategy is chosen—and there may be good reasons for not abandoning such a strategy once it is in place—or if firm commitments cannot be obtained with regard to permitting nominal appreciation, inflation targets should reflect the likelihood that moderate inflation will persist. Although inflation may eventually decline, other factors such as inertia are likely to entail output costs at this later stage.

⁸Other research suggests, however, that authorities may not be able to control nominal wage pressures effectively, so that it may be difficult, in practice, to use nominal wages as a secondary anchor (See “Wage Controls During IMF Arrangements in Central Europe” by J. Morsink in Schadler et al. (1995)).

● If programs envisage a gradual reduction of inflation from moderate levels, increased exchange rate flexibility—through either a switch to a money-based anchor or a widening of an exchange rate band—may be needed. If a more rapid reduction of inflation to low levels is targeted, strong and credible commitments would be needed limiting the extent of foreign exchange intervention, thus controlling money growth and allowing nominal appreciation. This is especially important if ambitious structural reforms which imply large relative price changes are envisaged. However, the design of monetary programs and the choice of anchor strategy should anticipate that significant shifts in velocity, and hence instability in the demand for real balances, may accompany large relative price adjustments, particularly in the short run.

● Limits may need to be placed on sterilization operations since there may be a temptation to pursue the inflation target while resisting nominal appreciation by controlling money growth through sterilization, which would be both costly and of limited effectiveness. Sterilization would be inappropriate when the pressures for appreciation are persistent, particularly because servicing public debt at market interest rates is likely to become an undue burden on already weak fiscal positions.

Appendix

Table 4. Sample Size
(Quarters and Years)

Region	Country	Full Sample		Post-Liberalization Period
		Period	No. of Quarters	
East and Central Europe	Albania	Q2:92–Q3:95	14	Q1:93–Q3:95
	Bulgaria	Q3:91–Q3:95	17	Q2:92–Q3:95
	Czech Republic	Q3:92–Q3:95	13	Q3:92–Q3:95
	Hungary	Q2:91–Q3:95	18	Q1:93–Q3:95
	Poland	Q2:90–Q2:95	21	Q2:91–Q2:95
	Romania	Q3:92–Q3:95	13	Q4:93–Q3:95
	Slovak Republic	Q3:92–Q3:95	13	Q3:92–Q3:95
	Slovenia	Q3:92–Q3:95	13	Q3:92–Q3:95
Baltics	Estonia	Q4:92–Q3:95	12	Q1:93–Q3:95
	Latvia	Q4:92–Q3:95	12	Q1:93–Q3:95
	Lithuania	Q3:93–Q3:95	9	Q3:93–Q3:95
FSU	Armenia	Q2:93–Q3:95	10	n.a.
	Azerbaijan	Q3:92–Q3:95	13	n.a.
	Belarus	Q3:92–Q3:95	13	n.a.
	Georgia	Q2:94–Q3:95	6	n.a.
	Kazakhstan	Q3:92–Q3:95	13	n.a.
	Kyrgyz Republic	Q1:93–Q3:95	11	n.a.
	Moldova	Q3:92–Q3:95	13	n.a.
	Russia	Q2:93–Q3:95	10	n.a.
	Ukraine	Q3:92–Q1:95	11	n.a.
	Uzbekistan	Q2:94–Q2:95	5	n.a.

References

- Balassa, B., 1964, "The Purchasing Power Parity Doctrine: A Reappraisal," *Journal of Political Economy*, Vol. 72.
- Citrin, D.A., and A. K. Lahiri, 1995, *Policy Experiences and Issues in the Baltics, Russia, and Other Countries of the Former Soviet Union*, IMF Occasional Paper No. 133 (Washington: International Monetary Fund, December).
- Coorey, S., M. Mecagni, and E. Offerdal, 1996, "Disinflation in Transition Economies: The Role of Relative Price Adjustment," IMF Working Paper 96/138 (Washington: International Monetary Fund, December).
- Samuelson, P., "Theoretical Notes on Trade Problems," 1964, *Review of Economics and Statistics*, Vol. 64.
- Schadler, S., et al., 1995, *IMF Conditionality: Experience Under Stand-By and Extended Arrangements, Part II: Background Papers*, IMF Occasional Paper No. 129 (Washington: International Monetary Fund, September).
- Zavoico, B., 1995, "A Brief Note on the Inflationary Process in Transition Economies" (unpublished; Washington: International Monetary Fund) .

Making a Currency Board Operational

Charles Enoch and Anne-Marie Gulde¹

Abstract

The past years have witnessed a revival of interest in the adoption of currency board arrangements (CBAs). This paper argues that the successful establishment of a CBA requires that, in addition to adopting appropriate macroeconomic policies, the authorities make careful preparations on the technical aspects of the transition. The range of necessary preparations will vary from country to country, but will generally involve changing the central bank law, reorganizing the central bank, devising appropriate guidelines for reserve management, and adapting the government's cash and debt management activities. Additional measures are required for countries that recently experienced banking sector problems.

JEL Classification Numbers: E58, E61, F31

Keywords: Currency board, monetary arrangement, credibility

Authors' E-Mail Addresses: CEnoch@imf.org, Aguldewolf@imf.org

I. Introduction

In the last few years there has been a revival of interest in the adoption of Currency Board Arrangements (CBAs), with such arrangements introduced in, for instance, Argentina, Bulgaria, Estonia, and Lithuania, and under consideration in a number of countries elsewhere. There has been a growing literature on the advantages and disadvantages of such arrangements, and on the principal considerations as to whether a country should adopt a CBA. This paper leaves to one side the broad policy aspects of this subject: whether to establish a CBA; what should be the appropriate stance of macroeconomic policy to support the CBA; what should be the degree of

¹We would like to thank Hugh Bredenkamp, Warren Coats, Alfredo Cuevas, Daniel Dueñas, Vicente Galbis, Daniel Hardy, Alain Ize, Bernard Laurens, George A. Mackenzie, Anne McGuirk, Hassanali Mehran, Elizabeth Milne, Lorenzo Perez, Arne Petersen, Dawn E. Rehm, Christopher Ryan, Veerathai Sanitprabhob, and Vishwapati Trivedi for helpful comments. All errors and omissions remain the responsibility of the authors.

foreign exchange cover, and how it should be defined; and what should be the scope for monetary operations. It assumes that these questions have been addressed, and that the authorities are now facing the next set of tasks: how to make a CBA operational.

In general the establishment of a CBA will involve close coordination among the authorities, including the highest level of government, the Ministry of Finance, and the central bank. The Ministry of Justice and other agencies may also need to be involved. The process is facilitated if the authorities establish a formal high-level committee, possibly backed by a secretariat to conduct day-to-day technical preparations, which will meet on a regular basis, probably several times a week.

II. Designation of the Currency and Level of the Peg

The decision on the peg currency should be guided by three principles.² First, to allow the CBA to benefit from the strength and financial depth of the peg currency, it should be selected among stable currencies with reasonably deep financial markets, offering a range of financial instruments, underwritten by domestic and foreign issuers.³ These considerations suggest that the benefits will be larger if the selection is made from among the currencies of G7 countries or the small set of other widely held international reserve currencies.

To decide between possible international reserve currencies, a country should take into account the direction of trade flows, the denomination of imports and exports, the denomination of international debt, and the correlation among cyclical movements between its economy and that of the proposed designated currency. Choosing the currency of the predominant trading partner is in most cases advisable, as it reduces exposure to swings in the import value of reserves. In this regard the authorities should be forward looking. It is more important to analyze prospective trade patterns than to assume that existing patterns reflecting the legacy of the past will necessarily continue to dominate in the future.⁴

Finally, the domestic acceptance of a currency may also have to be taken into account in the ultimate selection process. Widespread “dollarization” could, for example, be an argument in favor of the U.S. dollar, even in a country whose trade is not predominately with the United States or U.S. dollar-denominated. The benefits of choosing the dollar in such a case, however, might well be offset through the variability likely to derive from receipts and expenditures denominated in non-dollar foreign currencies, although it might be possible to hedge such variability, using the U.S. financial markets.

In addition to the designation of the peg currency, the level at which to peg is one of the initial and crucial decisions that need to be taken.⁵ The most appreciated level for the exchange

²In theory a country might wish to peg to a currency basket, such as the SDR. Such an approach, however, would undermine the simplicity and public comprehensibility of the CBA, and might make certain aspects of the operation of the CBA—for example reserve management—more difficult.

³Some currency boards—mostly for historical reasons—have pegged to currencies of neighboring countries; e.g., Brunei is pegged to the Singapore dollar. Most modern currency boards however are pegged to one of the large international reserve currencies.

⁴For instance, a country in Central or Eastern Europe with aspirations to integrate into the European Union might expect increasing trade with its European partners over time.

⁵We discuss here only the technical issues of choosing the exchange rate. Macroeconomic issues, such as those deriving from the competitiveness of the country, may of course well be critical, but are outside the remit of this

rate that would be feasible would be the rate at which the available foreign exchange reserves would be just covering the specified domestic monetary liabilities. To calculate this rate requires a definition of available foreign exchange reserves and of the specified domestic monetary liabilities. Foreign exchange reserves can be specified net or gross, and can include or exclude borrowings from the IMF and other long-term debt items.⁶ The specified domestic monetary liabilities can comprise reserve money, or domestic liabilities of the central bank. Although this can be defined, at a minimum, to include currency in circulation plus banks' deposits at the central bank, generally other short-term liabilities of the central bank are also included. The appropriate definition of reserves needs to be decided on a case-by-case basis, with the final choice also depending on the liquidity of the liability and whether or not the government or the central bank will ultimately be responsible for servicing it. There is in general a trade-off for the authorities to consider, since on the one hand greater restrictiveness—in the sense that a narrower set of foreign reserves has to cover a broader set of domestic liabilities—should ensure strong discipline on the system and improve the credibility of the system, while on the other hand it would put increased strains on the system and thus instead jeopardize its credibility. It should also be kept in mind that a net reserve concept, while in some ways the most straightforward definition, might, in some cases, require an exchange rate that would involve a large devaluation from the pre-CBA level.

In most modern CBAs, the authorities are likely to see a need for excess coverage, which would imply a somewhat more depreciated rate from the one calculated according to the above criteria. As will be discussed in the later part of this paper, excess coverage could provide some room for future open market operations or a safety margin for banking sector support.⁷ In deciding on the issue, the authorities should review whether there are factors in the economy that could lead to the need for significant central bank intervention. If such factors are present, the approximate magnitude of such intervention, and a safety margin, should be calculated in order to estimate the necessary amount of excess cover, and the level of the exchange rate set roughly to achieve such cover. Finally, taking account of the large psychological component attached to the level of the peg, the authorities should aim to arrive at a “round number” of domestic currency to peg currency—for example, 50 or 100 units of domestic currency for one unit of the peg currency.

paper. While generally macroeconomic and technical factors will both have to be taken into account, in an extreme case—for instance where a country has emerged from hyperinflation and where its domestic markets are relatively flexible—the authorities may set the exchange rate solely on the basis of the factors discussed here, and then set macroeconomic policy so as to validate that rate.

⁶On the issue of the appropriate definition of reserves, see also Section VII.

⁷Again, there is a trade-off. If the degree of excess cover is insufficient, this may lead to questions as to the robustness of the CBA in the face of likely strains. On the other hand, if coverage is excessive, this may be perceived as permitting the authorities to operate without the necessary degree of discipline.

III. Legal Issues

One critical characteristic of a CBA is that the fixed exchange rate is established in law. This means that it will take time to establish the CBA,⁸ and will involve bringing parliamentarians—and thus probably the media and the public—into the process. The authorities therefore have to make efforts to explain the purposes of a CBA and to establish a consensus for its introduction.

The authorities will need to identify a team of lawyers to undertake the necessary drafting of the CBA law. The composition of this team will vary from country to country, depending in part upon where the specialized legal skills can best be found. Because of the technical nature of the work, it is likely that the central bank lawyers will play a key role. Lawyers from the Ministry of Justice are also likely to be involved, and they will need to liaise closely with the government and the parliamentary legal experts.

At a minimum the law needs to specify the fixed exchange rate, and that the foreign exchange reserves of the country will be sufficient to cover the domestic liabilities. It will be necessary for the law to define both the reserves and the domestic liabilities that will cover them. Some countries also specify some of the additional constraints on the operation of the CBA in the law, including a prohibition on central bank lending to government, and restrictions on central bank monetary operations. In the final decision on the legal limitations, the authorities should be fully aware of the nature of the trade-off: the more that these additional elements are specified in the law, the more transparent become the operations of the CBA and hence, in some cases, its credibility. On the other hand, excessive legal prescription reduces the ability of the authorities to manage the CBA flexibly, and this may in some circumstances reduce confidence in the sustainability of the arrangement and hence adversely affect its credibility.

There would seem little reason to specify explicitly conditions under which the exchange rate peg can be changed. A CBA is intended to create a fixed arrangement for the foreseeable future; if one specifies an “exit mechanism” at the outset, this may indicate that the authorities are not fully committed to maintaining the arrangement, and may thus undermine credibility in the arrangement.⁹ Indeed, the authorities might go in the other direction and tie their hands even more firmly, in the extreme for instance by establishing the CBA law as part of the constitution, or devising some other mechanism that would require a parliamentary super-majority to reverse, to maximize public confidence that the arrangement will be maintained.

In some cases the passage of a CBA law can be taken as an opportunity to review other aspects of the central bank law, for instance to improve the governance of the central bank or to give it greater autonomy. This may help establish the credibility of the CBA at the outset, especially if the CBA is being established as a reaction to past failings of the central bank. On the other hand, broadening the scope of the CBA law may delay the process of establishing the CBA, and may make the possibility of maintaining consensus more difficult.

⁸However, the authorities might announce that they are operating as a quasi-CBA during the period until the legal requirements have been put in place.

⁹A CBA that specifies an exit strategy would in fact be close to a fixed exchange rate regime; it would be unlikely to benefit from the additional credibility accorded to a policy that eliminates policy discretion in the entire foreseeable future.

IV. Organization of a CBA

The primary objective of a CBA is to maintain the foreign exchange cover of the designated domestic liabilities, and to demonstrate frequently that it is doing so. The balance sheet of the central bank—ideally as confirmed by an external audit—must therefore be re-specified so that assets and liabilities of the “currency board” can be separately identified.¹⁰

The authorities have the choice to leave the “currency board” as merely an accounting element within the central bank (such as, for instance, in Argentina); of identifying these assets and liabilities in a separate Department within the central bank (such as in Estonia and Bulgaria); or indeed taking the currency board functions out of the central bank into a separate institution. There seem to be advantages in the second of these routes: it maintains the synergies arising from the various central bank functions being conducted within a single institution; and yet it makes clearly visible the functions related to the currency board operations.

If the authorities follow this second route, there needs to be a clear separation of the accounts of the two parts of the central bank, the so-called Issue Department and the Banking Department. The Issue Department would represent the “currency board proper,” its main tasks consisting of the management of the country’s reserves and issuing domestic currency. The Banking Department would have as its assets the reserves that are in excess of those needed for the full currency board coverage provided by the Issue Department and others as permitted under the CBA law, including possibly domestic paper that can be used for OMOs. Staff should be allocated between the two departments, with service departments—such as administrative and accounting—covering both areas.

The authorities need to decide to what extent the non-core functions of the central bank should be retained within the same institution. Among these the most important are probably the banking supervision and the fiscal agency functions. Again, the main argument for retention is the synergy of skills and back-room resources; the argument for separation is the need to improve transparency and avoid conflict of interest. One solution is to retain the functions within the central bank, but to establish clear “fire walls” in staffing and accounting between these functions and the core functions of the central bank.¹¹

V. Banking Sector Rehabilitation and Supervision

Reviewing the state of the banking sector, undertaking any necessary rehabilitation measures and strengthening banking supervision have to be crucial ingredients of the move to a CBA. A CBA differs from a standard central bank in that it is generally far more restricted in the extent to which it can provide “lender-of-last-resort” support to domestic banks. In fact, the CBA will not have any possibility to lend to banks unless it has accumulated excess coverage, i.e., a higher

¹⁰It will be important that the central bank embark on the process of establishing the balance sheet of the currency board early in the process. Given differences in a country’s previous central bank functions it is not possible to develop a generic balance sheet; instead the balance sheet will have to reflect a number of case-by-case decisions described elsewhere in this paper.

¹¹In the final decision on the assignment of auxiliary tasks, the authorities will also have to be mindful about the operating costs of the currency board. Given that the abolition of domestic credit greatly reduces the CBA’s income potential, care needs to be taken not to assign it more tasks than can be financed from its income flow.

level of reserves in the peg currency than that required to cover the specified domestic monetary liabilities. If such excess coverage exists, the CBA can gain credibility by announcing the possibility of limited support to banks in distress, albeit clearly restricted and within well defined limits.

Given the limitations on the CBA's support to banks, the credibility of the currency board will be higher if, from the outset, the banking system is seen to be sound, with no perception of any looming systemic problems.¹² In addition, interbank markets take on a crucial role for the functioning of the banking system once the possibility of permanent central bank intervention through standing lending and deposit windows has been eliminated. Such markets are likely to function effectively only if the banking system is sound. Also, while the impetus for interbank trading has to be market driven, it will be important that an adequate legal and institutional framework is put in place prior to the move to a CBA. Examples of supporting measures include a well-functioning payments system and a securities register that allows the effective pledging, transfer of payments for, and ownership of securities in the secondary market. The process may also be assisted, at least initially when markets can be expected to be relatively thin, by the treasury issuing securities in a range of maturities that are interesting to both primary and secondary market participants.

For countries that have recently undergone severe banking crises, doubts about the soundness of the banking sector are arguably the most difficult obstacle towards making a CBA credible. The problem can best be addressed by the authorities undertaking a broad-based restructuring prior to the start of the CBA. The supervisory authorities will need to assess each bank in the light of established prudential standards, and in the event of non-compliance should agree with the banks' owners and management a timetable for bringing the bank into compliance. In the event that there is no realistic prospect of bringing a bank into compliance in the near future, the authorities should be prepared to resolve the bank's problem, including perhaps through closure. It could be highly damaging to the credibility of a CBA if a banking crisis were to emerge soon after the CBA began.¹³ Also vestiges of past crises should be brought to a close—for instance, if a bank closure process is proceeding slowly through the courts, the authorities should make efforts to have the process resolved expeditiously. The soundness of the reformed system should be confirmed by external audits by international firms, and, possibly, by progress towards privatization and international involvement in the sector.

At the end of the banking sector reform process banking supervision should be—and should be perceived to be—strong. A well-designed policy to deal with any further potential problem banks (including possible closures) needs to be in place. This will require that the supervisory authorities have adopted a full set of appropriate prudential regulations, including on capital adequacy, domestic and foreign currency liquidity, loan loss classification and provisioning, open foreign exchange positions, insider and large exposure and maturity mismatch limits. Capital

¹²Credibility will also benefit if banks have pre-agreed access to foreign credit lines, as is the case in Argentina (Zarazaga, 1995). It is likely though that, in the case of smaller and less internationally integrated countries, and especially at the outset of a CBA, such arrangements would be expensive and difficult to negotiate.

¹³This is particularly the case if the origins of the banking crisis are seen to derive from before the time when the CBA was established. On the other side, if a crisis emerges due to exogenous factors after the establishment of the CBA, and if the CBA is able to handle it successfully, as was the case in Argentina when the "tequila effect" led to withdrawals of 18 percent of total deposits in 1995, this could even serve to increase the credibility of the CBA.

adequacy requirements are likely to need to be substantially above the 8 percent recommended by the Basle Committee for banks in the G10 countries, probably even beyond the 12 percent discussed for banks in emerging markets generally, in view of the greater riskiness of banking outside the G10 and the need for greater self-reliance in countries with CBAs. Banks should be required to report their positions on the basis of internationally accepted accounting standards.

Once the CBA is established, it will be essential to maintain high-quality supervision staff, with autonomy to undertake supervision on a professional basis, and to enforce fully all prudential requirements.

VI. Public Sector Financing Issues

A CBA will have important and far-reaching implications for the government's financial operations. Apart from the macroeconomic constraints that rule out any systematic borrowing from the central bank, the CBA in more practical terms also affects both the management of the government's day-to-day liquidity as well as its longer-term debt management.

Concerning day-to-day liquidity management, establishment of a CBA requires changes in the usual "banker-client" relationship between the central bank and the government. In most countries the central bank holds and manages government deposits, and often provides some overdraft provisions. However, movements into and out of government deposits are associated with changes in reserve money, so such practices could lead to complications for monetary management under a CBA. For this reason, some currency boards have gone as far as no longer to allow domestic currency government deposits with the central bank, and instead pass this function to the market. Other currency boards, for example Bulgaria, have opted to continue to allow government deposits with the central bank.¹⁴ However, for the latter approach to be sustainable, three conditions need to be fulfilled. First, all government deposits will have to be covered by foreign reserve currency holdings, thus avoiding a situation where deposit withdrawals violate the requirement that reserve money be covered by the appropriate amount of the peg currency at all times. In addition, government deposits can no longer carry any overdraft provisions, since such provisions would amount to money creation. Finally, interest on such deposits can only be paid if the central bank could finance such payments out of its own foreign exchange interest income.¹⁵

Many central banks are deeply involved in the markets for government debt, often in operations that include the issuance and marketing of treasury bills, as well as the provision of various debt management services to the government.¹⁶ Under a CBA the role of the central bank in this area is curtailed by the fact that it will no longer be able to acquire government paper for its own portfolio, nor to influence monetary conditions through large scale OMOs or

¹⁴The decision in Bulgaria was mainly motivated by the inability of the commercial banking sector to take over and manage the entire government deposit base in the short run.

¹⁵In practice these interest receipts are usually needed largely to cover administrative expenditures of the CBA, and the decline in seignorage associated with the lower level of inflation might well put pressure on the central bank's profitability. In such cases, it would be advisable for the CBA to be cautious in setting the rate of interest it pays on government accounts.

¹⁶These services can include organizing auctions, announcing auction results, maintaining the securities register, and acting as depository for securities or other collateral.

primary auction issues.¹⁷ To avoid any potential conflict between debt management and the operations of the CBA it may be best for the fiscal authorities to take over both debt management and the organization of the primary treasury auctions. Such a separation, if combined with a move of the government's operations account to a commercial bank, would ensure that treasury bill auctions and repayments do not change the outstanding stock of reserve money and, hence, do not affect the CBA. However, where such a clear separation of tasks causes organizational difficulties—for instance, with the transfer of central bank staff to the treasury—an organizational structure in which the CBA undertakes such activities strictly on a “fee for service” basis for the government can be implemented.¹⁸

VII. Debt Stock Issues

In simple form, the identity $M0 = NFA(CB) + NDA(CB)$ describes the composition of a country's monetary base, where $NFA(CB)$ stands for the central bank's net foreign assets, and $NDA(CB)$ for the central bank's net domestic assets. Under a CBA, foreign assets of the central bank have to at least cover a defined part of the monetary base. In the narrowest definition of a currency board, where $NFA(CB)$ is to cover $M0$, therefore, net domestic assets (in the form of outstanding stock of credit to the government and to banks) can no longer be held on the books of the central bank.

A number of countries that have established a CBA have had significant stocks of outstanding government debt held by the central bank. A possible solution to the problem, especially where the currency board consists of a separate Issue and Banking Department, is to book these net domestic assets in the Banking Department. The counterpart entry would be the capital of the central bank. Other solutions, where practical, could include the central bank disposing of excess treasury bill holdings in the market, thereby reducing its outstanding monetary liabilities.

While it appears feasible to resolve the issue of an outstanding stock of government debt at the time of change to a CBA, it is not generally consistent with the provisions of a CBA for new debt to be purchased by the central bank. In countries with an IMF program a complication—which has occurred in at least two countries—relates to the use of IMF credit. As IMF credit is generally channeled through the central bank, its use by the government—for example for external debt payment—appears impossible as the central bank cannot on-lend the funds in exchange for new NDA. A solution to this problem has to be found on a case-by-case basis. One solution may be for the government, through sales of its securities in the market, to raise the domestic currency counterpart funds for its external debt payments. Alternatively, there may be a renegotiation of the flow payments on the outstanding debt stock, which, in turn, could

¹⁷In case of excess coverage, there is room for limited OMOs on the basis of treasury bills. These have been an important feature, in particular, of the operation of the Argentine CBA. Theoretically the CBA could conduct unlimited OMOs based on, i.e., central bank bills, since this would involve the exchange of one form of its own liability (currency) for another (central bank bill). In practice this would be limited by the amount of interest the CBA is able to offer on such instruments.

¹⁸For example, in Bulgaria a Fiscal Services Department (FSD) was created within the BNB to take advantage of staff resources as well as existing computer hardware and software. Auction volumes, however, are decided by the Ministry of Finance.

allow the government to use some of the funds to purchase the necessary foreign exchange. Finally, as in the case of Bulgaria, the on-lending of Fund credit can explicitly be exempted from the rules regarding Government borrowing from the Central Bank.

VIII. Foreign Exchange Reserves Management Issues

Under a CBA the central bank stands ready to exchange unlimited amounts of domestic liabilities for the designated peg currency; it is legally required to have sufficient coverage of foreign exchange reserves, measured in terms of the designated peg currency to meet the designated domestic liabilities. Clearly, these obligations are most easily met by maintaining the country's foreign exchange reserves in the designated peg currency. Conversely, the CBA will be more difficult to operate, the greater the proportion of the coverage of domestic liabilities that is held in assets that have significant fluctuations against the designated peg currency.

This implies that in many countries the desired composition of reserves under a CBA will differ from that existing at the time when the country decides to adopt a CBA. For instance, a country deciding to peg to a European currency may at the outset have a high share of its reserves in dollars. Even more importantly, it may have significant gold holdings in its reserves. The more that a country is constrained by the full coverage requirement (i.e., the lower the level of excess foreign reserves over the coverage requirement) the more carefully in this regard its reserves will have to be managed.

Immediately after a decision as to the peg currency is made, the central bank should provide an up-to-date listing of the composition of the reserves, as well as the degree to which the reserves are needed to meet the coverage commitment, and the maturity profile of foreign reserves investments as well as any forthcoming foreign exchange liabilities. The central bank may wish to divide the reserves into those needed to provide cover, and the remaining reserves. For the former, it will be important that the major part (say 80 percent) be in the designated peg currency by the time of the start of the CBA. Assuming that the initial share is lower than this, the foreign exchange department of the central bank should use every opportunity as an investment matures to convert the asset into the designated peg currency. If necessary, the reserve managers should also undertake market sales of assets not in the designated peg currency. In particular, if the country holds sizeable amounts of gold, it may well be appropriate to sell these before the CBA begins.

Especially if a country intends to peg its currency in a CBA to a currency other than the dollar,¹⁹ it will be useful for the central bank to contact its counterpart in the peg currency country at an early stage, and to keep it fully informed. Generally, one would expect that the economy of a country adopting a CBA will be so much smaller than that of the peg currency that there will be no discernible impact on monetary conditions in the peg currency country, but there may be some concerns in this regard which need to be addressed. More positively, the central bank in the peg currency country may be able to give assistance to the CBA central bank in, for instance, the conversion of the latter country's foreign reserves into its currency, and the investing of assets in that currency.

¹⁹For instance, Bosnia-Herzegovina, Bulgaria, and Estonia have pegged to the deutsche mark, and Brunei has pegged to the Singapore dollar.

IX. Cash Management Issues

An integral element of the establishment of a CBA is the commitment of the central bank to supply unlimited amounts of the designated peg currency against domestic liabilities. Clearly the credibility of the arrangement would be seriously jeopardized if a shortage of banknotes prevented the authorities from being able to honor this commitment. The size of the initial demand for peg currency banknotes is very hard to determine; quite probably, the larger the (visible) supply, the less the amount that will actually be demanded. Indeed, if the launching of the CBA is successful there may well be rapid remonetization leading to excess supply of peg currency by the public seeking to acquire domestic currency and deposits. In this case securing an adequate supply of domestic currency is also of crucial importance.

Concerning the supply of peg currency the central bank should contract with the central bank of the designated peg currency, or conceivably an alternative source, for the supply of adequate quantities of banknotes by the time that the CBA begins. It should ensure delivery of the currency, and storage in its vaults. It should also make contingent arrangements for immediate acquisition of additional amounts of currency in the event that this is demanded. On the other hand, it should also arrange for the rapid transmittal of peg currency notes abroad, if indeed there are excess receipts, so that the amounts can be invested as quickly as possible.

X. Modalities of the Exchange Window

The credibility of a CBA is enhanced if it operates an exchange window at the central bank itself, where the public at large can undertake cash exchanges.²⁰ The operation of this window requires a decision whether or not there should be a trading spread, i.e., higher exchange rate for buying foreign exchange than for selling the same amount. The arguments for a small spread are straightforward: if the central bank buys local currency at slightly below the par and sells peg currency at slightly above par, it allows private traders to enter (or remain) in the exchange business, by offering an even narrower spread. In addition, insofar as transactions do come to the central bank, it will be able to cover its operating costs and, possibly, gain some profits from the exchange. The establishment of a narrow trading spread is not unusual; it is consistent with the arrangements pertaining in conventional fixed exchange rate systems.

On the other hand, while most central banks do have a trading spread, such an arrangement may, in the case of a CBA, have some costs in terms of credibility as the market exchange rate for customers will differ from the announced peg rate. While largely a psychological issue, the power of a clearly fixed relationship should not be underestimated, especially in cases where the CBA is intended to end a long period of exchange rate instability. Against the psychological advantage of such a system, its economic costs, especially for the private sector, have to be recognized. If the central bank operates an exchange window where it buys and sells foreign exchange without any spread, it will drive many private exchange participants out of this market segment. Since the central bank will generally have, at most, a few branches, and will be open only during core banking hours, there is still likely to be some role for exchange bureaus, since

²⁰Banks generally would deal with the CBA by exchanging free reserves on their accounts against foreign exchange.

customers can be expected to pay some spread for the convenience of changing through the bureaus. Indeed, it may well be that the central bank becomes supplier for “wholesale” market transitions, and the exchange bureaus suppliers for retail transactions.

To combine the psychological benefits of a peg directly at the peg rate with the benefits of maintaining a spread, an asymmetric peg might be maintained. For example, if a CBA is to be established at the official rate of 100 units of domestic currency (DC) equaling 1 unit of peg currency (PC), the central bank could sell 1 unit of PC at 100 DC but only pay 98 if it buys PC. While the psychological effect of obtaining exactly the official quantity of the designated peg currency in exchange for a given quantity of domestic currency should help confidence, maintaining a spread for the reverse of the transaction means that private traders still would have a sufficient margin for business.²¹

XI. Additional Measures for Credibility

Mere establishment of a CBA, and even its establishment in law, will not of itself necessarily generate credibility in the arrangement, especially if it is being established at a time of loss of credibility in the earlier arrangements. Credibility should therefore be buttressed by additional measures first to ensure that the arrangements work smoothly and second that they are transparent.

As regards the first, this is achieved by careful attention to the logistics of operating the CBA, as discussed above, for instance through having sufficient volumes of cash on hand at all times. As regards transparency, this can be greatly assisted by a requirement for frequent publication of the accounts of the relevant parts of the central bank; for instance the Bulgarian National Bank has to publish the accounts of its Issue Department on a weekly basis. It can be assisted also by enhancing the independence of the central bank, so that the public has assurances that the operation of the CBA will not be subverted by political forces. Measures to increase central bank independence may therefore well be part of the legal preparations for establishing a CBA, as discussed in section 3 above.

XII. Timing and Announcement of the Exchange Rate Level and Managing the Foreign Exchange Market in the Transition to the CBA

Once the decision to opt for a CBA has been taken, issues of timing and transition will come to the forefront. Regarding timing, the desired macroeconomic benefits of the new system are likely to call for early action. Nevertheless, realism should guide any timetable. Estimates for a feasible time frame should, in particular, take into account the minimum period necessary to change the central bank law and other administrative regulations that have to be in place. Once a schedule has been set out, the announcement of the time frame should be considered binding,

²¹An asymmetric spread has been introduced in Bulgaria, where the central bank sells 1 deutsche mark for leva 1000, but buys 1 DM for leva 995.

given that any delays will cause uncertainty, speculation against the currency, and undermine confidence in the arrangement.

The announcement of the level of the peg will be a second key issue, and one that is likely to generate a great deal of public interest. The public is likely to form a view on the rate that is to be chosen, and the exchange rate—if it is floating at that point, and if the move to a CBA is credible—is likely to move toward this level.

If the public considers that the authorities are seeking a depreciated rate—to allow for additional excess coverage or gains in competitiveness—there is likely to be depreciation toward this level. As such speculation in the run-up to a CBA could be destabilising and lead to self-fulfilling prophecies, the authorities may opt to announce the exchange rate at an early date.²² Such an announcement would place constraints on the management of the rate during the period until the CBA was established, but markets would assist in this process by moving the rate toward the announced rate as long as the establishment of the CBA and level of the peg were credible. Hence, an advance announcement should set a rate that could be maintained with a reasonable degree of certainty; a devaluation prior to the introduction of the CBA, while still feasible, might have significant costs in terms of credibility.

XIII. Capital Flows and Article VII

A CBA can only work if a sufficient degree of integration in the international economy is assured. Current account convertibility is a necessary ingredient in the international adjustment process, but ideally—for fast interest rate equalization—a country should have full, or at least a high degree of, capital mobility.

Most countries, including some CBA countries, do maintain some forms of capital controls which impede the operation of the well-known interest equalization mechanism.²³ In these cases, if free payments for imports of goods and services are permitted (in more IMF-related technical terms, the country accepts the obligations of Article VIII, Sections 2, 3, and 4 of the Fund's Articles of Agreement) the adjustment process following a monetary disequilibrium works through a chain of effects involving trade volumes leading to balance of payments surpluses and deficits, which will eventually restore monetary equilibrium, albeit within a time frame dictated by the slower speed of trade flows.

Given that a CBA is usually introduced, among other reasons, to allow countries to benefit from the lower interest rates of the peg country, it obviously works better if the level of capital controls is reasonably low, i.e., capital is allowed to move relatively unrestricted into and out of the country. In such cases, the initially higher interest rates in a currency board country will rapidly attract foreign (portfolio) investors and deter domestic investors, during the remonetization process, from taking their funds abroad. The increase in available funds, in turn, will put downward pressures on interest rates, thus dampening the net capital inflows.

²²The central bank could also initially announce a band that would have to be narrowed progressively as the date of the CBA approaches.

²³In these countries interest rates will differ from these in the peg country not only by the country risk premium but also by a wedge accounted for by the capital controls.

XIV. Technical Assistance

This paper has argued that a wide variety of issues need to be addressed before a country can safely establish a CBA. This is somewhat ironic, since one of the purposes of a CBA may be to create a simple monetary structure that can be operated without requiring great sophistication from the central bank. However, even if the operation of a CBA is relatively simple, it is clear that the authorities may first have to clear up the legacy of monetary, fiscal, and financial failings of the past, and this may be rather complicated.

Some central banks may have adequate in-house expertise to address the various identified issues on their own; Argentina is a clear recent example. Also countries starting from a *tabula rasa* should be able to establish a CBA with fewer difficulties.²⁴ However, the usual preparations for establishing a CBA should not be underestimated, and many countries considering adopting such arrangements may well need to look for outside help to ensure that these preparations are completed properly.²⁵ Areas in which assistance may be needed include: legal issues, including drafting of the necessary legal texts; banking supervision, including advice on appropriate prudential standards and on monitoring and enforcing compliance with these standards; accounting, including improving the transparency of central bank accounts, and—where relevant—separating the accounts of the Issue Department from the Banking Department; and market management, including the adaptation of the fiscal agency function to the new environment. Such assistance may come from the IMF, but could also be arranged through the World Bank, the regional development banks, or through bilateral assistance. A comprehensive program of technical assistance, usually involving several sources of support, should generally be an integral part of preparing for the adoption of a CBA.

XV. Conclusions

Notwithstanding the fact that currency boards are considered simple monetary arrangements, their introduction requires preparatory work on a number of legal and institutional issues. Unless these preparations are made in time and a coherent system is put in place, the credibility of the CBA itself—and with it the entire range of economic benefits desired from the adoption of the arrangement—will be at stake.

Countries that have decided to move to a CBA are therefore well-advised to plan and prepare carefully for its introduction. Given the wide range of issues and institutions involved, this can best be achieved if a committee of all the concerned institutions—including the central bank, Ministry of Finance, and Ministry of Justice—is formed early in the process. Focussing on the various issues discussed in this paper, the committee should develop a task list along with a detailed (possibly even day-by-day) plan towards the fulfillment of these requirements by the target date for the introduction of the CBA. To ensure, and signal, commitment of all parties involved the committee should be chaired by a high level official, in many cases most appropriately the central bank Governor or the Minister of Finance. Given institutional differences across countries, there is not likely to be a single blueprint of an adjustment plan.

²⁴However, in such cases the level of in-house technical skills may be commensurately low.

²⁵See Bennett (1993) for details of establishing the CBA in Estonia.

However all countries planning to introduce a CBA should review the need for preparations in all the various areas outlined in this paper.

References

- Baliño, J.T. Tomás, and C. Enoch, 1997, *Currency Board Arrangements: Issues and Experiences*, IMF Occasional Paper No. 151 (Washington: International Monetary Fund).
- Bennett, Adam, 1993, "The Operation of the Estonian Currency Board," *Staff Papers*, Washington: International Monetary Fund, Vol. 40, No. 2 (June).
- , 1994, "Currency Boards: Issues and Experiences," *IMF Paper on Policy Assessment* 94/18, (Washington: International Monetary Fund).
- Camard, Wayne, 1996, "Discretion with Rules? Lessons from the Currency Board Arrangement in Lithuania," *IMF Paper on Policy Analysis and Assessment* 96/1 (Washington: International Monetary Fund).
- Williamson, John, 1995, "What Role for Currency Boards?" *Policy Analyses in International Economics* No. 40, Institute for International Economics (September).
- Zarazaga, Carlos E., 1995, "Argentina, Mexico, and Currency Boards: Another Case of Rules versus Discretion," Federal Reserve Bank of Dallas, *Economic Review*, Fourth Quarter.

Inflation, Credibility, and the Role of the International Monetary Fund

Carlo Cottarelli and Curzio Giannini¹

Abstract

This paper argues that many developing countries may find it difficult to buttress disinflation programs purely through the adoption of traditional credibility-enhancing devices (such as monetary anchors and central bank independence), owing to “technical problems” (for example, high instability of money demand, increased capital mobility) and an insufficient endowment of credibility in the political institutions. In these cases, borrowing credibility from an outside agency like the International Monetary Fund may be the most effective solution. The paper discusses the different options that would allow the Fund to support programs aimed not at external adjustment—the Fund’s traditional role—but at disinflation.

JEL Classification Numbers: E31, F33

Keywords: Inflation, International Monetary Fund, credibility

Authors’ E-Mail Addresses: CCottarelli@imf.org, Gian.3236@interbusiness.it

¹C. Cottarelli is with the European I Department, International Monetary Fund, while C. Giannini works in the Research Department of the Banca d’Italia. The paper was completed while the latter was visiting the Monetary and Exchange Affairs Department of the International Monetary Fund. The authors wish to thank Mark Allen, Tomas J. T. Baliño, Gérard Bélanger, Robert Feldman, Edward Frydl, Joshua Green, Javier Hamann, Esteban Jadresic, Christopher Lane, Eduardo Levy Yeyati, and Sunil Sharma for their helpful comments on a previous draft.

Well-designed institutions can improve economic performance, but some institutions may be feasible or effective only at specific levels of economic development. [. . .] Precommitment must represent more than a resolute inner stance—the precommitting agent must act through the external environment.

Elster (1995)

Many features of central bank laws in developing countries have been copied from the central bank charters of developed countries. However, due to different degrees of compliance with the law between the two groups of countries, legal independence is not as effective in insuring price stability in developing countries as it is in developed countries.

Cukierman (1992)

I. Introduction

Ever since its establishment, the IMF has made its lending conditional on the existence of a “balance of payments need” (henceforth called simply “BOP need”). That is, IMF programs have typically been geared to restoring a viable payments position, defined as “a current account deficit not larger than that which could be financed by net capital inflows on a sustainable basis, on terms compatible with the development and growth prospects of the country” (Polak, 1991, p. 17).

The IMF Articles of Agreement were drafted at a time when extensive capital controls, and the consequent relative immobility of capital, were taken for granted and member countries were committed to pegging their exchange rate. In such an environment, external and internal imbalances were highly correlated. A country running expansionary policies would likely face both an increase in inflation and a widening of the external current account. The latter would rapidly result in a loss of reserves, calling for policy adjustment.

In the present world of freely mobile capital and floating exchange rates, however, the correlation between external and domestic disequilibria is likely to be lower (see Section II), particularly in the short run. Copious private sector finance makes it possible to finance current account deficits of a size and duration unheard of since the Gold Standard era. Moreover, loose domestic policies need not result in an external current account imbalance, if the nominal exchange rate adjusts accordingly.

An internal imbalance that has received considerable attention in recent years is a high and sustained rate of inflation. Indeed, by now a broad consensus exists among both economists and policymakers that inflation is detrimental to growth, and that successful disinflation (that is disinflation that involves low output losses) requires “credibility.” The fact that inflation is bad for growth explains why the Fund—an institution whose ultimate goal is to promote sustainable growth—*should* regard the fight against inflation as one of its goals. The fact that successful

disinflation requires credibility explains why the Fund *could* play a key role in backing up disinflation programs in developing countries: in these countries, in which acquiring credibility through the mere announcement of traditional inflation anchors (the money supply, the exchange rate) is comparatively more difficult, the countries' interests might be served best by borrowing credibility from the Fund.

Of course, in the conduct of its daily business, the Fund has already partially adjusted to the new reality, as shown for example by the increasing attention paid in publications by the Fund staff to the relationship between inflation and growth performance (see, for example, IMF, 1996; Sarel, 1996; Christoffersen and Doyle, 1998). It seems to us, however, that the role that the IMF can play in sustaining disinflation programs has not yet been fully explored. The present paper intends to help fill this gap by developing the arguments above and discussing their institutional implications, particularly as regards the practice of conditionality and the Articles of Agreement regulating the Fund's activities.

II. Three Features of Inflationary Processes

The view that inflation is detrimental to growth—the first feature of inflationary processes that is relevant for our argument—has been convincingly supported by several empirical studies, some of which find that a negative relation between inflation and growth holds also at relatively low inflation rates (see Feldstein (1996), Sarel (1996), and the references therein). That view has also been endorsed by the major international economic organizations (see, for example, International Monetary Fund, 1996, Chapter VI; and Bank for International Settlements, 1997, Chapters VIII and IX) and by policymakers: the “Declaration on Cooperation to Strengthen the Global Expansion” adopted at the conclusion of the Forty-Third Meeting of the Interim Committee of the Board of Governors of the IMF held in Madrid on October 2, 1994 (reproduced in International Monetary Fund, 1994) regarded the attainment of price stability “as a condition for sustaining medium-term growth.”

The recognition that inflation hampers growth provides the rationale for the Fund to be involved in disinflation programs, as the Fund is institutionally interested in supporting policies conducive to sustainable growth (see Section VI).

A second feature of inflationary processes—namely that in the current world of flexible exchange rates, high inflation and external imbalances are only loosely related—is relevant to understand why the Fund's involvement in programs aimed primarily at disinflation would constitute an innovation. If inflation were always, or at least typically, associated with external disequilibria, the Fund's involvement in disinflation programs could take place within its traditional field of action. This was indeed the case in the Bretton Woods world of fixed exchange rates: in that world, high inflation would likely lead to an unsustainable real appreciation and to an external imbalance. However, in a world of increasingly flexible exchange rates, the relation between inflation and external accounts has become more blurred. Figure 1 illustrates this development: the cross-country correlation between inflation and external current account position, which was high during the 1960s, has become low after the breakdown of the Bretton Woods system in 1971. The correlation is low not only between current (annual) inflation and current external position, but also between inflation and the external position after

Figure 1. Developing Countries: Coefficient of Correlation Between External Current Account Balance in Percent of GDP and Inflation, 1966-96¹

Source: IMF, *International Financial Statistics*.

¹The coefficient of correlation has been computed using all the information available in each year in the IMF's publication, *International Financial Statistics*. Therefore, the size of the country samples tends to increase in time, as new countries start providing information on external accounts and inflation.

one or two years: high inflation does not seem to lead systematically to immediate or future external disequilibria.²

A third relevant feature of inflationary processes—a feature that explains why the Fund's action can raise the chances of successful disinflation in developing countries—is that bringing inflation down without incurring significant output costs requires credibility. The credibility conundrum—which has dominated the debate on monetary policy over the last twenty years—relates to the fact that, under the present monetary standard based on intrinsically useless currency, the supply of money can be expanded to whatever level by fiat. “Credibility” involves persuading private agents that the flexibility inherent in this particular type of money will not be exploited either to achieve short-run, i.e., transitory, output gains, or to serve the private interests, such as electoral gains, of those in charge of monetary policy. In other words, to attain a low-inflation equilibrium under a fiat standard, people must be made to believe that whenever the monetary authority announces a target, every action thereafter will be undertaken with the purpose of achieving the target. If a disinflation program is credible, inflation expectations will adjust rapidly, thus minimizing the risk that disinflation is initially associated with rising real wages and a loss of competitiveness and output. It stands to reason that, if policy-makers perceive that disinflation is likely to involve limited output costs, they will be more likely to undertake it.

How can a government increase its credibility in fighting inflation? This is no easy task, as the government is the ultimate enforcer of whatever rule or institution has been set in place to buttress the credibility of monetary announcements. Credibility could be achieved through a sizable up-front investment in reputation on the part of monetary authorities aimed at establishing a strong track record. However, this option has the obvious drawback of requiring a sunk cost potentially so large as to be politically unpalatable.

In the rest of the paper we argue that alternative means to achieve credibility—traditional monetary anchors or institutional devices such as central bank independence—are likely to be less effective in developing countries (Section III), and that, if this proves to be the case, borrowing credibility from abroad, which for our purposes basically means the Fund, can be the next-best alternative (Section IV).

III. The Announcement of Traditional Inflation Anchors is Likely to be Less Credible in Developing Countries

Disinflation strategies in industrial countries during the last quarter of a century have often relied on the announcement of inflation anchors (such as monetary or exchange rate targets) or on institutional devices to raise the credibility of purpose of the authorities (central bank independence, inflation targeting frameworks). These devices are likely to be less effective in developing countries than in industrial countries for a number of reasons.

²This summary evidence is confirmed by well-known cases of countries which have experienced prolonged periods of inflation in the absence of major external crises. For example, during 1988–97 the average current account deficits in Turkey and Uruguay were as low as ½ of a percent of GDP, with peaks of 3½ percent and 2½ percent of GDP, respectively, hardly unsustainable levels for developing countries, against annual inflation rates of 76 percent and 61 percent, respectively.

Consider first the use of monetary targets. Monetary targeting frameworks require a degree of stability (or predictability) of real money demand that is hard to find in practice. Although shared by industrial countries, especially as a consequence of financial innovation, the problem has been particularly pronounced in developing countries. In fact, Figure 2 (top panel) shows that real money balances have been persistently more volatile in developing countries than in industrial countries over the last 25 years. This higher overall volatility is due to a higher volatility of both real output growth (central panel) and money velocity (lower panel). The latter probably reflects two factors: the role as store of value that cash and bank deposits play in developing countries, and the continuous process of financial innovation that characterizes financial systems that are still catching up with those of industrial economies. Thus, the two key parameters of Fisher's price equation are more volatile in developing countries, making the use of monetary targets less effective.³

As an alternative to monetary targeting, developing countries could rely on institutional arrangements such as an independent, and relatively "conservative," central bank, or inflation targeting.⁴ Such devices—together with legal constraints limiting central bank credit to the government—are certainly useful. However, they are subject, when applied to developing countries, to a number of limitations that may severely hamper their effectiveness. First of all, Masson, Savastano and Sharma (1997) have recently argued that freedom of monetary policy from fiscal dominance and absence of commitment to other nominal anchors such as wages are necessary prerequisites for achieving credibility through domestic institutional reform. In such countries seignorage is often an important source of financing for the government, while a vast consensus among the population on low inflation as the overriding objective of monetary policy may be difficult to achieve. As it happens, both prerequisites are hard to meet in many developing countries. Furthermore, both inflation targeting and central bank independence build on a resource that is scarce in many developing countries, namely an inherent confidence in institutions—a kind of capital that needs time to be accumulated. In countries in which political and economic institutions have been subject to drastic changes in the recent past, it is also more difficult for the authorities to achieve credibility through institutional devices. A case in point would be the countries in transition from communism. Another example is represented by countries whose democratic institutions were shattered by military coups.

Yet another alternative would be to rely on *external* anchors, such as an exchange-rate peg or a currency board. It is not clear, however, why reliance on such anchors should be per se more credible, if the institutional environment is defective, than the adoption of purely domestic anchors. Moreover, developments in the 1990s, including the recent foreign-exchange crises, have shown that pegging the exchange rate involves more significant risks than in the past owing to increased capital mobility. It is therefore not surprising that pegging the exchange rate has become over time less and less frequent, including as part of stabilization programs (Cottarelli and Giannini, 1997; Quirk et al., 1995). As to currency boards, they are ordinarily even more demanding than ordinary pegs. As such, their effectiveness is predicated on the existence of additional sources of credibility. Is it not telling that most existing currency boards have been introduced as part of IMF programs?

³The evidence above refers to broad money. Similar findings apply to narrow money (Cottarelli and Giannini, 1997).

⁴We regard inflation targeting as an institutional device as, in our view, its key feature relates to the introduction of institutional procedures that facilitate the monitoring of monetary policy actions.

Figure 2. Volatility of Real Money, Output, and Money Velocity¹

Sources: IMF, *International Financial Statistics*; and staff calculations.

¹The figures are the standard definition of real broad money, real GDP, and broad money velocity from ten-year rolling trends ending in the reference year. The country sample includes all countries for which information is available in *International Financial Statistics*, published by the IMF.

IV. The IMF as Provider of Credibility

Economic theory has pointed to the role that delegation can play in acquiring credibility. As noted, however, delegating monetary policy to a domestic entity may not be very effective in developing countries. An alternative way of increasing the credibility of adjustment policies is to submit those policies to the approval of a supranational organization, such as the Fund.

In ordinary circumstances the Fund is playing more and more the role of *provider of credibility*, rather than *lender of resources*, to governments involved in external adjustment programs (Cottarelli and Giannini, 1997; Dhonte, 1997).⁵ This view is supported by three pieces of evidence. First, the share of net IMF credit over total net external financing (including foreign direct investment) to developing countries dropped from 4¼ percent during the 1980s to less than 1 percent during 1990–96 (based on data published in the *World Economic Outlook* of the Fund).⁶ Second, the number of so-called precautionary IMF programs has rapidly increased in recent years: at end-1996 about one-third of the stand-by and EFF arrangements were precautionary, that is, they had been undertaken by the authorities without any intention of drawing.⁷ Third, the ratio between actual and potential borrowing in all outstanding IMF arrangements—excluding those off-track—has declined since the early 1980s, while the number of countries with programs has risen to historical peaks (Figure 3). Thus, although the interest in Fund programs has increased over time, the relative importance of Fund lending has declined in parallel. In sum, the Fund's stamp of approval has been used by countries to enhance the authorities' credibility in association with adjustment programs predicated on the availability of private international savings.

Could the Fund's stamp of approval also strengthen the authorities' credibility in adjustment programs aimed at disinflating the economy? This question raises two issues. The first relates to the mechanism through which credibility is enhanced: in programs aimed at external adjustment the system of incentives is such that there are costs, for both the borrower country and the Fund, if the program is not successful; this raises the credibility of the program. Will similar mechanisms be at play in disinflation programs? The second issue is whether the existing Articles of Agreement regulating the activity of the Fund would allow it to support programs that are aimed purely at disinflation. These issues are taken up in the following two Sections.

⁵The role of lender of resources is still very important, though, under extraordinary circumstances, as events in East Asia, Russia, and more recently Brazil have shown over the last few years. On the role of the Fund as lender of last resort, see Fischer (1999) and Giannini (1999).

⁶The decline in the role of Fund financing is clear even excluding foreign direct investment, which has risen rapidly in recent years: based on data published in the 1997 issue of the *Global Development and Finance* of the World Bank, the share of outstanding Fund credit over total credit to developing countries fell from 3¾ percent in 1986 to 2¾ percent in 1996.

⁷From a legal standpoint, there is no difference between precautionary arrangements and other arrangements: in either case, countries can borrow from the Fund as long as the conditionality conditions are met. However, in precautionary arrangements the authorities' intention not to borrow is formally stated. The precautionary status of a program is taken into account in computing the Fund's short-term liquidity needs.

Figure 3. Transactions of the Fund, 1955–97
(In percent)

Sources: IMF *Annual Reports*, 1955–97; and *Transactions of the Fund*, 1997.

¹The figures refer to the outstanding amount borrowed from the Fund at the end of the program over the maximum amount that could have been borrowed, for all programs that started in the reference year and ended by December 31, 1997. The drop registered in 1996 is likely to overstate the actual decline as it was computed over the more limited number of programs that started in 1996 and were completed by 1997.

V. What Makes IMF-Supported Adjustment Programs Credible?

There seem to be four different mechanisms ensuring that failure to implement the conditions imposed by a Fund-supported program will be associated with a loss for the parties involved (the Fund and the country's authorities), and thereby that the program will be undertaken only if both parties believe it is going to work.

The first mechanism has to do with the direct financial loss the country would incur if the program were interrupted. The notion of conditionality—according to which a country can borrow from the Fund only under certain conditions (meeting certain intermediate policy targets and receiving the IMF Board's approval on the completion of the program's periodic reviews; see Guitián, 1995)—was indeed developed to strengthen the likelihood that adjustment would take place through the introduction of an explicit penalty for noncompliance.

The second mechanism operates because the program's failure may be interpreted by the market as a signal of the country's unwillingness or inability to meet external obligations. This mechanism, which may be expected to be more effective the greater the catalytic role of the Fund's finance, operates mainly through risk premia, but may also have an impact on the quantity of finance a country can raise in international financial markets.

The third mechanism has to do with the fact that Fund programs, being highly visible and carrying the signature of an independent and multilateral agency, raise the political costs of reneging. By signing a letter of intent with the Fund, a government raises the stakes both for itself and for the country at large (as opposed to the announcement of an adjustment program not supported by the Fund), by making any infringement of the agreed course of action visible, verifiable, and reprimandable.

The fourth mechanism works on the Fund's side. As demonstrated by the oft-heard criticism of excessive conservativeness leveled against the Fund, this institution has over the last fifty years acquired a reputation for extreme cautiousness in granting approval of adjustment policies. This reputation represents precious capital that the Fund is unwilling to jeopardize by approving programs that are likely to fail. The private sector recognizes this, which adds credibility to the programs approved by the Fund. Moreover, the Fund in most cases buttresses its reputation by putting its own resources at stake. Lending clearly acts as a powerful incentive for effective monitoring (Rodrik, 1995). However, nothing suggests that it is a logical necessity. Rodrik himself, for example, remarks that the insistence of multilateral lenders that their claims be senior to private claims undercuts the signaling value of their exposure. It may be worth recalling in passing that the balance-sheet concerns of central banks had to be considerably attenuated, through the removal of the profit motive or outright nationalization, before they could be regarded as dependable guardians of monetary stability (Goodhart, 1988). Today, nobody would seriously argue that the credibility of a central bank as monetary authority or lender of last resort rests on its putting its own financial resources at stake. If anything, the opposite would be closer to the truth. Thus, we prefer to join ranks with Guitián (1992) in regarding Fund lending as an *additional* safeguard of credibility rather than the hinge on which programs revolve, since reputation forces may work quite effectively even absent explicit pecuniary incentives.

How would these mechanisms operate in the case of programs aimed at disinflation? Clearly, the first two mechanisms would be much weaker, as the program would not be undertaken with the primary purpose of obtaining external financing (either directly from the Fund or from private international markets). However, direct economic costs would still be sustained by noncomplying countries. Unlike the case of countries where monetary authorities are highly

credible—in these countries news of unexpectedly high inflation may lead to a strengthening of the exchange rate—in developing countries the information that a Fund-supported disinflation program is off track is likely to result in downward pressures on the exchange rate and the country's risk premium.

Moreover, reputational forces constraining country authorities (the third mechanism above) would still be at work. But would the Fund feel equally constrained? After all, the Fund's reputation has been built on programs aimed at external adjustment. As Schadler et al. (1995) argue, the inflation record in countries with Fund-supported programs is “at best mixed.” This, however, cannot per se be taken as evidence that the Fund cannot work as a disinflation anchor, nor that the reputation capital built in external adjustment programs cannot be spent for disinflation programs. Past programs were primarily addressed at external adjustment. Moreover, nothing in the Articles of Agreement suggested that the institution would be held accountable for the inflation performance of members relying on its finance, a point we shall return to in the next Section. With inflation playing at best a role of secondary target, in case of conflict between external equilibrium and inflation control the latter was necessarily expected to give way. Perhaps more importantly, the reputation the Fund has acquired as strict enforcer of its traditional programs could be spent on the inflation front, once it is recognized that the “code of conduct” enshrined in the Fund's charter includes price stability as a constituent element. Thus, it is not clear that making disinflation the explicit goal of some programs would entail a need to build a new stock of reputation capital.

A final point relates to the interaction between disinflation programs and external adjustment programs. Failure to deliver in the first type of programs would likely be regarded by the Fund as indicative of the country authorities' inability to stand by their commitments (unless this was due to *force majeure*). As such it will increase the likelihood that, should the need for an external adjustment program arise, Fund support might not be forthcoming. The possibility of pre-screening countries for access to more rapid financing in case of external crisis was briefly discussed in the aftermath of the Mexico crisis, with no consequence. Subsequent events, however, led the Board to revive the idea, which has now been enshrined in the Contingent Credit Lines (CCL) established in April 1999. The new instrument aims to provide countries adopting strong economic policies with a precautionary line of defense against future balance of payments problems that might arise from international financial contagion. Although the notion of “strong economic policies” is not further elaborated in the Board decision establishing the CCL, it could easily be interpreted, where appropriate, as encompassing monetary policies explicitly geared to disinflation. If this were to be the case, the failure of a disinflation program—even if without immediate financial consequences—might impair the country's access to external financial support in case of need.

VI. Consistency with the Existing Articles of Agreement

Several questions must be answered in order to assess whether Fund-supported programs aimed at disinflation would be consistent with the current Articles of Agreement.

The first question is whether supporting disinflation programs *falls within the Fund's overall mandate*. Assessing this issue carefully is crucial not only to provide a legal basis for the Fund's involvement, but also to avoid altering radically the specialized nature of this institution—a nature that represents one of its key assets. The goal of price stability at present does not figure

prominently in the Articles.⁸ However, the Fund's involvement in disinflation programs can be justified on several grounds. As discussed above, inflation is ultimately bad for growth, and Article I(ii) of the Articles of Agreement states that one of the purposes of the Fund is to contribute to the "promotion and maintenance of high levels of employment and real income and to the development of the productive resources of all members as primary objectives of economic policy." This article refers to the achievement of the above goals through "the expansion of balanced growth of international trade." However, Article IV—as amended following the 1976 Jamaica meetings—recognizes that "the essential purpose of the international monetary system is to provide a framework ... that sustains sound economic growth." As a result, over the last two decades it has become common practice to regard one of the Fund's roles "to help its member countries establish a macroeconomic environment, in their own economies and in the global economy, that will foster such [i.e., "private-sector-led, sustainable] growth" (Camdessus, 1995, p. 2). Of course, all this does not imply that the Fund's mandate involves supporting *any* policy program aimed at raising growth, as this would alter fundamentally the scope of action of the Fund. The Fund's involvement can be justified only insofar as it is consistent with the specialized nature of the Fund as a monetary institution. Disinflation programs appear to meet this criterion. Indeed, Fund's involvement can also easily be justified by Article I(iii), which indicates promoting exchange stability among the purposes of the organization. While exchange stability could in theory be consistent with inflation rates that are equally high across countries, in practice exchange stability is more likely to be achieved when inflation is low across countries (one reason being the strong empirical correlation between inflation and its volatility).

The second question relates to *the form* in which the Fund could provide its endorsement of disinflation programs. There are three alternatives, differing in terms of degree of Fund commitment, and hence in the degree of credibility associated with them.

As a first option, disinflation programs could be formulated under one of the existing forms of collaboration between the Fund and its membership that do not involve a formal endorsement by the Fund Board of a country's policies—such as the so-called staff-monitored programs, shadow programs, and programs formulated under the procedure for enhanced surveillance.⁹ Lack of formal endorsement by the Board and lack of commitment of Fund resources would reduce their significance in terms of provision of credibility. Indeed, these programs are relatively infrequent and do not attract much attention from the media.¹⁰

⁸The original text did not mention price stability at all. In the context of the first amendment, in 1969, a reference was added to avoiding deflation and inflation among the considerations that should guide the allocation of SDRs (Article XVIII). With the Jamaica amendment, a reference to "reasonable price stability" appeared in the context of members' obligations with respect to their exchange arrangements (Article IV).

⁹Staff-monitored programs are programs monitored by the Fund staff on the basis of a quantitative framework agreed with country authorities. These programs are undertaken outside formal procedures approved by the Fund Board. Explicit Board-approved procedures exist instead for enhanced-surveillance programs. In these cases, the Board is involved in the monitoring, although, like in staff-monitored programs, it does not endorse the program.

¹⁰In most of the cases, these programs are undertaken to establish a "track record" leading eventually to a formal program. When this is not the case, staff-monitored programs or programs undertaken as part of the enhanced surveillance procedure may be seen as a signal that policies are not sufficiently strong to deserve the commitment of Fund resources.

A second alternative would be to set up a procedure that would involve a formal periodic endorsement of the program by the Fund Board (quarterly or six-month reviews), but without opening access to Fund resources: the outcome of the program's review would not be allowing the purchase of a new tranche, but rather the confirmation that the Fund continues to regard the authorities' policies as consistent with their disinflation goals. Such an arrangement would clearly be more effective than the previous option, and would have the advantage of not requiring changes in the Articles of Agreement (see below). Moreover, as noted above, even in the absence of pecuniary incentives, reputational forces would be at work to buttress the commitment of the parties involved.

The third option would be to have a full-fledged program, giving right of access to Fund resources. This would be, of course, the strongest option as a signaling device. It would also be more expedient, in light of the changes that would have to be introduced in the present procedures in order to make the IMF effective as a source of disinflation credibility. However, if Fund resources are to be involved, a revision in the Articles of Agreement is, in our view, needed. The reason is that Article V, Section 3(b)(ii) constrains the use of Fund resources to the existence of a BOP need. Note that a BOP need is not a condition for setting up a program; it is only a condition for borrowing, as the possibility of precautionary arrangements illustrates. However, a *prospective* or *potential* BOP need is regarded as a condition for a program. This approach is well epitomized by the newly established CCL, which, although as already stressed preventive in nature, can be activated by eligible countries only in the context of exceptional balance of payments difficulties largely beyond the control of national authorities.

One could argue that high inflation—possibly a symptom of underlying real disequilibria—might eventually result in an external crisis, and therefore gives always rise to a potential BOP need. But this argument is not supported by empirical evidence. Indeed, as highlighted in Section II, in a world of flexible exchange rates, the link between inflation and external imbalances is blurred. And, while there may have been cases in which the existence of a potential BOP need has been used to justify Fund-supported programs only loosely related to external adjustment, the argument cannot be abused. Stretching the interpretation of the Articles of Agreement would eventually challenge the transparency of the Fund's operations and the foundations of its mandate.

Amending the Articles of Agreement is no easy matter, and rightly so. This is a strong argument in favor of less ambitious options. However, explicit recognition of the goal of price stability in the IMF charter would greatly strengthen the credibility of disinflation programs, as the IMF would as a consequence be held responsible for the inflation performance of members. The argument here is essentially the same that has led in recent years to emphasize this goal in the statutes of national central banks. It seems indeed rather odd, for a *monetary* institution such as the IMF is often purported to be, that price stability should be the one macroeconomic objective not explicitly mentioned in the "code of conduct" laid out in Article IV. The omission is not without consequence, if we are to judge on the basis of the less than satisfactory inflation record of traditional IMF programs. Moreover, it appears to be due less to a conscious decision than to the low weight generally attached to price stability at the time of the last major revision of the Articles.

There is an additional reason why programs aimed at lowering inflation would benefit from the introduction of an ad hoc facility: a country characterized by high inflation is likely to be discouraged from asking for Fund support if such support were to be automatically identified by the market as involving a BOP need. The last thing that a country in such a position would want

to signal to the market is that it faces not only inflation problems, but also balance of payments problems.

One further issue concerns the amount of the resources that the Fund should make available. In the absence of a BOP need, which principles should be followed in determining the appropriate size of the resources to be made available to a country? This question is somewhat misleading. Currently, the potential gap in the balance of payments is only one of the determinants of the amount of resources made available to a country. What is more relevant is the signal given to markets through the Fund's approval of a country's policies. One recognized principle that the Fund uses in assessing the amount of support is that "the stronger the policies, the stronger the access to Fund resources." The same principle could be the main guideline in determining the amount of resources to be made available for anti-inflationary programs.

Although, as is being experimented in Brazil, the Fund might play a role in enhancing the credibility of monetary frameworks hinging on inflation targeting, endorsement by the IMF of a disinflation program need not imply espousing inflation targeting. Indeed, one could easily envisage instances where adoption of a currency board, or even of an exchange-rate peg, fits better the member country's needs and conditions than inflation targeting, because of greater visibility or lesser technical complexity. A case-by-case assessment will therefore have to be made.

References

- Bank for International Settlements, 1997, *Sixty-Seventh Annual Report* (Basle).
- Camdessus, Michel, 1995, "The IMF and the Challenges of Globalization—Three Addresses by Michel Camdessus," Washington, October.
- Cottarelli, Carlo, and Curzio Giannini, 1997, *Credibility Without Rules? Monetary Frameworks in the Post-Bretton Woods Era*, IMF Occasional Paper No. 154 (Washington: International Monetary Fund).
- Christoffersen, Peter, and Peter Doyle, 1998, "From Inflation to Growth: Eight Years in Transition," IMF Working Paper No. 98/99 (Washington: International Monetary Fund).
- Cukierman, Alex, 1992, *Central Bank Strategy, Credibility, and Independence. Theory and Evidence* (Cambridge, Massachusetts: MIT Press).
- Dhonte, Pierre, 1997, "Conditionality as an Instrument of Borrower Credibility," IMF Paper on Policy Analysis and Assessment No. 97/2 (Washington: International Monetary Fund).
- Elster, Jon, 1995, "The Impact of Constitutions on Economic Performance," Proceedings of the 1994 World Bank Annual Conference on Development Economics, Washington.
- Feldstein, Martin, 1996, "The Costs and Benefits of Going from Low Inflation to Price Stability," NBER Working Paper No. 5469 (Cambridge, Massachusetts: National Bureau of Economic Research).
- Fischer, Stanley, 1999, "On the Need for an International Lender of Last Resort," paper presented at the joint luncheon of the American Economic Association and the American Finance Association, New York, January 3.
- Giannini, Curzio, 1999, "Enemy of None but a Common Friend of All? An International Perspective on the Lender-of-Last-Resort Function," IMF Working Paper No. 99/10, (Washington: International Monetary Fund).

- Goodhart, Charles, 1988, *The Evolution of Central Banks* (Cambridge, Massachusetts: MIT Press).
- Guitián, Manuel, 1992, *The Unique Nature of the Responsibilities of the International Monetary Fund*, IMF Pamphlet Series No. 46 (Washington: International Monetary Fund).
- , 1995, "Conditionality: Past, Present, Future," *Staff Papers*, International Monetary Fund, Vol. 42 (December).
- International Monetary Fund, 1994, *World Economic Outlook*, Washington, October.
- , 1996, *World Economic Outlook*, Washington, October.
- Killick, Tony, 1995, *IMF Programmes in Developing Countries* (London and New York: Routledge).
- Masson, Paul R., Miguel A. Savastano, and Sunil Sharma, 1997, "The Scope for Inflation Targeting in Developing Countries," IMF Working Paper No. 97/130 (Washington: International Monetary Fund).
- Milesi-Ferretti, Gian Maria, and Assaf Razin, 1996, "Current-Account Sustainability," *Princeton Studies in International Finance*, No. 81, October.
- Obstfeld, Maurice, 1986, "Rational and Self-Fulfilling Balance of Payments Crises," *American Economic Review*, Vol. 76 (March).
- Polak, Jacques J., 1991, "The Changing Nature of IMF Conditionality," *Princeton Essays in International Finance* No. 184, September.
- Quirk, Peter J., et al., 1995, *Issues in International Exchange and Payments Systems* (Washington: International Monetary Fund).
- Rodrik, Dani, 1995, "Why Is There Multilateral Lending?" NBER Working Paper No. 5160 (Cambridge: Massachusetts: National Bureau of Economic Research).
- Rogoff, Kenneth, 1985, "The Optimal Degree of Commitment to an Intermediate Monetary Target," *Quarterly Journal of Economics*, Vol. 100 (November).
- Sarel, Michael, 1996, "Nonlinear Effects of Inflation on Economic Growth," *Staff Papers*, International Monetary Fund, Vol. 43 (March).
- Schadler, Susan, Adam Bennett, Maria Carkovic, Louis Dicks-Mireaux, Mauro Mecagni, James H. J. Morsink, and Miguel A. Savastano, 1995, *IMF Conditionality: Experience Under Stand-By and External Arrangements, Part I: Key Issues and Findings*, IMF Occasional Paper No. 128 (Washington: International Monetary Fund).

II. Growth, Development, and Financial Liberalization

This page intentionally left blank

Commercial Bank Debt Restructuring— The Experience of Bulgaria

Aerd C.F.J. Houben¹

Abstract

This paper reviews commercial bank debt restructuring based on the recent experience of Bulgaria. While the deal is shown to have generated substantial debt relief at a remarkably low cost, several lessons are drawn that may be of broader relevance to countries restructuring bank debt. As, from time to time, it has been suggested that Bulgaria should have held out for more favorable treatment, or that it should now seek further debt reduction, the likely costs of these options are identified. Looking ahead, key policy issues are discussed that will determine growth prospects and debt sustainability over the medium term. It is argued that the deal's success remains to be underpinned in particular by judicious fiscal and debt management policies.

JEL Classification Numbers: F34, G15

Keywords: Commercial bank, Bulgaria, debt

Author's E-Mail Address: a.c.f.j.houben@dnb.nl

I. Introduction

A major challenge facing Bulgaria in 1991 when it embarked on its transition to a market-based economy was its external debt overhang to commercial bank creditors. The previously centrally planned system had engaged in large sovereign borrowings during the second half of the 1980s, when production distortions became manifest and consumption was increasingly sustained by recourse to foreign savings. This resulted in an excessive commercial debt burden that prompted the announcement of a debt moratorium in March 1990, leading to a loss of access to trade credits and international capital markets.

On July 28, 1994, after more than two years of intense negotiations with a steering committee representing creditor banks (the "London Club"), Bulgaria completed a market-based

¹The author is grateful for insightful comments received from Russell Kincaid, Alejandro Santos, Anoop Singh, and, at the World Bank, Mariana Todorova.

Debt and Debt Service Reduction (DDSR) operation. Over three hundred commercial banks participated in the deal on a voluntary basis. The DDSR package was in line with the basic tenets of the so-called Brady Plan and was the first with an Eastern European country. About US\$8.3 billion of outstanding bank debt was restructured, resulting in substantial debt relief and a repayment schedule spread over a thirty-year period. The operation involved large upfront costs to provide the necessary guarantees of future payment, to fulfil some downpayment of interest arrears, and to compensate banks that opted for the immediate—albeit heavily discounted—settlement of their claims. These costs were initially financed from Bulgaria's international reserves, which were subsequently replenished by the IMF and the World Bank.

The exchange of old debt for new bonds benefited both parties. Bulgaria reduced its debt overhang, improved the maturity structure of its obligations and lessened uncertainties that deterred domestic and foreign investors. For their part, the banks experienced a rise in the market valuation of their outstanding claims, reflecting both the improved prospects for Bulgaria's viability and the collateral that was placed in an escrow account to provide assurance of timely payments in the future. (Indeed, Brady bonds commitments have been honored by all issuing countries to date.) The risk of eligible banks not participating in the package and free-riding without granting debt reduction was overcome by a Bulgarian covenant that such creditors would not be given more favorable treatment than the terms of the DDSR deal.

As only two important Eastern European commercial creditors (with claims of about US\$820 million) opted not to take part in the deal, the restructuring agreement represented a crucial step forward in normalizing Bulgaria's relations with the international financial community. Pending the implementation of policies that will promote the continued close involvement of banks in its economic revival, the DDSR operation could be viewed as a turning point in Bulgaria's efforts aimed at full integration with the world economy. Some benefits are already evident in the wake of the deal, as several foreign banks have recently established subsidiaries in Bulgaria and as an increasing number of trade credit lines have been reopened.

II. The Menu of Options

As the tenth market-based debt restructuring agreement involving a menu of debt conversion options, the Bulgarian package consisted of relatively well-tried options (summarized in Annex I).² Banks had the choice between a debt buyback at about one quarter of face value, a discount bond with 50 percent upfront debt reduction and floating market-determined interest rates, and a par bond carrying reduced interest rates during the first seven years (also referred to as a Front Loaded Interest Reduction Bond (FLIRB)). All interest arrears other than those purchased under the buyback option were converted into Interest Arrears Bonds.

Collateral was provided to cover one year's interest payments on the discount bond at a rate of 7 percent per annum, and on the par bond—only during the first seven years—at a reduced

²Previous deals had been concluded by Argentina, Brazil, Costa Rica, Jordan, Mexico, Nigeria, the Philippines, Uruguay, and Venezuela. Since the Bulgarian restructuring, the Dominican Republic and Poland have also implemented commercial bank agreements.

rate of initially 2.6 percent rising to 3 percent through retained earnings. In addition, the principal of the discount bonds was fully collateralized by the purchase of zero coupon U.S. Treasury securities that guaranteed payment of the bullet amortization in thirty years (in 2024). The maturities of the other bonds were tailored to a strengthened balance of payments over the medium term: grace periods for principal payments were granted of seven years on the interest arrears bonds and eight years on the par bonds, with full amortization over 17 and 18 years respectively.

With these options, Bulgaria achieved net debt reduction in four different ways: (i) the reduction (by about three quarters) of principal and interest arrears through the cash buyback option; (ii) the 50 percent write-off of principal allocated to the discount bond; (iii) the interest savings on the par bonds generated by fixed submarket interest rates during the first seven years; and (iv) the calculation of interest arrears accumulation at a reduced annual rate of 3.5 percent since September 1992. In addition, Bulgaria achieved gross debt reduction by providing collateral that effectively prepaid future obligations.

In its negotiations with commercial banks, Bulgaria faced a perplexing dilemma. On the one hand, it had the objective of maximizing the net present value of debt reduction, in particular by achieving a large allocation of buybacks or, as a second best alternative, of discount bonds. On the other hand, it sought to limit the upfront costs of the deal, as it was constrained by a precarious low level of liquid foreign exchange reserves. (In November 1993, when agreement in principle was reached with the banks, liquid reserves amounted to only about one and one half months of imports.) Since this implied seeking a larger allocation to the par bond options, which had the lowest immediate cost—reflecting limited collateral requirements—but generated the least debt forgiveness, these two objectives were at odds with each other. Under these circumstances, Bulgaria tried to ease its foreign exchange constraint by mobilizing external resources. However, *ad referendum* agreement on prospective IMF support was reached only in December 1993—after the agreement in principle with the banks—and it was not until April 1994 that sufficient commitments had been obtained from other sources to assure that the program would be adequately financed.

Reflecting the first of these conflicting objectives, Bulgaria's Financing Proposals to commercial banks capped the par bond option to at most 30 percent of eligible principle. This would secure a certain amount of debt reduction and thereby enhance the sustainability of the restructured debt over the medium term. At the same time, in a bid to gain large savings at limited costs, Bulgaria offered a relatively low price for the buyback option. At 25 ³/₁₆ cents per unit of debt, the buyback price announced in March 1994 was significantly lower than the then prevailing secondary market price. (The buyback offer was also below the secondary market price when agreement in principle was reached.) In other words, given limited resources and uncertain external support, Bulgaria chose to risk smothering banks' interest in buybacks.

In the event, banks' allocations to the par bond option—at 27 percent of eligible principal—remained below the predetermined ceiling (Table 1), in part reflecting the relatively low degree of collateralization and the fiscal treatment in some countries that does not allow tax deductions unless the capital loss is recognized (as with the discount bond). Also, as expected by many—but not hoped by Bulgaria—buyback selections were meager. Notwithstanding belated public statements by the Minister of Finance calling for a buyback allocation of at least 20 percent, only

Table 1. Bulgaria: Debt and Debt Service Reduction Operation
(In millions of U.S. dollars)

Option	Face Value of Allocated Debt	Face Value of Debt Reduction	Present Value of Interest Reduction	Collateral Prepayment	Total Present Value of Gross Debt Reduction	Upfront Costs of Operation
Buyback	1,027	1,027	—	—	1,027	257
Par Bond	1,658	—	465	43	508	43
Discount Bond	3,730	1,865	-154 ¹	352 ²	2,064	352
Interest Arrears Bond	1,858	243 ³	—	—	243	64 ⁴
Total	8,273	3,135	311	395	3,842	716

Source: Bulgarian Foreign Trade Bank and staff estimates; figures may not add due to rounding.

¹Estimated cost of value recovery clause.

²Includes principal collateral of US\$222 million for the purchase of zero coupon U.S. Treasury securities and interest collateral of US\$131 million.

³Savings from adjusted interest under 1994 Financing Proposals (US\$185 million) and interest downpayment at DDSR closure (US\$57 million).

⁴Including interest downpayment (US\$57 million) and cash payments in respect of multicurrency loan arrangements (US\$7 million).

13 percent was assigned to this option. The remaining 60 percent of principal was offered for conversion into discount bonds.

III. Was It a Good Deal?

The paramount objective of a debt restructuring operation is to bring a country's current and future debt service obligations into line with its capacity to pay, and therewith to normalize relations with its creditors and to improve its growth prospects. In this regard, a first consideration in evaluating a debt deal is whether the magnitude of debt reduction and the profile of the restructured debt service give confidence that a country can sustain external viability with growth over the medium term.

Under the Bulgarian debt deal, the gross debt and debt service reduction was about 46 percent in present value terms (about 38 percent net of the resources used to complete the deal), which will significantly alleviate the balance of payments. Projections suggest that, assuming an appropriate policy mix, the servicing of external debt would be consistent with GDP

growth rates rising to 4 percent per annum over the medium term and with relatively small external financing gaps before the turn of the century. (These gaps mainly reflect bullet repayments of past balance of payment support, and could be covered by a less ambitious reserves accumulation.)

Judging by the projected ratio of debt service obligations to exports of goods and services, the payments on the restructured debt would also seem sustainable. While the ratio of scheduled total debt service (before reschedulings and deferrals) to export revenues had been around 60 percent during 1991–93, it is now projected to peak in the low twenties over the medium term.³ Given on the one hand a relatively low debt service ratio and increasing external receipts, and on the other a high (if not excessive) public sector share in the economy, the issue of sustainability would appear to depend primarily on fiscal rather than on balance of payments constraints.

Another prime indicator of whether Bulgaria concluded a favorable debt deal is the relationship between the implicit price of debt reduction achieved through the deal and the prevailing price of Bulgarian sovereign debt on the secondary market. After all, Bulgaria could—in theory—have chosen to use the resources tied up with the deal for direct debt repurchases in the secondary market.⁴ As the deal had upfront costs of US\$716 million and achieved gross debt reduction in present value terms of US\$3.8 billion, the buyback equivalent price (that is, the cost per unit of gross debt and debt service reduction) was about 19 cents. By comparison, the secondary market price ranged between about 27 cents and 48 cents during the period from agreement in principal in November 1993 through completion of the debt exchange in July 1994. Thus, the implementation of the debt deal was clearly a very efficient use of Bulgaria's scarce resources.

Alternatively, the deal can be assessed by comparing the market valuation of the debt before and after the deal. Since creditors would not concede to writing off part of their old claims unless there is an offsetting gain that enhances the value of new claims, the market valuation before the deal could be viewed as a floor for the valuation after the deal. The basic question then becomes which side benefits from the collateral, which may indirectly be financed by a third party (such as the IMF or the World Bank). According to this approach, if the market valuation excluding collateral is unchanged following the restructuring operation, the creditors reap the full benefits of the collateral; if this valuation declines, the debtor gains to the extent that, besides diminished commitments, the present value of expected payments is also reduced.

The difficulty with this approach is that it is impossible to separate out the impact of other domestic and international events on market valuation (including, for example, elections; changes in international interest rates; and the influence of the recent Mexican crisis on emerging market prices) from the impact of the deal itself. Nonetheless, after the deal's conclusion the market valuation of Bulgarian commercial debt (excluding collateral) has remained—at times significantly—beneath the market valuation when agreement in principal

³As a point of reference, this projected debt service ratio is significantly lower than in each of the four previous IMF-supported DDSR operations with Argentina, Mexico, the Philippines, and Venezuela.

⁴In practice, Bulgaria would have needed a waiver from creditors to carry out buybacks. Also, the secondary market price would likely have risen with a comprehensive buyback operation.

was reached.⁵ At the same time, the market valuation including collateral has fluctuated around, or above, its level at this initial agreement. While recognizing the limitations of this approach, it supports the view that the deal was Pareto-improving in that both sides benefited.

Comparisons between debt restructuring operations should only be made with caution, as capacity to pay is determined primarily by country-specific circumstances. However, comparisons can be instrumental in bringing out the distinct characteristics of a package. In the case of Bulgaria, such a comparison indicates that its debt deal generated slightly above average debt reduction, but at a remarkably low cost (Table 2). More specifically, its ratio of debt and debt service reduction to total restructured debt at 46 percent was between that of Mexico (45 percent) and Poland (49 percent), and higher than the weighted average of all past deals (39 percent). By contrast, its buyback equivalent price at 19 cents was exceptionally low in comparison with most other deals and the weighted average (34 cents). In fact, the ratio between the buyback equivalent price and the prevailing market price was more favorable—from the debtor’s viewpoint—than in any previous restructuring agreement (although the subsequent deal with Poland was marginally more attractive).

However, it needs to be borne in mind that Bulgaria’s per capita income level is lower than the average of the comparator countries, and its capacity to repay could be correspondingly weaker. In this respect, the deal reflects the Bulgarian circumstances—especially the scarcity of liquid international reserves—that limited the ability to elicit a larger share of buybacks, and thus resulted in a package with low immediate costs, but with relatively less debt reduction over the medium term. In addition, the Bulgarian negotiating position did not have the support of a precedent of debt reduction by official creditors (e.g., Poland would seem to have been aided by the Paris Club’s far-reaching debt forgiveness and its clause on comparable treatment of creditors).

In short, although Bulgaria negotiated a favorable deal involving substantial debt relief at a very low cost, it remains a heavily indebted country. The sizable secondary market discounts on its Brady bonds are testimony to the fact that the country’s capacity to shoulder this burden, on top of the hardships of transition, is doubted by the market. With rising interest costs on the restructured bonds and large principal repayments after the turn of the century, Bulgaria’s obligations will remain heavy over the medium term, particularly from the fiscal perspective. In this light, it is by no means assured that Bulgaria’s debt difficulties have been resolved once and for all.

IV. Was the Timing Right?

Against this background, it has been argued, on occasion, that the Bulgarian authorities should have waited longer to strike their deal in an effort to obtain deeper debt reduction. From a tactical viewpoint, there was a strong case to wait until external financing sources had been secured and a favorable precedent had been set by the anticipated Polish deal.

⁵At the time of agreement in principle, the market value of the later restructured debt was US\$2.3 billion; in the next six months, excluding collateral, it fluctuated between US\$1.9 billion and US\$2.2 billion.

Table 2. Menu-Based Commercial Bank Debt and Debt Service Reduction Operations

	Total Debt Restructured Under DDSR Operations ¹	Cost of Debt Reduction ²	Total Debt and Debt Service Reduction/ Restructured Debt	Buy-back Equivalent Price of Operations ³	Secondary Market Price at Time of Agreement in Principle
	<i>(In billions of U.S. dollars)</i>		<i>(In percent)</i>	<i>(In percent of face value)</i>	
Argentina (1993)	28.1	3.0	35	29	39
Bulgaria (1994)	8.3	0.7	46	19	27
Brazil (1993)	47.2	3.9	25	38	35
Costa Rica (1990)	1.6	0.2	71	19	19
Dominican Republic (1994)	1.1	0.1	45	36	36
Jordan (1993)	0.7	0.1	43	35	39
Mexico (1990)	51.9	7.7	45	34	44
Nigeria (1991)	5.8	1.7	76	38	40
Philippines (1990, 1992)	5.8	1.8	64	49	50, 53
Poland (1994)	14.4	1.9	49	27	39
Uruguay (1991)	1.6	0.5	55	50	54
Venezuela (1990)	19.7	2.6	32	40	46
Total	186.2	24.3	39 ⁴	34 ⁴	40 ⁴

Source: IMF staff estimates.

¹Includes past due interest and debt restructured under new money options for Mexico, Uruguay, Venezuela, and the Philippines (1992); the Philippines (1990) new money option was not tied to a specific value of existing debt.

²Total costs of principal and interest collateral, and of buybacks.

³The buyback equivalent price is the ratio of the upfront costs associated with a given operation relative to the amount of debt and debt service reduction achieved.

⁴Weighted average.

Given the validity of these arguments, what were the debtor's incentives to move ahead and conclude the deal? Delay worked against Bulgaria in at least three ways. First and foremost, the protracted negotiations with the banks had high opportunity costs: foreign investors' interest remained minimal (as confirmed by the paucity of such inflows) and access to trade financing and international capital markets was blocked. Although difficult to quantify, the unsettled external debt issues exacerbated existing uncertainties about future macroeconomic policies and financial regulations—in particular prospective taxation policies and exchange restrictions—and thus brought about large real losses.

Second, delay implied the continued accumulation of interest arrears. As banks were keen on avoiding a generous treatment of such arrears (which would create moral hazard), postponement

was likely to be costly.⁶ Third, secondary market prices for Bulgarian sovereign debt had been on the rise for quite some time, in part reflecting a general rise in prices for Brady bonds and for Eastern European bank debt. After trading at about 15 cents during most of 1991—and notwithstanding major policy slippages and a weakening of fundamentals during 1993—the price of Bulgarian sovereign debt rose steadily to the high twenties when the agreement in principle was reached in November 1993 (Chart 1). By implication, the projected cost of a voluntary, market-based deal was also rising. This had a bearing on the negotiations, where efforts to obtain a lower priced deal were meeting increased resistance by the bank steering committee, which feared losing the support of other creditor banks if the deal was too far “off-market.”

Finally, in addition to these economic considerations, there seems to have been a politically driven desire to throw off the shackles of the debt problems inherited from the previous regime.

V. Three Lessons

While the Bulgarian debt deal was successfully completed in a relatively short time frame, three lessons can be drawn that may be of broader relevance to countries in the process of bank debt negotiations. These relate, first, to the need to gear macroeconomic policies to preserving financial stability throughout the process of debt restructuring; second, to design the deal in a way that ensures the desired outcome of adequate debt reduction at reasonable cost; and third, to seek a clear picture of available external financing before agreeing on the specific elements of the package.

On the first issue, notwithstanding major fiscal slippages, exchange rate and intervention policies during 1993 maintained the objective of fighting inflation, but at the cost of significant real currency appreciation and international reserves losses. Pressure on the exchange market intensified following the agreement in principle in November 1993, when doubts emerged regarding the strength of the external position and the prospects for financing the debt deal. Bulgaria sought to allay these doubts when, in December 1993, it reached initial understandings on IMF support for its program and prospectively for its debt operation. However, parallel EU/G-24 financing commitments were subsequently delayed by burden sharing concerns, thereby calling into question the financing assurances needed for IMF Board approval and critically weakening the balance of payments outlook. In March 1994, reflecting these doubts, heightened political uncertainties and the cumulative impact of lax financial policies, there was a precipitous depreciation of the exchange rate.

While the central bank responded to this crisis by tightening monetary policy, its use of intervention policy was constrained by the need to ensure adequate foreign exchange cover for the upfront costs of the debt operation. In effect, the central bank was forced abruptly to shift the focus of monetary policy from promoting exchange rate stability to building up reserves, with adverse consequences for inflation performance and, more generally, confidence in the national

⁶In the event, Bulgaria implicitly obtained debt relief on interest arrears through the ex post calculation of such arrears at a reduced rate of 3.5 percent as from September 1992. The subsequent restructuring agreement with Poland included, for the first time, explicit debt reduction on interest arrears.

Chart 1. Secondary Market Price of Bank Claims on Selected Heavily Indebted Countries, 1991-94

Source: Salomon Brothers, ANZ Grindlays, and IMF staff estimates.

¹Bulgaria, Poland, and Russia.

²Fifteen heavily indebted countries: Argentina, Bolivia, Brazil, Chile, Colombia, Côte d'Ivoire, Ecuador, Mexico, Morocco, Nigeria, Peru, Philippines, Uruguay, Venezuela, and former Yugoslavia.

³Prior to the debt exchange in July 1994 the price includes interest arrears, thereafter the price reflects the market valuation of the discount bond excluding the value of collateral.

currency. This reinforces the view that countries embarking on commercial debt restructuring need to assign, in a timely manner, priority in their monetary and exchange rate policies to the accumulation of a comfortable cushion of foreign exchange reserves.⁷

On the second issue, the Bulgarian authorities offered the banks a debt-restructuring package that reflected their objectives of achieving debt reduction (by capping allocations to the par bond) and limiting the upfront costs (by including the possibility of restricting the share of buybacks). But neither the authorities nor the steering committee pressed for inclusion of a

⁷It has been suggested that debtors should attach less importance to preserving financial stability in the run-up to a bank deal, in an effort to convince creditors of the need for generous concessions. However, the economic costs of such strategic behavior would likely have been higher than possible gains in terms of additional debt reduction.

rebalancing mechanism or an exit clause that would be linked to a required minimum debt reduction. This was motivated at the time of agreement in principle by the concerns of both sides that there may not be sufficient resources to meet such a requirement. Subsequently, when prospects for external financing from the EU/G-24, the IMF and the World Bank brightened in April 1994, the authorities switched their emphasis to the objective of achieving greater debt reduction, and indicated a minimum allocation to the buyback option of 20 percent.⁸ (This corresponded to the minimum buyback share counseled by IMF staff from the outset.) However, when it became evident that the target would not be reached, this could not formally impede the deal's closure as the package did not include a specific minimum debt reduction requirement.

The deal did include clauses allowing purchases of restructured bonds in the secondary market after the operation had been carried through. As a result, insisting on a larger immediate buyback lacked credibility. If the authorities wished to buy back more of their debt, they could still do so after the deal—albeit at a probably higher price and without direct support from the international financial institutions.⁹ The lesson to be drawn is that, while pursuing policies that ensure the availability of sufficient resources for its debt operation, a country should also endeavor to incorporate its objectives for debt reduction explicitly into the deal.¹⁰

The third issue is closely related to the first two. In order to achieve the maximum debt reduction within the constraints set by the scarcity of available resources, the debtor should strive to have a clear picture of likely external financing before agreeing in principle on the design of the package, and certainly before setting the buyback price.

VI. Policy Implications

Bulgaria's commercial debt restructuring operation has greatly enhanced its prospects for viable growth and integration into the world economy. However, the deal's success remains to be underpinned by appropriate future policies. As the total external debt burden (estimated at about 120 percent of GDP at end-1994) is still high, Bulgaria's economic policies, particularly in the fiscal and debt management sphere, should aim at steady further debt reduction in the years ahead. By lessening the fragility of the fiscal situation and strengthening confidence, this would bolster savings, investment—particularly foreign direct investment—and the stability of the exchange rate.

⁸The design of the Bulgarian package would generate gross debt reduction of at least 39 percent. While the authorities later implicitly strived to achieve about 51 percent gross debt reduction (corresponding to their objective of a 20 percent buyback share), they finally settled for 46 percent gross debt reduction (13 percent buyback allocation).

⁹Bulgaria was unlikely to obtain as favorable a price later: under the deal each additional US\$100 million spent on increasing the share of buybacks (assuming commensurately less allocations to discount bonds) generated annual savings of about US\$35 million, implying that invested funds earned themselves back within three years.

¹⁰In the term sheet Brazil distributed to creditor banks in 1992, it retained the prerogative of requesting a reallocation if banks' preferences did not result in a balanced distribution among the various options. Similarly, the Dominican Republic's 1993 term sheet allowed a withdrawal if banks' allocation did not yield a minimum 50 percent debt reduction.

From the fiscal perspective, the restructuring of the commercial debt has placed a clear constraint on expenditure and revenue policies, which will need to be consistent with a medium-term framework yielding manageable public sector debt dynamics. Although it has been argued that the high debt-to-GDP ratio could also be reduced by inflating away or repudiating the debt, these would be ill-advised options. The first alternative of levying an inflation tax would be largely ineffective, since about four-fifths of public debt is denominated in foreign currencies and is thus resistant to domestic inflation erosion. At most, the inflation tax could be used to generate the required resources for the transfers to foreign creditors, but this should be squarely ruled out on grounds of efficiency and equity.

Regarding the second option, repudiation or forced renegotiation of outstanding bonds would have sharply adverse consequences for the country's credibility and would likely precipitate capital flight. Bulgaria's reputation in financial markets and with trading partners would be fundamentally damaged at a time when re-entry into global capital markets is in the offing, links with the EU are being strengthened, and accession to the WTO is imminent. Moreover, from a technical viewpoint, there would hardly be scope for an orderly rescheduling of the outstanding commercial debt as the issuance of easily tradable Brady bonds has undoubtedly increased the diversity and geographical dispersion of creditors.

A fiscal policy that ensures timely payment of future debt service thus seems the least costly alternative. In operational terms, securing the viability of the deal and containing the need for inflationary financing to the budget imply aiming for a budgetary surplus on the primary accounts that covers the bulk of interest obligations.¹¹ In addition, since the costs of servicing the restructured debt will rise as grace periods on amortization payments expire and the concessional interest rates on par bonds are phased out, a frontloading of fiscal adjustment is called for.

Next to action on the fiscal front, the sustainability of the restructured debt would be greatly enhanced by monetary and exchange rate policies that buttress confidence in the domestic currency. A credible monetary policy, to which adoption of a visible nominal anchor for domestic price developments could be instrumental, will be essential to avoid an undervalued real exchange rate from increasing the domestic currency costs of servicing the Brady bonds. (In this respect, it is noteworthy that although the sizable real depreciation in 1994 led to an impressive improvement in the external accounts, it placed a large additional burden on fiscal policy.) At the same time, by reducing capital flight, strengthened confidence would increase the resources available to meet external debt service obligations. It would also broaden the scope for a noninflationary intervention policy aimed at augmenting official reserves. In that context, Bulgaria should aim not only to accumulate a comfortable reserves cushion providing adequate coverage for current account outflows, but also to expand its options for possible debt buybacks in the secondary market.

¹¹On the Brady bonds alone (which constitute about 40 percent of outstanding Government debt) such interest payments will amount to about 3 percent of GDP in the foreseeable future. While the 1994 primary surplus (excluding both interest expenditures and central bank profit transfers) was 3½ percent of GDP, current estimates indicate that a surplus of about 6 percent of GDP over the medium term would yield sustainable debt dynamics.

While tight macroeconomic policies would ensure fiscal sustainability and external viability, vigorous structural reforms will be crucial in enabling Bulgaria to outgrow its debt. Such reforms would unleash the country's considerable growth potential and thereby help bring about a decline in the debt overhang relative to GDP. More specifically, accelerated privatization will be key both for attracting a nondebt creating inflows and for reducing directly the external debt stock through the Government's fledgling debt for equity swap program.¹² The privatization of state-owned enterprises will also support efforts to reduce related quasi-fiscal deficits and to secure a sufficiently strong non-interest current account.

Active debt management policies could further alleviate the burden of the restructured debt. As regards the still unsettled outstanding debts to institutions of the former CMEA and Eastern European banks (totalling about US\$1.6 million at end-1994), Bulgaria should assiduously strive to obtain debt reduction on at least as favorable terms as the 1994 package, and with debt service profiles that are compatible with existing obligations. These requirements would seem to be met by the Russian-Bulgarian Protocol, initialled in Moscow in October 1994, proposing to cancel all bilateral commercial and clearing account debts (with residual Russian exports to Bulgaria for the equivalent of US\$100 million).

But more directly, given the heavy discounts on its sovereign debt in the secondary market, there is an obvious case for Bulgaria to free resources and quietly purchase back its own bonds (the restructuring agreement has explicit provisions allowing this). This would be similar, in its effects, to debt repurchases through privatization. In deciding which of the three debt instruments to retire, the authorities would have to weigh the relative debt reduction costs against the cash flow implications. This trade-off is determined on the one hand by the secondary market price and the attached collateral (which the debtor can claim back upon repurchase) and on the other by the debt service profile of the different bond types (Chart 2). The objective of achieving the greatest debt reduction at the lowest cost would suggest that Bulgaria should concentrate repurchases on the debt instrument with the lowest "stripped" price.¹³ The par bond would then be the first candidate for repurchase (at a stripped price of about 28 cents per unit of debt reduction), followed by the discount bond (31 cents) and, lastly, the interest arrears bond (40 cents).

However, cash flow considerations would prioritize retiring discount bonds, since this would maximize budgetary relief in the near term (par bond repurchases only generate large savings

¹²The first privatization based on a swap of Brady bonds for equity occurred in December 1994. While it is doubtful whether the debt conversion program will generate additionality in investment—in the sense that investment is higher than it otherwise would have been—the nominal value of swapped bonds should be appropriately marked down under the program to ensure that the benefits of the market discount are in part acquired by Bulgaria (rather than accruing fully to the investor).

¹³To compare the cost of repurchasing each bond type, it is necessary to strip from the secondary market price the value of the collateral, and to adjust the par bonds for the temporary interest reduction and the discount bonds for the estimated cost of the value recovery clause (which increases interest payments once GDP exceeds 125 percent of its level in 1993). In theory, arbitrage should tend to equate the stripped prices of different instruments; in practice there are significant variances.

Chart 2. Bulgaria: Debt Service Profiles on DDSR Bonds, 1995–2025

Source: IMF staff estimates.

¹Includes rolling interest guarantees and interest mark-up on bond issues related to short-term debt.

²Includes estimated payments related to value recovery clause starting in 2003.

after seven years). Specifically, if account is taken of released collateral, discount bond repurchases would pay themselves back within four years, against a break-even point after about 7½ years for the par bond.¹⁴ Although the preference for retiring one bond type rather than another thus depends on a combination of price and cash flow considerations (the latter being primarily determined by near-term budgetary constraints), a strategy involving repurchases of both par and discount bonds could be advised to spread buying pressure over more than one instrument.

¹⁴These calculations have been based on the secondary market prices in early February 1995 and projected interest rates (WEO). While the annual return on repurchases of discount bonds would be about 27 percent and on interest arrears bonds about 21 percent, the same amount spent on par bonds would generate annual interest savings rising from 11 percent to 16 percent in the first seven years, and to about 44 percent thereafter.

Lastly, consideration could be given to loosening controls on gross capital outflows in order to allow residents to invest in Bulgarian Brady bonds. While this would not reduce the debt service burden on the budget, it would provide relief to the balance of payments.

VII. Conclusions

Commercial bank debt restructuring has greatly improved Bulgaria's prospects for external viability, growth, and integration into the world economy. The restructuring package that was implemented after protracted negotiations yielded substantial debt and debt service reduction at limited cost. Viewed from the country's perspective, sufficient debt relief has been obtained to warrant tempered optimism that, given appropriate policies, the restructured debt will be sustainable and allow durable growth. The deal can also be considered an efficient use of scarce resources as the debt reduction was achieved at a much cheaper price than that prevailing on the secondary market. The banks, in turn, have benefited from improved repayment prospects and an increased market value of their remaining claims.

However, even after the deal, the external debt stock remains high. Owing to rising obligations on the restructured bonds and in part to a smaller than targeted allocation to the buyback option, sustained policy efforts will be required over the medium term to bring the remaining debt stock to a more manageable level. Looking ahead, upfront fiscal action is needed not only to break the adverse debt dynamics, but also to reduce uncertainty by sending an early signal that debt problems have been resolved in a lasting manner. This will be similarly crucial—perhaps in conjunction with the adoption of a more transparent intermediate target—to restore credibility to monetary and exchange rate policies. This credibility will, in turn, help stem capital flight, avoid an unduly weak exchange rate (thus lessening the domestic costs of external debt service), and allow a lowering of domestic interest rates (thereby reducing the internal debt burden).

An active debt management could complement efforts to ease the debt burden. In particular, given the sizable secondary market discounts, it is hard to imagine that retiring Brady bonds would not rank amongst the fiscal expenditures with the highest rates of return. At the same time, accelerated structural reforms will be vital to bolster productivity—especially foreign exchange earning potential—before heavy repayments start to fall due after the turn of the century. In that respect, Bulgaria will need to fit macroeconomic policies, debt management, and structural reform judiciously together in order to capture fully the potential gains heralded by the commercial debt restructuring.

Annex 1. Bulgaria: Summary of Terms of Commercial Bank Debt Restructuring Agreement

Instruments ¹	Maturity	Interest ²	Collateral	Comments
Menu of Options				
1. Buyback	—	—	—	Cash buyback at 25 ³ /16 percent of the face value of eligible principle and related adjusted interest arrears.
2. Per bond (front loaded interest reduction bond)	18 years (8 grace)	Year 1: 2.00 percent Year 2: 2.00 percent Year 3: 2.25 percent Year 4: 2.25 percent Year 5: 2.50 percent Year 6: 2.75 percent Year 7: 3.00 percent Year 8 onwards: LIBOR + 13/16	No principal collateral. One year's interest is guaranteed during the first seven years at a rate rising from 2.6 percent to 3.0 percent.	Bearer bonds. Limited to no more than 30 percent of allocated principal. 30 percent of bonds issued for short-term debt will carry a 0.5 percent higher interest rate. Amortization is payable in 21 equal semiannual installments. Eligible at 50 percent discount in a debt for Equity or other Conversion Program.
3. Discount bond (50 percent discount on face value)	30 year bullet repayment	LIBOR + 13/16	Principal guaranteed by zero coupon U.S. Treasury securities. One year's interest is collateralized at 7 percent.	Registered bonds. 30 percent of bonds issued for short-term debt will carry a 0.5 percent higher interest rate. A value recovery clause increases interest payments once GDP exceeds 125 percent of its level in 1993. Eligible at par in a debt for Equity or other Conversion Program.
Interest Arrears				
1. Penalty cash downpayment on interest arrears	—	—	—	3 percent of interest arrears, paid on the closing date.
2. Interest Arrears Bond (par exchange)	17 years (7 grace)	LIBOR + 13/16	None.	Bearer bonds. Amortization payable semi-annually on the following schedule: installments 1-6, 1 percent; 7-11, 3 percent; 12-16, 6 percent; and 17-21, 9.8 percent.

¹Denominated in U.S. dollars.

²Payable semiannually.

References

- Avramov, R., and K. Guenov, 1994, "The Rebirth of Capitalism in Bulgaria," AECD, October.
- Collyns, C., and M.A. El-Erian, 1993, "Restructuring of Commercial Bank Debt by Developing Countries: Lessons from Recent Experiences," IMF Paper on Policy Analysis and Assessment No. 93/7, June.
- Cohen, D., and T. Verdier, 1990, "Secret Buybacks of LDC Debt," CEPR Discussion Paper No. 462, September.
- Dunaway, S., et al., 1995, *Private Market Financing for Developing Countries*, World Economic and Financial Surveys (Washington: International Monetary Fund).
- Mulford, D., 1989, "The Brady Plan: Strengthening the Current International Debt Strategy," in Griffith-Jones (ed.), *Third World Debt: Managing the Consequences*, IFR books.
- Van Wijnbergen, S., 1991, "Mexico and the Brady Plan," *Economic Policy: A European Forum*, Vol. 6, April.

Aid Effectiveness: A Survey of the Recent Empirical Literature

Tsidi M. Tsikata¹

Abstract

The preponderance of evidence from the empirical literature on aid effectiveness suggests that development aid has not had a significant impact on growth in recipient countries. However, there is some evidence that aid has had positive effects when the policy environment has been conducive to growth. Regarding the relationship between aid and the main channels through which its impact on growth could flow—investment and domestic saving—the evidence is mixed, with some indication that aid has had a positive impact where adjustment efforts have been sustained.

JEL Classification Numbers: F35, O19

Keywords: Foreign Aid, Growth

Author's E-Mail Address: TTsikata@imf.org

I. Introduction

Notwithstanding substantial amounts of aid that many low-income countries have received over the last 20–30 years, it appears that the expectations of the early champions of development aid—that it would boost investment and growth in low-income countries by supplementing domestic saving or relaxing foreign exchange constraints—have not been met. Critics charge that, far from taking advantage of aid to achieve high and sustained growth, thereby reducing the need for further assistance, many countries have become more dependent on aid. Some commentators have even suggested that aid flows have allowed governments to postpone needed

¹The author wishes to thank Hugh Bredenkamp, Sharmini Coorey, Rex Ghosh, Javier Hamann, Steve Phillips, Doris Ross, Susan Schadler and Joel Toujas-Bernat for valuable comments and suggestions. He is also grateful to colleagues who provided Departmental comments, to Claire Adams for help with aid data, and to Kadima Kalonji and Olivia Carolin for research and secretarial assistance, respectively.

reforms.² Partly on account of tighter aid budgets in donor countries, and also because of concerns that many aid recipients appear to be trapped in poverty, donors themselves have been searching for ways to make aid more effective.³ This note surveys the main findings of the empirical literature over the last ten years, regarding aid's impact on economic growth and on poverty alleviation.

Aid takes many forms, but can be classified into two broad categories: development aid (comprising project aid, program aid, and technical assistance) and emergency assistance. Emergency assistance is intended to provide temporary relief from the effects of natural disasters and other destructive events such as war, rather than to stimulate growth and development. The discussion of the impact of aid on growth is concerned mainly with the extent to which development aid increases investment in physical and human capital in recipient countries.⁴

Early empirical studies of the macroeconomic impact of foreign aid focused on associations between aid, domestic saving and growth; with Harrod-Domar type models (e.g., the two-gap model) providing the theoretical basis for regressions. In the last few years, the aid effectiveness literature has drawn on a flourishing empirical growth literature to employ more sophisticated models, and to address some of the econometric weaknesses of earlier studies. It has also given more careful consideration to incentives in the donor-recipient relationship and how these might encourage recipient governments to pursue policies that perpetuate aid dependence and undermine growth.⁵

Apart from studies grounded in growth theory, there are strands in the aid effectiveness literature that focus more narrowly on specific channels through which the impact of aid on growth might flow. Two such strands of particular interest to IMF operations are the impact of aid on government budgets (i.e., the "fiscal response" to aid), and the impact of aid on the real exchange rate (i.e., aid as a source of "Dutch disease"). Issues in the fiscal response literature include the fungibility of aid resources, and the impact on the private sector of aid-financed government spending (crowding in versus crowding out). The principal question regarding "Dutch disease" effects of aid is how government policy can mitigate erosion in export competitiveness.

The rest of the paper is organized as follows. Part II presents some stylized facts on aid flows, including indicators of aggregate trends and the relative importance of these flows to recipient countries. Part III provides a flavor of the range of findings in the literature regarding the impact of aid on growth. Part IV focuses on aid's impact on domestic saving and investment. Interactions between aid and the government budget are also covered in this section. Part V highlights how incentives in the donor-recipient relationship, as well as the nature of the political

²For example, in a recent proposal to the U.S. government on "a new partnership for growth in Africa" (HIID, 1997), the authors assert that by being open-ended, foreign aid has failed to put pressure on governments to make the policy choices needed to mobilize domestic resources for development.

³For a summary of recent trends in donor aid policies see Chapter IV in IMF (1995). The annual reports of the Development Assistance Committee (DAC) of the OECD are an excellent source for information on donor policies.

⁴For highly indebted countries, program aid may take the form of debt relief to reduce a debt "overhang" and contribute towards creating a qualitatively different environment in which a virtuous cycle of capital inflows and growth has a chance of getting started.

⁵White (1992a) and White and Luttik (1994) contain comprehensive surveys of the aid effectiveness literature through the early 1990s. For a less detailed treatment but which still covers the main issues, see White (1992b). Influential papers in the early literature include Griffin (1970), Papanek (1972 and 1973) and Weisskoff (1972).

regime in recipient countries, might influence the effectiveness of aid. Possible “Dutch disease” effects of aid are discussed in Part VI. Part VII concludes.

II. Aid Flows: Some Stylized Facts

The most common definition of aid in the empirical literature is the OECD measure, “official development assistance” (ODA), which comprises grants, concessional loans, and debt forgiveness. In order to qualify as ODA, assistance must have as its main objective the promotion of economic development and welfare, and if it is in the form of a loan, must have a grant element of at least 25 percent.⁶ On this definition, annual net disbursements of aid to non-transition economies rose from US\$18 billion in 1975 to a peak of nearly US\$56 billion in 1990, and then declined to US\$51 billion in 1995.⁷ In real terms, total net disbursements to these countries fell sharply after 1990 (Figure 1).

Aid from bilateral sources by far outweighs multilateral aid, accounting for 70–80 percent of the total. Within bilateral aid, project aid dominates, with its share of total bilateral aid commitments rising from an annual average of 60 percent during 1976–80 to 75 percent during 1991–95.⁸ Over the same period, the share of debt relief in bilateral aid also rose (from 6 percent to 9 percent), while the shares of food aid and other program aid declined (Figure 1). Program aid may have become more important for multilateral agencies but overall, project aid is the predominant form of aid.^{9, 10}

How important has aid been to recipient countries? An examination of data for a sample of 56 aid recipients indicates that despite the decline in the real value of total aid flows in the 1990s, a large number of countries became more aid-dependent in the 1990s than they were in the late 1970s (Figure 2).¹¹ For the sample as a whole the median ratio of aid to GNP increased from

⁶The grant element is calculated using a discount rate of 10 percent.

⁷The coverage of the ODA data expanded in the 1990s to include assistance to the so-called transition economies—countries in Central and Eastern Europe as well as the successor states of the former Soviet Union. The share of total ODA that went to these countries increased from 4 percent in 1990 to 11 percent in 1991 and to 16 percent in 1995.

⁸The discussion here of the composition of bilateral aid is based on aid commitments data. The requisite data was not available for disbursements. Although commitments and disbursements have followed a similar long-term trend, caution is required in making inferences about disbursements from data on commitments.

⁹According to Jayarajah and Branson (1995), the ratio of investment lending to adjustment lending at the World Bank went from 95:5 in 1976–80 to 74:26 in the early 1990s.

¹⁰One aspect of aid that is not covered in this note is food aid, a common caricature of which is cheap (if not free) imports undermining the domestic capacity to produce food. To the extent that food aid replaces commercial imports, there should be no impact on domestic production. Also, when food aid is in response to a temporary shortfall in domestic production (e.g., related to a temporary shock such as drought), incentives to domestic production can be maintained in large part through appropriate pricing policy. Today, food aid tends to be a way of providing financial support to the recipient government, and issues related to it are as likely to be about its impact on the budget as they are to be about its impact on domestic production.

¹¹Data on the evolution of aid/GNP ratios for individual countries and regional groups are presented in the Appendix. Coverage is countries classified as low- or middle-income in the World Bank’s *World Development Indicators* database, and in which there was at least one year during 1975–95 when the aid/GNP ratio was equal to or greater than 5 percent. Excluded are countries with populations of less than one million in 1995 and transition economies. A few countries were also excluded on account of lack of data.

Figure 1. ODA Indicators
Evolution of ODA Disbursements, 1975-95¹
(In millions of U.S. dollars)

Distribution of Bilateral ODA Commitments by Type, 1976-80 vs 1991-95
(In percent of total)

Source: OECD database.

¹Excluding aid to transition economies (Central and Eastern Europe, and successor states to the former Soviet Union).

²Including emergency assistance.

Figure 2. Total ODA Net Disbursements by Country, 1991-95 vs 1976-80¹
(In percent of GNP; period averages)

Source: OECD database.

¹Points above (below) the 45-degree line represent countries that became more (less) aid-dependent between 1976-80 and 1991-95. Countries whose names appear on the chart are those in which average aid/GNP ratios exceeded 20 percent in at least one of the periods.

about 6 percent to 11 percent over the period.¹² However, the median share of domestic investment in GNP fell slightly (from 22 percent to 20 percent) and imports remained at 36–37 percent of GNP. Per capita real GNP growth for the sample also fell on average (the median went from 1.3 percent per annum in 1976–80 to 0.4 percent per annum in 1991–95).

III. Aid, Policies, and Growth

What role can aid play in the growth process? Different growth models suggest different answers. The basic premise of two-gap models is that low domestic savings and inadequate foreign exchange earnings constrain the level of investment in poor countries. Given these countries' limited access to private foreign capital, aid has the straightforward role of filling "financing gaps" between domestic saving and the investment needed to attain a targeted rate of growth.¹³ Estimated growth equations that are motivated by two-gap models highlight the role of domestic saving, aid, and other sources of financing investment. Often, they also include other explanatory variables, including variables thought to be important in aid allocation decisions, proxies for government policies, and indicators that measure exogenous shocks.

The role of aid is not as clear-cut in the "new growth" literature—encompassing various modifications to the Solow-Swan neoclassical growth model, and endogenous growth models.¹⁴ In some of these models the impact of aid depends on whether it is perceived as permanent or temporary; permanent aid merely raises consumption and does not increase investment nor growth. Others allow the possibility that an injection of aid can help a country escape from a "poverty trap" onto a higher steady-state growth path. An important feature of the empirical work motivated by "new growth" models is the prominence given to human capital, policies that promote investment (in both physical and human capital), and institutional factors that may constrain growth.

Aid and growth through two-gap spectacles

Snyder (1993) shows that estimates of the impact of aid on growth can be highly sensitive to the specification of the growth equation. Using ordinary least squares (OLS), he regresses growth on domestic saving, aid, other foreign capital inflows, export growth, and GDP (to represent country size) for a sample of developing countries. He finds that when country size is excluded, the coefficient on the aid term is small and not statistically significant; when country size is included, the coefficient becomes positive and statistically significant in nearly all the regressions. He argues that larger countries grow faster than smaller ones; that smaller countries receive more

¹²For many countries, part of this increase may reflect the (negative) impact on measured dollar GNP of more realistic exchange rates in the 1990s compared to the 1970s.

¹³The two-gap literature recognized the danger of aid dependency, and stressed the need for countries to increase their domestic saving rate if they were going to attain self-sustained growth (see, for example, Chenery and Strout (1966)). Easterly (1997) presents a critical theoretical and empirical assessment of two-gap models.

¹⁴On the "new growth" models see, for example, Barro and Sala-i-Martin (1995). Similar models have also been used to study the impact of transfers to relatively poor regions in industrial countries. For example, Funke and Strulik (1997) employ an endogenous growth model in their study of transfers to Eastern Germany.

aid than larger ones; and that failure to allow for the effects of country size underestimates the strength of the relationship between aid and growth.

A common criticism of the use of OLS to estimate the impact of aid in growth equations is that it is unlikely to adequately capture the inter-relationships between growth, domestic saving, and aid. In particular, it is likely to yield estimated parameters that are susceptible to simultaneity bias.¹⁵ Reichel (1995) tackles the simultaneity concern by specifying a model with three endogenous variables: aid, domestic saving, and growth. The aid equation includes GDP (country size) and the level of per capita income among its right-hand-side variables.¹⁶ His results from two-stage-least-squares (2SLS) estimation based on period average data over the 1980s for 83 developing countries showed that aid had no statistically significant effect on growth.¹⁷

Mosley et al. (1987) contrast results from OLS regressions with results from estimating a simultaneous system of equations using three-stage least squares (3SLS), based on data averaged over the period 1970–80 for 63 countries. Neither method yielded a statistically significant correlation between aid and growth.¹⁸ A distinguishing feature of the analytical framework used by the authors is the incorporation of indirect effects of aid on growth through two channels: the spending pattern of the public sector (fungibility), and changes in relative prices (hence influence on private sector behavior).¹⁹ They interpreted the finding of no statistically significant correlation between aid and growth as suggesting possible leakages of aid to non-productive expenditures in the public sector, and the transmission of negative price effects to the private sector. They recommend that donors concentrate aid on countries that meet certain criteria for high effectiveness of aid (e.g., estimated rates of return on investment, proportion of aid allocated to “non-productive” recurrent expenditure, and estimated impact of aid on the private sector).

In a follow-up paper that extended the database to the 1980s (Mosley et al., 1992), the authors report a positive and significant association between aid and growth in an OLS regression for the whole sample. However, regressions for regional subgroups yielded no statistically significant relation. They also explicitly examine the role of policy orientation in the effectiveness of aid by including an index of outward-orientation in the regressions. They find that for their sample as a whole the coefficient on this term is positive but not significant. However, they note that all “strongly outward-oriented” countries in the sample and a high proportion (55 percent) of “moderately outward-oriented” countries fell into the “high aid, high growth” category, while a significant proportion (35 percent) of “strongly inward-looking” countries fell into the “low aid, low growth” category.

¹⁵If, for example, aid tends to be directed to countries that have experienced negative shocks, it will be correlated with consumption (or saving) and low growth, and an estimation method that does not allow for the endogeneity of aid is likely to yield misleading results.

¹⁶Country size (in terms of GDP or population) and per capita income are the two variables that show up most consistently as key determinants of aid in cross-country empirical studies of aid allocation.

¹⁷In contrast to aid, strong export performance and stable prices (the two policy-related variables in the growth equation) were positively and significantly associated with growth.

¹⁸In these regressions, growth is a function of aid, other financial inflows, domestic saving, growth in the literacy rate, and export growth.

¹⁹This represents an elaboration of the basic framework in Heller (1975); the government minimizes a loss function—defined in terms of deviations of various intermediate targets from desired levels—subject to financing constraints.

Mosley et al. (1992) conclude that the effect of aid on growth is country specific. They propose a scheme in which aid effectiveness and policy orientation depend on the stage of development of recipient countries, which they argue could explain the lack of significant association between aid and growth observed in cross-section regressions. They suggest the following four stages of aid effectiveness: (i) “low aid, low growth” stage where a near subsistence economy is cut off from aid because of war, political instability, or economic mismanagement; (ii) “high aid, low growth” stage in which increased aid flows have no immediate impact because of gestation lags etc.; (iii) “high aid, high growth” stage in which aid flows remain high, and become more effective as lags unwind; and (iv) “low aid, high growth” stage in which aid diminishes but growth continues at a high pace (the authors cite Botswana and Mauritius as examples of countries that have recently entered this stage).

Aid in the “new growth” framework

In an important recent contribution, Burnside and Dollar (1997) examine the interaction between aid and policies that promote growth in a neoclassical growth framework. For their base specification of a growth equation, the authors draw on the recent empirical growth literature to incorporate a range of institutional and policy distortions that have been found to help explain the growth performance of poor countries (Table 1). OLS estimation of the base specification (using panel data for 40 low-income and 16 middle-income countries over 6 four-year periods from 1970–73 to 1990–93) indicated that institutional quality, inflation, and trade openness were the most robust variables affecting growth.²⁰ The impact of aid was consistently found to be not significant for observations with average policies. Estimates of the impact of aid evaluated at good policy levels (one standard deviation above the mean for low-income countries and slightly higher for the whole sample) were all positive.

Burnside and Dollar also examined the direction of influence between aid and policies; i.e., whether aid “causes” good policies (e.g., via conditionality) or whether donors reward good policies. Results from estimated aid equations indicated that after controlling for income, population and donor strategic interest, good policies were positively associated with aid. World Bank aid was found to be more strongly associated with good policies than bilateral and total multilateral aid. An estimated policy equation using a policy index constructed from three variables (budget surplus, inflation and openness indicator) suggested that aid did not have a statistically significant impact on policies.²¹ Finally, treating aid and policies as endogenous variables in growth regressions yielded similar results to the regressions which treated policies as exogenous: while aid did not systematically affect policies, it did have a positive effect on growth in a good (fiscal, monetary, and trade) policy environment.

Other studies of the impact of aid on growth that have been motivated by “new growth” approaches include Boone (1994) and Hadjimichael et al. (1995). Boone finds no significant

²⁰Two-stage least squares estimation was used to check for robustness of the OLS results.

²¹A couple of difficult to explain results—a positive and statistically significant association between assassinations and policy, and a statistically significant negative relationship between financial deepening and policy—cast some doubt on the specification of the policy equation.

Table 1. Growth Regressions (Burnside and Dollar, 1997)¹

	Dependent Variable		
	Per Capita GDP Growth ²	Per Capita GDP Growth ³	Policy ²
Constant	0.92 (0.19)	7.02 (0.76)	-0.93 (0.53)
Initial GDP per capita	-0.44 (0.65)	-1.39 (1.12)	0.29 (1.25)
Ethnic fractionalization	-0.005 (0.66)	-0.009 (0.80)	0.004 (1.22)
Assassinations	-0.43 (1.58)	-0.85 (1.67)	0.29 (2.33)
Ethnic x assassin	0.007 (1.60)	0.002 (0.17)	-0.009 (2.87)
Institutional quality	0.71 (3.95)	0.91 (4.07)	0.27 (3.24)
M2/GDP (lagged)	0.022 (1.27)	0.03 (1.38)	-0.02 (2.52)
Sub-Saharan Africa	-1.47 (1.68)	-2.19 (2.71)	-0.36 (1.68)
East Asia	1.26 (2.05)	2.64 (2.26)	1.29 (7.15)
Aid/GDP	-0.05 (0.27)	-1.00 (1.80)	-0.01 (0.15)
Budget surplus	0.90 (0.18)		
Inflation	-1.19 (2.16)		
Openness	1.61 (2.76)		
Policy ⁴	—	-0.24 (0.30)	—
Government consumption	-8.25 (1.43)	1.50 (0.19)	—
Aid x policy	0.24 (2.87)	0.76 (2.05)	—
Number of observations	224	184	191
Adjusted R-squared	0.35	0.36	0.35
Method	OLS	2SLS	2SLS

¹Absolute values of t-statistics are shown in parentheses.

²Panel growth regression covering 56 low- and middle-income countries and six four-year periods (1970–73 to 1990–93).

³2SLS regressions with policy as an endogenous variable.

⁴Policy index made up of budget surplus, inflation, and trade openness, with weights derived from growth regression.

relationship between aid and growth, while Hadjimichael et al. find a non-linear relationship; specifically, there is a threshold above which aid becomes detrimental to growth.²²

IV. Aid, Domestic Saving and Investment

Does the lack of a positive association between aid and growth reflect the failure of aid to augment domestic saving and to boost investment? This section examines these questions by focusing on studies that attempt to gauge the direct impact of aid on domestic saving and investment, including the impact on the government budget.

Aid and domestic saving

Snyder (1990) argues that the negative association between saving and aid reported in earlier studies was the “spurious result of omitted variables.” Using data for 50 low- and middle-income countries (covering the 1960s, 1970s, and early 1980s), he demonstrates that after controlling for per capita income, aid has no statistically significant effect on domestic saving. However, because the coefficient on the aid term is consistently negative in various specifications of the saving function, the author does not rule out the possibility of some substitution between aid and domestic saving in some countries. He acknowledges a potential simultaneity problem but does not address it.

As indicated above in the discussion of growth, Reichel (1995) addresses the simultaneity concern through a model consisting of 3 endogenous variables (including aid), which he estimates using 2SLS. He finds a strong and highly significant negative relationship between saving and aid, and concludes that there is considerable substitution between the two variables.

Hadjimichael et al. (1995) also find a negative relationship between aid and domestic saving in a sample of 39 countries in Sub-Saharan Africa. However, when they group the countries according to growth performance and the degree to which adjustment efforts were sustained, they find that “the negative impact is concentrated in those countries with protracted imbalances and negative per capita growth, whereas in the group of sustained adjusters, foreign aid appears to have stimulated domestic savings.”

Aid and investment

Levy (1988) reports positive and statistically significant coefficients on aid in an investment equation based on a cross-section of 22 Sub-Saharan African countries. Results of regressions that eliminated fixed country effects indicated that “countries that experienced an increase in the flow of foreign aid found that their investment increased on average by an equal amount.” There was no support for the view that aid merely increased consumption. The impact of aid was not found to be as strong in McGillivray and Ahmed (1994), who employed 2SLS procedures to estimate an investment function for each of five Asian countries (Bangladesh, India, Nepal,

²²The threshold was estimated at 25 percent of GDP using pooled time-series and cross-section data, and at 4 percent using cross-section (period averaged) data.

Pakistan, and Sri Lanka). Only in two countries (Nepal and Sri Lanka) did aid have a significant positive effect; there was no statistically significant effect in the other 3 cases.

Boone (1994) examines the impact of aid on consumption and investment. An estimated aid-determinants equation showed aid to be strongly negatively correlated with income per capita and country size (population); once these two variables are controlled for, other variables (e.g., external shocks, growth, regional dummies) are not significant.²³ Boone's principal empirical results are that the marginal propensity to consume aid was not significantly different from one, and the marginal propensity to invest was not significantly different from zero. However, these results were based on a sub-sample which excluded countries with aid/GDP ratios of 15 percent or higher. Inclusion of these countries—all had relatively small populations—yielded radically different results: the marginal propensity to consume fell to 0.45 and the marginal propensity to invest rose to 0.35 (both significant at the 1 percent level). The author attributes the difference in the results to non-fungibility of aid in small countries (where one infrastructure project may be equivalent to a large fraction of GDP). To be able to convert aid into consumption, aid must effectively replace a project that would have been undertaken anyway.

Boone also examined the allocation of aid between government and private consumption, and concluded that neither the government nor the private sector chose to invest aid receipts. Hadjimichael et al. (1995) investigated the impact of aid on both government and private investment in their sample of Sub-Saharan African countries. They report a strong relation between government investment and aid; a result that they do not find surprising in view of "the high proportion of government capital expenditure financed by aid." They report mixed results with respect to the impact of aid on private investment: the impact is positive for "strong adjusters" and negative for countries with negative per capita growth.

Aid and the government budget

In practice, most aid goes to the public sector and may be used to increase government spending (investment or consumption), to reduce taxes (or avoid increasing them), or to substitute for foreign non-concessional and domestic borrowing.²⁴ Because government spending may be fungible, even when aid is earmarked for a specific sector or activity there is no guarantee that government spending for that purpose will increase by the full amount of the aid.

One stylized fact on aid noted earlier is the large share of project aid in ODA. Although it is unrealistic to assume that all project aid represents investment, Boone's finding that aid does not add to investment is nevertheless surprising. In contrast to Boone, Feyzioglu et al. (1996) found a positive and statistically significant relationship between public investment and ODA. They

²³In Boone's view, the above results "likely reflect political rather than altruistic motives behind aid transfers." His preferred explanations for the fact that small poor countries receive relatively more aid than larger richer countries is that this reflects influence trading (e.g., "sale" and "purchase" of UN votes) and the political unwillingness of donors to offer a large share of their aid budget to any specific country. Other authors (e.g., Reichel (1995), Svensson (1997)) have argued that the close relationship between aid and per capita income, when taken together with mixed results on dummies designed to capture political and strategic considerations, indicate that recipient needs (e.g., as measured by indicators of poverty) are more important than political considerations in aid allocation.

²⁴A complication sometimes arises in relation to the proceeds from the sale of commodity aid: donor insistence on how the proceeds ("counterpart funds") must be spent can increase the budget deficit (by increasing expenditures rather than being a purely financing item) and complicate macroeconomic management.

examine links between aid and public spending in a sample of 14 low- and middle-income countries over the period 1971–90. Their principal findings include the following: (i) total government spending increases by nearly the full extent of ODA; (ii) almost 30 percent of ODA goes to government capital expenditure and about 70 percent to recurrent expenditure;²⁵ (iii) about 20 percent of ODA goes to public investment;²⁶ and (iv) there was no evidence that ODA's impact on public investment crowds out private investment. The authors also report results indicating that concessional loans (mostly from multilateral financial agencies) were more stimulative of both total government expenditure and public investment than was total ODA.

Feyzioglu et al. compare their results with Boone's and attribute the divergent outcomes to differences in sample selection. Specifically, they argue that their use of annual observations (compared to Boone's use of 10-year averages) better captures the impact of annual net disbursements of aid on that period's government budget. Other recent studies that have found a significant positive relation between aid and public investment include Khan and Hoshino (1992) and Otim (1996).²⁷ Otim reports significant differences in impact between bilateral and multilateral aid in a sample of 3 low-income Asian countries (India, Pakistan, and Sri Lanka): a third of bilateral aid goes to consumption in these countries while multilateral aid increases investment by more than the amount of the aid (i.e., it pulls resources out of consumption). The author explains the difference in terms of the impact of conditionality attached to financial assistance from multilateral agencies.^{28, 29}

V. Incentives, Aid, and Poverty Alleviation

In addition to investigating the direct impact of aid on investment and growth, a section of the emerging aid effectiveness literature examines incentives in donor-recipient relations and the nature of the political regime in recipient countries, and how these factors might influence the extent to which policy reforms intended to alleviate poverty and foster growth are implemented. Two studies in this area are discussed in this section.

²⁵The authors argue that the high proportion of aid that goes to recurrent expenditure is not necessarily bad, since several components of such spending (e.g., on education, health, operations, and maintenance) may have higher rates of return than capital expenditure. They note that Devarajan et al. (1996) found that the only broad category of public expenditure that was associated with higher economic growth was current expenditure.

²⁶Investment of the general government and public enterprises; a broader coverage than government capital expenditure.

²⁷See also McGillivray (1994) and Khan (1994).

²⁸Khan and Hoshino found no significant differences in impact between bilateral and multilateral aid in a similar group of countries (Bangladesh, India, Malaysia, Pakistan, and Sri Lanka).

²⁹The Otim and Khan and Hoshino studies, like many others in the literature on the fiscal response to aid, build on Heller (1975). White (1992a) characterizes this class of models as "partial" in the sense that they do not adequately capture the channels through which aid affects the macroeconomy. In particular, key variables (e.g., national income and imports) are treated as exogenous, investment is driven by exogenous price changes, and there is no role for the interest rate.

Incentives in donor-recipient relations and implementation of policy reform

What are donor motives in allocating aid, and how do these motives affect the likelihood that donors will withhold funds when recipients fail to comply with the conditionality attached to aid? Svensson (1997) examines these questions using a game theory model in which an altruistic donor allocates aid according to recipient need (i.e., how poor a country is). In this model, the policies that aid supports—contained in stabilization and structural reform programs—are designed to move recipients towards sustainable fiscal positions. Fiscal imbalances reflect exogenous factors (state of the world) as well as adjustment effort. A moral hazard problem arises because of the inability of donors to perfectly monitor adjustment effort.

Two implications of the model—concessional assistance is allocated according to recipient needs, and the aid allocation rule adversely affects recipients' incentives to carry out policies to improve the welfare of the poor—are tested empirically using equations for aid allocation and 3 human development indicators (infant mortality, life expectancy, and primary school enrollment). The main determinants of aid were found to be recipients' need and population (on average, smaller countries receive more aid).³⁰ In the estimated equations for the human development indicators, the coefficient on aid was not significant in any specification.³¹ By contrast, the coefficient on the terms of trade term was significant in one specification and barely insignificant in another.

Svensson argues that if recipient governments treated aid as an exogenous source of income, then the “government induced impact on poverty reduction from aid” should be similar to the impact from favorable terms of trade developments. He interprets the difference in the levels of significance in the estimations as suggesting that there are adverse incentive effects associated with aid which make it ineffective (compared to the impact of an exogenous increase in income from the terms of trade). He suggests a two-prong approach to getting around the moral hazard problem: the allocation of part of the aid budget to an international agency with less aversion to poverty than bilateral donors, and more use of tied project aid (to reduce fungibility).

Aid, political regime, and poverty alleviation

Boone (1996) employs a public choice framework to examine the importance of political regime in recipient countries for the effectiveness of aid. He motivates his study by rejecting capital market imperfections as a rationale for providing aid to poor countries, and also dismissing the view that minimum subsistence needs explain low saving rates in developing countries.³² In the framework, politicians finance two activities—“productive” government spending, and transfers to supporters—using either distortionary taxes or aid. Aid may also be used to reduce

³⁰Four human development indicators—infant mortality, life expectancy, primary school enrollment, and real GDP per capita—are combined into a composite measure of recipients' need.

³¹Feyzioglu et al. (1996) also found no significant impact of aid on infant mortality in regressions of the latter on aggregate ODA. However, they found that concessional loans to the health sector improved infant mortality. They draw the policy implication that an effective way of giving aid to developing countries might be through public expenditure programs targeted to areas that are critical for development.

³²Boone argues that capital markets work (citing “large net flows to developing countries over the last 20 years”). On saving rates, he refers to evidence that a small wealthy elite accounts for the bulk of income in developing countries, and asks why this elite invests domestically in some countries and not in others.

the distortionary taxes. Three alternative political regimes are considered: (i) an elitist regime whose optimal policy is to transfer aid resources to a wealthy elite which backs it; (ii) an egalitarian regime whose optimal policy is to transfer the aid resources to the poor (and hence improve poverty indicators); and (iii) a laissez-faire regime whose optimal policy is to use the aid to lower distortionary taxes, and hence stimulate investment and growth.

Empirical analysis based on data for some 97 countries yielded three main results. First, there was no significant impact of aid on tax proxies nor on measures of distortionary policies (e.g., black market premium); thus there was no support for the hypothesis that governments use aid to reduce distortions (i.e., data did not support a “laissez-faire” political regime). Secondly, there was no significant impact of aid on basic indicators of poverty/human development (infant mortality, primary schooling, and life expectancy), suggesting that aid does not benefit the poor (i.e., reject the egalitarian regime model). Thirdly, the marginal propensity to consume aid resources was not significantly different from one, and the marginal propensity to invest aid resources was not significantly different from zero.³³ Noting that virtually all aid goes to consumption, and that it increases the size of government but has no significant impact on human development indicators, Boone concludes that the predictions of the model for an elitist regime best fit the data. He attributes the lack of impact on poverty alleviation partly to the fact that aid does not introduce incentives into recipient countries for policies that would improve human indicators.

VI. Aid and the Real Exchange Rate

Countries that experience a surge in aid need to be mindful of the potential conflict between aid and export competitiveness. To the extent that aid contributes to an increase in the demand for domestic goods and services, it would exert upward pressure on prices in the nontraded sectors, lead to an appreciation in the real exchange rate, and in all likelihood increase production costs in the sectors producing traded goods (especially exports). Over time, this erosion in export competitiveness—a “Dutch disease” effect of aid—may make the aid recipient even more dependent on aid.

Van Wijnbergen (1986) demonstrates that the conflict between aid and export competitiveness is particularly severe when export production is characterized by positive (learning-by-doing) externalities, and capital markets are not perfect.³⁴ He estimated that aid flows had a statistically significant effect on the real exchange rate (all in the predicted direction) in four out of six African countries that he examined empirically. The main operational conclusion he drew was that explicit policies are needed to reduce the adverse impact of aid on external competitiveness. Specifically, measures should be taken to reduce anti-export bias in the trade and tax policies of aid recipients.

³³As noted above, these results are based on a sample that excludes countries with large aid/GNP ratios.

³⁴As exports decline in response to the initial aid-induced real exchange rate appreciation, productivity in the export sector is permanently reduced; even after the aid subsides and the real exchange rate depreciates, productivity does not return to what it was before the increase in aid. There would be no problem in a world of perfect capital markets since exporters could ride out the temporary “aid boom” by borrowing and investing to ensure that they have the requisite capital in place when aid declines and export competitiveness increases.

In contrast to van Wijnbergen, who treated aid as “temporary,” Younger (1992) and White and Wignaraja (1992) examine “Dutch disease” effects in two situations—for Ghana and Sri Lanka, respectively—where they argue that there was a permanent increase in the level of aid and private transfers. According to Younger, aid-financed government spending boosted aggregate demand and put upward pressure on prices (especially of nontraded goods and services) in Ghana in the late 1980s and early 1990s. The authorities attempted to maintain the real exchange rate via devaluations designed to offset domestic inflation. At the same time, in order to meet monetary ceilings under Fund-supported programs, they severely limited credit expansion by the commercial banks (to counteract the monetization of aid flows), with adverse consequences for private investment. In effect, the government crowded out the private sector with the help of aid flows. In the author’s view a more appropriate policy mix would have had three elements: a tighter fiscal stance (including “saving” some of the aid flows); a less stringent monetary policy (i.e., more credit to the private sector); and allow the real exchange rate to appreciate to reflect a permanent increase in capital inflows and to stimulate imports.

In the case of Sri Lanka, a sweeping liberalization program in 1977 was expected to spur export-led growth. In the event, the performance of exports (especially manufactured exports) was disappointing through the late 1980s. This performance has been partly attributed to the failure of the authorities to achieve depreciation of the real exchange rate, in spite of steady depreciation of the nominal rate. White and Wignaraja (1992) conduct an empirical analysis based on a model in which fundamentals (e.g., trade regime, terms of trade, capital inflows) as well as short-term factors (e.g., evolution of the nominal exchange rate) are key determinants of the real exchange rate. The authors argue that some of the policies of the authorities—e.g., a massive expansion in public investment expenditure—may have undercut the attempt to achieve real depreciation, and that what was required was “more judicious allocation of public investment [over time and across sectors]” and measures to remove bottlenecks in the production of nontradables.

VII. Conclusions

The preponderance of the evidence from the empirical literature on aid effectiveness suggests that aid has not had a statistically significant impact on growth in recipient countries. Evidence regarding the relationship between aid and the main channels through which its impact on growth could flow—investment and domestic saving—is mixed, with some indication that aid has had a positive impact on domestic saving and investment in countries where adjustment efforts were sustained. Two findings in Burnside and Dollar (1997)—that aid has been effective when the policy environment has been good, but that aid has not stimulated the adoption of good policies—suggest that greater selectivity in aid allocation (in support of strong policies) might have delivered better performance on growth and poverty alleviation in recipient countries.

Perhaps the most surprising result in this survey was Boone’s finding for a broad range of countries that the marginal propensities to consume and to invest aid resources were one and zero, respectively. Notwithstanding widespread evidence of fungibility, it is difficult to believe that aid does not add to investment at all in recipient countries. This is harder to believe against the background of the dominance of project aid in ODA. The results in Feyzioglu et al., that about 20 percent of aid goes to public investment, come across as more credible.

Not much empirical work has been done on possible “Dutch disease” effects of aid, but the studies that have been undertaken highlight the importance of an appropriate macroeconomic policy mix to address issues of competitiveness and the crowding out of private investment.

Bibliography

- Barro, Robert J., and Xavier Sala-i-Martin, 1995, *Economic Growth* (New York: McGraw-Hill).
- Boone, Peter, 1994, *The Impact of Foreign Aid on Savings and Growth*, London School of Economics (June), mimeo.
- , 1996, “Politics and the Effectiveness of Foreign Aid,” *European Economic Review*, Vol. 40, pp. 290–329.
- Burnside, Craig, and David Dollar, 1997, “Aid, Policies and Growth,” Policy Research Working Paper No. 1777 (Washington: World Bank, June).
- Chenery, Hollis B., and Alan M. Strout, 1966, “Foreign Assistance and Economic Development,” *American Economic Review*, Vol. 56 (September), pp. 679–733.
- Devarajan, S., V. Swaroop, and H.H. Zou, 1996, “The Composition of Public Expenditure and Economic Growth,” *Journal of Monetary Economics*, Vol. 37, pp. 313–344.
- Easterly, William, 1997, “The Ghost of Financing Gap: How the Harrod-Domar Growth Model Still Haunts Development Economics,” Policy Research Working Paper No. 1807 (Washington: World Bank, August).
- , and S. Rebelo, 1993, “Fiscal Policy and Economic Growth: An Empirical Investigation,” *Journal of Monetary Economics*, Vol. 32, pp. 417–458.
- Feyzioglu, Tarban, Vinaya Swaroop, and Min Zhu, 1996, “Foreign Aid’s Impact on Public Spending,” Policy Research Working Paper No. 1610 (Washington: World Bank, May).
- Funke, Michael, and Holger Strulik, 1997, “Transfer Payments to Eastern Germany at the Crossroads: How to Proceed in the Future?” Mimeo, Economics Department, Hamburg University (July).
- Griffin, Keith, 1970, “Foreign Capital, Domestic Savings and Economic Development,” *Oxford Bulletin of Economics and Statistics*, Vol. 32 (February), pp. 99–112.
- Hadjimichael, Michael T., and others, 1995, *Sub-Saharan Africa: Growth, Saving, and Investment, 1986–93*, IMF Occasional Paper No. 118 (Washington: International Monetary Fund).
- Harvard Institute for International Development (HIID), 1997, *A New Partnership for Growth in Africa* (Cambridge, Massachusetts).
- Heller, P., 1975, “A Model of Public Fiscal Behavior in Developing Countries: Aid, Investment, and Taxation,” *American Economic Review*, Vol. 65 (June), pp. 429–45.
- International Monetary Fund, 1995, *Official Financing for Developing Countries*, World Economic and Financial Surveys (Washington: International Monetary Fund).
- Jayarajah, Carl, and William Branson, 1995, *Structural and Sectoral Adjustment: World Bank Experience, 1980–92*, A World Bank Operations Evaluation Study (Washington: World Bank).
- Khan, Haider Ali, 1994, “Explaining the Impact of Foreign Aid: Response to McGillivray,” *World Development*, Vol. 20, pp. 2019–2020.
- , and E. Hoshino, 1992, “The Impact of Foreign Aid on the Fiscal Behavior of LDC Governments,” *World Development*, Vol. 20, pp. 1481–1488.
- Levy, Victor, 1988, “Aid and Growth in Sub-Saharan Africa: The Recent Experience,” *European Economic Review*, Vol. 32, pp. 1777–1795.

- McGillivray, Mark, 1994, "The Impact of Foreign Aid on the Fiscal Behavior of Asian LDC Governments: A Comment on Khan and Hoshino (1992)," *World Development*, Vol. 22, pp. 2015–2017.
- , and Akhter Ahmed, 1994, "Aid, Savings and Investment Re-Explored: The Cases of Bangladesh, India, Nepal, Pakistan and Sri Lanka," *Asian Economic Review*, Vol. 36 (December), No. 3, pp. 737–46.
- Mosley, Paul, John Hudson, and Sara Horrell, 1987, "Aid, the Public Sector and the Market in Less Developed Countries," *The Economic Journal*, Vol. 97 (September), pp. 616–641.
- , 1992, "Aid, the Public Sector and the Market in Less Developed Countries: A Return to the Scene of the Crime," *Journal of International Development*, Vol. 4, No. 2, pp. 139–150.
- Otim, Samuel, 1996, "Foreign Aid and Government Fiscal Behavior in Low-Income South Asian Countries," *Applied Economics*, Vol. 28, pp. 927–933.
- Papanek, Gustav F., 1972, "The Effect of Aid and Other Resource Transfers on Savings and Growth in Less Developed Countries," *The Economic Journal*, Vol. 82 (September), pp. 934–50.
- , 1973, "Aid, Foreign Private Investment, Savings, and Growth in Less Developed Countries," *Journal of Political Economy*, Vol. 81 (January-February), pp. 120–130.
- Reichel, Richard, 1995, "Development Aid, Savings and Growth in the 1980s: A Cross-Section Analysis," *Savings and Development*, Vol. 19, No. 3.
- Snyder, Donald W., 1990, "Foreign Aid and Domestic Savings: A Spurious Correlation?" *Economic Development and Cultural Change*, Vol. 39 (October), No. 1, pp. 175–181.
- , 1993, "Donor Bias Towards Small Countries: An Overlooked Factor in the Analysis of Foreign Aid and Economic Growth," *Applied Economics*, Vol. 25, pp. 481–88.
- Svensson, Jakob, 1997, "When Is Foreign Aid Policy Credible?" Policy Research Working Paper No. 1740 (Washington: World Bank, March).
- van Wijnbergen, Sweder, *Aid, Export Promotion and The Real Exchange Rate: An African Dilemma*, Macroeconomics Division, Development Research Department, World Bank, and Centre for Economic Policy Research, London, October 1986.
- Weisskopf, Thomas E., 1972, "The Impact of Foreign Capital Inflow on Domestic Savings in Underdeveloped Countries," *Journal of International Economics*, Vol. 2, pp. 25–38.
- White, Howard, and Joke Luttik, 1994, "The Countrywide Effects of Aid," Policy Research Working Paper No. 1337 (Washington: World Bank, August).
- White, Howard, and Ganeshan Wignaraja, 1992, "Exchange Rates, Trade Liberalization and Aid: The Sri Lankan Experience," *World Development*, Vol. 20, No. 10, pp. 1471–1480.
- White, Howard, 1992a, "The Macroeconomic Impact of Development Aid: A Critical Survey," *The Journal of Development Studies*, Vol. 28, No. 2, pp. 163–240.
- , 1992b, "What Do We Know About Aid's Macroeconomic Impact? An Overview of the Aid Effectiveness Debate," *Journal of International Development*, Vol. 4, No. 2, pp. 121–137.
- , 1992c, "Aid, the Public Sector and the Market in Less Developing Countries: A Comment," *The Economic Journal*, Vol. 102, pp. 161–162.
- Younger, Stephen D., 1992, "Aid and the Dutch Disease: Macroeconomic Management When Everybody Loves You," *World Development*, Vol. 20, No. 11, pp. 1587–1597.

Appendix. Evolution of Aid/GNP Ratios for Selected Countries (In percent)

	Annual Averages					Annual Averages			
	1976-80	1981-85	1986-90	1991-95		1976-80	1981-85	1986-90	1991-95
Angola	1.1	1.0	1.3	10.4	Namibia	0.0	0.0	2.4	6.1
Bangladesh	9.3	8.1	9.2	6.5	Nepal	5.8	7.9	12.8	13.0
Benin	8.7	7.5	12.4	14.5	Nicaragua	5.0	5.1	10.9	40.7
Bolivia	5.4	6.0	10.8	11.6	Niger	9.2	11.8	17.5	17.6
Botswana	16.0	10.3	10.5	3.0	Oman	4.9	1.7	0.4	0.5
Burkina Faso	15.2	13.3	13.1	18.5	Pakistan	4.7	2.5	3.0	2.3
Burundi	11.9	12.3	18.0	26.5	Papua New Guinea	15.2	12.3	11.1	8.9
Cameroon	4.9	2.1	3.0	6.8	Rwanda	13.7	10.5	11.8	43.6
Central African Rep.	11.2	14.1	19.0	15.4	Senegal	9.0	12.7	16.6	12.4
Chad	11.5	14.4	26.4	21.0	Sierra Leone	5.4	5.1	9.0	25.5
Congo	8.5	4.2	6.5	9.8	Sri Lanka	8.3	8.4	8.4	6.6
Costa Rica	1.3	6.0	4.7	1.5	Sudan	6.0	10.5	9.3	9.5
Cote d'Ivoire	2.2	1.7	4.2	14.3	Syria	10.8	5.8	3.6	3.0
Dominican Republic	1.3	2.4	2.2	0.7	Tanzania	11.6	9.9	21.6	49.6
Egypt	12.2	5.6	7.3	8.4	Togo	9.5	11.4	16.2	12.7
El Salvador	1.9	7.0	8.3	5.0	Tunisia	4.2	2.3	3.0	1.6
Ethiopia	4.4	7.8	13.7	17.6	Uganda	1.6	5.6	7.3	20.6
Gabon	1.1	1.7	3.1	3.3	Yemen	24.3	11.5	5.4	6.5
Gambia	17.5	26.0	55.1	26.8	Zambia	6.6	8.1	19.5	35.4
Ghana	3.4	3.7	9.5	10.6	Zimbabwe	0.9	3.9	5.1	10.1
Guatemala	1.2	0.8	2.6	1.9	Mean (whole sample)	8.8	8.8	12.9	15.9
Guinea	3.2	5.9	11.7	13.2	Median (whole sample)	5.9	7.3	9.7	11.3
Guinea-Bissau	38.0	38.8	66.7	55.2	Regional means: ²				
Haiti	8.5	8.0	8.2	18.8	Asia and Pacific (5)	8.6	7.8	8.9	7.4
Honduras	4.2	7.0	8.3	10.6	Middle East and North Africa (8)	12.4	6.8	4.8	4.5
Jamaica	3.6	6.5	8.0	3.6	Sub-Saharan Africa (34)	9.4	10.3	16.9	21.2
Jordan	35.7	19.7	14.0	11.1	Western Hemisphere (9)	3.6	5.4	7.1	10.5
Kenya	5.2	6.5	10.0	12.1					
Lebanon	3.3	3.6	1.4	2.0					
Lesotho	11.9	13.6	16.6	10.4					
Madagascar	4.8	6.4	12.3	12.3					
Malawi	11.6	11.0	25.8	30.9					
Mali	13.1	21.6	23.0	19.1					
Mauritania	34.5	25.9	25.5	25.4					
Morocco	3.9	4.3	2.8	2.9					
Mozambique	5.5	9.4	50.1	101.3					

Source: OECD database.

¹Coverage is low- and middle-income countries in which there was at least one year during 1975-95 when the aid/GNP ratio was equal to or greater than 5 percent. Excluded are transition economies, countries that did not exist in 1975 (e.g., Eritrea) and countries with a population of less than a million.

²Simple average for each regional group. Number of countries in each group is reported in parentheses. The Asia and Pacific group has Bangladesh, Nepal, Pakistan, Papua New Guinea, and Sri Lanka; Middle East and North Africa has Egypt, Jordan, Lebanon, Morocco, Oman, Syria, Tunisia, and Yemen; Western Hemisphere has Bolivia, Costa Rica, Dominican Republic, El Salvador, Guatemala, Haiti, Honduras, Jamaica, and Nicaragua. The remaining countries belong to Sub-Saharan Africa.

Mitigating the Social Costs of the Economic Crisis and the Reform Programs in Asia

S. Gupta, C. McDonald, C. Schiller, M. Verhoeven,
Ž. Bogetić, and G. Schwartz¹

Abstract

This paper presents a preliminary analysis of the likely social impact of the economic crisis and the reform programs in three Asian countries—Indonesia, Korea, and Thailand. The focus is on likely changes in real consumption expenditures arising from higher inflation and increases in unemployment. The current social policy measures adopted in the reform programs should provide significant social safety nets for the poor. However, if the social impact turns out to be larger than projected, it would be worthwhile to assess cost-effective and efficient alternatives for expanding social safety nets. The paper presents some options that could be considered.

JEL Classification Numbers: E65, H53, H55, I32

Keywords: poverty, social safety nets, social impact, Asia

Author's E-Mail Address: sgupta@imf.org

I. Introduction

The purpose of this paper is to (1) carry out a preliminary analysis of the likely impact of the economic crisis and the reform programs on the living standards of the poor in three Asian countries—Indonesia, Korea, and Thailand; (2) examine the range of existing social policy instruments currently in place in these countries; (3) review the new measures incorporated in the reform programs under implementation in the three countries; and (4) list additional policy

¹The authors would like to thank Vito Tanzi, Peter S. Heller, Ke-young Chu, James Corr, Joshua Felman, Eliot Kalter, Graciana del Castillo, Benedict Clements, Joshua Greene, Javier Hamann, Susan Jones, Michael Sarel, and various colleagues in the Fiscal Affairs Department for their helpful suggestions. The usual disclaimer applies.

options that could be considered if the need for strengthening safety nets arises. In analyzing the social impact of the economic crisis and the reform programs, the primary focus is on likely changes in real consumption expenditures.

The paper is structured as follows. Section II provides background information on the economic and social situation existing in Indonesia, Korea, and Thailand before the onset of the financial crisis and reform programs. Section III analyzes the impact of higher prices and reduced employment opportunities on the living standards of the poor. Section IV describes the existing social policy instruments in the three countries. Section V discusses the measures already included in Fund-supported programs that are aimed at mitigating the adverse effects of the crisis. Section VI proposes options that may be considered to strengthen these initiatives if the need to do so arises. Section VII contains concluding remarks. To reflect developments since the paper was originally prepared, an epilogue is added in Section VIII.

II. Background

Despite sharing high rates of economic growth and low unemployment rates before the crisis, there are important differences in the economies of Indonesia, Korea, and Thailand (Table 1). First, Indonesia and Thailand were still relatively poor countries with per capita GDP in 1997 of \$1,072 (\$4,796 in PPP terms) and \$2,514 (\$8,816 in PPP terms), respectively, while Korea has a per capita GDP of \$9,847 (\$13,753 in PPP terms). Second, the number of poor people is largest in Indonesia (22 million), while Korea and Thailand are estimated to have similar numbers of poor people (7 and 8 million, respectively). However, in relation to the total population, the number of poor is smallest in Indonesia, which partly reflects its relatively low poverty line (\$10 per month, against \$227.1 in Korea, and \$27.8 in Thailand).² Third, income distribution is most equal in Korea and Indonesia where the Gini coefficients are 0.34 and 0.35, respectively, while in Thailand, the Gini coefficient is 0.43. However, the distribution of financial wealth is believed to be more unequal in these countries.

Fourth, the income share of the poorest quintile is highest in Indonesia, while the income share of the richest quintile is lowest in Korea. Fifth, the poverty line, as a proportion of mean

²These are country specific poverty lines as opposed to an internationally uniform poverty line (e.g., the \$1 a day poverty line reported in World Bank, 1997). The national poverty line reflects how poverty is viewed within that country. Although national poverty lines cannot be readily compared across countries, they are more relevant for policy since they incorporate national norms and therefore have greater political and social acceptance within countries. For example, a minimum consumption for a person of US\$1 in PPP terms a day would be regarded as entirely insufficient in Korea, while it would be seen as a high minimum in Indonesia; in neither country is this line a relevant basis for policy recommendations. National poverty lines for the three countries are shown in Table 1. For *Indonesia*, the poverty line is based on caloric intake, as established by the Indonesian authorities. The U.S. dollar figure is shown in 1993 prices and is consistent with the Indonesian government published poverty head count index. For *Korea*, it is taken from Song (1997); the estimate of the Korean head count index is consistent with Whang and Lee (1997), who estimate poverty in the range of 10 to 20 percent of the population; and for *Thailand*, it is based on \$2 a day at 1985 international prices, as shown in Vinod Ahuja and others (1997).

Table 1. Pre-Crisis Basic Economic and Social Indicators¹

	Indonesia	Korea	Thailand
Population and employment			
Population (in millions)	193.0	44.9	58.0
Labor force (in millions)	89.0	21.6	33.9
Population aged 60 and above (in percent)	7.0	9.0	7.0
Employment (in millions)	85.3	21.1	33.3
Official unemployment rate ² (in percent)	5.0	2.0	1.5
Per capita income			
PPP per capita income (PPP dollars)	4,795.9	13,752.8	8,815.6
GDP per capita (U.S. dollars)	1,071.9	9,846.5	2,514.1
Poverty			
Population below the poverty line (in percent of total) ³	11.3	15.7	15.1
Number of poor (in millions)	22.5	7.0	8.8
Poverty line/mean consumption (in percent)	41.5	47.4	36.9
Poverty line per person (\$/month)	10.5	227.1	27.8
Income distribution⁴			
Income share of lowest quintile (in percent)	8.7	7.5	5.6
Income share of highest quintile (in percent)	40.7	24.3	52.7
Gini coefficient (multiplied by 100)	34.9	34.2	43.0
Social indicators			
Male life expectancy (in years)	62.0	68.0	67.0
Female life expectancy (in years)	66.0	76.0	72.0
Infant mortality (per 1,000 births)	51.0	10.0	35.0
Adult illiteracy rate (male) (Percent over 15 years of age)	10.0	1.0	4.0
Adult illiteracy rate (female) (Percent over 15 years of age)	22.0	3.0	8.0

Source: World Development Indicators, World Bank, 1997; World Economic Outlook, IMF, 1997 for data on PPP per capita income, employment and unemployment rates; and estimates from household expenditure surveys.

¹Data are for the years 1992–97.

²For Thailand, data refer to 1996 and include voluntary unemployment. At end-1997, the unemployment rate had increased to 4 percent.

³Head count index.

⁴Data on Indonesia and Thailand are from ILO statistics on poverty and income distribution, and for Korea, Song (1997).

consumption, varies from 36.9 percent in Thailand to 47.4 percent in Korea.³ Finally, social indicators for health status and education attainment suggest that in terms of social outcomes, Indonesia is less equitable than Thailand and, in particular, Korea. Life expectancy is lowest in Indonesia and highest in Korea; infant mortality and adult illiteracy rates are highest in Indonesia and lowest in Korea.

These differences in the level of income, poverty, and income distribution are also reflected in social indicators. Korea, again, stands out as a country with the best social outcomes. For example, female life expectancy in Korea (76 years) is significantly higher than in Indonesia (66 years), with Thailand in between (72 years). Also, infant mortality in Korea is 10 per thousand births, as compared with 35 in Thailand and 51 in Indonesia. The female illiteracy rate in Korea is 3 percent, compared with 8 percent in Thailand and 22 percent in Indonesia.

Poverty in both Indonesia and Thailand is concentrated in rural areas. In Indonesia it is most prevalent among agricultural workers, the self-employed, and construction workers. In 1993, these groups constituted over 70 percent of all poor. The urban poor are found among the self-employed in trade activities. In 1996, as much as 12 percent of the rural population was poor, against 10 percent of the urban population. Since the 1970s, major strides in poverty reduction have been made in the rural areas of Indonesia. There are regional pockets of poverty, especially in Java and Irian Jaya. Poverty in Thailand is concentrated among agricultural workers. Households headed by production workers, who are at the most immediate risk of unemployment, constitute 27 percent of households in the Greater Bangkok area, but only 9–14 percent in other areas.

III. The Adverse Impact of Real Income Declines and Reduced Employment Opportunities on the Poor

The economic and financial crisis in the three countries is being transmitted to households through a variety of channels—sharp exchange rate depreciation, financial sector collapse, corporate bankruptcy, changes in the rate of return on assets, and monetary and fiscal tightening.

While most households will be adversely affected by these changes, some households are likely to gain. For instance, the incomes of those engaged in the export sector and of agricultural producers who experience an improvement in the domestic terms of trade are likely to increase. Income gains in these sectors, however, will depend on a number of considerations, including their dependency on imports and their outstanding obligations in foreign currency.

Household financial positions are also likely to be affected by rising interest rates from both the income and expenditure sides. Although the rich may hold a larger stock of interest-bearing assets, their income gain could be offset by the falling values of assets held in the form of stocks and real estate. For households in the poorest income decile, interest outlays are likely to exceed their interest earnings.⁴

³Mean consumption is estimated from household expenditure surveys. For Indonesia, household expenditure data from 1993 were used, for Thailand household data from 1992 were used, and for Korea household data from 1996 were used. Results from the 1996 Indonesia household expenditure survey were not available at the time of preparation of this paper.

⁴This is true insofar as households in the bottom decile have access to credit markets. Some poor households, such as retirees, may have net interest income.

The adverse impact of the economic crisis and adjustment on household living standards of low-income households will manifest itself most importantly in real income declines arising from price increases and the loss of job opportunities (see Chu and Gupta (1998) for the underlying analytical framework). In all three countries, domestic prices are rising as large exchange rate depreciations are passed through and public tariffs and indirect taxes are increased.⁵ The economic downturn and the implementation of stabilization and structural measures are leading to layoffs, further reducing the real incomes of households.

While it is possible to analyze the adverse price, output, and employment impact of the crisis and adjustment on household consumption and poverty using a fully articulated macroeconomic model, this paper opts only to highlight the likely short-term, *first-round* impact on real household consumption expenditures.^{6, 7} However, there are many uncertainties associated with carrying out this type of analysis. It is unclear to what extent the loss in purchasing power due to inflation will be offset by nominal wage increases or reinforced by nominal wage cuts. It is also difficult to speculate on the possible role of dissaving and informal safety nets (more important in Indonesia and Thailand), and the likely safety net provided by firms (Korea), in mitigating income losses. In previous economic downturns in Korea (1980), Indonesia (1983), and Thailand (1984), significant consumption smoothing by households did moderate the mean consumption declines in these countries.⁸ What is certain is that real household consumption would decline in these countries; a quantitative estimate of its precise magnitude is beyond the scope of this paper, however.

Real income effects

Table 2 provides data on real GDP, unemployment, and inflation for Indonesia, Korea, and Thailand.

⁵In *Korea*, electricity rates have increased by an average of 6.5 percent, bus fares by as much as 22 percent, and petroleum product prices by up to 12 percent, in addition to price increases triggered by exchange rate depreciation. On January 24, 1998, prices for liquefied natural gas went up by 13.6 percent and for liquefied petroleum gas by 7.2 percent. In *Indonesia*, administered prices for petroleum products were increased on May 4, 1998 (the price of kerosene went up by 25 percent, diesel prices were increased by 39 percent, and gasoline prices by 71 percent), but the price increases were partially rolled back on May 15, 1998, to a weighted average increase of 38 percent. Bus fares in Jakarta rose by up to 66 percent in May, depending on the particular type of service. Food prices rose by 20 percent in 1997, partly because of the drought, and by a further 35 percent during the first quarter of 1998. In *Thailand*, the VAT has been increased by 3 percentage points, while food prices have increased by 7 percent since the onset of the crisis.

⁶The results are derived from fitting a parametric Lorenz curve on the household survey data, and computing how this Lorenz curve is affected by the fallout of the economic crisis under various assumptions specified below.

⁷Second-round effects, which would set in over the medium term, as the initial policy measures take hold and economic growth resumes, could eventually outweigh the first-round effects. However, there will also be adverse second-round effects (e.g., through falling school enrollment), reinforcing the initial adverse effects. The medium term could be studied with the help of Computable General Equilibrium models (see, e.g., Sahn, Dorosh, and Younger, 1996).

⁸There is also extensive evidence for Thailand to indicate that laborers and farmers use their accumulated savings to smooth their consumption in response to shocks (see Townsend, 1995, and Paxton, 1992). These findings are important, since agriculture is the principal occupation of 50 percent of household heads in Thailand.

Table 2. Real GDP, Unemployment, and Inflation in Indonesia, Korea, and Thailand
(Annual average)

	Country	1996	1997	Forecast 1998
Real GDP (percent change)	Indonesia	8.0	4.6	-15.0
	Korea	7.1	5.5	-7.0
	Thailand	5.5	-0.4	-8.0
Unemployment (percent of labor force)	Indonesia	4.9	5.4	15.0
	Korea	2.0	2.7	7.0
	Thailand	2.0	4.0	6.0
Consumer price inflation (percent change)	Indonesia	7.9	6.6	60.0
	Korea	4.9	4.4	8.5
	Thailand	5.9	5.6	9.0
Food price inflation ¹	Indonesia	9.5	8.8	76.2
	Thailand	8.9	7.0	11.1

Sources: National employment statistics, International Labor Organization, and Fund staff estimates.

¹For 1998, price increases are averages for the first eight months.

In the short run, inflation has a major impact on real household income. However, net producers of agricultural products are differently affected by price increases. Agricultural households who produce more than they consume would see an increase in their net earnings, although part of these earnings would be offset by higher input costs. This group—under the assumption that households owning more than 1.6 hectares of land are net producers—exceeds 25 percent of the population in Thailand. It is assumed that in Indonesia net agricultural producers constitute a similar proportion of households. As net producers of agricultural products are concentrated at the lower end of the income distribution, the likely increase in their earnings will cushion the impact of price increases on poverty.

In light of household responses during previous episodes of economic downturn, the effect of general price increases is likely to be offset, to varying degrees, by the combined effect of nominal wage adjustments, increases in other types of income (e.g., profits of the export sector),⁹ dissavings, informal¹⁰ and enterprise-provided safety nets, and substitution in consumption. In addition, not all population groups are equally affected by price increases. In Indonesia and Thailand, for example, there have been significant increases in the prices of food items. In all three countries, energy and transportation price increases have been large. The price increases of specific commodities mainly reflect the pass-through of exchange rate changes on tradable

⁹In particular in Indonesia export profits have remained depressed during the crisis.

¹⁰In Indonesia, the recent drought has considerably weakened the urban-rural ties.

commodities (such as selected food items and fuel). These price increases have a differentiated impact on households, depending on the shares of food and other critical items in a household's consumption basket.

The impact of the decline in real GDP on poverty will also depend on its effect on real household income. The poverty impact of a cut in mean real consumption in the three countries can be estimated using the elasticity of the proportion of the population below the poverty line with respect to real mean consumption expenditures. Ahuja and others (1997) estimated the elasticity of the head count index with respect to mean consumption expenditures in Thailand for the period 1985–1995 at -1.86 . This would imply that if mean consumption expenditures fall by the same rate as real GDP for 1998, a rough estimate of the increase in poverty attributable to the fall in real incomes would be 1.3 million people (2 percent of the population) in Thailand. The available expenditure survey for 1993 reveals that in Indonesia about 30 percent of the population is clustered just above the poverty line, indicating that the change in poverty would be very sensitive to declines in mean consumption. This is borne out by estimates of the elasticity of the head count index with respect to mean per capita income. These estimates range between -2.7 and -2.8 (Huppi and Ravallion, 1991, and UNDP, 1996). Thus, again assuming that mean real consumption falls by the same rate as real GDP, the number of poor in Indonesia could increase by 9.2 million people (5 percent of the population). Also, it is worth noting that since the national poverty line is relatively low in Indonesia (almost one-third of Thailand's), further declines in consumption would have a very severe effect on Indonesia's poor.

Price increases for food items would have a significant impact on the consumption of the poor in Indonesia and Thailand who are not net producers of agricultural commodities. In Indonesia, the significant impact of food price increases would stem from the high share of food in total expenditure of a low-income household (71 percent); this share is even larger in rural areas (74 percent). In Thailand, the share of food in the consumption basket of the lowest income decile is 55 percent, compared with 21 percent for the highest. Since there is little differentiation between the shares of energy and transportation items in the lowest and highest deciles, there is likely to be a less significant impact of specific price increases on the poor in Korea.

Employment effects

The size and composition of job losses are difficult to predict at this stage. However, estimates by governments, national research institutes, and the ILO suggest that the reduction in employment may be large. In 1998, the percent of the labor force that is unemployed in *Indonesia* is expected to increase from a pre-crisis rate in 1996 of 4.9 percent to 15 percent; in *Korea*, from 2 percent to 7 percent for the same period; and in *Thailand*, from 2 percent to 6 percent, again for the same period (Table 2). In *Korea*, the unemployment rate rose to 6.5 percent in March 1998, compared with 5.9 percent in February 1998, and 3.4 percent in March 1997. In January 1998 alone, 3,323 corporations were declared insolvent in Korea (107 companies a day), most of them small and medium-sized enterprises. In *Thailand*, 15,600 workers were made redundant with the closure of 56 finance companies. In addition, almost all of the 15 car assembly firms have canceled shifts and shut down production lines in response to a 20 percent drop in domestic sales, threatening the jobs of 30,000 workers.

Critical for evaluating this impact are the following questions: who will become unemployed and how does higher unemployment reduce mean household consumption? It is likely that job losses in the formal sector would push skilled workers to jobs in agriculture and in the informal

sector in two countries (Indonesia and Thailand) and affect the working middle class in the third country (Korea). The implication of these simplifying assumptions is that households in the upper and bottom quintiles will not be affected by job losses as much as other income groups.¹¹ The loss of employment by the head of household could cause the entire household to slide down the relative income scale. This makes households just above the poverty line the most vulnerable to declining job opportunities. Household size varies from an average of 3.7 people in Korea to an average of 4.5 people in Indonesia. In Indonesia, increases in unemployment of the magnitude projected (9 million workers) would represent as much as 21 percent of all households if one person per household would become unemployed. Along similar lines, the projected 1.2 million additional unemployed in Korea and 1.4 million in Thailand represents as much as 10 percent and 9 percent of all households, respectively.

The increase in unemployment would reduce average real household consumption in the three countries, depending on the extent of the decline in household income positions. For instance, in Indonesia, average household consumption would decline by around 30 percent if all households in the middle three consumption classes in the national household expenditure surveys slid down by one consumption class.¹² The impact in Korea and Thailand would be expected to be half as much under similar assumptions. In Indonesia, the situation could be made much worse if new labor market entrants, numbering about 2.5 million annually, do not find jobs. However, in Thailand, the adverse employment effect would be reduced if some foreign workers were to return to their home countries. The increase in the number of poor in relation to the population as a result of rising unemployment would be highest in Thailand and lowest in Korea. The relatively small effect in Korea is traceable to the large difference between the average workers' consumption and the poverty line.¹³

In reality, the impact of the reduction in mean consumption on poverty could be magnified if prices of goods that constitute a relatively large share of the poor's consumption baskets rise by more than the average. For example, a rise in food prices disproportionately affects the poor, as discussed in the cases of Indonesia and, to a lesser extent, Thailand.

IV. Pre-Crisis Social Policy Instruments

Among the three countries, Korea has the largest array of social policy instruments. Formal sector workers in Indonesia, Korea, and Thailand are eligible for various social benefits that have limited coverage. Benefits include: (1) old-age, disability, and survivor pensions, (2) sickness and

¹¹Thorbecke (1998) concludes for Indonesia that in the first round the greatest effect of the economic downturn would be felt by relatively well-off urban households, especially those in the banking, construction, and trade and services sectors.

¹²For Indonesia, the household expenditure survey reports 17 consumption classes; for analyzing the employment effects households were aggregated into 10 classes. The expenditure survey for Korea identifies 11 consumption classes, and that for Thailand 10 classes.

¹³The impact of economic contraction on poverty depends on the sectors of the economy that are affected the most. Thorbecke and Jung (1996) analyze the impact of changes in sectoral output on household incomes. They find that in Indonesia a reduction in output of the agricultural and service sectors would have a larger impact on poverty than a similar reduction in industrial output. This is attributable to relatively large employment of unskilled poor in the agricultural and service sectors.

maternity benefits, and (3) work injury benefits (see appendix). In Indonesia, old-age, disability, and survivor benefits are provided through a Provident Fund system, which pays only lump sum benefits; coverage is limited to firms with more than ten employees. In contrast, in Korea these benefits are provided through a social insurance system with coverage of firms with over ten employees (over five employees starting on June 1, 1998). In Thailand, currently only 10 percent of the labor force is covered by the pension system (Heller, 1997).

Indonesia and Thailand do not have unemployment insurance systems, while Korea introduced one in the early 1990s (see below). In addition, Korea has public assistance programs (livelihood protection, medical aid, veteran relief, disaster relief)—including means-tested subsidies for health care insurance—and social welfare service programs (for the disabled, elderly, children, vulnerable women, and the mentally handicapped). Various village-based social assistance programs also exist in Indonesia. These programs are targeted to the poor and a variety of disadvantaged groups. In Korea, eligibility criteria vary from program to program. Some of the criteria used in different programs are income, assets, age, marital status, and physical condition. In Indonesia, programs cover entire villages that are deemed poor. The job-for-life tradition in Korea has meant that the firm, in addition to the state, has provided a significant part of the social safety net.

The urban population in the three countries is likely to be the hardest hit initially by the rise in unemployment. With the emerging pressures to restructure the corporate sector in Korea, it is unlikely that enterprises will be in a position to provide the same level of social protection as in the past. This implies that the government may be required to assume greater responsibility in protecting the affected population groups and supporting the reform process.

V. Social Measures Included in the Reform Programs

The Fund-supported programs in Indonesia, Korea, and Thailand include measures to shelter the poor from the adverse effects of the economic crisis and the ongoing macroeconomic adjustment. These measures comprise both new initiatives as well as the adaptation of existing social policy instruments to help the existing and new poor. The challenge has been to establish cost-effective and fiscally sustainable safety nets that do not create large labor market disincentives. Some of these measures are temporary and would be eliminated when the situation improves.¹⁴

While alleviating some of the hardship associated with the loss of a job, unemployment benefits change labor market incentives by increasing the reservation wage and by reducing the incentives for recipients to search for a new job. The recent experience in Europe of rising unemployment points to the adverse effects of unemployment benefits if they are too generous and available for a long period of time. In particular, the service sector offers a sizable potential for job creation in Indonesia, Korea, and Thailand. Overly generous social safety net benefits may delay new investments in this sector.

The experience of Mexico in dealing with the crisis in 1994 and 1995 illustrates the importance of labor market flexibility in mitigating adverse effects (Box 1). As in Mexico, it is

¹⁴For a general review of issues in and recent experiences with the design and implementation of social safety nets, see Chu and Gupta (1998).

likely that urban informal activities will absorb some of the unemployed in Indonesia and Thailand. Furthermore, some of the affected urban population may migrate to rural areas with the drying up of urban employment opportunities. These possibilities would reduce the demand for assistance through formal safety nets.

The Fund-supported programs include the following key measures. Options for further strengthening of policies are discussed in the next section.

In Indonesia:

- The government has instituted an across-the-board subsidy on items such as rice, corn, sugar, soybean, wheat flour, soybean meal, and fish meal distributed through the state food import monopoly BULOG at the cost of 0.5 percent of GDP in 1998/99.¹⁵ The subsidy for rice has been expanded to include rice distributed by private traders. In addition, the government is maintaining subsidies for petroleum products and electricity at over 1 percent of GDP. The subsidization of fuel and energy is designed to favor products disproportionately consumed by the poor (kerosene and diesel)¹⁶ and the first 100 kwh to 250 kwh of electricity use. The subsidy on petroleum products will gradually be phased out.
- The government has initiated community-based public works targeted to both the poor and the new poor. These programs are to a large extent financed by the World Bank, Asian Development Bank, and bilateral foreign assistance.
- The distinctly pro-poor bias of primary/secondary school public spending is being maintained. The program calls for ensuring 9 years of education for all children. Provision is also being made for scholarships for needy students.
- The government is instituting programs to finance essential drugs for rural and urban health centers, and provides subsidies for low-cost housing.
- The government is expanding its rural credit schemes to reach 6 million families, and is providing subsidized credit for small and medium-sized enterprises and rural cooperatives with the help of multilateral and bilateral financial assistance.
- To facilitate the flow of goods across regions, with a view to eliminating local shortages and improving selling prices for poor farmers, the government has eliminated a number of restrictions and taxes on interprovincial and intraprovincial trade.

¹⁵Including the interest rate subsidies to BULOG, the cost of the food subsidy amounts to 0.7 percent of GDP.

¹⁶Taking into account the roll-back, there was no increase in the price of kerosene in May 1998.

Box 1. Mexico: The 1994 Economic Crisis and Labor Market Flexibility

A series of adverse shocks, compounded by inadequate policy responses, led to the collapse of the Mexican peso in December 1994 and the subsequent financial crisis in 1995. To put the economy back on track, the authorities relied on four types of policies: sound macroeconomic adjustment, flexible labor markets, structural reforms, and social policy initiatives, and (sizable) financial assistance from international organizations, including the IMF and bilateral creditors. The adjustment efforts were helped by favorable external developments, such as high crude oil prices. Still, Mexico experienced a contraction of real GDP of around 6 percent in 1995, an increase in open unemployment from 3.2 percent in December 1994 to 7.6 percent in August 1995, and a decline in real wages of about 20 percent. The crisis, however, was swiftly contained and Mexico's economic recovery was rapid: the currency was stabilized; the inflation rate fell to under 16 percent by end-1997; interest rates declined; and the external current account deficit was slashed from 7 percent of GDP in 1994 to less than 1 percent of GDP in 1995. GDP grew by 7 percent in 1997, and open unemployment was reduced to 2.8 percent in December 1997.

There were five characteristics of the Mexican economy that allowed labor markets to adjust. First, the lack of comprehensive unemployment insurance limited open unemployment. Second, the urban informal sector was a buffer that absorbed excess labor supply when activity slowed down. Third, wage flexibility was high, which allowed production costs to adjust, and thereby reduced the necessity to dismiss workers. Fourth, emigration remained an outlet for a significant portion of the population. Finally, part of the rural population that moved to urban areas when the economy expanded moved back to rural areas when job opportunities dried up.

In Korea:

- During 1998, unemployment insurance coverage will be extended in steps to all workers in firms with more than five employees; the minimum benefit level will be raised to 70 percent of the minimum wage (from 50 percent); the minimum duration of benefits will be increased to two months; and the eligibility for benefits will be temporarily extended by reducing the minimum period of required contributions from one year to six months.¹⁷ In addition, the Korean government has decided to provide training for a total of 250,000 persons in 1998, at a budgetary cost of W 415 billion (0.1 percent of GDP). Separately, subsidies are available for training provided within firms.
- Allocation for social welfare assistance, including support to persons without incomes, will increase by at least 13 percent in 1998. In this context, the World Bank is advising the authorities on improving this and other social programs.
- In addition, the government is raising an amount of W 2.6 trillion (0.6 percent of GDP) outside the budget through bond issues by the nongovernment Employee Welfare Fund, which will help to expand special loan programs for the unemployed.

¹⁷Until end-1997, the unemployment insurance scheme had limited the benefits to companies with more than thirty employees and to a duration of between one and seven months.

In Thailand:

- The government has initiated temporary labor-intensive civil works programs, including in the areas of construction and infrastructure rehabilitation. These and other poverty alleviation measures are financed through a World Bank loan amounting to B 15 billion over a three-year period.
- A Social Investment Fund to provide support for community and NGO activities (including community development programs and small credit schemes) and an Urban Development Loan Fund that will support labor-intensive investments by municipalities have been established.
- Social security contributions will be paid for unemployed workers for at least six months after they are laid off.
- Social spending is being strengthened by expanding scholarship and loan programs to minimize student dropouts, protecting operational budgets for teacher training and instructional materials, and reallocating resources toward health programs for the poor; by decentralizing responsibilities to universities and vocational schools, with increased powers to provinces and municipalities, through protection of allocations for the Public Assistance Scheme and the Voluntary Health Card System; and by redeploying health staff to rural areas. These programs are to be supported by an AsDB Social Sector loan amounting to B 15–25 billion over three years.
- A subsidy for urban bus and rail fares will be maintained to protect urban low-income workers.

VI. Further Options

The various social safety net initiatives contained in the Fund-supported programs for the three countries should help in mitigating the adverse social impact of the economic crisis. The social impact may even turn out to be larger than currently projected. This could reflect uncertainties with regard to the extent of economic downturn as well as its impact on the living standard of the poor. Thus, it would be worthwhile to assess possible alternatives for a strengthening of the social safety nets. However, the need for government-provided social safety nets would be lessened to the extent that workers are prepared to accept wage cuts to unemployment. As noted above, in implementing and designing social safety nets, work disincentive effects have to be avoided to the extent possible, and these arrangements should have a clear time horizon for their elimination. The following options could be considered.

In Indonesia:

- A continuous provision of subsidies for food and other items is likely to be fiscally unsustainable and result in distortions in consumption and production. Richer households consume significantly more of most of these items than low-income

households, implying that the former will receive a larger subsidy in absolute terms. Household expenditure data show that richer households consume 10 times more imported sugar than lower-income households and 52 times more wheat flour. In view of this, subsidies should be confined to goods with “inferior-good” characteristics, that is, those which have negative or low income elasticities (e.g., brown sugar, coarser varieties of rice, and generic medicines). The advantage of such a scheme is that it would shield the most vulnerable while containing budgetary costs. In addition, it would be critical for the authorities to maintain an effective system of food distribution, either on its own or with the assistance of the private sector, including NGOs.

- Further expand the community-based public works programs. Such programs are self-targeted. However, care needs to be taken to ensure that wages in these programs are close to the prevailing wage for the unskilled workers. This would ensure that wage costs are not excessive so as to render the program ineffective.^{18, 19}

In Korea:

- Unemployment benefits could be extended to individuals in enterprises with less than five workers.²⁰ Over 5 million workers (about 40 percent of private employment) are employed in these enterprises and thus remain outside the coverage of the unemployment benefit scheme.^{21, 22}
- Although eligibility for workers in smaller enterprises has been expanded by requiring only six months of contributions, these workers, because they have entered the system just recently, will receive benefits for only two months if they become unemployed in 1998. This may prove insufficient as a safety net and provision may need to be made for increased claims on social assistance programs.
- To cater to those whose unemployment benefits are being exhausted or those who are not covered, the social programs may need to be expanded. Alternatively, the

¹⁸A study of 26 public-works programs in Subbarao and others (1997) finds that wage cost constituted 20 percent to 60 percent of the total cost of the programs (between 40 percent and 60 percent for Asian countries), with an average share of wage cost of 45 percent.

¹⁹Introducing an unemployment insurance scheme in Indonesia or Thailand as part of the social safety net does not appear to be a viable option because of the time it will take to design and implement such a scheme and because of the large share of the informal sector in the economy. Over the medium and long term, such an extension of the social policy instruments will need to be explored.

²⁰The expansion of coverage to workers in smaller enterprises (more than 10 but fewer than 30 workers) effective January 1998 will start to yield benefits to these workers only if they become unemployed after July 1, 1998. Furthermore, benefits to workers in enterprises with between 5 and 10 employees will become payable after January 1, 1999.

²¹Recent data indicate that of the 3,323 firms that were declared insolvent in January 1998 most were small and medium-sized. This would suggest that a significant number of the newly unemployed may come from these enterprises.

²²Further, self-employed are not covered.

government could consider public works programs. In Chile, at their peak, public works programs provided temporary benefits to 11 percent of the labor force and cost 1.4 percent of GDP.

- Over the medium and long term, the government will need to overhaul the existing social policy instruments and adapt them to the changing labor market situation of a permanently higher unemployment rate.

In Thailand:

- Further expansion of public works programs should be the principal vehicle for strengthening the social safety net.

VII. Conclusions

The Fund-supported programs in Indonesia, Korea, and Thailand include measures to shelter the poor from the adverse effects of the economic crisis and the adjustment measures. New initiatives have been taken and existing social policy instruments have been adapted. The challenge has been to establish cost-effective and fiscally sustainable safety nets that do not create large labor market disincentives.

The social impact, however, may turn out to be larger than currently projected, reflecting uncertainties with regard to the economic downturn as well as its effect on the living standard of the poor. It is thus worthwhile to assess a number of cost-effective alternatives for expanding social safety nets presented above.

VIII. Epilogue

As the social impact of the economic and financial crisis in Indonesia, Korea, and Thailand was better understood, Fund-supported reform programs increasingly accommodated larger budgetary outlays for social safety nets and other social expenditures. Indonesia raised spending for social safety nets to 5.2 percent of GDP in 1998/99; Korea to 2 percent of GDP for 1999; and Thailand to 3.6 percent for 1998/99. The principal elements of the strengthened safety nets in the three countries are:

Indonesia

- Subsidies have been made more targeted. For instance, food subsidies, except for inferior quality rice, have been eliminated. The subsidized rice ration was doubled in December 1998, providing 20 kilos per month per family to some 7 million poor households.
- Community-based labor intensive public works programs have been strengthened in order to provide employment opportunities in rural and depressed areas. These programs have been targeted to benefit 3 million people.

- The government launched a “stay-in-school” campaign, which consists of block grants to schools, targeted at some 80,000 primary and secondary schools, and scholarships to poor children, especially targeted to some 2.6 million secondary students. Simultaneously, the government abolished entrance fees at public schools.

Korea

- Since April 1999, unemployment insurance was extended to firms with less than 5 employees and to temporary and part-time workers. It is now estimated that over 70 percent of the labor force is covered by the unemployment insurance scheme.
- To promote employment, the government increased budget allocations to public works and social infrastructure projects by: (1) providing short-term employment programs especially targeted to the highly educated and high school graduates; and (2) expanding start-up subsidies for small businesses, and increasing allocations for housing construction and public investment by state corporations. 481,000 people are expected to benefit from these programs.
- The government more than doubled budget allocations for the means-tested social welfare programs. Public assistance programs will be extended to 760,000 beneficiaries, school tuition support for middle and high school students increased and school lunch programs expanded.

Thailand

- Public works programs have been strengthened and are expected to generate employment opportunities for 200,000 Thais per year for two years. In addition, budgetary allocations have also been made for increasing employment in rural areas and municipalities, as well as for training and job-placement assistance programs.
- Severance payments have been increased from 6 to 10 months for employees with more than six years of service, and coverage extended to workers of bankrupt firms. Social security benefits for laid-off workers have also been extended from 6 to 12 months.

Appendix. Existing Social Policy Instruments

Component of the System	Korea	Indonesia	Thailand
A. Old age, disability, survivor benefits	<p>Coverage: Social insurance system covering employed in firms with 5 or more workers; agricultural workers aged 18–59; voluntary coverage for those employed in firms with fewer than 5 workers and self-employed. Separate systems for public employees, the military, and private school teachers.</p> <p>Funding: 6 percent of payroll paid by employers and 3 percent of wage earnings paid by employees. Voluntarily insured persons contribute 9 percent of wage earnings. The government pays partial cost of administration and programs for insured farmers and fishermen.</p> <p>Eligibility: Old-age pensions: 60 years of age, insured 20 years or more. Disability: insured at least 1 year, no longer working and disability occurred during the insured period. Survivor benefits: spouse or child or parent of insured or pensioner.</p> <p>Benefits: Old-age: Nontaxable. Adjusted for price changes. 2.4 times the sum of average of monthly earnings of all insured in the preceding year and the average monthly earnings of the retiree over the entire contribution period. For each insured year in excess of 20, monthly pension increases by 5 percent. Total disability: the same as old-age; partial disability benefits reduced up to 40 percent. Survivor pension: 60 percent of insured's pension for 20 or more contributing years, 50 percent for 10–19 contributing years, 40 percent for 9 or fewer contributing years. Maximum lump-sum death benefit 4 times the insured's persons monthly earnings. Lump-sum benefit option for all insured.</p>	<p>Coverage: Provident fund system paying lump-sum benefits only, covering firms with 10 or more employees or a payroll above Rp 1 million per month. Coverage is being extended gradually to smaller firms and seasonal workers. Special systems for nonmilitary public employees and the military.</p> <p>Funding: Employers pay 3.7 percent of payroll, plus 0.3 percent of payroll for death benefit. Insured persons pay 2 percent of earnings. Government provides no additional funding.</p> <p>Eligibility: Old-age pensions: 55 years of age, 66 months more of contributions. Disability benefit: total incapacity for work and age under 55. Survivor benefits: deceased was insured and under age 55 at the time of death.</p> <p>Benefits: Old-age, disability and survivor benefits: Lump sum equal to total employee and employer contributions paid in, plus accrued interest. Death benefit equal to Rp 1.2 million plus amount accumulated in the provident fund, payable if death occurs before age 55.</p>	<p>Coverage: Limited social insurance system covering firms with 10 or more employees. From September 2, 1998, voluntary coverage for self-employed will become available. Separate systems for civil servants and private school teachers.</p> <p>Funding: Employer pays 1.5 percent of payroll and insured person pays 1.5 percent of wages. Government provides annual grant equal to 1.5 percent of covered wages; wage range for contribution purpose B 1,650–15,000.</p> <p>Eligibility: New system. To be payable starting in 1998.</p> <p>Benefits: Disability: same as sickness benefits. A person must have received the sickness benefit for one year. Permanent disability: 50 percent of prior wage for life. Survivor benefits/funeral grant: 100 times the minimum daily wage.</p>

B. Sickness and maternity	<p>The system covers all permanent residents, except government and private school employees and those under Medical Aid program. Separate systems for public employees and private school teachers. Funding: employer pays 1–4 percent (average 1.52 percent) of standard monthly wage; employees pay also 1–4 percent (average 1.52 percent) of standard monthly wage. Self-employed contribute based on income and assets. Government pays a part of the benefits and all administrative costs.</p>	<p>Social insurance system (medical benefits). Coverage being gradually extended to various industries. Employees with more comprehensive benefits exempt from coverage. Employer pays 6 percent of payroll for married employees and 3 percent for single employees. Insured persons and government bear no cost. Eligibility is determined by the current coverage with medical benefits. Medical benefits for employees and dependents last 2 months in case of hospitalization and more in special cases.</p>	<p>Limited insurance system with coverage and funding as for old-age pensions. Sickness benefit eligibility: 90 days of contribution in 15 months before date of treatment.</p>
C. Work-related injury	<p>Mandatory public insurance, covering all industrial firms with 5 or more employees. Separate system for public employees. Employer pays 0.6 percent to 29 percent of the payroll, depending on the “industry risk.” Average contribution is 1.68 percent. Employees pay no contribution. Government pays the cost of administration. Temporary disability benefits pay 70 percent of average earnings, payable after 3-day waiting period for up to 24 months. Annual adjustment for wage changes. For total disability, annual pension between 138 and 329 days average earnings or lump sum (55–1,474 days’ earnings) according to degree of disability.</p>	<p>Social insurance system covering firms with 10 or more employees. Voluntary coverage available. Special system for public employees. Employer bears the whole cost, 0.24 to 1.74 percent of the payroll according to “industry risk.” Maximum earnings for benefit purpose is Rp 1,000 per day. Temporary disability benefit pays 100 percent of earnings for first 4 months, 75 percent for second 4 months and 50 percent of earnings thereafter. Permanent disability benefit varies with the degree of disability with maximum 70 percent of previous monthly earnings times 60.</p>	<p>Compulsory public insurance covering firms with 10 or more employees, but excluding workers in agriculture, fishing, and a number of other sectors. Funding: employer pays 0.2–2 percent of payroll according to “industry risk.” Temporary disability: 60 percent of wages, payable up to 52 weeks.</p>
D. Unemployment insurance	<p>Coverage and eligibility. Until end-1991, it covered employees under the age 60 in firms with more than 30 workers. The coverage was extended in January 1998 to firms with at least 10 workers. To qualify, employees must be employed for at least 12 months during 18 months before involuntary unemployment occurred. Waiting period, before benefits may be received, is two weeks. Duration varies from 1 to 7 months, depending on the worker’s age and the length of time insured. Benefit, financed by 0.6 percent payroll tax shared between</p>	<p>No formal unemployment insurance exists.</p>	<p>No formal unemployment insurance exists.</p>

Appendix (concluded)

Component of the System	Korea	Indonesia	Thailand
	workers and employers, is equal to 50 percent of the average worker's daily salary during the preceding 12 months.		
E. Social assistance	<p>Korea's social assistance system consists of two components: (i) public assistance (livelihood protection, medical aid, veteran relief, disaster relief); and (ii) social welfare services (for the disabled, elderly, children, women and the mentally handicapped). <i>Public assistance</i> provides services and financial assistance to needy people with low incomes. Disaster relief program provides a variety of subsidies to disaster victims. Veteran relief program provides assistance to those injured in wars and survivors. The main livelihood aid protection program targets persons who cannot earn a living because of the inability to work as a result of physical disability, disease, old age, and other reasons. Three types of assistance: home care (for families with members unable to work due to disabilities, aged over 65, children under 18, pregnant women, and women over 50), institutional care (for people under various welfare institutions, such as foster homes), and self-support care (for people who are capable of work but with very low incomes). <i>Eligibility criteria</i> for all three types of assistance are per person income (W 200,000 per month or less for the first two programs and W 210,000 per month or less for self-support recipient, in 1996) and property value of the household. In addition, Korea has the following <i>social welfare services</i> programs focused on maintaining <i>family welfare</i> of the disadvantaged groups: (i) programs for elderly; (ii) child welfare programs;</p>	<p>Since 1993, the Indonesian government has launched special policies and programs for the poor. Currently, the main initiatives are the <i>Inpres Desa Tertinggal (IDT)</i> program (financial assistance by virtue of presidential instructions to less developed villages), with the complementary Prosperous Family Saving (<i>Takesra</i>) initiative and the Prosperous Family Credit (<i>Kukesra</i>) initiative. The philosophy of social assistance is that poor families should be provided with basic technology, facilities for saving and capital formation, and moderate government financial support, in order to make family units the basis for microenterprise development. The <i>IDT</i> program, which was implemented in April 1994, has 3 basic components: an annual government grant of Rp 20 million that is given to each less developed village for three consecutive years; the provision of facilitators to help village self-help groups to develop microenterprises; and the building of rural physical infrastructure in the amount of Rp 100-130 million per village during 1994-2004. <i>Takesra</i> and <i>Kukesra</i> educate poor families on the importance of savings, help to build up collateral for loans, implement village-level savings and loan cooperatives, and provide training for microenterprise skills. These programs are supported both by government funds and by the "Jimbaran group" of Indonesian industrialists. The initial capital for these initiatives was Rp 23 billion, and it was planned to benefit</p>	No programs.

(iii) child education programs delivered via “educate centers” (essentially nursing and preschool education programs); and (iv) women welfare programs.

11.5 million poor families in non-IDT villages.

Sources: United States, Social Security Administration (1997), OECD (1996), Ministry of Health and Welfare of the Republic of Korea (1996), and Tjiptoherijanto (1997).

Notes: The first Social Security Law in Thailand was passed in 1990, and revised in 1994. This law establishes unemployment insurance, but implementation is pending Royal Decree. The first law on old-age pensions in Indonesia was passed in 1951 (provident fund), and the current law dates back from 1977. Sickness and maternity benefits laws date back from 1957 and 1939, respectively, and current laws are from 1992. The first law in Korea was passed in 1973, and amended recently in 1995.

References

- Ahuja, Vinod, and others, 1997, *Everyone's Miracle? Revisiting Poverty and Inequality in East Asia* (Washington: World Bank).
- Chu, Ke-young, and Sanjeev Gupta, eds., 1998, *Social Safety Nets: Issues and Recent Experiences* (Washington: International Monetary Fund).
- Heller, Peter S., 1997, "Aging in the Asian 'Tigers'—Challenges for Fiscal Policy," IMF Working Paper 97/143 (Washington: International Monetary Fund).
- Huppi, Monika, and Martin Ravallion, 1991, "Sectoral Structure of Poverty During an Adjustment Period: Evidence for Indonesia in the Mid-1980s," *World Development*, Vol. 19, pp. 1653–78.
- Indonesia, 1993, *National Socio Economic Survey (SUSENAS)* (Jakarta).
- , 1984, *National Socio Economic Survey (SUSENAS)* (Jakarta).
- Korea, Republic of, National Bureau of Statistics, Economic Planning Board, 1996, *Annual Report on the Family Income and Expenditure Survey* (Seoul).
- Ministry of Health and Welfare of the Republic of Korea, 1996, *Major Programs on Health and Welfare* (Seoul).
- National Statistical Office, 1992, *Report of the 1992 Household Socio-Economic Survey* (Bangkok).
- OECD, 1996, *Economic Surveys: Korea, 1995–96* (Paris).
- Paxton, Christina, 1992, "Using Weather Variability to Estimate the Response of Savings to Transitory Income in Thailand," *American Economic Review*, Vol. 82, No. 1, pp. 15–33.
- Sahn, D.E., P. Dorosh, and S. Younger, 1996, "Exchange Rate, Fiscal and Agricultural Policies in Africa: Does Adjustment Hurt the Poor?" *World Development*, Vol. 24 (April), pp. 719–47.
- Song, Byung-Nak, 1997, *The Rise of the Korean Economy* (Hong Kong: Oxford University Press).
- Subbarao, K., and others, 1997, *Safety Net Programs and Poverty Reduction: Lessons from Cross-Country Experience* (Washington: World Bank).
- Thorbecke, Erik, and Hong-San Jung, 1996, "A Multiplier Decomposition Method to Analyze Poverty Alleviation," *Journal of Development Economics*, Vol. 48, No. 2, pp. 279–300.
- Thorbecke, Willem, 1998, *The Indonesian Economic Crisis: Social Costs and Policy Implications*, mimeographed (Fairfax, VA).
- Tjiptoherijanto, Prijono, 1997, "Poverty and Inequality in Indonesia at the End of the 20th Century," *Indonesian Quarterly*, Vol. 25, No. 3 (Third Quarter), pp. 251–275.
- Townsend, Robert, 1995, "Financial Systems in Northern Thai Villages," *Quarterly Journal of Economics*, November, pp. 1011–1046.
- United Nations Development Programme, 1996, *Human Development Report* (New York: Oxford University Press).
- United States, Social Security Administration, 1997, *Social Security Programs Throughout the World—1997* (Washington).
- Wang, Seong-Hyeon, and Joung-Woo Lee, 1997, *The Problems of Income Distribution and Related Policy Issues in Korea*, mimeographed (Seoul).
- World Bank, 1997, *World Development Indicators* (Washington: World Bank).

Sequencing Capital Account Liberalizations and Financial Sector Reform¹

R. Barry Johnston

Abstract

Additional urgency should be attached to financial sector reform when a country begins to liberalize its capital account. The adoption of prudential regulations based on generally accepted best practices will normally not entail restrictions on capital flows and will support the move toward capital account convertibility. Monetary and exchange rate policy will be constrained by increased capital flows, and monetary instruments should be evolved toward more market-based arrangements. Discriminatory reserve requirements can introduce a wedge between domestic and foreign interest rates. The sequencing of liberalizations should reflect the more general objectives of improving efficiency and promoting financial and macroeconomic stability.

JEL Classification Numbers: E52, F31, F36, G28

Author's E-Mail Address: BJohnston@imf.org

I. Introduction

This paper addresses some of the questions that are of concern in designing a program of capital account liberalization. It focuses mainly on liberalizations that are relevant from a macroeconomic and balance of payments perspective (i.e., it does not deal with industrial or sectoral issues), and primarily on the financial institutional and regulatory considerations in the liberalization of the capital account, rather than on whether a country's macroeconomic or

¹This paper is based on two lectures presented at the Seminar on Capital Account Convertibility, Singapore Training Institute, May 6, 1998, "Sequencing Capital Account Liberalization" and "Controls on Capital Movements: Prudential Measures, Short-Term Capital Flows and Effectiveness of Controls." I am grateful to colleagues who contributed directly or indirectly to the material in these lectures, especially Bernard Laurens, John Leimone, Inci Otker, Fabio Scacciavillani, and Mark Swinburne. Comments by William Alexander, Susana Sosa, Delisle Worrell, Judit Vadasz, and members of the Working Group on Fund Policy Advice are also acknowledged.

balance of payments position would support a liberalization. The paper is organized as follows: the remainder of this introductory section provides background on capital account liberalization; Section II discusses prudential regulation and capital account liberalization; Section III examines the design of monetary and exchange policy and monetary instruments; Section IV discusses the sequencing of liberalizations; and Section V concludes.

Benefits and risks of liberalization: Capital account liberalization is often an attractive option for many developing countries. First, there is much evidence that controls on capital outflows have not protected developing country's balance of payments from capital outflows, and therefore, there is little to be lost by a program of liberalization.² Second, eliminating controls on capital inflows (and outflows) has generally, at least initially, resulted in stronger capital inflows as international investors (and local residents with capital abroad) react to the improved investment environment.³ Such inflows can help support the balance of payments, smooth temporary shocks to income and consumption, reduce costs of borrowing, and therefore, support more rapid economic growth.⁴ The major risk is that the capital inflows will not be used efficiently, which will inevitably bring into question the sustainability of the capital inflows, and the country's capacity to service its corresponding external debt liabilities. Reversals of capital inflows can result in balance of payments difficulties, and currency and banking crises.

Understanding the nature of capital controls: Capital account liberalization is not an all-or-nothing affair; rather there are many financial instruments and underlying transactions involved in the opening up of the capital account, and therefore, many possibilities for the ordering of liberalizations in light of domestic financial structures and economic objectives. Capital flows can, for example, be intermediated by the international capital markets (when local nonfinancial agents are permitted to borrow or place funds abroad); by the local capital markets (when nonresidents are permitted access to local financial markets and intermediaries); or a combination of both (when local financial intermediaries borrow or place funds abroad). Capital controls can also be in various forms, including outright prohibitions, licensing and approval procedures, and transaction taxes resulting in different consequences for capital flows. Table 1 illustrates the potential coverage of the regulatory framework for capital movements, and the types of transactions that may fall under a program of capital account liberalization.

Individual components of the capital account can be liberalized selectively. Indeed, in view of the underdeveloped nature of most developing countries' financial systems, and the extent to which such financial markets are segmented and incomplete, selective liberalizations are likely to be more appropriate as part of more general programs of financial sector reforms (see, however,

²On the effectiveness of controls on capital outflows in protecting developing countries' balance of payments, see, for example, Johnston and Ryan (1994).

³The strength of such inflows, of course, will reflect a number of factors including the market's perception of the soundness of macroeconomic policies and the profitability of investment opportunities.

⁴Capital inflows in the form of foreign direct investment can also support growth through transfers of technology and management skills, while portfolio capital flows can help to diversify and deepen financial markets.

Table 1. Types of Capital Transactions Possibly Subject to Controls

Inflows	Outflows
Capital and Money Markets	
<i>Shares or other securities of a participating nature</i>	
Purchase locally by nonresidents	Sale or issue locally by nonresidents
Sale or issue abroad by residents	Purchase abroad by residents
<i>Bonds or other debt securities</i>	
Purchase locally by nonresidents	Sale or issue locally by nonresidents
Sale or issue abroad by residents	Purchase abroad by residents
<i>Money market instruments</i>	
Purchase locally by nonresidents	Sale or issue locally by nonresidents
Sale or issue abroad by residents	Purchase abroad by residents
<i>Collective investment securities</i>	
Purchase locally by nonresidents	Sale or issue locally by nonresidents
Sale or issue abroad by residents	Purchase abroad by residents
Derivatives and other instruments	
Purchase locally by nonresidents	Sale or issue locally by nonresidents
Sale or issue abroad by residents	Purchase abroad by residents
Credit operations	
<i>Commercial credits</i>	
To residents from nonresidents	By residents to nonresidents
<i>Financial credits</i>	
To residents from nonresidents	By residents to nonresidents
<i>Guarantees, sureties, and financial backup facilities</i>	
To residents from nonresidents	By residents to nonresidents
Direct investment	
Inward direct investment	Outward direct investment
	Controls on liquidation of direct investment
Real estate transactions	
Purchase locally by nonresidents	Purchase abroad by residents
	Sale locally by nonresidents
Provisions specific to commercial banks	
Nonresident deposits	Deposits overseas
Borrowing abroad	Foreign loans
Personal capital movements: deposits, loans, gifts, endowments, inheritances, and legacies	
To residents from nonresidents	By residents to nonresidents
<i>Settlements of debts abroad by immigrants</i>	
Transfer into the country by immigrants	Transfer abroad by emigrants
Provisions specific to institutional investors	
	Limits (max.) on securities issued by nonresidents and on portfolio invested abroad
	Limits (max.) on portfolio invested locally

the discussion in Section IV).⁵ Even certain advanced economies have retained selective controls on capital movements that reflect the nature of their domestic financial instruments and financial market development, as well as sectoral and strategic considerations.⁶

Relationship between financial sector reform and capital account liberalization: The issues raised in capital account liberalization are to a large extent the same as those which confront a country liberalizing its domestic financial system—how to strengthen financial institutions so that they can operate in a market-based system, and how to achieve monetary objectives and maintain macroeconomic stability in such an environment. The liberalization of capital flows can thus be viewed as one aspect of broader programs of financial sector liberalization.

Capital account liberalization also introduces an additional external dimension and urgency to financial sector reforms. Capital inflows will either be channeled through domestic intermediaries or compete with them. In both cases, the intermediaries will need to be strengthened either to help ensure the efficient use of the capital inflows, or because the capital flows will increase the competitive pressure on domestic financial institutions, and the need to restructure them. Capital account liberalization can also open the way for domestic banks and corporations to take on greater foreign exchange risks than domestic financial liberalizations. Capital account liberalization will also bring more sharply into focus inconsistencies in monetary and exchange rate policies and the weaknesses of direct monetary instruments.

II. Prudential Regulation and Capital Account Liberalization

The role of the authorities in financial sector development is first and foremost in the establishment of an appropriate framework of financial regulation. This would include:

Appropriate legal systems: A comprehensive liberalization of capital transactions and transfers does not signify an abandonment of all rules and regulations connected to foreign exchange transactions. Countries that have opened their capital account have to strengthen their regulations in certain areas. This would include: (1) prudential regulations related to nonresident and foreign exchange transactions and transfers (see below); (2) measures designed to prevent tax evasion and money laundering; and (3) reporting by market participants ensuring the timely and accurate compilation of monetary, external debt and balance of payments data. High quality, transparent and comparable reporting and disclosure on the financial position of businesses and financial intermediaries provide the basis for informed market decision making. Since in countries with capital account restrictions, reporting obligations have often formed part of the foreign exchange regulations, as countries liberalize their capital account, and dismantle their exchange controls, it may be necessary to introduce new laws and regulations, or update existing ones in order to maintain adequate statistical reporting and surveillance over international financial transactions.

⁵In contrast, “big bang” approaches to capital account liberalizations would seem more appropriate where domestic financial markets are developed, and a number of industrial countries have followed such “big bang” approaches.

⁶For example, the majority of OECD member countries maintain some reservations under the OECD Capital Code, usually related to foreign direct investment but in a number of cases also related to financial transactions.

Regulation and supervision: An effective prudential regulation and supervision framework and capital account liberalization are fundamentally complementary since both promote the efficient allocation of savings and investment and encourage portfolio diversification. Capital account liberalization yields these benefits primarily through promoting competition and increasing the scope for risk diversification. Prudential policy provides these benefits by seeking to strengthen and preserve the effective functioning of the financial and payments system.

Prudential measures are generally understood as encompassing official actions (laws, regulations, and officially sanctioned policies or procedures) that (1) promote the soundness of individual financial institutions through enforcing adequate management of risks, promoting effective internal governance, and fostering market discipline; and (2) protect investors against fraud and deceptive practices, and ensuring performance by financial agents of fiduciary responsibilities. This is generally achieved by controlling manipulative and deceptive practices, and by setting standards for transparency and the provision of fiduciary services.

Prudential measures normally regulate both the domestic and foreign activities of financial institutions. With respect to the protection of investments that are not intermediated through financial institutions, the applicability of prudential regulations will normally be limited to the admission and trading of investment instruments and the provision of related fiduciary (e.g., custodial) services in the domestic market. Officials do not generally adopt measures for prudential purposes that protect investors purchasing instruments in a foreign market.

International transactions may involve different types of risk from those affecting comparable domestic transactions. These different types of risks include, *inter alia*, transfer risk (the risk that a foreign debtor might not be able to obtain the foreign exchange necessary to service external debt in a timely fashion), sovereign risk (the risk that a government fails to meet the service on its external debt) and country risk (the risk that a substantial number of debtors in a particular country may be faced with difficulty servicing external debt for a variety of reasons, e.g., macroeconomic or political instability). Supervisors may also set different standards for licensing of foreign financial institutions to operate in their domestic markets or for authorizing the listing and trading of foreign securities in domestic markets from those that apply to domestic agents. Such differences could be justified because of different supervisory and accounting standards, or greater difficulties in enforcing investor protection through bankruptcy or other laws, in the context of different national jurisdictions.

The scope and content of prudential measures and procedures are undergoing a significant global evolution reflecting, *inter alia*, the updating of techniques for identifying, measuring, and managing financial risk, as well as the increased need for international harmonization of supervisory approaches.⁷ This has led to a growing body of generally accepted principles, standards, guidelines and best practices, developed by various international groupings of supervisors which provide some guidance toward a proper treatment of capital flows. Because supervisory emphasis is also shifting from reliance on quantitative limits for controlling risk toward greater oversight of the internal capacity of supervised institutions to manage risk and toward greater public disclosure of information, these generally accepted practices have evolved toward prudential measures with little, if any, restrictive impact on capital movements. Such generally accepted practices also highlight the importance of managing foreign exchange risk

⁷See, for example, the Group of Thirty (1997).

exposures, and foreign exchange liquidity which are of greater concern with the liberalization of the capital account.

In countries with weak or embryonic financial systems, both the pace of capital account liberalization and the design of prudential measures become more complex. In particular, such countries often lack the institutional capacity to engage in a range of financial transactions on a commercially sound basis. Local financial institutions may have limited capacity to assess and manage risk associated with large capital inflows. In addition, regulatory authorities may have limited capacity to provide effective supervision of the financial system. For prudential reasons, therefore, such countries may need time to develop financial institutions, and markets and instruments before being able to durably liberalize their capital account. Moreover, with deficiencies in the legal and institutional framework for financial activity, or weaknesses in supervisory capacity, such countries may have to adopt measures for legitimate prudential objectives, which are crudely designed and may have a restrictive impact on capital flows.

Particular attention may have to be paid to strengthening banking sectors as part of any program of capital account liberalization for the simple reason that the banks are the major financial intermediaries and channels for capital flows in many developing countries. This was, for example, the case in Korea and Thailand, prior to their currency and banking crises. Even where the banks themselves do not channel the capital flows, their interest rate and credit policies can have major influences on the structure of domestic interest rates and financial markets, and thus the composition of capital flows. For example, wide bank deposit/lending spreads may promote foreign corporate borrowing; or the underpricing by banks of credit and maturity transformation risks may distort the yield curve, and thus the composition of capital flows.⁸ There is ample evidence that allowing weak banks to expand their balance sheets whether from domestic or foreign sources will lead to banking crises.⁹ Measures to address weak banks would focus on capital adequacy, loan loss provisioning, credit assessment, liquidity management, pricing of risks, improvements in bank management, and increasing foreign participation.

Where banking sector weaknesses are not well perceived by financial markets, or where banks are considered to be explicitly or implicitly guaranteed, so that the markets exercise only weak discipline on the borrower, there would be a case for more direct measures to limit bank balance sheet growth, including controls on the banks' capacity to borrow internationally. In such circumstances, it would also be risky to liberalize banks' access to foreign finance until such time as the banking weaknesses have been addressed, appropriate supervisory standards implemented, and concerns about moral hazard addressed.¹⁰ Similar concerns may also arise when providing access by corporate borrowers to overseas finance, if the financial sector guarantees are perceived as extending to the corporate sector.

⁸As a result, banking systems may not only be faced with problems of insolvency and illiquidity, but the underpricing of credit and maturity risks can inhibit the development of the longer-term markets due to an underpricing of longer-term risks in the economy. Such markets generally account for a much smaller part of both total domestic financing and foreign capital flows in emerging market economies than industrial countries.

⁹See, for example, Sundararajan and Baliño (1991).

¹⁰Regulation and supervision must be adequate and effective, yet it should also be designed in ways that will let private markets function. Overregulation stifles the efficient functioning of markets and can lead to moral hazard problems since private financial institutions do not take adequate responsibility for their actions.

III. Monetary and Exchange Rate Policy Arrangements

A simple but powerful way of seeing the impact of freedom of capital movements on monetary and exchange rate policy is through the covered interest rate parity condition, which is the consequence of arbitrage between short-term domestic and foreign interest rates, and the discount on the currency in the forward exchange market. The covered interest rate parity condition can be written as follows:

$$i_d = i_f + F_d \quad (1)$$

where $F_d = \frac{e^f - e^s}{e^s} \times 100$ i_d is the domestic interest, i_f the foreign interest rate of the same

maturity and F_d , the forward discount for that maturity, e^s is the rate of exchange (units of domestic currency in terms of a foreign currency) in the spot exchange market, and e^f the forward exchange rate on the date of maturity of the interest rate contracts. Thus, where the foreign interest rate and forward exchange rate are predetermined, a country could determine the domestic interest rate or the spot exchange rate, but not both.¹¹

With greater freedom of capital movements, short-term interest rates will increasingly be determined by the covered interest rate parity condition. An attempt to set both interest rates and exchange rates which are inconsistent with this condition could give rise to incentives for significant short-term capital flows. Thus, the capacity to assign monetary and exchange policies to achieve different macroeconomic targets will be increasingly constrained with the opening of the capital account. If monetary policy targets inflation, the exchange rate would not be free, for example, to be used as an expenditure switching instrument to achieve objectives for the current account. Fiscal policy could be used to influence the savings/investment balance to achieve such objectives but not monetary and exchange rate policy. Conversely, if the exchange rate is targeted to achieve objectives for the current account, or if the exchange rate is fixed, monetary policy would be left with little autonomy to achieve domestic stabilization objectives or to manage the consequences of short-term capital inflows.

As regards the implications for the sequencing of reforms, the initial policy response to strong capital inflows with a pegged exchange rate has usually been to conduct sterilized intervention. However, such intervention involves quasi-fiscal costs, and is generally of limited effectiveness since it serves to keep domestic interest rates high, attracting further capital inflows. Pegged exchange rates have also led in some cases to an underestimation of the risks involved in foreign currency borrowing. Thus, as capital account liberalization has progressed, a number of countries have responded to the increase in capital flows by adopting greater exchange rate flexibility, as a way of reducing shorter-term capital inflows that reflect interest rate differentials. In some cases, exchange rate arrangements have evolved in a progressive manner with the degree of flexibility depending on the size of the capital inflow problem (such as exchange rate bands, crawling bands, managed floats, and free floating arrangements).

Some countries have followed strong nominal exchange rate anchors, which has required subordinating monetary policy to the maintenance of these anchors, and an acceptance that

¹¹Similar constraints on interest rates and exchange rates would apply in the absence of a formal forward exchange market.

interest rates be allowed to adjust in response to the capital movements. Such anchors have helped to reduce reversals in capital flows due to uncertainty about the exchange rate. Since the exchange rate instrument is not available to reduce short-term capital inflows, greater attention has been given to the adequacy of prudential standards, including to manage the risks associated with potential currency and maturity mismatches in such circumstances.

Some countries have targeted the exchange rate (and hence monetary) policy to maintain competitiveness, and relied on fiscal consolidation to achieve domestic stabilization and to offset the effects of large capital inflows. However, because of the limited short-run flexibility of fiscal policy, the authorities have had to rely on other measures to deal with more volatile capital flows, particularly capital controls. Generally, such controls are effective primarily as temporary measures.

Monetary targets and instruments: Increased capital mobility will also have a number of operational implications for the design of monetary policy frameworks and the use of different monetary instruments. In the case of fixed or managed floating exchange rate regimes, the external counterpart of money supply may become more volatile, and the demand for domestically defined monetary aggregates may become more sensitive to international interest rate differentials, and may shift as a result of the external liberalization. As a result, it may be more difficult to identify a monetary aggregate with a sufficiently stable behavior that is capable of anticipating the evolution of other nominal variables in the economy. Capital account liberalization, therefore, reinforces the trend toward the adoption of more eclectic monetary frameworks that is frequently a feature of domestic financial sector reforms, and to giving more weight to exchange rates in monetary assessments.¹²

High capital mobility alters the effectiveness of different monetary instruments in achieving the objectives of monetary policy. On the one hand, instruments that impose a high cost or administrative constraint on the banks—as is the case with credit or interest rates ceilings or high nonremunerated reserve requirements—may be circumvented more easily by disintermediation through the capital account and, therefore, become less effective. On the other hand, monetary instruments which operate on the overall cost of money or credit in financial markets may be transmitted more rapidly to credit and exchange markets and allow the central bank to influence the decisions of financial institutions and markets which operate in its domestic currency, both locally and internationally. The characteristics of the major monetary instruments and the effects of capital mobility are reviewed in the appendix.

While many countries have reduced, and some have phased out the use of reserve requirements in the context of high capital mobility, some still rely on them to influence the conditions that equilibrate supply and demand in the market for bank reserves (bank deposits

¹²Such frameworks include interest rate targeting in the short-term combined with annual or medium-term frameworks based on inflation targeting; reliance on a wider range of indicators rather than a single monetary aggregate; greater attention to movements in the exchange rate in assessing monetary conditions including in the context of monetary conditions indicators; and revisions in the targeted definition of money.

with the central bank).¹³ Nonremunerated reserve requirements, however, impose a tax on the banks subject to the reserve requirements and thus encourage disintermediation to financial institutions and markets which are not subject to the reserve requirements. A number of countries have responded to this potential problem either by remunerating the reserve requirements at a rate fairly close to market rates, or reducing or eliminating the reserve requirement ratio.¹⁴ However, some countries have retained selected capital controls, for example, on the issue of certificates of deposits locally by nonresident banks to safeguard the effectiveness of their reserve requirements. The expectation is that by limiting foreign banks' access to a particular instrument, the extent of disintermediation would also be limited.¹⁵

Open market operations play a core role for the purpose of steering interest rates, managing the liquidity situation in the market, and signaling the stance of monetary policy with an open capital account. In a context of free capital movements, the central bank is able to affect the conditions of both the domestic and external markets in its local currency through open market operations. Standing facilities, rediscount quotas and public sector deposits are frequently used to support open market operations, particularly to guide interest rate movements, and transmit rapidly and clearly the central bank's message to market participants. Movements toward capital account convertibility, therefore, have been supported with the adoption of indirect monetary controls.

Discriminatory reserve requirements: A frequently used measure for reducing capital inflows, or changing the composition of these inflows, is to impose differential reserve requirements on short-term borrowing from nonresidents. Such measures are sometimes referred to as "Chile-type" measures because of their adoption by the Chilean authorities in 1991, although they have a long history of use in other countries, such as in Germany during the 1970s.

Non-interest-bearing (nib) reserve requirements raise the cost of borrowing through the instruments subject to the requirements. If r is the nonremunerated reserve requirement, and i_f the nominal foreign interest rate, then the effective cost of foreign borrowing to a resident after the imposition of the reserve requirement, i_f^e , becomes:¹⁶

¹³When the central bank adopts a reserves operating framework, it may nevertheless seek to exploit the direct multiplier link between bank reserves and money supply. For a given level of reserve money, reserve requirements can impose an upper limit on the money supply where there is a non-interest sensitive demand for excess reserves. Reserve requirements may also be used to help ensure that the demand for central bank money is sufficiently stable in the context where the central bank seeks to achieve its monetary objectives by controlling short-term interest rates.

¹⁴The trend toward a reduction of the ratio of required reserves can be observed in all the industrial countries. Where the level of the ratio is comparatively high, as in Italy, remuneration partly offsets the tax element. In the United Kingdom, reserve requirements are no longer used as a monetary instrument. No reserve requirements are in place in Belgium and Sweden. In Canada, arrangements in place amount to a zero percent ratio.

¹⁵For example, Germany restricts the sale or issue locally by nonresident banks of deutsche mark-denominated certificates of deposit with a maturity of less than two years. The measure is to preserve the effectiveness of reserve requirements by achieving uniform treatment of resident banks subject to reserve requirements and nonresident banks which are not.

¹⁶The impact of the imposition of the reserve requirement can also be examined from the point of view of the foreign investor, where the impact of the reserve requirement will reduce the return to the investor after account is taken of the cost of holding the reserve requirement. If i_d is the nominal domestic interest rate, then the return to the foreign investor after the imposition of the reserve requirements falls to $i_d (1 - r)$. The

$$i_f^e = \frac{i_f}{(1-r)} \quad (2)$$

The implementation of the reserve requirements will thus increase the cost of foreign borrowing to residents (or conversely reduce the return on local investments to foreign investors) and, therefore, reduce borrowing from abroad.

Over time, it would be expected that the interest rate parity condition would be reestablished. Following the imposition of the differential reserve requirement, the domestic interest rate would be determined by the following revised condition:

$$i_d^* = i_f^e + F_d^* \quad (3)$$

Since $i_f^e > i_f$, the imposition of the differential reserve requirement would require either that the short-term domestic interest rate rise ($i_d^* > i_d$) or there is a fall in the forward discount on the currency ($F_d^* < F_d$). The latter could come about through a depreciation of the spot exchange rate.¹⁷

After the adjustments in the domestic interest rate (or the exchange rate), interest rates would again be constrained by the covered interest rate parity condition (equation (3)). The nib reserve requirement on foreign borrowing would introduce a wedge between the domestic and offshore interest rates, and *ceteris paribus*, allow the country to have a higher domestic short-term interest rate with a given exchange rate than otherwise. By allowing for higher domestic short-term interest rates the nib reserve requirement might also encourage a shift to longer-term borrowing by residents, and, in turn, could influence the composition of inflows. The latter effect would depend, however, on the resulting evolution of interest rates along the yield curve.¹⁸

If the differential reserve requirement is not applied comprehensively to all short-term sources of foreign capital inflows, it may encourage larger short-term inflows through those instruments that are not subject to the requirement. This could result if the general level of short-term domestic interest rates increases with the tightening of monetary policy that accompanies the introduction of the differential reserve requirement, therefore, providing greater incentives for short-term flows through foreign instruments not subject to the discriminatory requirement.

Various empirical studies have sought to examine the impact of such instruments on capital flows and have generally concluded that they have a temporary effect, but one that can be

subsequent discussion would follow whether the analysis is from the point of view of domestic borrower or the foreign investor.

¹⁷ $F_d^* = (\frac{e^f}{e^s} - 1) \times 100$: Therefore, for $F_d^* < F_d$, with a given forward rate, the spot exchange rate e^s would

have to rise, i.e., depreciate. If the spot rate is fixed, then the whole adjustment would have to fall on the domestic interest rate.

¹⁸ The implementation of the reserve requirement on shorter flows would have the initial effect of tilting the yield curve to foreign investors by reducing returns on short-term instruments relative to longer-term investments. However, to the extent that covered interest rate parity is reestablished, the effective returns to foreign investors would return to their previous level, and the tilting of the yield curve of returns to foreign investors would only be temporary.

eroded quite quickly depending on the scope of the controls, and the stage of development of financial markets and instruments. Financial derivatives which restructure one type of financial transaction into another have now become an important means of circumventing such regulations, in addition to the more traditional channels for circumvention through instruments not covered by the regulations. Over time, Chile found it necessary to extend progressively the instruments covered by its reserve requirement to all short-term capital inflows in an attempt to avoid circumvention; and the effectiveness of the measures in Germany in the 1970s appeared to depend on whether they extended to corporate borrowing.¹⁹

IV. Sequencing Liberalizations

Designing the pace and sequencing of capital account liberalizations is intended to maximize the benefits of the liberalizations while minimizing the risks of such liberalizations. The conventional academic view of sequencing emphasizes the preconditions for the liberalization of the capital account—achieving macroeconomic stability and developing domestic financial institutions, markets and instruments before liberalizing the capital account. On this view, capital account liberalization should occur late in the overall program of economic reform.²⁰ An alternative view, based largely on political economy considerations, emphasizes the constraints to reforms and the limited capacity of countries to reform themselves without pressures from outside. Early capital account liberalization can have an important catalytic role in broader economic reforms, and can help overcome entrenched vested interests that otherwise postpone necessary reforms. A middle view is that capital account liberalization should be part of a concurrent, integrated and comprehensive approach to overall macroeconomic and structural reform. Thus, the coordination of specific reforms in the domestic and external sectors becomes the critical concern. The latter approach would be consistent with a slower or faster pace for reforms; in the case of faster capital account liberalizations, the concurrent financial sector reforms would also have to be implemented rapidly.

The balance of benefits, costs, and risks of following one strategy rather than another will vary across countries depending on their starting conditions and economic objectives. Moreover, in view of the fact that financial reforms generally have effects on wealth and income distribution, the sequencing of reforms generally has a political economy dimension that further complicates the sequencing of the reform.

One approach that could be used to evaluate different sequencing strategies would be to focus on their contribution to the broad objectives of financial sector reform, namely, those of

¹⁹On the effectiveness of the measure in Germany in the 1970s, see Johnston (1983). A recent study on the effectiveness of controls in Chile by Soto (1997) finds that the reserve requirement had an effect on the domestic interest rate and nominal exchange rate which lasts for between a year and a year and a half. The reserve requirement significantly alters capital flow composition, leading to a relative decline in short-term capital flows. This latter effect is prolonged over time, although no quantitative assessment is provided. Soto concludes that "... the impact of the measure is in the expected direction, i.e., it reduces capital inflows, keeps domestic interest rates higher, depreciates the real exchange rate, and changes the composition of capital inflows. However, the economic importance of these effects is minimal." Soto's estimate is generally at the longer end of the range of estimates of effectiveness; see Cardoso and Laurens, forthcoming.

²⁰See, for example, McKinnon (1991).

improving efficiency in resource mobilization and allocation, and promoting financial and macroeconomic stability. Thus to the extent that a specific reform improves resource allocation efficiency and helps to achieve, or at least does not undermine, financial and macroeconomic stability, it would be desirable to undertake the reform.

Capital account liberalizations that could help to improve efficiency would include those that diversify financial systems by introducing new technologies and instruments, introduce new skills and risk management capabilities, strengthen the capital structures of financial institutions, and promote competition for financial products. Such liberalizations could include increased direct foreign participation in the domestic financial systems. The liberalizations of access to international capital markets could also improve financial discipline, where such liberalizations provide a catalyst to introducing new accounting and disclosure requirements, and incentives to revise out of date regulatory structures and weak or ineffective supervisory arrangements. Financial systems would also be strengthened by reforms that introduce new instruments for hedging and managing risks, and increase the potential for greater diversification of funding sources and asset distribution. The development of such markets may require a recognition of price uncertainty to begin with, and therefore, depend on initial reforms to the procedures for determining interest rates and exchange rates. Liberalizations that would favor the channels where regulatory systems are more developed, governance is stronger, and concerns about moral hazard are lesser would be preferred on grounds of efficiency and stability over the alternative channels.

Regulatory changes that might not have such positive effects in terms of the objective of efficiency would include those that primarily support the existing monopoly and inefficient financial structures by providing access by the dominant domestic financial institutions to foreign sources of funds to the exclusion of their customers. Similarly, liberalizations could weaken financial systems where they encourage greater concentrations in holdings of assets and funding sources or concentrations of risks rather than portfolio or risk diversification.

Although certain simple rules about sequencing capital account liberalization, e.g., liberalize longer-term flows before short-term, and direct investments before portfolio capital flows, are appealing, the practical application of such rules is frequently a major issue once a country begins to open its capital account in view of the fungibility of capital. As with other controls, the maintenance of restrictions on certain types of capital transactions may serve primarily to buy time to allow for the more fundamental restructuring of financial markets.

One of the compelling arguments for eliminating capital controls is that once a country has begun to open its economy, capital controls are not very effective at achieving their objectives, and primarily create costly distortions. Such distortions include those associated with the channeling of the capital flows through financial intermediaries that are less regulated and more risky to avoid the controls, and which can have broader detrimental effects on the stability, development, and governance of the financial system.

V. Conclusions

Additional urgency should be attached to financial sector reforms when a country begins to liberalize its capital account, because of the pressures this will place on the domestic financial system, and the increased exposures to foreign exchange risks. One element of such reforms will be to strengthen the environment in which markets can function through appropriate regulation

and supervision, restructuring weak financial institutions, and dissemination of information. The other element is the need to develop and implement policy instruments consistent with increased capital flows. The latter includes: prudential instruments that rely more on the oversight of the capacity of institutions to manage risks, and less on easily circumvented quantitative or discriminatory controls; indirect or market-based instruments for monetary control; and attention to the constraints on interest rate and exchange rate policy imposed by increased capital flows.

Capital account liberalization is not an “all or nothing” affair, and individual components of the capital account can be, and usually are, liberalized selectively. The sequencing of liberalizations of individual components of the capital account should be undertaken in support of the broader objectives of the financial sector reforms, i.e., to improve efficiency in the mobilization and the allocation of financial resources, and to promote durable financial and macroeconomic stability, and thus in ways that can help establish the preconditions for further liberalizations.

Appendix. Compatibility and Effectiveness of Monetary Instruments with High Capital Mobility

Monetary Instrument	Main Characteristics	Compatibility and Effectiveness with High Capital Mobility
Reserve requirements with no differentiation between residents/nonresidents, domestic/foreign currency	Imposed with the aim of achieving a combination of different objectives: (i) influence the commercial bank's demand for reserves, and therefore, enhance predictability of reserve money demand and influence the growth of domestic credit; (ii) contribute to the stabilization of short-term interest rates through the effect of averaging provisions; (iii) sterilize excess liquidity; (iv) increase the seigniorage when reserves are not remunerated.	In the case of nonremunerated required reserves, high capital mobility and the lack of harmonization between regulations may prompt operators to relocate their transactions abroad. In response, some countries reduced or eliminated the ratio. To preserve the effectiveness of the instrument some countries maintain restrictions on the issue of domestic securities abroad by residents and on the issue of securities locally by nonresidents.
Reserve requirements with differentiation between domestic and foreign currency	Instrument is used to influence liquidity in domestic and foreign currency and to encourage or discourage deposit taking in local and foreign currency. The impact depends on the level and rate of remuneration of the required reserves. Low or zero reserve requirements in foreign currency deposits are a feature of offshore banking centers.	Applying different ratios on deposits in domestic and foreign currency could serve to influence capital movements. May substitute for reserve requirements differentiated by residency where residents' holdings of foreign currency deposits are restricted.

Appendix (continued)

Monetary Instrument	Main Characteristics	Compatibility and Effectiveness with High Capital Mobility
Reserve requirements with differentiation between residents and nonresidents	In the case of nonremunerated required reserves, which imposes a tax on bank intermediation, higher ratio on nonresident deposits compared to resident deposits discourages capital inflows through bank deposits by lowering remuneration for the depositor.	Instrument has been used by a number of countries to influence capital movements. To be effective in limiting short-term inflows, this instrument would need to be applied comprehensively to all short-term capital inflows.
Deposit requirements on certain capital flows	Through its cost effect, a nonremunerated deposit requirement serves to reduce or increase the interest differential between domestic and international rates. In some cases it may be replaced by the payment of a flat fee.	Similar to reserve requirements which differentiate between residents and nonresidents.
Net open position/position limits	Used predominately as a prudential control when defined as a net foreign currency position.	In some countries open position limits are defined asymmetrically on resident and nonresident transactions and have been changed frequently with the intention of influencing capital flows.
Statutory liquidity ratios	Intended principally as a prudential measure or to influence the allocation of bank assets by imposing the requirement to hold minimum amounts of specified liquid assets as a percentage of specified liabilities. When used as monetary control instrument it affects the allocation of financial assets.	As a prudential measure helps to manage the risks of short-term capital inflows and potential reversals in such flows.
Minimum (maximum) portfolio requirements	Intended mainly to affect the allocation of credit rather than overall credit availability. Typically imposes on commercial banks the requirement to hold a minimum or maximum of certain assets (e.g., government securities or loans to priority sectors).	In the case of qualifying assets restricted to domestic assets, it can influence capital flows.

Appendix (continued)

Monetary Instrument	Main Characteristics	Compatibility and Effectiveness with High Capital Mobility
Interest rate controls	Limitation on the ability of commercial banks to determine their lending and for deposit rates. Typically abandoned with the move to indirect monetary controls.	Becomes ineffective with capital account openings as will be circumvented through capital flows.
Bank-by-bank credit ceilings	Method for directly limiting the domestic counterpart of money supply through a rationing of the total credit provided by commercial banks. Typically abandoned with the move to indirect monetary controls.	Becomes ineffective with capital account openings, as will be circumvented through capital flows.
Directed credit	Method for allocating central bank credit to commercial banks mostly to finance priority sectors. Abandoned with move to indirect monetary control.	In the case of qualifying assets restricted to domestic assets, it may influence capital flows.
Bank-by-bank rediscount quotas	Method for allocating central bank refinance credit among commercial banks, which allows banks to borrow on demand at the central bank. Rediscount quotas usually only available for resident banks.	Increased volatility of money supply due to external factors requires flexibility in central bank's refinancing operations. The importance of rediscount quotas tends to diminish as the main tool for liquidity management.
Standing facilities	Deposit and lending central bank facilities used at the initiative of commercial banks. Standing facilities usually only available for resident banks.	High capital mobility increases volatility of money supply and requires flexibility in the central bank's liquidity management. Role of standing facilities tends to diminish as instrument of liquidity management.
Public sector deposits	Given magnitude of daily government flows in and out of banking system, reallocation of government deposits between the central bank and the commercial banks can be used to offset impact of such flows on short-term liquidity. Public sector deposits usually only available for resident banks.	Given the need for flexibility in interest rates management, allocation mechanism needs to ensure equitable distribution among the competing commercial banks based on a market mechanism.

Appendix (concluded)

Monetary Instrument	Main Characteristics	Compatibility and Effectiveness with High Capital Mobility
Open market operations	Monetary operation at the initiative of the central bank involving one of the following transactions: (i) buying or selling assets outright; (ii) buying or selling assets (including foreign exchange) under a repurchase agreement; (iii) lending or borrowing against underlying assets as collateral through an auction mechanism. The central bank typically deals only in its local market and with resident banks.	Becomes the preferred monetary instrument as it allows flexibility for timing and amount of the central bank operations, and for managing interest rates.

References

- Cardoso, E., and I. Goldfajn, 1998, "Capital Flows to Brazil: The Endogeneity of Capital Controls" *Staff Papers*, International Monetary Fund, Vol. 45, No. 1 (March), pp. 161–202.
- Cardoso, J., and B. Laurens, forthcoming, "The Effectiveness of Capital Controls on Inflows: The Case of Chile," IMF Working Paper.
- Dooley, M. P., 1996, "A Survey of Academic Literature on Controls over International Capital Transactions," *Staff Papers*, International Monetary Fund, Vol. 43, No. 4 (December), pp. 639–687.
- Edwards, S., 1995, (ed.), *Capital Control, Exchange Rates and Monetary Policy in the World Economy*, Cambridge University Press, New York.
- Eichengreen, B., James Tobin, and Charles Wyplosz, 1995, "Two Cases for Sand in the Wheels of International Finance," *The Economic Journal*, Vol. 105, pp. 162–172.
- Garber, P., 1996, "Managing Risks to Financial Markets from Volatile Capital Flows: The Role of Prudential Regulations," *International Journal of Finance and Economics*, Vol. 1, July, pp. 183–95.
- Grilli, Vittorio, and Gian Maria Milesi-Ferretti, 1995, "Economic Effects and Structural Determinants of Capital Controls," *Staff Papers*, International Monetary Fund, Vol. 42, No. 3 (September), pp. 517–551.
- Group of Thirty, 1997, *Global Institutions, National Supervision and Systemic Risk*, Group of Thirty, Washington D.C.
- Gutián, Manuel, 1998, "The Challenge of Managing Global Capital Flows," *Finance and Development*, Vol. 35 (June), pp. 14–17.
- Haque, Nadeem Ul, and Peter Montiel, 1990, "Capital Mobility in Developing Countries—Some Empirical Tests," IMF Working Paper 90/117 (Washington: International Monetary Fund).
- Johnston, R. Barry, 1983, *The Economics of the Euro Market: History, Theory, and Policy*, Chapter 5, "Short-term Interest Rate Determination" (London: MacMillan).

- _____, 1997, *The Speed of Financial Sector Reform: Risks and Strategies*, in *Sequencing: Financial Strategies for Developing Countries*, Alessin Harwood and Bruce L.R. Smith (eds.) (Washington: Brookings Institution Press).
- _____, S. Darbar, and C. Echeverria, 1997, "Sequencing of Capital Account Liberalization: Issues from the Experience in Chile, Indonesia, Korea, and Thailand," IMF Working Paper 97/157 (Washington: International Monetary Fund).
- _____, and Chris Ryan, 1994, "The Impact of Controls on Capital Movements on the Private Capital Accounts of Countries' Balance of Payments: Empirical Estimates and Policy Implications," IMF Working Paper 94/78 (Washington: International Monetary Fund).
- Kamin, Steven B., 1988, "Devaluation, Exchange Controls, and Black Markets for Foreign Exchange in Developing Countries," International Finance Discussion Papers, No. 334 (Washington: Board of Governors of the Federal Reserve System).
- _____, 1991, "Argentina's Experience with Parallel Exchange Markets: 1981-90," International Finance Discussion Papers, No. 407 (Washington: Board of Governors of the Federal Reserve System).
- Laban, R., and F. Larrain, 1997, "Can a Liberalization of Capital Outflows Increase Net Capital Inflows?" *Journal of International Money and Finance*, Vol. 16, pp. 415-31.
- McKinnon, Ronald, 1991, *The Order of Economic Liberalization: Financial Control in the Transition to a Market Economy* (Baltimore: John Hopkins University Press).
- Soto, Claudia G., 1997, *Control of Capital Flows: An Empirical Assessment of the Case of Chile*, Central Bank of Chile (October).
- Sundararajan, V., and Tomás J.T. Baliño (ed.), 1991, *Banking Crises: Cases and Issues* (Washington: International Monetary Fund).
- Valdes, S., and A.M. Soto, 1996, *Es el Control Selectivo de Capitales Efectivo en Chile? Su efecto sobre el Tipo de Cambio Real*, Cuadernos de Economía, Año 33, No. 98, pp. 77-108.
- Wyplosz, Charles, 1986, "Capital Controls and Balance of Payments Crises," *Journal of International Money and Finance*, Vol. 5, pp. 167-79.

This page intentionally left blank

III. Fiscal Policy Issues

This page intentionally left blank

When Is a Fiscal Surplus Appropriate?

Richard Hemming and James Daniel¹

Abstract

A range of arguments can be used to justify a fiscal surplus. A surplus may arise out of the government pursuing its allocation function (i.e., in compensating for market failure) or its stabilization function (i.e., in meeting inflation and balance of payments objectives, and in response to business cycles, shocks, and capital inflows). Unsustainable debt and low credibility may also warrant a surplus, as could an aging population. In countries which are heavily dependent on foreign grants, mineral resources and privatization receipts, such special circumstances may provide a particularly strong reason for running a surplus, at least temporarily. When a surplus has been proposed in the context of a Fund-supported program, it is usually with some of the preceding considerations in mind.

JEL Classification Numbers: E63, H62

Author's E-Mail Address: Rhemming@imf.org

I. Introduction

Fund-supported programs nearly always require a reduction in the fiscal deficit as part of the policy response to macroeconomic imbalances. Some recent programs, however, have required countries to run a fiscal surplus. This does not necessarily imply more adjustment. Other things being equal, a large reduction in a deficit is more contractionary than a shift from a small deficit to a small surplus or a small increase in a surplus. But when a government runs a surplus rather than a deficit, it is making a net contribution to the pool of domestic and foreign savings available to the rest of the economy. This may seem to be materially different to the government making a claim on these savings, as implied by a fiscal deficit. However, although the overall level of savings in an economy and the balance between domestic and foreign savings are important, the source of domestic savings—that is whether it is generated by the government

¹The authors would like to thank Vito Tanzi, Peter Heller, Jack Diamond, David Nellor, and colleagues in the Fiscal Operations I Division for their comments on an earlier draft of this paper. However, the opinions expressed are those of the authors.

or the private sector—is less so, especially if the investment paid for by such savings is efficient no matter what their source. This being the case, crossing the threshold between a fiscal deficit and a fiscal surplus is, by itself, of no great economic significance.

Nevertheless, the question posed by the title of this paper remains relevant, but it is subsumed by the more general question: “What is the optimal fiscal balance?” Tautologically, a fiscal surplus is desirable when the optimal fiscal balance is positive. Thus part of the answer to the original question can be derived from the standard analysis of the macroeconomic effects of fiscal deficits (Tanzi, 1985, and Fischer and Easterly, 1990). But the purpose of this paper is to go beyond discussing the optimal fiscal balance, and to identify specific circumstances where advocating a fiscal surplus will often be appropriate.

II. Methodological Issues

To sharpen the focus on the central issue, it is best to put aside two methodological complications at the outset. First, the fiscal balance can be defined in a number of ways, and a set of fiscal data can show a deficit according to one definition and a surplus according to another. While each of these definitions has its own purpose and merit, this paper focuses on the overall balance in cash terms, which measures the government’s immediate financing requirements (assuming that foreign grants are recorded as revenue). Second, fiscal data can describe the operations of government measured at different levels of aggregation, and a surplus run by the central government might be outweighed by deficits incurred elsewhere in government. The deficits or surpluses referred to in this paper relate to the broadest concept of government for which data are available. Assume this to be the general government (which includes central government, lower levels of government, and extrabudgetary funds, but excludes the quasi-fiscal operations of the central bank and other agencies).

III. Ricardian Equivalence

The well-known but controversial argument that tax-financed and bond-financed fiscal deficits are equivalent (Barro, 1974), and that there is consequently no rationale for targeting the fiscal deficit, will also be dispensed with at the outset. This argument postulates that taxpayers adjust their private savings behavior to offset exactly the impact of a bond-financed fiscal deficit on the tax burden of future generations. However, the conditions under which this argument holds (ultrarationality, no liquidity constraints, etc.) are so demanding that Ricardian equivalence will rarely hold in its extreme form even in advanced economies. It is most unlikely to hold in developing economies, where there are additional barriers to smoothing consumption across generations (low income, weak capital markets, etc.).

* * *

The remainder of the paper is organized as follows. The next two sections discuss how a fiscal surplus might arise from the government pursuing its allocation and stabilization functions. The need for a fiscal surplus to help restore sustainability to government finances and credibility is then discussed. The paper goes on to describe how limiting the redistribution across generations implied by social security arrangements might also require a surplus. In the context of these discussions, some special conditions which might justify a fiscal surplus are identified. Whether the adjustment needed to generate a surplus should come on the revenue or expenditure side of the budget is also addressed. Lastly, the paper reviews some recent country experiences, focusing on the rationale given for targeting a fiscal surplus.

IV. Allocation

Governments provide a wide range of goods (and services) where private provision is characterized by market failure. Traditional public goods are an obvious example. It is uneconomic for the private market to provide such goods. Other goods have both public and private characteristics, and governments provide them because private markets ignore consumption and production externalities. The government also provides private goods, where markets tend toward natural monopoly or where failure in some other market (like the capital market) is an obstacle to private provision. Government provision in the presence of market failure is justified where social benefits exceed the social opportunity cost of the resources used. But government provision does not have to be financially viable.

The government expenditure arising from the provision of goods that are not financially viable should be paid for out of taxes or through (high-powered) money creation. If the government provides a fixed quantity of goods relative to output, and maintains constant tax rates, it can run a deficit equivalent to the money creation consistent with its inflation target and other macroeconomic objectives. Although bond financing is possible, tax rates would have to rise over time to repay the resulting debt. However, constant tax rates are more efficient and less costly to administer than variable tax rates (Barro, 1979), while the combination of bond financing and constant tax rates can result in a vicious circle of higher debt, interest, and deficits. If the quantity of goods provided is not fixed over time—as is often the case when the government makes social investments, which tend to be lumpy—bond financing could be used to finance deficits when public spending is relatively high. This borrowing can be repaid from a fiscal surplus when public spending is relatively low.

If government provision is financially viable—which may be the case with nonsocial investment expenditure, on infrastructure for example—it can also be financed by bonds. Since financial returns will be sufficient to meet the cost of borrowing, a bond-financed deficit can be run over a prolonged period. In instances where the private sector has the capacity to provide certain goods itself, but not the financing, the government can step in to finance private provision. It can lend additional tax receipts directly to the private sector, which has no impact on the deficit. Or it can lend money it has itself borrowed, and the deficit will rise. Alternatively, the government can reduce its deficit or run a fiscal surplus, thereby increasing the savings available to the private sector through the capital market.

Some government expenditure is paid for by **foreign grants**. Yet, there is often a mismatch between the disbursement of grants and the capacity of an economy to absorb them productively. Grants which cannot be used for productive purposes should be retained for future use. Foreign

grants are formally part of fiscal revenue. However, they are discretionary, they cannot be influenced—except very broadly—by government policy, and they can vary from year to year. It may therefore be appropriate to view grants as more akin to financing than revenue. But because they are recorded as revenue, large grant receipts, especially if they are temporary and absorptive capacity is limited, might be reflected in a fiscal surplus.

V. Stabilization

Excessive money creation leads to **inflation**, and fiscal deficits are a principal source of excessive money creation. To the extent that the government can substitute other forms of borrowing for money creation, it can run a noninflationary deficit. But too much bond financing can crowd the private sector out of capital markets through higher interest rates and discourage investment, while too much external financing can weaken the current account as the exchange rate appreciates, and may eventually result in external debt problems. Running down foreign exchange reserves is an alternative, but this too appreciates the exchange rate, and is clearly limited by public perceptions that a balance of payments crisis might be looming. If nonmonetary financing is limited, a sharply reduced fiscal deficit may be necessary to contain money creation and inflation. The more demanding the inflation target and the tighter the availability of nonmonetary financing—which may be negative on a net basis if the government has heavy domestic or external repayment obligations which cannot be refinanced, rescheduled or reduced—the more likely it is that a fiscal surplus will be needed.

From the economy's savings-investment balance, the fiscal balance is the sum of the private sector savings-investment balance and the **current account** balance, or foreign savings. Thus for a given private sector savings-investment balance, there is joint movement in the fiscal and current account balances. Whether macroeconomic policies should target the current account is a contentious issue. One view is that the current account should be allowed to reflect optimal saving and investment decisions. The opposing view is that saving and investment decisions are not optimal because of market failure, and targeting the current account is necessary to avoid a debt problem and/or pressure on foreign exchange reserves. Either way, a current account deficit may be appropriate over a lengthy period and go hand-in-hand with a fiscal deficit. By the same token, a current account surplus may emerge, or be required to restore external viability, which may in turn give rise to, or necessitate, a fiscal surplus.

Economies also pass through **business cycles** of recession and boom, and it is a function of government to help smooth aggregate demand over the cycle. Countercyclical policies can be automatic or discretionary. Budgets contain some automatic stabilizers. Tax revenue falls while current spending (on unemployment compensation, for example) rises during a recession, and vice versa during a boom. However, discretionary policies may be needed if the built-in revenue and expenditure elasticities are small. Countercyclical policies imply increasing deficits during recessions and reducing deficits, and possibly running surpluses, during booms.

When an economy is subject to a temporary **negative supply shock** (such as a drought), or a temporary **positive demand shock** (such as a property boom), a fiscal contraction may be justified to contain domestic spending. There is more flexibility with external shocks. An increase in import or export prices—a negative supply shock and a positive demand shock, respectively—does not necessarily require a policy response if temporary. The former can, to a degree, be financed (by external borrowing) and the latter neutralized (by repaying debt or

accumulating reserves). But if these shocks appear likely to persist, they should be addressed through stabilization policies to contain demand—including a possible fiscal surplus—and structural policies to facilitate adjustment to the new terms of trade. Similarly, a combination of stabilization and structural policies is the appropriate response to permanent domestic shocks.

A fiscal surplus may also be part of the policy response in economies that experience large **capital inflows**. Successful stabilization and structural reform often leads to such inflows—including the reversal of past capital flight—in response to improved economic prospects and confidence. This can lead to a deterioration in the current account through an appreciating exchange rate, and/or to inflationary pressures building up if the monetary impact of reserve accumulation cannot be fully sterilized. The policy response must necessarily be broad based (and include, for example, expanding the range of monetary control instruments). But to contain the impact on the current account, and to support the monetary policy stance, tighter fiscal policy, possibly entailing a surplus, is often necessary.

VI. Sustainability

Fiscal deficits also have longer-term consequences because the resulting accumulation of debt increases the interest burden, which can expand deficits and debt further. If the interest rate on the debt exceeds the growth rate of the economy, the debt dynamics are unstable in that the debt-to-GDP ratio will rise continuously if the government runs a primary deficit (i.e., with expenditure measured exclusive of interest payments) in excess of money creation consistent with its inflation target.² Fiscal policy will be unsustainable when the government cannot sell bonds to a public that judges it to be heading for insolvency. To reduce the debt ratio, it will in general be necessary to run a primary surplus.³ When the debt ratio is high relative to its sustainable level, and/or when the gap between the interest rate and the growth rate is large, it may even be necessary for the government to run an overall surplus.⁴

Whether the government has to run a primary surplus depends significantly upon what is judged to be a sustainable debt ratio. In this connection, if the government is borrowing to finance productive investment, resources will be generated to service the resulting debt. This suggests that sustainability could be judged by reference to the government's net indebtedness, deducting its assets from its gross debt. Indeed, one can go further and count nondiscretionary future spending (on entitlement programs such as social security, for example) as a liability and future taxes, at unchanged tax rates, as an asset. But while debt can be precisely measured, assets cannot, and future spending and taxes, even based on current commitments and policies, are speculative. Consequently, unsustainability is normally judged by reference to debt alone. However, if the debt is so high that primary and overall surpluses are necessary to restore

²The basic equation describing debt dynamics is $\Delta D = p \cdot m + (r-g)D_{-1}$, where ΔD = the change in the debt-to-GDP ratio, p = the primary deficit, m = money creation, D_{-1} = the stock of outstanding debt (the last three also defined relative to GDP), r = the interest rate and g = the growth rate.

³If the targeted reduction in the debt ratio is $\Delta D = \delta$, the required primary surplus is $-p^* = -[\delta + m - (r-g)D_{-1}]$, which is positive if the scope for money creation is limited.

⁴The overall deficit corresponding to p^* is $d^* = p^* + rD_{-1}$. For $p^* < 0$ (i.e., a primary surplus), $d^* < 0$ (i.e., an overall surplus) if $p^* > rD_{-1}$.

sustainability, it is likely that reasonably accurate measures of the government's net worth position will reveal it to be insolvent.

There are nevertheless cases where the impact of government activities on its assets does have to be addressed explicitly to avoid misleading judgements about sustainability. One case is where **mineral resource revenues** are large. Mineral resources should be considered the property of current and future generations. For intergenerational equity, it may be appropriate to convert part of the revenue from mineral resources into productive assets which can be passed on to future generations. There are a number of possibilities. Using such revenue to purchase physical or financial assets would not affect the deficit, assuming that the acquisition of financial assets is regarded as lending for public policy purposes and therefore treated as expenditure.⁵ But the accelerated repayment of debt or the financing of private investment by making funds available through the capital market could require a fiscal surplus.

Another case is where **privatization receipts** are large. These are usually treated as capital revenue or as negative net lending (i.e., repayments of equity), reducing the deficit. If they pay for an increase in current or capital expenditure (or a tax cut), the fiscal deficit is not affected. However, such a transaction involves the government exchanging a physical asset for a financial asset, and then running down the financial asset. Any additional current expenditure is financed by lowering wealth. This is little different to what the government does when it finances current expenditure (or a tax cut) by issuing bonds and adding to debt. It is economically correct to treat privatization receipts as financing, and as such they cannot support permanently higher consumption. It is better to use such receipts to preserve the government's wealth. However, there is a limit to the productive investments available for privatization receipts to finance, in which case the only alternative is to repay debt. Indeed, in many cases the quality of marginal government investment may be so low that repaying debt is the most compelling use of such receipts. If this is done, and privatization receipts are recorded as revenue or as negative net lending, a temporary fiscal surplus may be appropriate.

VII. Credibility

Sustainability is closely linked to credibility, since the loss of public confidence in fiscal policies can make them unsustainable. A fiscal surplus, while it might not be necessary to restore sustainability in an arithmetic sense, could enhance credibility by reducing the perceived risk of insolvency and increasing the discretion to run future deficits (e.g., in response to cyclical downturns). The success of stabilization policies also hinges on their credibility. A fiscal surplus, by sending a strong signal concerning the government's policy commitment, can enhance the chances of successful stabilization.

⁵This is distinct from the acquisition of financial assets for liquidity purposes, which is treated as negative financing.

VIII. Redistribution

The government undertakes the redistribution of income, consumption, and welfare through both its taxation and expenditure policies. In pursuing this function, the case for fiscal surplus would emerge insofar as the considerations discussed above argue for one. However, where government policy results in redistribution across generations, the case for a surplus may be strengthened. Social security pensions are the clearest example. Population aging implies that social security tax rates must rise over time to pay the same level of benefit to future generations as to current generations. In many countries, the implied future tax rates may not be sustainable. One possible response is levy higher taxes on the current generation of workers than is required to meet today's pension costs, and then to use the excess to make advance provision to pay pensions in the future. In effect, an element of funding is added to the traditional pay-as-you-go social security financing mechanism. The social security system will thus run a surplus for as long as social security tax receipts exceed pension payments. The general government, inclusive of the social security system, might also run a surplus at the same time. This depends upon the size of the fiscal deficit incurred by the rest of government, and how the social security surplus is used. Repaying government debt would reduce such a deficit, and may result in a general government surplus. Purchasing physical or financial assets (i.e., funding in the more accepted sense) would not affect the deficit.

IX. Tax Increases or Expenditure Cuts

When measures are needed to generate a fiscal surplus, these can address the revenue side or the expenditure side of the budget. There are few clear criteria to indicate where fiscal adjustment should take place. International revenue and expenditure norms are often used as a guide. Wherever the adjustment occurs, the measures adopted should not compromise the objectives being addressed by running a surplus. Tax increases should be those that do the least economic damage (in terms of disincentive effects and their welfare consequences), and relatively unproductive spending should be cut. Hence if the objective is to increase savings, it might be counterproductive to raise income taxes which reduce after-tax rates of return, since an increase in government saving may be offset by a reduction in private saving. Generally, with a well-designed tax structure, discretionary revenue should be generated through consumption rather than income taxation. On the expenditure side, cutting programs that support private sector activity—like the provision of essential infrastructure—will inhibit growth, which can in turn foster instability. As a rule, if the public expenditure program is reasonably efficient, discretionary spending adjustments should be directed toward current programs, which tend to be more flexible in this regard than capital programs.

X. Country Experiences

A major country in Latin America has run a fiscal surplus since 1992, reflecting stabilization needs, large private capital inflows, and a need to increase public saving to finance private investment. A heavily trade-dependent country in South-East Asia has targeted and achieved

a surplus for a number of years despite large infrastructure spending, primarily to reduce vulnerability to external shocks and to maintain international competitiveness through low inflation. The Fund has argued for a surplus in two major countries in the Middle East and North Africa, both to support stabilization objectives and to increase the resources available to the private sector. In another country in North Africa, a large external debt burden is seen to justify a surplus. A temporary surplus is being considered for a country in East Africa, which is trying to contain the inflationary impact of a recent increase in coffee prices.

There are many countries facing circumstances similar to those described above. In most, a reduced fiscal deficit was judged to be the appropriate response. In a few, there was no apparent need for tighter fiscal policy. The examples above are some of those where the same considerations resulted in a surplus. Generally, the arguments used to justify a surplus are those suggested by the preceding discussion. However, some of the arguments used could have been applied more widely. The sustainability of domestic and external debt has been an issue in a number of countries. And in two cases, more could have been made of the impact of mineral resources. Some other arguments were not used at all. Particularly surprising is the failure to discuss credibility, especially where the authorities have been supporting a fixed exchange rate.

XI. Concluding Comments

A fiscal surplus should not be an end in itself. It must be justified by reference to other objectives that it has to support or to special conditions that explain it. This paper has identified such objectives and conditions. A fiscal surplus may be appropriate where (a) the government has previously provided lumpy public or private goods; (b) the government wants to increase the savings available to the private sector; (c) stabilization targets are demanding or it is necessary to respond to business cycles, shocks, and capital inflows; (d) the debt is unsustainable; or (e) credibility has to be restored. With an aging population, a surplus may be justified to meet future pension costs. In the context of (a), the availability of sizable foreign grants to finance government expenditure may be reflected in a fiscal surplus. In the context of (d), heavy dependence on mineral resource revenues or privatization receipts might carry the same implication. Measures to generate a fiscal surplus should be consistent with the objectives a surplus is intended to secure. Country experiences suggest that, in cases where the Fund has supported or advocated a surplus, the above arguments provided at least part of the economic justification for this position.

References

- Barro, Robert J., "Are Government Bonds Net Wealth?" *Journal of Political Economy*, Vol. 82 (1974).
- , "On the Determination of the Public Debt," *Journal of Political Economy*, Vol. 87 (1979).
- Fischer, Stanley, and William Easterly, "The Economics of the Government Budget Constraint," *The World Bank Research Observer*, Vol. 5 (1990).
- Tanzi, Vito, "Fiscal Management and External Debt Problems," in *External Debt Management*, ed. by Hassanali Mehran (Washington: International Monetary Fund, 1985).

The First-Round Monetary and Fiscal Impact of Bank Recapitalization in Transition Economies

Timothy D. Lane¹

Abstract

Clearing up bad loans and recapitalizing insolvent banks can have important allocative effects, opening the way to more efficient allocation of credit and pricing of risk. This paper discusses whether the first-round fiscal and monetary effects associated with the government's payment of interest on recapitalization bonds are important. It first discusses a benchmark case in which these first-round effects are irrelevant, and then examines some qualifications to this result. It concludes that the fiscal impact of recapitalization does not, in general, correspond to interest paid on recapitalization bonds.

JEL Classification Numbers: E62, G21

Author's E-Mail Address: tlane@imf.org

I. Introduction

One of the key tasks in transition economies is to establish a safe and sound banking system that prices risk appropriately and allocates funds based on creditworthiness.² Banks' special importance in transition stems from banks' central role in financing economic restructuring and renewed economic growth and from the danger that unstable banks could jeopardize price stability and real activity.

¹Special thanks are due to Gérard Bélanger for extended discussions that helped clarify the issues and for helpful comments on an earlier version of the paper. Comments from participants in an informal seminar in the European I Department and members of the Working Group on Fund Policy Advice are also appreciated. The author is solely responsible for any remaining errors. Views expressed are the author's and do not necessarily represent the official view of the International Monetary Fund.

²For an overview of the role of financial institutions in transition, see Lane (1994) and papers collected in Caprio et al. (1994).

Most transition countries have faced large volumes of existing nonperforming loans (Calvo and Kumar, 1993; Begg and Portes, 1993; Levine and Scott, 1993)—the legacy of central planning in most cases also swelled during the early transition years. Clearing up these bad loans is a precondition for putting banks on a sound footing, removing the perverse incentives of insolvent institutions to engage in “double-or-nothing” behavior (Haas and Mathieson 1995) and paving the way to privatization.³

Accordingly, many transition economies have undertaken operations to clear up bad loans and recapitalize the banks, and more such operations are planned. What is the fiscal and monetary impact? The *first-round* effects involve the spending entailed by the operation itself: the transfer of funds to the banks and the interest paid on bonds issued in the recapitalization operation. In addition, there may be important *secondary* effects resulting from the way the operation influences banks’ behavior, and thus the flow of new bad loans: these effects are favorable if the operation is well-designed and creates incentives for prudent lending in the future, and unfavorable if recapitalization only rewards imprudence and perpetuates the problems. This paper argues that under some conditions the first-round effects are irrelevant, although the secondary effects can nonetheless be very important. Under these conditions, the overall monetary and fiscal effect of the operation cannot be assessed by looking at the interest expenditure on the recapitalization; instead, they hinge on a judgement of whether the operation is likely to succeed in setting up the right incentives for prudent future lending.

Several authors have argued previously that the fiscal cost of bank recapitalization is an illusion: Calvo and Frenkel (1991), on the basis that a government transfer to recapitalize state-owned banks involves no net transfer from the public sector; Begg and Portes (1993) that the money disappeared from the state finances when the bad debts were incurred, not at the point where this is acknowledged; and Fleming (1994), that the interest received by depositors is really being paid by the government—beneath the legal fiction of rolled-up interest owed by a state-guaranteed but insolvent enterprise.⁴ These arguments imply that the fiscal position prior to recapitalization, if measured properly, should already include interest on the prospective costs of recapitalization, and that these implicit costs should be taken into account in assessing fiscal sustainability, regardless of when the recapitalization actually takes place. The recapitalization itself then does not give rise to any additional monetary or fiscal impact. The present paper will build on these arguments.

If in contrast, the first-round fiscal costs of bank recapitalization were relevant, this would have obvious and important policy implications. The resulting expenditure would be of particular importance in transition economies, where in many cases it could be financed only by money creation due to the government’s limited access to domestic and international capital markets.⁵ In some cases, recapitalization would have to be postponed to keep the fiscal and monetary impact from hitting at an inopportune time; this would go against the microeconomic arguments

³It has also been argued that a breakdown of credit markets was an important cause of the output collapse in Eastern Europe and the former Soviet Union (e.g., Calvo and Coricelli, 1993).

⁴Similar discussion also arose, for instance, with regard to bailouts of failed savings and loan associations in the United States; see for instance Feldstein (1989).

⁵This does not contradict the fact that most transition economies engage in foreign borrowing and many issue domestic securities. What is relevant, of course, is how additional expenditure is financed at the margin.

for clearing up the mess as soon as consistent with reasonable confidence of finality.⁶ In others, recapitalization would go forward but offsetting revenue or expenditure measures would be needed to avoid a worsening of the fiscal position.

The remainder of the paper is structured as follows: Section III presents an irrelevance argument, focussing on a benchmark case in which the first-round fiscal and monetary consequences of recapitalization are purely cosmetic. Then some qualifications are presented, involving bank spreads (Section III) and wealth transfers (Section IV). The paper concludes that bank recapitalization may have an important fiscal and monetary impact, but its magnitude and sign depend on the details of the operation and banks' response to it; it will not in general correspond to the interest paid on recapitalization bonds. While the paper is framed in relation to transition economies, the analysis carries over to other countries with severe financial sector weaknesses.

II. An Irrelevance Result

In this section, it is argued that under certain conditions, the first-round fiscal effects of bank recapitalization are economically irrelevant, and entail no additional money creation. The type of recapitalization operation envisaged is one in which non-performing loans are replaced by interest-bearing government bonds, and the loans written off.⁷ It is also assumed that for the portion of loans affected, the debtor would never have paid.

In analyzing the impact of recapitalization, it is important to specify the alternative. In particular, it is possible that bad loans could be cleared up through a capital levy on depositors, in either of two forms: bank failures in which depositors receive only partial payment, or unanticipated high inflation accompanied by negative real interest rates. The former, however, would shake depositors' (often already-fragile) confidence in the banking system; the latter poses the risk of perpetuating inflation.⁸ Wiping out a substantial part of depositors' savings could also have political repercussions—although the establishment of market discipline requires that depositors not get off scot-free. In the benchmark case to be examined first, it is assumed that bank deposits carry a full (implicit or explicit) government guarantee. The implications of relaxing this assumption are examined in Section IV.

Under these conditions, one can make the following argument that the first-round fiscal consequences of recapitalization are irrelevant. If a bank is truly insolvent, and it is common knowledge (given the deposit guarantee) that it will someday be recapitalized, the nonperforming loans are essentially already a claim on the government. Replacing these loans with government bonds only replaces an implicit with an explicit claim.

Moreover, the interest on these bonds corresponds to the growth of the implicit claim on the government that would take place if the banks were not recapitalized. Whether or not the banks are recapitalized, the bad loan problem implies an increase in banking system credit to

⁶There could of course be other reasons for delaying recapitalization or implementing it in parts—for instance, to give time to learn the scale of the problem. See, e.g., Marrese (1995).

⁷To focus the discussion, the associated complexities of debt workout—whether by a centralized agency or the individual banks—are ignored. See, e.g., Fries and Lane (1994).

⁸In practice, unanticipated inflation has helped to recapitalize banks in some transition economies, for example, Poland in 1990 (see Lane 1992).

government each year: without recapitalization, this happens as the government's responsibility to recapitalize the banks grows at the rate of interest; after recapitalization, it happens as the government borrows to finance a larger deficit associated with the interest on the bonds.⁹ The Appendix presents a simplified numerical example illustrating this point.

There are two key underlying principles: one is that an implicit deposit guarantee is a claim on the government which may be interpreted as a put option on the bank's portfolio of assets and liabilities; if a bank is clearly insolvent, this option is deep in the money, and increases approximately in step with further losses incurred by the bank. Thus from an economic standpoint, the bank's continuing losses contribute to the fiscal deficit. The second is that, assuming that the banks are the only game in town—i.e., that at the margin the government cannot readily finance additional spending in domestic or international capital markets, but must turn to the banking system—the only place the government can borrow to recapitalize the banks is from the banks themselves: it is a closed system.¹⁰

For this irrelevance result to hold, it does not matter in which of two alternative ways the banks handle the bad loans in the absence of recapitalization: (i) if they failed to acknowledge bad loans and capitalized the interest on them, their magnitude, corresponding to the need for future recapitalization, grows with the capitalized interest; (ii) if they acknowledged the bad loans, they would have negative (or inadequate) capital, which would become progressively more negative (or smaller) over time as the portion of the bank's portfolio generating interest income is attenuated and interest earned is thus inadequate to cover the interest paid on interest-bearing liabilities.¹¹

In short, the alternative to bank recapitalization now is recapitalization with interest later—and the two have identical fiscal and monetary implications. Moreover, given the assumption that any government deficit is financed by the banking system, the implications are identical in each period, not only in present value terms.

This way of looking at bank recapitalization need not be an argument in favor of greater fiscal laxity. One way of characterizing the argument just presented is that the first-round monetary and fiscal consequences of recapitalization are nil because they are incurred regardless of whether or not recapitalization takes place. This implies that the fiscal positions of countries with unsound banking systems operating under government guarantees may actually be much worse than the official statistics would imply. A possible conclusion is that when the implicit fiscal costs of bad loans are taken into account, the existing fiscal position is revealed as too expansionary and needs to be tightened.

The monetary effects of bank recapitalization are contractionary if the government can borrow from international or domestic capital markets to finance it. Delaying a needed recapitalization entails implicit borrowing from the banking system to roll over the interest on the associated implicit claim on the government. The irrelevance result assumes that recapitalization replaces this implicit credit with other, explicit bank credit. If, however, recapitalization is financed by

⁹This assumes, of course, that no offsetting fiscal measures are taken and the government's access to capital markets is limited.

¹⁰Even if the government borrowed from the central bank instead, this could be sterilized through an equal reduction in central bank refinancing of the banking system, with no monetary consequences.

¹¹This analysis assumes that interest rate differentials between good loans and government bonds are at a level such that an adequately capitalized bank would earn a competitive return to capital. Possible changes in interest rate spreads are discussed in the next section.

other means—*viz.* through foreign borrowing or domestic securities issue—carrying out the recapitalization rather than postponing it would eliminate this expansion of implicit banking system credit to government.

III. Bank Spreads

While the argument presented in the previous section is a benchmark, there are some counterarguments. Conceivably, delaying recapitalization may induce banks to widen spreads and earn higher profits, reducing need for recapitalization in the future. This would mean that some part of the recapitalization may be financed through an implicit tax on the bank's depositors and borrowers.

What is at issue here is not only whether the resulting tax on intermediation is appropriate. (One can make a good case that it is not, especially given the lack of transparency of the tax, and the undesirability of further impairing the financial system given its potential key role in transition economies.) The point is that, if recapitalizing banks is equivalent to abolishing a tax, its direct fiscal and monetary implications need to be considered, in addition to the merits of that particular tax.

However, if banks maximize profits, recapitalization would not, as a first approximation, lead them to alter their spreads. In the profit-maximizing case, spreads depend only on the marginal cost of funds and marginal revenue, neither of which is affected by the historical cost of the banks' accumulated bad loans. This is true regardless of whether the banking system is perfectly competitive or characterized by some degree of market power.¹² This does not contradict the possibility that the banks are really quite profitable so that recapitalization is not really needed; it only means that the monopoly "tax" on financial intermediation would exist regardless of whether the banks had been recapitalized or not.

There are other cases in which spreads might be affected, though. One may be characterized as the case of the "rule of thumb" bank—staffed with the bookkeepers of the central planning regime, who do not set spreads to maximize profits, but by adding up all their costs including provisions. In this case, it is the bureaucratic rules being followed in setting spreads that turn the historical cost into a tax on current intermediation.¹³ Moreover, there may in practice be some degree of government interference with regard to spreads, on either the positive or negative side. One possibility is that governments and central banks are concerned by wide spreads, which banks (perhaps disingenuously) are justifying by the need to provision; an agreement to narrow spreads may be the *quid pro quo* for recapitalization.¹⁴

Another possibility is that banks may be cosseted by government through regulations impeding competition, in order to ensure them adequate profits to earn their way out of trouble.

¹²The latter may be the result of government regulation protecting domestic banks or may be the result of timidity or unwillingness of foreign banks to enter the domestic market on a sufficient scale or in a sufficiently broad range of services.

¹³A qualification is that if this results in wider-than-profit-maximizing spreads, banks' profits (before provisioning) would actually be lower than in the absence of provisioning, so delaying recapitalization could even increase the present value of recapitalization required.

¹⁴This argument could apply to either a profit-maximizing bank in a monopoly position or a "rule of thumb" bank.

Recapitalization would then be associated with a reduction in barriers to entry—desirable from an efficiency standpoint, but again equivalent to the reduction of a tax on financial intermediation, with expansionary fiscal consequences.¹⁵

In such cases, where the link between recapitalization and spreads is through the authorities' presumed reactions, the authorities could break this link by reacting differently. For instance, if there were concern that the recapitalization would have expansionary fiscal consequences because it could make the authorities feel too comfortable about financial liberalization, these consequences are in principle avoidable.

If provisioning did result in higher lending rates, some of the additional interest cost would be borne by insolvent borrowers and the incidence of the wider spreads would be back on the banks—and thus perhaps eventually on the government again.

In the cases discussed, in which provisioning for past loan losses would otherwise have been fully incorporated in spreads (and where these would have been paid only by solvent borrowers) recapitalization has a direct fiscal impact equivalent to eliminating a tax on financial intermediation equal in present value to value of the recapitalization bonds issued. (Note that in this case the present value of recapitalization is not only the interest on the recapitalization bonds, but also includes an element of discounted principal repayment which is not zero unless the bonds issued are perpetuities.) However, the distribution of this fiscal impact over time depends on the timing of the provisioning that would otherwise have taken place; only by coincidence (or design) would the schedule of provisioning have been the same as that for servicing the recapitalization bonds.

IV. Wealth Transfers

Another possible consequence of bank recapitalization is that it may amount to a wealth transfer. It may be a transfer to the bank; a second possibility, relaxing the assumption of a full government guarantee of deposits, is a transfer to depositors.

For banks that are profitable enough that they could earn their way out of trouble in the absence of recapitalization, recapitalization is simply a gift to the banks. If the banks are state-owned at the time of recapitalization, at least some of this transfer may be recouped if and when the banks are privatized; there is also the likelihood, however, that some of a transfer would spill over into the incomes of bank "stake-holders" (such as managers and other employees) or (if equity markets are not efficient) be less-than-fully incorporated in the price paid by their future private owners. To the extent that this occurs, the economic effects of recapitalization are similar to those of other transfers.

For banks that are clearly insolvent before recapitalization, whether privately or state-owned, it is not clearcut whether the wealth transfer raises the banks' net worth. The reason is that, for the rational bank owner or stake-holder, the government's implicit deposit guarantee has an option value that is part of their wealth. If the bank is so deep under water that an eventual recapitalization is viewed as inevitable, this is a deep-in-the-money option, and any

¹⁵To the extent that the rule of thumb of marking up historic cost including provisioning can be seen as an officially-sanctioned tacit collusive arrangement, this analysis may also apply to this case.

recapitalization now therefore reduces the value of the deposit guarantee by an approximately equal amount, with no net effect on its owners' or stake-holders' wealth.

In the intermediate case in which it is uncertain whether or not the bank will turn out to be solvent, the offset from the reduced value of the deposit guarantee would be less than 100 percent, implying a partial net transfer to the bank's owners or stake-holders.

Thus, if banks are already solvent, bank recapitalization acts as a real wealth transfer—and has the same fiscal and monetary implications as any other wealth transfer financed by borrowing. However, this transfer is only equal to the full amount of the recapitalization in the case where the operation is not really needed—when both moral hazard and fiscal prudence would anyway argue against it.¹⁶

Finally, there is the important case in which the government's explicit or implicit guarantee of deposits is not complete. Recapitalization transfers wealth to depositors to the extent that they otherwise expected to lose their claim on the bank through a bank failure. In the extreme case where depositors are fully informed about the size of the bank's non-performing loans and expect no bailout from the government, the fiscal impact of the bank recapitalization would be the full amount of the operation. More realistically, depositors are likely to be quite uncertain about the magnitude of a bank's problem loans, and the rules for bailouts may not be transparent. In short, assessing the first-round fiscal impact depends on a judgement of the extent to which the deposits had previously been given up for lost.¹⁷

V. Conclusion

This paper has explored the possible first-round monetary and fiscal consequences of bank recapitalization. A simple irrelevance result was presented. This result was then qualified to the extent that recapitalization may induce banks to narrow their spreads (thus reducing an implicit tax on intermediation); and to the extent that it may transfer wealth to bank owners or stake-holders or to depositors. The magnitude of these effects depends on the magnitude of the loan losses and the long-term profitability of the banks; as well as on behavioral assumptions concerning banks and other economic agents: in particular, how bank spreads are set, how banks are valued by their owners or managers; and the expectations of depositors. Here are some tentative conclusions:

1. If bank loan losses are patently very large, and the banks' long-term profitability is very weak, so that their net worth is deeply negative and some kind of recapitalization is clearly going to be necessary (and where it is fully expected by depositors), the first-round monetary and fiscal effects of recapitalizing now rather than later are likely to be economically *negligible*—since in this case, the scope for using wider spreads to pay for recapitalization will be of relatively small importance. (In this case, a true measure of public debt would include the full prospective costs of recapitalization, and the level of government spending the associated carrying costs, even before the recapitalization is

¹⁶In the case discussed in Section III of the “rule-of-thumb” bank following bureaucratic rules, spreads would be narrowed to offset the effects of recapitalization, eliminating any net wealth transfer.

¹⁷To the extent that the incompleteness of the guarantee made the deposits illiquid, recapitalization may also increase the deposits' liquidity, with an expansionary monetary effect.

actually carried out.) Moreover, in this case the banks' net worth is so clearly negative that little of the cost of recapitalizing the banks goes to creating positive net worth for anyone.

2. If bank loan losses are small enough that the banks could potentially earn their way out of their predicament, recapitalization may have significant fiscal consequences, equivalent to the removal of an implicit tax on financial intermediation or on bank ownership. The upper bound on the present value of the impact is *the full value of the bonds issued* (not only the discounted interest component of their value); however, the distribution of the fiscal effects over time depends on how the implicit tax would otherwise have been distributed over time.
3. Assuming that the banks are insolvent, the impact is likely to be *closer to the upper bound* where banks are closely tied to the state, so that spreads are more likely to be set by bureaucratic rules and/or heavily influenced by moral suasion from the government. It is likely to be *closer to zero* where there is relatively loose control over the banks (or where they are privately owned), so that their managers are likely to take profits to heart and charge equally wide spreads after recapitalization.
4. In cases where depositors seriously expected to lose (part of) their money, a full recapitalization is equivalent to a wealth transfer to them, equal to the fraction of their deposits they expected to forfeit.

Finally, regardless of the first-round effects, bank recapitalization is likely to have important secondary effects resulting from the incentives it creates for bank lending behavior. Whether these effects are expansionary or contractionary depends on the extent to which there are accompanying changes in the rules of the game that address moral hazard problems and create incentives for prudent lending. Clearly, if recapitalization is likely to swell rather than staunching the flow of new bad loans, it is a bad idea in the first place.

In conclusion, there is no general validity to the practice of taking the interest on the bonds issued as a measure of the fiscal impact of bank recapitalization. It is not even a good first approximation. Instead, the impact depends on several features of the banking system and the policy regime that have been highlighted—notably, the extent to which the recapitalization was already expected, to which it was really needed, and to which it is likely to be successful. Judgements on these issues, although highly imprecise, are unavoidable.

Appendix

In this appendix, a simplified numerical example is first presented, illustrating the monetary and fiscal irrelevance of bank recapitalization through asset-liability accounts. Then the implications for the monetary accounts used in the context of financial programming are discussed.

A. Numerical example

In this numerical example, the balance sheet effects of the recapitalization operation are first considered; then the implications of flows of accrued interest credit growth are laid out.

Stock effects

Consider a bank whose balance sheet before recapitalization includes loans worth 100, half of which are non-performing and have been written off. The bank's net worth is -50.

No Recapitalization, Period 1

<u>Assets</u>		<u>Liabilities</u>	
Reserves	10	Deposits	100
Loans	50	Advances from central bank	10
		Capital	-50

If the bank is recapitalized, the nonperforming loans are replaced with government bonds, raising the bank's capital to 0 (assumed for simplicity to be an adequate level).¹

With Recapitalization, Period 1

<u>Assets</u>		<u>Liabilities</u>	
Reserves	10	Deposits	100
Loans	60	Advances from central bank	10
Government bonds	50	Capital	10

B. Flow effects

The following year, the flows of accrued interest on assets and liabilities would affect the bank's balance sheet. For simplicity, suppose that the marginal cost of intermediation is zero. Assume that the interest rate is 10 percent on deposits, loans, reserves, and central bank advances. Suppose that this is a closed banking system (with no currency drain), so interest is credited to deposits (as well as to reserves and central bank advances). For simplicity, assume that interest received on performing loans is re-lent to good borrowers.

¹If it were assumed more realistically that a positive level of capital were required, this would imply that loan interest rates would have to exceed deposit rates to provide a market return on capital. This would not alter the substance of the analysis, however.

We can consider two alternative cases. If the banks were not recapitalized, the bank would incur further losses of 5, subtracting further from its capital. Other elements in the bank's portfolio also grow as interest is accrued:

No Recapitalization, Period 2

<u>Assets</u>		<u>Liabilities</u>	
Reserves	11	Deposits	110
Loans	55	Advances from central bank	11
		Capital	-55

The bank's capital has fallen to -55, increasing the recapitalization that would be needed if the operation were carried out in period 2 instead of period 1.

If the banks had been recapitalized in period 1, the government would have to pay interest on the recapitalization bonds. Assuming that the government does not carry out any offsetting fiscal measures, and also assuming that the government has no access to non-monetary financing, the government will then have to borrow an additional amount from the banking system to finance this addition to its deficit.

With Recapitalization, Period 2

<u>Assets</u>		<u>Liabilities</u>	
Reserves	11	Deposits	110
Loans	55	Advances from central bank	11
Government bonds	50	Capital	0
Additional credit to government	5		

Note that this additional recapitalization does not take up any room from credit to non-government, and is consistent with the same rate of monetary expansion as is assumed to have occurred in the absence of recapitalization. The key to the result is that the bank's claim on the government—in one case the negative capital that corresponds to the need to recapitalize in the future, in the other explicit government debt—has increased by the same amount with or without recapitalization. The other point is that, assuming that the government's access to non-monetary financing is limited, the government's additional obligation is on the books of the banking system, regardless of whether or not recapitalization has taken place. This analysis also ignores the second-round effects, associated with the possibility that recapitalization affects the share of new lending that goes to creditworthy borrowers.

An alternative case for period 2 is one in which government cannot borrow from the banking system, but can borrow directly from the central bank. In this case, recapitalization alters the composition of credit between the commercial banks and the central bank, and this could have monetary effects. These effects on both base money and bank credit can, however, be fully offset

by a reduction in central bank advances to the banking system, resulting in the following balance sheet:

<u>Assets</u>		<u>Liabilities</u>	
Reserves	11	Deposits	110
Loans	55	Advances from	
Government bonds	50	central bank	6
		Capital	0

C. Monetary accounts

This section considers the implications of bank recapitalization in the context of the monetary accounts typically used in the Fund's financial programming. Here, as in the numerical example, we assume for simplicity that interest rates are such that an adequately capitalized bank would earn a competitive return to capital.

Stock effects

Either a recapitalization or a write-off of bad loans has zero initial effect on the net domestic assets (NDA) of the financial system:

- (i) if the bad loans were unacknowledged, recapitalization lowers credit to non-government and increases credit to government (government bonds) by an equal amount;
- (ii) if the bad loans had already been written off, or provisioned against, recapitalization raises credit to government and lowers other items net (OIN) by an equal amount, respectively, by increasing capital or decreasing loan loss provisions.

Flow effects

NDA increases with the interest on the bad loans, regardless of whether or not banks are recapitalized:

- (i) Without recapitalization,
 - if the bad loans are unacknowledged and interest on them is capitalized, this capitalized interest would appear in the monetary accounts as an increase in credit to enterprises, with no offsetting entry in OIN since the economic loss the bank is making is hidden; the result is an increase in NDA;
 - if interest is not capitalized, it is recorded as interest due but not collected, which appears in OIN; or if the resulting loss is recorded, it is charged against capital and thus also increases OIN.
- (ii) With recapitalization, the government borrows from the banks to finance the interest on the bonds; the result is an increase in NDA in the form of credit to government.

References

- Begg, David, and Richard Portes, 1993, "Enterprise Debt and Economic Transformation: Financial Restructuring in Central and Eastern Europe," in *Capital Markets and Financial Intermediation*, ed. by Colin Mayer and Xavier Vives (Cambridge, England: Cambridge University Press), pp. 230–61.
- Calvo, Guillermo A., and Fabrizio Coricelli, 1993, "Output Collapse in Eastern Europe: The Role of Credit," *Staff Papers*, International Monetary Fund, Vol. 40 (March), pp. 32–52.
- Calvo, Guillermo A., and Jacob A. Frenkel, 1991, "From Centrally-Planned to Market Economy," *Staff Papers*, International Monetary Fund, Vol. 38 (June), pp. 268–99.
- Calvo, Guillermo A., and Manmohan S. Kumar, 1993, *Financial Sector Reforms and Exchange Arrangements in Eastern Europe*, IMF Occasional Paper 102 (Washington: International Monetary Fund).
- Caprio, Gerard, David Folkerts-Landau, and Timothy D. Lane (eds.), 1994, *Building Sound Finance in Emerging Market Economies* (Washington: International Monetary Fund).
- Feldstein, Martin, 1989, "FSLIC Funding Belongs Off-Budget," *Wall Street Journal*, March 1.
- Fleming, John, 1994, "Summing Up," in *Transition: Private Sector Development and the Role of Financial Institutions*, ed. by Stephen M. Fries, Working Paper No. 13, European Bank for Reconstruction and Development, July.
- Fries, Stephen M., and Timothy D. Lane, 1994, "Financial and Enterprise Restructuring in Emerging Market Economies," in *Building Sound Finance in Emerging Market Economies*, ed. by Gerard Caprio, David Folkerts-Landau, and Timothy D. Lane (Washington: International Monetary Fund), pp. 21–46.
- Haas, Richard D., and Donald J. Mathieson, 1995, "Establishing Monetary Control in Financial Systems with Insolvent Institutions," *Staff Papers*, International Monetary Fund, Vol. 42 (March), pp. 184–201.
- Lane, Timothy D., 1992, "Inflation Stabilization and Economic Transformation in Poland: The First Year," *Carnegie-Rochester Conference Series on Public Policy*, ed. by Allan S. Meltzer and Charles Plosser, Vol. 36 (July), pp. 105–56.
- , 1994, "Financial Sector Reform: Banking, Securities and Payments," in *Government and Markets*, ed. by Hans J. Blommestein and Bernard Steunenberg (Boston: Kluwer).
- Levine, Ross, and David Scott, 1993, "Old Debts and New Beginnings: A Policy Choice in Transitional Socialist Economies," *World Development*, Vol. 21 (March), pp. 319–30.
- Marrese, Michael, 1995, "Assessing the Bad-Debt Problem in the Slovak Economy" (unpublished; Washington: International Monetary Fund, October).

What Should Be Done with a Fiscal Surplus?

Nigel Chalk and Richard Hemming¹

Abstract

This paper considers whether countries should spend or save a fiscal surplus, and whether a surplus that is saved should be used to pay off public debt or to purchase financial assets. There are circumstances when a surplus should be spent, either by lowering taxes or increasing expenditure. If a surplus is to be saved, it will often be appropriate to purchase domestic and foreign assets rather than pay off public debt. Surpluses that reflect the exploitation of resource wealth are often saved in this way, but it is also appropriate to purchase assets under other circumstances.

JEL Classification Numbers: E62, H60

Keywords: Fiscal surplus, optimal portfolio allocation

Author's E-Mail Address: Rhemming@imf.org

I. Introduction

A number of industrial and developing country governments (together with some subnational governments) currently find themselves in a position where they have to decide what to do with an existing or an expected fiscal surplus. A combination of factors, including fiscal consolidation which has targeted ex ante fiscal surpluses, cyclical upturns in the economy, and transitory capital receipts (e.g., from mineral resources), have resulted in, or should result in, ex post fiscal surpluses. In turn, these surpluses have led to, or should lead to, a virtuous cycle of lower deficits, debt, and interest rates. In the United States, where the federal budget is set to move into surplus in 1998, and is expected to record sizable surpluses for several years after the year 2000, the discussion of how to use anticipated future surpluses has been framed in terms of whether

¹The authors are grateful to Paul Cotterell, Luis Cubeddu, Jeffrey Davis, Peter Heller, Ishan Kapur, Michael Keen, Selma Mahfouz, Richard Stern, Steven Symansky, and Tsidi Tsikata for comments on an earlier version of this paper.

they should be “spent” by cutting taxes and/or increasing spending, or whether they should be “saved” by paying off public debt. This paper seeks to establish if these are the only options, and to outline the considerations that should influence the choice between alternative uses of a fiscal surplus.

The view taken in this paper is that the government, in much the same way as an individual, faces separable saving and portfolio decisions. In the context of this paper, the government’s *saving decision* is seen to involve the choice of an optimal path for the fiscal deficit/surplus, which in turn is concerned with selecting tax and expenditure policies that maximize intertemporal social welfare.² If a government running a surplus can increase intertemporal social welfare by lowering taxes or increasing expenditure, it should spend some or all of a surplus in this way. A surplus will thus be reduced and possibly eliminated in the process. It follows that the use of a fiscal surplus will be related to the underlying reasons why a government is running a surplus. Section II of this paper describes situations where an *ex ante* fiscal surplus would be appropriate, although it stops short of describing what the optimal surplus would be. Rather, it focuses on the reasons why a temporary or permanent fiscal surplus could result from the government’s pursuit of its traditional fiscal functions and from a desire to make effective use of transitory capital receipts and other temporary income.

If an *ex post* surplus is not eliminated through lowering taxes or increased expenditure consistent with an optimal fiscal policy, the government’s *portfolio decision* is concerned with the way in which the surplus is saved. Paying off debt is clearly not the only option. A useful analogy here is with an individual who receives a windfall financial gain. This gain can be spent or saved, and while the part saved might be used to pay off debt, it could also be used to purchase financial or other assets. Many individuals would choose to pay off high-interest debt (e.g., credit card debt) but to increase their asset holdings rather than pay off low-interest debt (e.g., mortgage debt). Governments can do more or less the same thing, and it might be optimal for them to purchase financial assets with at least part of a surplus. Section III discusses the issues involved in saving a fiscal surplus. Section IV summarizes the experience with uses of fiscal surpluses in selected countries, and Section V contains concluding comments.

II. When Is Fiscal Surplus Appropriate? Or, Should a Fiscal Surplus Be Saved?

Situations where it is appropriate for a government to target an *ex ante* fiscal surplus are described in Hemming and Daniel (1995).

- First, a surplus might be consistent with the government’s pursuit of its traditional allocation, stabilization, and redistribution functions.

²While this approach does not use the more familiar definition of government saving, namely the balance on the current account of the budget (i.e., excluding government investment), the difference is not of analytical significance. The government’s problem could just as easily be specified as the choice of optimal paths for government saving (defined in the more familiar way) and government investment.

- Second, a surplus might be justified when the government wants to make effective use of transitory capital receipts in the form of foreign grants, mineral resource revenue, and privatization proceeds.

As part of its **allocation function**, the government provides public goods, many of which involve *lumpy investment*. Such goods include physical infrastructure (e.g., transportation and telecommunications networks) and social infrastructure (e.g., schools and hospitals). To finance the provision of such infrastructure, the government may borrow now and run surpluses in the future to service the costs of such borrowing. But if the government faces borrowing constraints, it may have to run surpluses now with a view to paying for future provision. An optimizing government might also favor *tax smoothing*. Since the welfare costs of distortionary taxation vary in proportion to the square of the tax rate, minimizing these costs (which is the corollary of maximizing welfare) involves maintaining constant tax rates over time (Barro, 1979). If expenditure increases in recessions and falls in booms, while tax bases vary procyclically, the government will need to run fiscal surpluses in booms and deficits in recessions to maintain constant tax rates over the cycle. Fiscal policy will thus be countercyclical (Bean and Buiter, 1987).

The government's **stabilization function** provides an even stronger justification for countercyclical fiscal policy to respond to demand deficiencies and supply shocks. The stabilization function is also concerned with correcting short-term macroeconomic disequilibria (balance of payments difficulties, high inflation). The tightening of fiscal policy that is often needed, in conjunction with appropriate monetary and exchange rate policies, to restore macroeconomic stability may involve running a fiscal surplus.

A surplus may also be required as part of the government's **redistribution function**, especially when government policy implies redistribution across generations.³ The provision of *public pensions* is a case in point. Population aging implies that pension contributions must rise over time to pay the same pension benefits to future generations as to current generations. In many countries, projected future contribution rates may not be sustainable. One possible response is to levy higher contributions on the current generation of workers than is required to pay for today's pensions, and to use the excess contributions to make advance provision through funding to pay pensions in the future. The public pension system will thus run a surplus for as long as pension contributions exceed pension payments. Consequently, the general government, inclusive of the public pension system, may also run a surplus.

Transitory capital receipts could also justify a fiscal surplus. Such receipts could be in the form of *foreign grants* which cannot be used for productive purposes and therefore have to be retained for future use; *mineral resource revenue* derived from an exhaustible resource, part of which has to be saved for future generations;⁴ and *privatization proceeds*, which are usually treated as nontax revenue, negative capital expenditure, or negative net lending (i.e., net borrowing) in the fiscal

³Strictly speaking, this argument only applies in a non-Ricardian context. With full Ricardian equivalence, it is immaterial whether the government runs a surplus or deficit, since private saving will adjust to fully offset the intergenerational redistribution resulting from fiscal policy. However, the empirical evidence (see Evans (1985, 1987), and Savastano (1995)) is ambiguous as to whether Ricardian equivalence holds in practice.

⁴This argument is also relevant only in a non-Ricardian context, for the reasons given in footnote 3.

accounts.⁵ Similarly, windfall gains from temporarily high commodity prices, which might accrue to the budget through higher taxes and other levies on export profits, could justify a fiscal surplus.

The optimal fiscal policy for a particular country is difficult to characterize with any precision, but it should reflect the above considerations. To the extent that a government running an ex post fiscal surplus is judged not to be pursuing an optimal fiscal policy, there is a case for spending part of that surplus by either lowering taxes or increasing expenditure (or both). This would be the case whether a surplus is temporary or permanent. Moreover, adjustments to any part of the tax and expenditure structure could be justified, and they would not necessarily be limited to those parts directly related to the source of the surplus.⁶ However, using a temporary surplus to pay for permanent tax cuts or spending increases is unlikely to be optimal.

Even where the arguments described above point to spending a fiscal surplus, the debate in the **United States** illustrates that doing so entails some risk. There is broad agreement that federal budget surpluses should be used in a way that increases the long-term, sustainable growth rate of the economy, and that fundamental tax reform and investment in economic and social infrastructure would likely have a high economic return. However, *public choice considerations* suggest that surpluses are likely to be used primarily for tax cuts and spending programs with the highest political returns rather than those with the highest economic payoff, in which case they may be unproductively frittered away. Under such circumstances, paying off the debt is thought by many to be a safer option. The uncertain future costs of restructuring social security (and health care) are also thought by some to strengthen the case for paying off debt.⁷

III. How Should a Fiscal Surplus Be Saved? Or, Is It Appropriate to Pay Off Public Debt?

It was noted above that the decision whether to spend or save a surplus, and the way in which a surplus is spent, is related to the source of the surplus. However, the way in which a surplus is saved is much less affected by whether a surplus is temporary or permanent, or by how it is generated. In particular, the decision whether to pay off debt or to purchase financial assets is independent of such considerations.

A. The Government's Portfolio Allocation Decision

Finance theory suggests that the optimal portfolio allocation involves purchasing some combination of an efficient market portfolio of risky assets and a risk-free asset (i.e., triple-A rated Treasury securities or perhaps very safe corporate debt). This would be the case both for

⁵However, as discussed below, this treatment of privatization proceeds is inappropriate; such resources should be regarded as financing rather than revenue.

⁶Thus the optimal response to a surplus that reflects buoyant income tax receipts could be a reduction in consumption tax or an increase in spending, and not just a reduction in income tax.

⁷The federal budget surplus is derived from the unified budget, including social security, and reflects social security surpluses. This being the case, some observers argue that surpluses should be used explicitly to finance social security reform. For example, Niskanen (1997) wants to use surpluses to pay for the transition to funded individual social security and health insurance accounts.

an individual and the government.⁸ However, the government's preferences will generally be different from those of a representative individual, since the government's welfare function would typically weight the utility of different individuals. For example, if welfare weights are inversely related to income, the government will be more risk averse than the representative individual. Given its risk-return preferences, the government's portfolio choice is shown in Chart 1.

Chart 1. The Government's Optimal Portfolio Allocation

At point A, the government would hold only the risk-free asset and would earn the risk-free rate of return. At point B, the government would hold none of the risk-free asset. Instead, it would hold only the efficient market portfolio, and it would receive a higher rate of return than on the risk-free asset but bear the risk associated with the market portfolio. Anywhere between points A and B, the government would hold a combination of the efficient market portfolio and the risk-free asset.

Point C describes the optimal portfolio allocation given government risk-return preferences. At this point, the government would hold a *negative* amount of the risk-free asset (i.e., there would be an outstanding stock of government debt) and use the proceeds from borrowing to hold

⁸In a Ricardian world, it clearly would not matter who saved the surplus, since individuals could offset the effects of the government's portfolio choice. But if full Ricardian equivalence does not hold, the case for having the government *save* a surplus rests on precisely those arguments for having the government *run* a surplus which are discussed above.

more of the efficient market portfolio than at point B. This illustrates the possibility that a government with a fiscal surplus to save may find it optimal to purchase financial assets rather than pay off debt. Indeed, it might even choose to accumulate more debt, using the proceeds to acquire financial assets and so achieve the optimal portfolio allocation.

While there are difficulties in defining the efficient market portfolio, a diversified portfolio of global equity and debt is probably an appropriate analogue. However, if the efficient market portfolio cannot be precisely determined, social welfare would be higher if the government held some proxy of the market portfolio rather than just the risk-free asset. For example, if the government holds some combination of a diversified market portfolio (not the efficient market portfolio) and the risk-free asset with risk-return characteristics given by the dotted line in Chart 1, social welfare would be higher (say, at point D) than if the government held all its wealth in the form of the risk-free asset (at point A). As a result, it could be welfare improving for a government running a fiscal surplus to purchase a diversified market portfolio (even if it were not the most efficient one) rather than repay its debt.

B. Some Qualifications

Although it is a useful starting point to compare the government's portfolio allocation decision to that of an individual, there are good reasons why the government might choose to depart from the typical risk-return optimization behavior that an individual considers. First, it is important to take into account *whether the government's fiscal policy is sustainable*.⁹ If this is not the case, it is likely that government debt carries higher interest rates than can be earned on other assets (even those that bear higher risk). Under such circumstances, it may be necessary to pay off government debt with a view to securing the credibility gains associated with longer-term sustainability and to reduce interest rates on the outstanding stock of debt.¹⁰ Similarly, credibility concerns would dictate paying off debt to meet an agreed gross debt target (e.g., as would be the case under EMU).

When a government is deciding whether to pay off debt, the fact that the government *exerts considerable market power when buying its own debt* is also a relevant consideration. By paying off debt, the government can have a marked impact on the return the outstanding stock of debt commands in the market. Using a surplus to pay off debt may therefore lower the total interest bill paid by the government by more than one-for-one, and thus further improve the fiscal position and enhance credibility. However, the government would not choose to completely pay off its debt if that debt serves purposes other than financing fiscal deficits. This would be the case, for example, if an outstanding stock of government debt is necessary for the conduct of monetary policy.¹¹ It could also be argued that the government does not need to pay off its *own* debt to secure the benefits of debt reduction. If the government instead chooses to purchase

⁹However, an individual may face a credit constraint which would influence its optimization problem in a similar fashion.

¹⁰Ensuring longer-term sustainability could also be regarded as part of the government's stabilization function, in which case it would be an additional characteristic of an optimal fiscal policy.

¹¹In countries where government debt is not allowed, such as Indonesia, the central bank can issue securities to conduct open market operations. However, an active government debt market is the usual basis for open market operations, and issuing central bank securities can segment thin government debt markets in developing economies and emerging markets (Axilrod, 1996).

other debt instruments in the market (e.g., bank-issued jumbo CDs) that are a close substitute for government debt, this presumably would bring down the entire schedule of interest rates in the economy (including those on the outstanding stock of government debt).¹²

Portfolio allocation is further complicated where *the government already owns significant income-earning nonfinancial assets*. For example, it may be appropriate, both from a liquidity management standpoint and for reasons related to the risk-return trade-off, for a government with mineral resource wealth to sell these resources and to use the resulting revenue to purchase financial assets, both domestically and abroad. By the same token, it may be appropriate for a government to privatize assets and to use the proceeds to buy other financial assets, to both derive the efficiency benefits of privatization and to improve the risk-return characteristics of its asset portfolio. In these cases, the government's saving decision is driven less by the size of fiscal surplus and more by judgments about the appropriate portfolio of assets, both financial and nonfinancial, that the government should hold. However, such portfolio decisions may reflect considerations other than the risk-return trade-off. For example, in designing a privatization strategy, the government may view some industries as strategic and decide to retain them in public hands even if it is inefficient and financially disadvantageous to do so. The government may also choose to maintain controlling stakes in natural monopolies because it does not have the regulatory infrastructure to prevent them from abusing their monopoly position.

Other considerations may also influence the government's portfolio decision. If a country has an *underdeveloped system of financial intermediation*, the government can promote market deepening by channeling funds from individuals to domestic financial instruments. This intermediation by the government may, in itself, act as a catalyst to create a market for corporate equity or debt. However, there is also the danger that the government's role in such activities may do more harm than good. First, the government may become the dominant shareholder in a company, which could lead to the corporate governance problems typically associated with public ownership. Second, by stifling the natural development of a private financial sector, and by allocating assets inefficiently through directed lending at low interest rates with inadequate prudential safeguards, the government could inadvertently be directing capital into inefficient or inappropriate activities. The Asian crisis demonstrates that this danger is a real one. If development of the financial system and an increase in corporate investment is a goal of the government in using a fiscal surplus, it may be better advised to reduce taxes (i.e., to spend the surplus), thus allowing for greater retained corporate earnings and higher private savings, rather than maintaining higher tax rates and directing credit.

Another example where a government's portfolio decisions may be affected by considerations other than the risk-return trade-off is where the country is facing significant *capital inflows*. To mitigate the resulting appreciation of the real exchange rate, the government may run fiscal surpluses and save these surpluses abroad by purchasing a diversified portfolio of foreign assets. In this case, investing in foreign assets is motivated by concerns about the possible adverse implications for the balance of payments rather than reflecting an optimal investment decision. Similar considerations would apply with the exploitation of mineral wealth. The government may choose to save mineral resource revenue abroad to moderate the Dutch Disease effects of an appreciating real exchange rate.

¹²However, any purchase of CDs should be made in a competitive market, and should not constitute quasi-fiscal support of certain banks.

When *intergenerational equity* concerns justify running a fiscal surplus, it could be argued that the best policy is to reduce the stock of debt and so relieve the debt service burden on future generations. But if the risk-return trade-off suggests that the government should hold more of the market portfolio, then even in an intergenerational context, this will still be appropriate. Future generations will be willing to inherit a larger stock of debt if at the same time it receives a larger portfolio of other assets. Similarly, if a fiscal surplus is to be directed toward building up the assets of the public pension system, the investment of those assets should, in general, be independent of what they are earmarked for, and it should result in the purchase of a combination of the market portfolio and the risk-free asset. There is one caveat, however; intergenerational equity concerns may affect how a surplus is invested if the preferences of the government are more conservative towards risk when it comes to pensions. In this case, the government may choose a less risky investment position which involves holding less of the market portfolio and more of the risk-free asset.

Finally, it should be noted that there is an important *accounting dimension* to using a fiscal surplus to purchase financial assets. Fiscal accounting conventions (as reflected in the IMF's Manual on Government Finance Statistics) suggest that, when debt is paid off, it should be recorded as negative financing. However, when the government purchases financial assets, it is recorded as capital expenditure or net lending. This being the case, a surplus remains intact when debt is paid off, but it is reduced and possibly eliminated when the government channels a surplus into financial assets. The situation can be even more complicated. While privatization proceeds are usually recorded in the fiscal accounts as revenue, negative capital expenditure, or negative net lending, the proper economic treatment would be to record them as financing (Mackenzie, 1997). If privatization proceeds are used to pay off debt, this operation would have no impact on the fiscal balance. But if privatization proceeds are used to purchase financial assets, the fiscal balance would deteriorate. Thus care is needed not to confuse the accounting aspects of restructuring the government's asset-liability position with its underlying economic impact. What is in essence a rebalancing of the government portfolio of assets may be recorded as a surplus-creating or deficit-creating transaction, or may have no apparent impact, depending upon *which* assets are bought and sold.

IV. Country Experiences

Most of the country experience, at the national government and subnational government levels, is with fiscal surpluses deriving from the exploitation of mineral resources.

- **Botswana** has been running a budget surplus since 1983, reflecting buoyant revenue from diamond mining. Most of the accumulated surpluses have been deposited with the central bank and invested abroad. Botswana's foreign exchange reserves now stand at close to three years of imports, with the equivalent of six months of imports invested in short-term money market instruments and the remainder in the Pula Fund, which holds foreign equities and fixed-income securities.
- Transfers from the state copper company have been the source of public sector surpluses in **Chile** averaging 3 percent of GDP since 1988. Surpluses have been used in part to build up a copper price stabilization fund, to repay debt (and the stock is now negligible), for

some on-lending to the private sector (mainly for infrastructure development), and to build up foreign exchange reserves.

- In 1990, **Norway** set up a State Petroleum Fund (SPF) intended to insulate the budget from variations in oil prices and production and to mitigate the effects of Dutch Disease by investing a large share of oil receipts abroad. In the longer term, the SPF is expected to cover rising pension and health care costs associated with an aging population.
- **Kuwait** established a Reserve Fund for Future Generations (RFFG) in 1960, into which 10 percent of budget revenue (deriving mainly from oil receipts) is currently paid. The main purpose of the RFFG is to protect public investment and social programs from the impact of a fall in the world oil price. However, the RFFG has been used to support the budget, most notably to pay some of the reconstruction costs following the 1991 Iraq invasion. The fund's investment strategy is decided by the Kuwait Investment Authority, and the RFFG portfolio includes domestic equity, real estate, and international financial assets.
- Since 1983, the **U.S. State of Alaska** has paid 22 percent of its oil revenue into the Alaska Permanent Fund (APF), which was set up to benefit future generations, to smooth out boom-bust fluctuations in the oil sector, and to represent a permanent tax base from which to fund future government spending and economic diversification. Independent trustees are responsible for investing the APF in income-producing investments, and it now comprises a diversified portfolio of stocks, fixed-income securities, and real estate. Alaskan residents are paid an annual dividend from the APF income.

There are, however, a few cases of countries which have run surpluses that are not related to the exploitation of mineral resources.

- **Hong Kong SAR** has run surpluses that have averaged around 2 percent of output in the last five years, the uses of which are guided by the new Basic Law to "keep benefits within the limits of revenue" and the need to provide for an aging population. The reserves built up from budget surpluses are held in the Exchange Fund and may be used for intervention in the foreign exchange market. Their importance in safeguarding financial stability was clearly demonstrated in the recent Asian crisis. The reserves in this fund are expected to reach 16.8 percent of output in 1997/98. A further 14 percent of GDP is held in the Land Fund, which represents the value of land held by the government.
- **Singapore** recorded an average surplus of 12 percent of GDP from 1993–97, including capital revenue from the sale of government financial assets. The accumulated assets are intended to finance the future costs of the government Edusave and Medisave Trust Funds for education and health care. Asset holdings totaled 161.8 percent of GDP in 1996/97, but little information is available on the composition of assets.
- **Mauritania** has a stock of outstanding government debt equivalent to 218 percent of GDP. In the past few years, fiscal consolidation efforts have resulted in a growing fiscal surplus which reached 4 percent of GDP in 1997. The surplus is entirely devoted to repaying the

outstanding debt and, in doing so, the country hopes to become eligible for Paris Club debt relief and assistance under the HIPC initiative.

V. Concluding Comments

This paper has argued that a fiscal surplus can be spent or saved, and that there may be good economic reasons for doing either. However, where there is a risk that a surplus may be spent unwisely, which would be the case when political concerns dominate economic concerns in making tax and expenditure choices, then saving the surplus is probably the better option. If a surplus is to be saved, accumulating financial assets is a legitimate alternative to paying off debt. The experience with resource wealth-driven surpluses illustrates that accumulating financial assets is a common choice. Where fiscal surpluses in other countries reflect the exploitation of mineral resource wealth, it would be appropriate to set up investment funds (with adequate prudential safeguards to prevent overly speculative investments and misappropriation) to benefit future generations and to insulate the budget from volatile world commodity prices. Where fiscal surpluses reflect other considerations, and can be justified from an optimal fiscal policy perspective, it might also be appropriate to set up such funds. Canada and Estonia are considering using surpluses in this way. But there are clearly circumstances where paying off debt should be considered the first choice, most notably when an unsustainable fiscal position is undermining credibility. Moreover, if accumulated funds are likely to be exposed to political risk (e.g., by being invested in pork barrel projects), paying off public debt may be the safe and transparent option to choose.

References

- Axilrod, Stephen H., 1996, "Transformation to Open Market Operations—Developing Economies and Emerging Markets," *Economic Issues* 5 (Washington: International Monetary Fund).
- Barro, Robert J., 1979, "On the Determination of the Public Debt," *Journal of Political Economy*, Vol. 87.
- Bean, Charles R., and Willem Buiter, 1987, "The Plain Man's Guide to Fiscal and Financial Policy" (London: Employment Institute).
- Evans, P., 1985, "Do Large Deficits Produce High Interest Rates?" *American Economic Review*, Vol. 75.
- , 1987, "Do Budget Deficits Raise Nominal Interest Rates? Evidence from Six Countries," *Journal of Monetary Economics*, Vol. 20.
- Hemming, Richard, and James Daniel, 1995, "When is a Fiscal Surplus Appropriate?" IMF Paper on Policy Analysis and Assessment 95/2 (Washington: International Monetary Fund).
- Mackenzie, G.A., 1997, "The Macroeconomic Impact of Privatization," IMF Paper on Policy Analysis and Assessment 97/9 (Washington: International Monetary Fund).
- Niskanen, William A., 1997, "Use a Pending Budget Surplus Only for Major Fiscal Reforms," Testimony to the House Budget Committee, October 23.

Savastano, Miguel A., 1995, "Private Saving in IMF Arrangements," in S. Schadler and others, *IMF Conditionality: Experience Under Stand-By and Extended Arrangements, Part II: Background Papers*, IMF Occasional Paper No. 129 (Washington: International Monetary Fund).