Developing voluntary domestic markets for government debt

For the Bank of England's 1995 Central Bank Governors' Symposium, Max Fry, Charles Goodhart and Alvaro Almeida (Fry, Goodhart and Almeida 1996) surveyed the objectives, activities and independence of central banks in developing countries. One striking finding was that developing countries suffered considerably higher inflation than the OECD countries. While the proximate cause was more rapid money growth, their work suggested a more fundamental cause was that developing country governments resorted to their central banks much more for deficit financing.

For the Bank of England's 1996 Central Bank Governors' Symposium, Max Fry[1] was asked to investigate in more detail the ways in which governments finance their deficits. A book based on this work, 'Emancipating the Banking System and Developing Markets for Government Debt', is scheduled for publication in March 1997.

Introduction

The four major ways that governments can finance their deficits are:[2]

1 Monetising the deficit by borrowing at zero cost from the central bank.

2 Borrowing at below-market interest rates by thrusting debt down the throats of captive buyers, primarily commercial banks.

3 Borrowing abroad in foreign currency.

4 Borrowing at market interest rates from voluntary domestic private sector lenders.

The typical OECD country finances about 50% of its deficit from voluntary domestic sources, while the typical developing country finances only about 8% of its deficit from this source.

Why this matters is that, for any given persistent government deficit, greater use of the first three sources is associated with higher inflation rates, lower saving ratios and lower rates of economic growth. Government recourse to the central bank inevitably leads to inflation. Indeed, such inflationary finance can be considered a source of tax revenue in that inflation imposes a tax on money holders.

Financial repression, the second way of financing the government deficit, is also tax-like in that it involves forcing captive buyers to hold government debt at interest rates below market yields. By reducing its interest costs, this method reduces the government's recorded deficit. Foreign borrowing, which for all developing countries implies borrowing and repaying foreign rather than domestic currency, constitutes the third method of financing a deficit. Elsewhere, I demonstrate that excessive reliance on these three ways of financing government deficits impedes economic development (Fry 1996, 1997).

All this conflicts with the views of Barro (1974, 1989) and Buchanan (1976) on Ricardian equivalence. Barro (1989, page 39) states that the Ricardian equivalence theorem, proposed only to be dismissed by Ricardo (1817, pages 336–38) himself, holds that

> 'the substitution of a budget deficit for current taxes (or any other rearrangement of the timing of taxes) has no impact on the aggregate demand for goods. In this sense, budget deficits and taxation have equivalent effects on the economy—hence the term 'Ricardian equivalence theorem.' To put the equivalence result another way, a decrease in the government's saving (that is, a current budget deficit) leads to an offsetting increase in desired private saving, and hence to no change in desired national saving.'

It also follows that Ricardian equivalence implies that the method of financing government deficits has no impact on the macroeconomy.

While Barro (1989, page 52) interprets the empirical evidence to provide general support for the Ricardian equivalence theorem, the evidence cited is drawn largely from the United States where the assumptions of the theorem are perhaps most likely to hold. For a sample of 61 industrial and developing countries Masson, Bayoumi and Samiei (1995) find that increases in budget deficits are only

(1) Tokai Bank Professor of International Finance, International Finance Group, University of Birmingham. An earlier draft of this paper was commissioned by the Bank of England for its Central Bank Governors' Symposium on 7 June 1996. The author would like to thank Simon Gray and Glenn Hoggarth, from the Bank of England, for many perceptive comments on an earlier version of this paper.
(2) Under cash-based budgets, arrears and other deferred payment arrangements together with unfunded future liabilities such as state pensions, constitute additional techniques of disguising the true magnitude of a deficit.

half offset by higher private savings, rather than fully offset as suggested by the Ricardian equivalence theorem. As Agénor and Montiel (1996, page 127) suggest, 'In developing countries where financial systems are underdeveloped, capital markets are highly distorted or subject to financial repression, and private agents are subject to considerable uncertainty regarding the incidence of taxes, many of the considerations necessary for debt neutrality to hold are unlikely to be valid.' Hence, the assumptions on which Ricardian equivalence rests (Barro 1989, pages 39–48) are almost bound to be violated sufficiently to negate the theorem in these countries. Indeed, Agénor and Montiel (1996, page 127) conclude: 'the empirical evidence [from developing countries] has indeed failed to provide much support for the Ricardian equivalence proposition.' The empirical evidence presented in Fry (1997, Part II) confirms the Agénor-Montiel position.

Voluntary private sector purchase of government debt is the fourth and final way of financing government deficits. Although government deficits are generally not conducive to economic growth, this way of financing them appears to reduce the damaging effects of any given deficit. Both economic and social efficiencies are improved not only through the use of the market-pricing mechanism but also through the transparent presentation of the costs of government expenditures. When the costs of borrowing are borne openly by the public and not hidden through the use of captive buyers, the true resource costs of government spending can be incorporated into both economic and social choices. Even politicians' choices can change when they are properly informed.

A move towards developing voluntary domestic markets for government debt appears to offer benefits in terms of lower inflation and higher saving and growth. High growth, in turn, alleviates the deficit. There is, therefore, some hint of a virtuous circle in which greater use of voluntary domestic markets lowers inflation and raises growth, both of which reduce the government's deficit. In general, developing countries make too little use of voluntary private sector lenders. Hence, I concentrate on some of the practical issues involved in establishing a functional market for government debt in countries that have not so far developed one.

The essential elements

Developing a voluntary market for government debt involves a fundamental change in the approach to financing the government deficit. Typically, the change occurs from a system in which most institutional interest rates are fixed and the government is financed at favourable fixed rates by unwilling captive buyers of its debt. In such a system, bank rate and all other institutional interest rates, including the Treasury bill yield, are simply announced by the Minister of Finance. Captive buyers hold Treasury bills and other government securities to fulfil their liquidity requirements, etc and the central bank takes up any shortfall.

In the process of developing a voluntary market, privileged access and captive buyers are eschewed in favour of a level playing-field philosophy. Government now competes on the same terms and conditions as private agents for available saving and so faces the economy's opportunity cost of borrowing. The Government has to accept the interest cost consequences of its borrowing and this should exert fiscal discipline that may have been absent when borrowing was kept artificially cheap. The economic principle behind the change is that a level playing field maximises the efficiency with which scarce resources are allocated throughout the economy. This change in approach necessarily involves many practical changes in the way government debt is sold.

A 'clean' auction in which all bills are sold at the market clearing price has four advantages: (a) it informs the government of the true opportunity cost of its borrowing; (b) it avoids recourse to the central bank and, thus, the road back to inflationary finance; (c) it provides important feedback signals from the market for monetary policy purposes; and (d) the Treasury bill yield can and soon will be used as a crucial reference rate for the pricing of other financial claims in new markets.

In order to obtain a better understanding of this dramatic and possibly traumatic change to voluntary market financing, it seemed sensible to choose a relatively small number of case studies. Hence, the Bank of England asked the eight central banks in Ghana, India, Jamaica, Malaysia, Mexico, New Zealand, Sri Lanka and Zimbabwe, countries that had recently developed voluntary domestic markets for government debt, to answer some questions about the process of change; all eight central banks responded. Much of the material presented here is based on these questionnaire responses.[1]

Perceived benefits

The questionnaire's first question concerned the perceived benefits from developing voluntary domestic markets for government debt.[2] In general, the responses elaborated both the negative effects of inflationary finance and financial repression as well as the positive externalities from developing voluntary markets for government debt.

On the negative side, the absence of voluntary markets was perceived to:

- Divorce the cost of government borrowing from the opportunity cost of funds in the economy, thereby misallocating resources by encouraging larger government deficits.

- Cause distortions because of the need to use credit ceilings, multiple reserve requirements, compulsory deposits at the central bank, interest rate ceilings and other direct methods of monetary control.

(1) More detailed analysis can be found in Fry (1997).
(2) All unattributed quotations in this paper are taken from the questionnaire responses.

- Crowd out private sector borrowing through high reserve and liquid asset ratios on the banks.
- Discourage secondary market trading in government securities.
- Prevent government securities from being used as collateral in financial transactions.

On the positive side, the existence of a voluntary market for government debt was perceived to:

- Finance government deficits in a less inflationary way.
- Impose fiscal discipline on the government and reflect the true market costs of government borrowing. Since 1990, for example, the rapidly rising interest costs of domestic borrowing in Zimbabwe have apparently squeezed budget resources for other purposes.
- Reduce both the tax on the banking system and other financial market distortions thereby improving resource allocation.
- Enable a shift from direct to indirect monetary policy techniques, thereby improving the efficiency and effectiveness of monetary policy implementation.
- Provide a reference rate in the form of the market-determined yield on Treasury bills.
- Enhance the country's attractiveness as an investment centre.

The extent to which such benefits actually accrue is examined in this and the next section. The finding that greater reliance on voluntary private sector purchasers of government debt reduces the inflationary impact of government deficits has already been reported above.

In combination, these perceived benefits suggest that voluntary market financing of government deficits provides, paradoxically, the cheapest form of financing for the government in the long run. Cheap finance from the central bank or through financial repression is a mirage. As Leonard Tsumba (Governor, Reserve Bank of Zimbabwe) remarked at the Symposium: 'There are obvious economic costs when central banks validate budget deficits, when governments force purchases of government paper, when they rely too much on external borrowing as a means of financing budget deficits and when governments crowd out the private sector by making disproportionate and growing claims on domestic credit.' In other words, the advantages of cheap credit disappear as soon as the costs of inflation, higher interest rate spreads for the commercial banks and lower central bank profits are recognised. Perhaps the most important benefit is that, by accelerating economic growth, a move to voluntary domestic financing reduces the deficit that has to be financed.

Persuading the main political actors

While central bankers, civil servants and macroeconomists may be convinced of the efficacy of weaning the government from its central bank, Ministers of Finance and other cabinet ministers may see the increased price of financing government deficits as a costly certainty, while viewing the benefits as vague and uncertain. What persuades government to abandon cheap finance?(1)

Central banks may well become involved in the debate, since they stand to benefit on at least three counts:

1 Getting the government out of the central bank clearly reduces the inflationary threat of deficits.

2 Developing voluntary domestic markets for government debt enables the central bank to use indirect market-based instruments of monetary policy.

3 By divorcing fiscal and monetary policy in this way, the central bank is bound to attain more independence regardless of any legal provisions.

As Bernie Fraser (Governor, Reserve Bank of Australia) pointed out at the Symposium: 'Central banks have a vested interest in the smooth working of government debt markets for two reasons. First, they usually conduct their policy operations in these markets and rely on them to transmit the effect of their policy actions as effectively as possible. Second, yields on government debt can provide information, such as expectations about inflation, which may be of interest to policy makers.'

The benefits of abandoning the system of captive buyers for government securities in India's case were expounded in the *Report of the Committee to Review the Working of the Monetary System* in 1985, in the Presidential Address to the Indian Economic Association by the Deputy Governor of the Reserve Bank of India in 1988, in the *Report of the Committee on the Financial System* in 1991 and finally in the *Kutty Memorial Lecture on Autonomy of the Central Bank* by the Governor of the Reserve Bank of India in 1993. The Minister of Finance acknowledged the case against automatic monetisation of the government's deficit through the issue of *ad hoc* Treasury bills in the Budget Speech of July 1994 and a formal agreement between the Reserve Bank and the Government of India to phase out this method of financing over a three-year period was signed in September 1994.

The Ghanaian government was made aware of the inflationary nature of central bank deficit financing and of the fact that captive buyers created distortions in the financial markets. In Jamaica, most of the disadvantages of captive buyers and the advantages of market-determined yields on government securities listed above were used to persuade the main political actors of the need for change. By the mid-1970s, both the Banco de México and Mexico's

(1) The evidence presented in Fry (1997) suggests that 'cheap' finance is actually extremely costly in terms of high inflation and low growth.

Ministry of Finance were convinced of the need to abandon interest rate ceilings and the compulsory financing of government deficits. The belief that market mechanisms would reduce inefficiencies and increase the effectiveness of monetary policy was already widespread.

The new government that took power in New Zealand in 1984 was philosophically attracted to market mechanisms. It recognised the benefits accruing abroad from adopting market-based mechanisms (particularly in Australia) and it felt that dramatic change was needed at home. Hence, this government was already convinced of the rationale for change and needed only advice on the technical details.

As in the case of India, the Central Bank of Sri Lanka initiated a dialogue with the Minister of Finance in which the indirect costs and distortionary impact of tapping captive buyers were discussed. At the same time, emphasis was placed on the economic benefits of developing a voluntary domestic market and how this was entirely compatible with the government's overall market-orientated economic philosophy.

In Zimbabwe's case, the planned reduction of the government deficit from double-digit levels to below 5% of GDP was used as an argument that captive buyers of government securities were no longer needed. The point was also made that liberalisation of financial markets was an integral part of the market-based structural adjustment process to which the government was already committed.

Macroeconomic prerequisites

After a lengthy survey of financial systems and development, the World Bank concludes that there are four key prerequisites for successful financial liberalisation: macroeconomic stability, fiscal discipline, improved legal, accounting and regulatory systems for the financial sector, and a tax system that does not discriminate excessively against finance (World Bank 1989, 1). Financial liberalisation is itself a prerequisite for developing voluntary domestic markets for government debt.

Macroeconomic stability

Price stability is a crucial prerequisite for developing markets for longer-term fixed-interest financial claims. High and variable inflation often destroys existing financial markets and prevents many potential financial markets from developing. In Jamaica, for example, continued high inflation has impeded development of the market for fixed-rate government bonds.

On the other hand, certain financial instruments such as indexed bonds can be and have been used to promote stability. Indeed, indexation has been used in Brazil, Chile and Israel to sustain financial markets in the face of ongoing inflation. Among the case study countries, Mexico developed markets for indexed bonds under inflationary conditions. But this can be only a short-term remedy or technique for assisting other stabilisation measures. In long-run equilibrium, indexation erodes the government's revenue from inflation. Hence, fiscal adjustment must be included as the major component of a stabilisation programme.

Containing inflation requires monetary control and fiscal discipline. Macroeconomic stability also necessitates consistent macroeconomic policies, in particular monetary and exchange rate policies that are consistent with the fiscal stance. Policy co-ordination is stressed repeatedly as essential for successful development of a market for government debt. Without co-ordination, real interest rates can rise, the private sector may be crowded out and government debt-servicing costs can become explosive.

Co-ordination

Co-ordination can take place within three alternative frameworks. In the first, the central bank determines the change in reserve money, which provides partial financing of the government's deficit, and the deficit is then set in the light of the feasible remaining financing possibilities. In the second, the deficit is predetermined and the central bank increases reserve money to finance it. In the third, the change in reserve money and the deficit are set independently, leaving the change in government debt as the residual. But debt can be residual only if interest rates are allowed to find levels at which it can all be sold.

If monetary policy is to be independent, the general level of interest rates must be treated as exogenous to the debt-management process, although there may be some play in the yield curve. Otherwise, monetary control and the development of financial markets are both undermined. The challenge then is to adopt a debt management strategy that is compatible with the broader goals of monetary stability and the development of financial markets. Sundararajan, Dattels, McCarthy, Castello-Branco and Blommestein (1996) suggest that co-ordination within the third framework must involve:

- Limiting central bank credit to the government.
- Establishing a macroeconomic co-ordination committee that includes representatives of the central bank and ministry of finance.
- Sharing information.
- Agreeing rules for dealing with central bank profits and losses.
- Promoting secondary market development.

Lack of co-ordination in the case study countries is exemplified by the experiences of Jamaica, Sri Lanka and Zimbabwe. In Jamaica, a restrictive monetary policy confronted an expansionary fiscal stance. This was resolved partially by the issue of Bank of Jamaica paper and reverse repurchase (repo) agreements, actions that contributed to central bank losses. In 1995, the Central Bank of Sri Lanka

issued its own paper to mop up excess liquidity caused by increased government borrowing and later that year used reverse repos for similar reasons. In Zimbabwe, the government's interest costs have remained unnecessarily high due to poor cash flow forecasting on the part of the Ministry of Finance as well as to the excessive deficit.

Tightening monetary policy

As Dornbusch (1996, page 14) points out, tightening monetary policy can worsen a government's debt problem in four ways:

- It raises the real interest rate so increasing debt service and, *ceteris paribus*, accelerating the growth in debt.
- It reduces the primary surplus by dampening economic activity, at least in the short run, so reducing tax revenue and increasing unemployment-related expenditures.
- It slows the growth rate, so accelerating the rise in the debt/GDP ratio.
- It reduces seigniorage revenue by decelerating the rate of growth in reserve money, implying that a larger proportion of the deficit must be financed by increased debt.

To the extent that a tighter monetary policy reduces inflationary expectations, however, there may be an immediate decline in long-term interest rates that benefits the fiscal situation.

Following Sargent and Wallace (1981), Dornbusch (1996, pages 15–16) concludes that high government deficits and debt destroy credibility in conservative monetary policy. Facing either a big inflation in the future to erode the debt or oppressive taxation to service it,

> 'the monetary authorities face a dilemma in that they will be seen as contributing to if not creating single-handedly a major social problem. A fading confidence in the pursuit of hard money is therefore close at hand. The only resolution of the dilemma, as Sargent-Wallace note in their premonition of the Maastricht criteria, is low debt and low deficits.'

In other words, it is not enough to persuade the main political actors that inflationary finance and financial repression are growth-reducing ways of financing deficits. It is also essential to persuade them that debts and deficits must be kept within sustainable bounds after inflationary finance and financial repression are abandoned. Hence, the primary macroeconomic prerequisite for developing voluntary domestic markets for government debt is a sustainable government deficit.

The case study countries

Experience in the case study countries bears out Dornbusch's point. The need for improved budgetary positions was recognised explicitly in the questionnaire responses from India, Jamaica, Sri Lanka and Zimbabwe. However, the outcomes in these countries did not meet expectations. Over the period 1989–93, India's average deficit of 7%, Sri Lanka's of 8.6% and Zimbabwe's of 7.8% are well above average. While the government deficit in Sri Lanka has been reduced from around 16% of GDP in the early 1980s to about 8%, it is well understood that this is still excessive. In 1995, the real yield on Sri Lankan Treasury bills exceeded 10% per annum. It is probably not coincidental that, in general, the highest deficit countries have been least successful in their attempts to liberalise their financial systems and to develop voluntary markets for government debt.

On the Maastricht criterion, Ghana, Jamaica, Malaysia, Mexico and New Zealand have posted deficits well below the 3% ceiling.(1) Although the Ghanaian government ran budget surpluses from 1986 to 1992, high inflation leading to high interest rates exerted substantial pressure on the government budget. The high interest rates also produced political pressure on the government to subsidise credit for priority sectors. The Malaysian government posted surpluses in the last two years, 1993 and 1994, for which data exist. To achieve its aim of reducing the debt/GDP ratio, the New Zealand government has run budget surpluses since 1987, except in 1992. In Mexico, the deficit was reduced from 14% of GDP in 1987 to 0% by 1991; surpluses were posted in 1992 and 1993.

Turning to debt trajectories, New Zealand's government debt declined from a peak of 67% of GDP in 1986 to 54% in 1994.(2) The Indian government's debt has remained around 50% of GDP since the mid-1980s, Sri Lanka's has hovered around 90% of GDP since 1988, while Zimbabwe's debt ratio peaked in 1992 at 65% of GDP and has since fallen to 39% in 1995.(3)

While no data are available on total government debt for the other countries, government plus government-guaranteed *foreign* debt ratios in Ghana (up from 7% of GDP in 1980 to 54% in 1993) and India (up from 10% in 1980 to 29% in 1993) have risen steadily. Over shorter periods, government and government-guaranteed foreign debt ratios have fallen recently in Malaysia (from 55% in 1987 to 22% in 1993), Mexico (from 59% in 1987 to 20% in 1993), Sri Lanka (from 61% in 1989 to 55% in 1993) and Zimbabwe (from 48% in 1992 to 38% in 1994).

On the Maastricht criterion for government debt, therefore, Malaysia, Mexico and Zimbabwe are well under the 60% ceiling, while India is just under. Although debt ratios in Jamaica of over 100% and in Sri Lanka of around 90% have

(1) Although government finance statistics for Jamaica have not been published in *International Financial Statistics* (*IFS*) since 1985, the Bank of Jamaica provided the relevant data up to 1993 for this study. They indicate government surpluses from 1988 to 1991 and deficits averaging only 1% of GDP in 1992 and 1993.
(2) Debt data for 1992–94 were provided by the Reserve Bank of New Zealand; the data series published in *IFS* end in 1991.
(3) These figures were provided by the Reserve Bank of Zimbabwe; data for Zimbabwe's debt since 1990 have not been published in *IFS*.

stabilised, their levels must give rise to concern. When compared to median debt ratios that have risen in all country groups since 1979, it seems reasonable to conclude that the main political actors in the case study countries were aware of the arithmetic behind the government's intertemporal budget constraint when they embarked on programmes to develop voluntary domestic markets for their government debt. In no case has government debt exploded in the aftermath of liberalisation.

Supervision and regulation

Although some readers of his 1973 book may have assumed otherwise, McKinnon (1986, page 326) states that 'successful liberalisation is not simply a question of removing all regulations.' There has been increasing awareness that a prerequisite for successful financial liberalisation is strong bank supervision. Financial liberalisation involving substantial increases in real rates of interest is bound to produce some casualties. Indeed, this must happen if resource allocation is to be improved by the liberalisation. Supervision is needed to ensure that weak financial institutions are detected early and liquidated or merged in an orderly fashion before their managements start engaging in perverse behaviour—Ponzi-type borrowing—of the kind observed in Chile in the mid-1970s that escalates real interest rates to pathologically high levels.(1)

As yet, there exists no analytical framework dealing with the relationship between financial liberalisation and financial regulation for prudential and monetary control. First, there is the tricky theoretical issue of the relationship between financial liberalisation and adequate regulation, which revolves around the theory of the second-best. Then there are the practical problems of differentiating appropriate from inappropriate regulations, delineating appropriate regulatory frameworks, and examining on a case-by-case basis the most suitable supervisory systems to enforce the regulations.

Questionnaire responses highlighted the need for a proper regulatory and supervisory framework for securities' trading (Jamaica) and for strengthening the supervisory powers of the National Securities Commission to improve oversight and dissemination of information on traded securities (Mexico). Many other prerequisites relating to financial infrastructure were mentioned. Some of these are discussed in the subsequent two sections.

Sequencing

Developing markets for government debt has never occurred overnight. As Bernie Fraser suggested: 'The important first step for any country is to gain investor confidence in government debt and to build and maintain a good reputation for issuing and honouring debt.' The process is necessarily one of learning-by-doing as much on the part of the authorities as on the part of the private sector. It is usually also a process of learning from one's mistakes.

Cole, Scott and Wellons (1995, page 19) identify four stages in the typical development process:

1 The controlled system.

2 Initial liberalisation.

3 Retrenchment after crisis.

4 More aggressive development.

The first step invariably takes the form of some interest rate liberalisation. The crisis can take various forms: exchange-rate or balance-of-payments problems, recession, excessive liquidity or fraud. The reaction is to 'shoot the messenger' and reimpose controls. After the crisis abates, a second attempt is launched in the light of the previous experience.

In recent years, many developing countries have initiated strategies to develop financial markets by establishing auctions for Treasury bills. For example, Ghana started auctioning 91-day, 180-day, 1-year and 2-year government and central bank paper in 1987. Later, 30-day, 3-year and 5-year maturities were offered. India also started an auction system for 182-day Treasury bills in 1986; both shorter and longer-term maturities were subsequently auctioned. While starting at the shorter end of the maturity spectrum seems obvious, particularly in countries that have recently suffered high inflation, this sequencing was not followed in New Zealand. There, auctions of longer-term government debt had taken place for many years before the introduction of Treasury bill auctions.

A typical element of sequencing has been the reduction in excessive reserve and liquid asset ratio requirements, although abolition has often been resisted on the grounds that such ratios still serve prudential purposes.(2) In the case study countries, for example, India adopted a medium-term strategy of reducing the statutory liquidity ratio from 38½% to 25% in phases starting in 1992. To the extent that adoption of a capital-adequacy requirement is feasible, however, this should form a preferable alternative to most balance-sheet ratio constraints.

To the extent that they remain binding, liquid asset ratio requirements maintain captive buyers and so distort price signals emanating from Treasury bill auctions and impede the market development process. In Malaysia, for example, maintaining a required liquid asset ratio increased demand in the primary market but hindered development of the secondary market (Cole, Scott and Wellons 1995, page 35).

In the wake of the foreign debt crisis, Mexico liberalised interest rates in October 1982 in order to create a noninflationary source of government borrowing. The initial measure took the form of a weekly auction of *Cetes* at rates determined by the market. Because of continued high

(1) A Ponzi game is a type of swindle named after Charles Ponzi who promised extraordinarily high returns to investors which he was able to deliver for a time by using funds collected from new investors. It can also refer to a situation in which an insolvent enterprise continues to borrow in order to pay the interest on old debts in the knowledge that it will never be able to repay its debts.
(2) In practice, resistance often springs from reluctance to lose seigniorage revenue.

inflation, Mexico has introduced price and exchange rate-indexed government securities. By 1994 the CPI and exchange rate-indexed bonds had become by far the most popular form of government debt. From a minimal share in the early 1980s, marketable instruments constituted 100% of government debt by 1991.

Much of the basic infrastructure already existed when New Zealand instigated its dramatic measures of financial liberalisation in 1984. Its approach to sequencing was to do what could be done when it was possible to do it. All interest-rate controls, which had been in place for less than a year, were removed immediately. With a framework already in place for calculating required sales of government securities and by adopting a 'clean' tendering system with no floor price from mid-1984, the old system of balance-sheet ratio controls quickly became redundant. These ratio controls were removed along with regulatory barriers on activities across all financial institutions over the following years.

Foreign participation in the New Zealand bond market became significant after withholding taxes were removed; 50% of New Zealand government securities are now held by foreigners. That there would be such a large shift in the government's borrowing from abroad to domestic currency-denominated debt had not been anticipated at the outset. While it reduced the fiscal cost of government debt, this capital inflow led to an appreciation of the exchange rate. At the Symposium, Donald Brash (Governor, Reserve Bank of New Zealand) explained that 'if inflationary pressure is intense in the non-tradables sector and nonexistent in the tradables sector, this downward pressure on interest rates and upward pressure on the exchange rate may not be entirely helpful.' This is New Zealand's monetary policy dilemma in the mid-1990s.

Donald Brash also pointed out that a switch from foreign to domestic borrowing could have unintended signalling effects. When New Zealand tightened monetary policy to achieve its announced policy target of low inflation, this implied an expected appreciation in the exchange rate. In fact, however, uncertainty about the government's commitment and ability to achieve this target kept domestic-currency yields much higher than yields on the New Zealand government's foreign currency-denominated debt. Under such conditions, a policy of switching from foreign to domestic currency-denominated debt could be interpreted by the market as a lack of credibility in its inflation target on the part of the government itself. With a low inflation outcome, the government would be paying higher real rates to borrow in domestic currency than it would pay to borrow in foreign currency. Therefore, a policy of reducing both domestic and foreign currency-denominated debt together with sales of shorter-maturity domestic debt might have been interpreted by the market as more consistent with a belief in its own inflation target. Indeed, the New Zealand government's funding strategy was revised in the light of this signalling problem.

Sri Lanka started a gradual process of financial liberalisation in the late 1970s as part of an overall economic reform programme; elsewhere I have identified 1978 as a year in which structural change took place (Fry 1990). Various legal changes were required before the development of a primary market in Treasury bills was launched. Subsequently, a secondary market for Treasury bills was developed. The authorities are now planning to develop markets for medium and long-term government debt. However, the statutory reserve ratio has remained high at 15%, initially to counteract the expansionary impact of capital inflows caused by high interest rates, but in 1995 to counteract the considerable increase in the public sector's borrowing requirement.

Zimbabwe's market development programme starting in 1990 comprised the deregulation of interest rates, the reduction in the prescribed asset ratio for banks from 60% to 55%, the removal of the Reserve Bank's and discount houses' obligations to underwrite government debt issues, and the abandonment of the Reserve Bank's daily calculation and dissemination of government stock prices. The Reserve Bank stopped fixing interest rates in 1991 and exchange controls were relaxed in 1993 to enable foreigners to buy government securities in the primary market.

Risk perceptions

Sovereign risk has been studied extensively in the aftermath of Mexico's default in 1982. Inevitably, it takes time for any government to establish a new track record of sound finance. At the start of any initiative to develop voluntary domestic markets for government debt, the authorities are bound to face a suspicious and unwilling private sector. Their record is one of confiscation; the promise of attractive market yields is unlikely to be believed before some credibility has been earned. This implies that market yields on government debt will embody a significant risk premium, mainly taking the specific form of an inflation-risk premium. Once the debt has been sold, the private sector may reason, the government will have an incentive to inflate its way out of its obligations returning to the old confiscatory pattern.

Initially, therefore, voluntary lenders demand a risk premium from government. From the government's perspective, it is paying too high an interest rate immediately after the switch to voluntary domestic market financing. From the private sector's perspective, caution dictates the extraction of a risk premium before it can be enticed to lend. One solution that can help reconcile the government's commitment to turn over a new leaf with the private sector's doubts that this has really happened is for the government to issue debt that is automatically adjusted for changes in the price level, ie index-linked debt, at the outset of its reform.(1)

(1) Much of the literature on indexation, (eg Dornbusch and Simonsen 1983, Gleizer 1995, McNelis 1988) concentrates on its role in a stabilisation programme rather than as a specific instrument for use in the process of developing voluntary domestic markets for government debt. For articles focusing more on the market-development and fiscal aspects of price-indexed debt in such countries as Australia, Canada and the United Kingdom, the interested reader may consult the Bank of England (1996).

At the Symposium, Donald Brash said that, in retrospect, one of the important lessons learnt from New Zealand's reform experience was that index-linked debt could have been issued to great benefit at the start of the reforms in 1984. If one of the legacies of past inflation is a high risk premium embedded in nominal yields, then indexed bonds can offer large savings for the government in terms of lower interest costs so reducing the likelihood of igniting a Ponzi game, provided its new commitment to fiscal discipline and price stability is effective. An issue of index-linked debt can also enhance credibility in the new regime: the government can no longer benefit from surprise inflation to erode the real value of its debt, so has less incentive to renege in this way.

It is particularly noteworthy that the experience in New Zealand indicates the existence of a high risk premium after the 1984 reforms. Part of the reform package consisted of making price stability the only objective of monetary policy and in giving the Reserve Bank full independence to achieve this single objective. Furthermore, the Governor's emoluments are dependent on the achievement of this objective. Although these measures undoubtedly contributed to building credibility for low inflation and therefore facilitated the development of the voluntary domestic market for government debt, the erosion of this risk premium occurred only gradually. From levels of 18% to 19% in the mid-1980s, annual yields on ten-year domestic-currency government bonds have fallen to around 8$^{1}/_{2}$%. For a few months in 1994, the New Zealand government was able to sell ten-year bonds at a slightly lower yield than the US government.

One problem is that consumer price indices in many developing countries are distorted deliberately through the maintenance of out-of-date weights that over-represent items whose prices are controlled. In other countries where there are no deliberate distortions to the price indices at present, governments may be tempted to tamper with them once they are used to adjust nominal values of government debt. Where there is suspicion about the quality of the price index, however, there may well be even more suspicion that the government may resort to the inflation tax to reduce the value of unindexed debt. Hence, indexation may reduce suspicion overall, even when the price index is dubious.

In some countries, the government statistical office is separated to a reasonable degree from the political process. In these countries, therefore, there would probably be greater confidence in the quality of the inflation data than in the integrity of future governments. Where the statistical office has established a track record for providing reliable and unbiased statistics, the case for issuing index-linked debt at the initial stages of the market development process is extremely strong.(1)

While it may be agreed that financial claims indexed to the price level can serve a useful role in the transition from inflationary finance and financial repression to voluntary domestic financing of government deficits, several participants at the Symposium were worried that this form of indexation could lead to other forms, such as wage indexation, that could easily induce or prolong inflationary pressures. Miguel Mancera (Governor, Banco de México) noted the distinction between indexed securities, which had a limited life and need not be rolled over in the same form, and indexed wage contracts, which were open-ended and could create rigidities in the economy, for example, by making it more difficult to achieve any downward adjustment in real wages. As pointed out by Eddie George (Governor, Bank of England), indexation could well provide a fruitful topic for a future Symposium.

Crowding out?

One important question is whether or not developing a new source of government financing increases government deficits. The response to this question was invariably that primary deficits had been reduced as a result of higher interest costs of debt service. Indeed, for any given operational deficit, crowding out should be reduced. This is because higher interest rates under a liberalised system will elicit more saving in financial form and so increase the aggregate supply of credit in real terms. If the government takes a fixed amount from this aggregate, there must be more for the private sector as a whole, albeit at a higher interest rate than formerly charged to some previously privileged and favoured borrowers.

Recognising that a large deficit fuels inflation which, in turn, increases interest rates and so raises the deficit even more, the Ghanaian government is now introducing specific measures to 'eliminate' its deficit. The Bank of Ghana's questionnaire response claims that the higher interest rates increased the cost of private capital. Therefore, 'government and central bank borrowing on the securities market has led to some crowding out of private sector borrowers.' However, to the extent that credit was cheap but unavailable under the old disequilibrium interest rate system, higher equilibrium interest rates may not be synonymous with crowding out. Indeed, domestic credit to the private sector actually increased from 3% to 6% of GDP between 1984 and 1993.

The decision to pay market interest rates on its borrowing was designed in part to impose fiscal discipline on the Indian government by signalling the real cost of its borrowing. Rising interest costs have exerted pressure on the government to reduce its deficit. Particularly in 1995/96, tax reforms and expenditure controls were stimulated by the higher real interest rates for government borrowing.

In Jamaica, 'it was felt that the higher cost would serve to constrain the size of the budget deficit.' Developing the market for government debt in itself did not crowd out the private sector. Growth in private sector credit occurred together with growth in government debt. However, had tighter monetary policy been pursued to fight inflation, some

(1) I am most grateful to Donald Brash for discussion and correspondence on this issue.

crowding out might have occurred during the stabilisation process.

Since the mid-1980s, the Malaysian government has maintained a policy of fiscal prudence and consolidation in order to strengthen its overall financial position. Since 1993, the government has run overall budget surpluses enabling it to reduce its outstanding debt. Hence, no crowding out has been detected.

Between 1982 and 1987, a period of relatively high and volatile inflation, servicing its debt represented a considerable fraction of the Mexican government's current expenditures and increased the difficulties of controlling government finances. In conjunction with regulated deposit rates in the banking system, high free-market yields on government debt caused disintermediation and crowding out of private sector borrowers.

The reduction in inflation and the consequent decline in nominal interest rates in Mexico since 1987 have facilitated efforts to tighten fiscal discipline. With the liberalisation of bank interest rates in 1989 and the elimination of reserve requirements and other methods of compulsory financing of the government deficit, the private sector's share of domestic credit has increased. The experience of the early 1980s combined with 'the existence of a well-developed market for government debt, in which government securities offer competitive yields, has contributed to imposing fiscal discipline on the fiscal authorities.'

In New Zealand's case, the government was committed to reducing deficits and debt in conjunction with its market development programme. Therefore, although the voluntary system made it easier to finance larger deficits, use was not made of this facility.

The financial community in Sri Lanka became more aware of fiscal management when they found themselves competing with the government for domestic financial resources. Sectors that had previously benefited from subsidised interest rates faced higher interest costs as they now had to compete with the government in an open market. However, the government's rising interest bill constituted one of the major factors behind a major fiscal adjustment in Sri Lanka. By 1995, interest payment on domestic debt had reached almost 25% of the government's current expenditure. Despite the fiscal reform, there is fear that any continuation of high deficits could produce an unsustainable fiscal situation.

The anticipated reduction in the government deficit failed to materialise in Zimbabwe; it has remained in or close to double-digit levels. Real interest rates rose from around -5% in 1992 to positive double-digit levels in early 1995. High domestic interest rates have reduced lending to and encouraged increased foreign borrowing by the private sector. In the year to March 1995, domestic credit increased for the private sector by 18% (a decline in real terms), by 39% for public enterprises and by 106% for the government.

Implementing monetary policy

Developing markets for government debt provides the central bank with the opportunity to adopt indirect market-based techniques for implementing monetary policy. Abandoning direct controls in favour of indirect market-based techniques can be expected to improve efficiency: all agents face the same market constraint in the form of the market interest rate in their lending and borrowing decisions.(1) This unified market system improves the efficiency with which investible funds are allocated. Formerly, this allocation took place under fragmented market conditions in which agents faced different price signals.

Among the case study countries, development of a market for government debt in Ghana has assisted monetary policy implementation through open-market operations.(2) It has also increased central bank independence in that the government now has access to non-bank sources of funds.

The agreement between the government and the Reserve Bank of India to phase out the automatic monetisation of government deficits by 1997–98 has facilitated the adoption of indirect market-based methods of implementing monetary policy. Not only has the Reserve Bank been able to lower reserve requirements, but also it has increased interest rate flexibility. The Reserve Bank's ability to conduct open-market operations has been strengthened considerably. Major innovations in monetary policy implementation included the introduction of Reserve Bank auctions of repos in government long-term securities in December 1992 followed by reverse repo facilities in December 1994.

However, the Indian government's large borrowing requirements in 1995/96 combined with reduced capital inflows have recently circumscribed the extent to which the Reserve Bank could in fact implement open-market operations for monetary policy purposes. To prevent real interest rates from rising to even higher levels, the Reserve Bank acquired 17.3% of the government's primary issues during 1995/96, up from only 1% in 1994/95.

Typically, the use of indirect market-based instruments of monetary policy involves a transition from setting interest rates in the banking system to adopting quantitative targets. For example, Zimbabwe adopted targets for both reserve money and domestic credit in late 1991. Realising that markets cannot develop if rediscount facilities are available without limit at a fixed interest rate approximately equal to the Treasury bill yield, the Bank of Jamaica introduced penal rates at the rediscount window in order to discourage early encashment of government securities and hence also to promote secondary market trading. Development of the market for government debt has enabled the Bank of

(1) See Gray and Hoggarth (1996).
(2) Many monetary authorities in developing countries define Treasury bill auctions as open-market operations.

Jamaica to adopt indirect market-based techniques of monetary control through its acquisition of marketable government debt.

The Banco de México acts as fiscal agent of the government and so handles all the placing and redeeming of government debt. Co-operation with the Ministry of Finance has enabled the Bank to conduct open-market operations entirely with government securities in the secondary market rather than issuing its own paper. Until the Constitutional Reform in November 1993, however, the Banco de México's ability to implement monetary policy was constrained by the government's reluctance to pay market rates at auctions. After the Constitutional Reform, which granted autonomy to the Banco de México and prohibited the government from forcing the Bank to extend it credit, the government has rarely intervened in the auction process. Together with the full liberalisation of interest rates, the Bank has been able to conduct monetary policy through open-market operations using government securities. More recently, however, the reduction in government domestic debt has required the Bank to implement monetary policy through collateralised credit auctions using private sector claims as collateral.

In Sri Lanka, the development of a voluntary domestic market for Treasury bills facilitated a move towards the use of indirect instruments of monetary policy, such as open market operations. It also helped the development of the money market and enabled the Central Bank to minimise the inflationary impact of the government's deficit.

The development of a market for government debt in Zimbabwe has enabled the Reserve Bank to adopt indirect market-based monetary policy techniques. It has also released the Bank from taking up government debt automatically as buyer of last resort.

Pitfalls

Questionnaire responses highlight two major pitfalls experienced by the case study countries. The first was the failure of fiscal reform that in turn seriously impeded the development of voluntary domestic markets for government debt. On the one hand, high and rising deficits raise real interest rates that crowd out private sector investors while, on the other hand, keeping real rates artificially low implies a return to inflationary finance. A continued commitment to fiscal discipline is therefore essential for the success of the lengthy process of developing such markets.

The second major pitfall lay in the pervasive mistrust of market mechanisms among officials steeped in nonmarket systems. On occasion, these gut reactions against market signals hindered market development. For example, the Bank of Jamaica failed to conduct open-market sales of government debt because its selling price was above the market price for lengthy periods. The belief in an 'appropriate rate' also stalled development in Mexico where auctions were abandoned in 1985/86. In Sri Lanka, some business groups exerted political pressure to limit the rise in interest rates.

The reluctance to let go and to rely on market forces also applies to balance sheet ratio requirements. Maintaining the old system of ratio controls as a safeguard or fallback should things go wrong with the indirect market-based approach to implementing monetary policy has damaged or retarded market development. For example, high liquid asset ratio requirements in Jamaica have distorted the pricing mechanism, particularly when the volume of government debt eligible as liquid assets fell short of the volume needed to satisfy the requirement.(1) Jamaica's cash reserve requirement of 25% and liquid asset requirement of 50% are typical features of financial repression. The 50% liquid asset ratio ensures a strong take-up of Treasury bills and variable-rate bonds that are eligible liquid assets.

Nevertheless, too much innovation at too fast a pace may also be counterproductive. For example, India's experience with the early introduction of repo markets in 1992 indicates that payment and settlement systems may need to be streamlined and computerised before the introduction of such innovative instruments.

In some cases, incipient instability in the early stages of the transition process can be eliminated by installing various safety nets to act as stabilisers. For example, before reducing liquid asset ratio requirements, auctions might be aimed at producing voluntary holdings of Treasury bills at the margin. In other words, banks would be persuaded to hold more Treasury bills than the required minimum. Testing the water in this way could prevent violent swings in Treasury bill yields as the liquid asset ratio requirement was subsequently phased out in, say, increments of five percentage points per month or per quarter. Various other direct controls, such as credit ceilings, can be made redundant through the application of appropriate market-based monetary policy actions before they are actually abolished. Not only do such procedures provide safety nets against unforeseen and unwanted market reactions, but also they can bolster confidence in those who view the whole transition as a perilous venture into uncharted waters.

The case study countries faced two other problems in developing markets for government debt that might be classified as subsidiary pitfalls. The first arises from pervasive vested interests created under controlled market conditions. As pointed out in Fry (1997, chapter 4), financial restriction involves protecting the commercial banks from which government can expropriate significant seigniorage and discouraging direct markets. Not too surprisingly, when the government develops direct markets not only for its own debt but for private debt as well, commercial banks face a competitive threat. Non-bank investors can be intimidated to some extent from participating in direct markets by fear of reprisals in some form or another from their banks. Aggressive competition

(1) Shortages of eligible assets have occurred frequently in several other countries, for example, Mauritius, that maintain high liquid asset ratio requirements after espousing indirect market-based monetary policy implementation.

among banks should prevent such behaviour, so measures to ensure vigorous competition may be needed at the start of the market development programme. Prudential supervision and regulation also has a vital role to play in maintaining stable rather than unstable competitive conditions.

To enhance competition, measures to broaden the investor base from the outset appear crucial. These may include advertising as well as improving access for non-bank participants at Treasury bill auctions. Indeed, if the major investors remain commercial banks, portfolio adjustments by the banking system as whole in response to changing business conditions may be constrained or disruptive. If there are no other holders of Treasury bills, the banking system will have to hold the same volume even though it would now prefer to reduce such holdings in favour of loans to the private sector. In such a case, Treasury bill yields must adjust by possibly large amounts. With a broad and deep market for Treasury bills, however, banks can use these assets as shock absorbers against fluctuations in both deposits and loan demand. Under such conditions, it is typical to find that banks decrease their holdings of government securities and increase their loans during economic upswings (Fry and Williams 1984).

The second subsidiary pitfall concerns foreign participation. For example, India's continued sizable fiscal deficit is held responsible for high real interest rates. These led to strong capital inflows in 1993/94 and 1994/95. In order to prevent a real appreciation of the rupee, the Reserve Bank of India intervened to buy foreign exchange and sterilised the monetary consequences through open-market operations. With the slowdown in capital inflows in 1995/96, however, it has become increasingly expensive to fund the government's borrowing requirements. The result has been a further rise in real interest rates. As Mexico can also attest, sudden and sizable swings in capital flows increase volatility in both domestic interest rates and exchange rates. In New Zealand, foreign capital inflows produced an overvaluation of the real exchange rate after the 1984 liberalisation which may have raised the costs of disinflation. Sri Lanka's continued high government deficit also led to high real interest rates that crowded out domestic investment and encouraged excessive capital inflows. The lesson lies in improved fiscal discipline from the outset.

Conclusion

Despite various unforeseen pitfalls, the general conclusion from the questionnaire responses is that the development of voluntary domestic markets for government debt has been beneficial in two distinct respects. First, it has imposed on government some fiscal discipline that was previously weak or nonexistent. Since 1979, deficits have been reduced substantially in Ghana, Jamaica, Malaysia, Mexico and New Zealand. Second, it has given the central bank greater independence to pursue monetary policy more effectively through indirect market-based instruments.

In several respects, macroeconomic stability in this group of countries appears to have increased. Since 1979, for example, annual inflation has declined substantially in Ghana, Mexico, New Zealand and Sri Lanka, while it has remained in single digits for most years in India and throughout this period in Malaysia. Only in Jamaica, where the ratio of government plus government-guaranteed foreign debt has remained over 100% of GDP, and in Zimbabwe, where government deficits have not been reduced noticeably, has inflation reached record levels in the 1990s.

While other countries have experienced increased ratios of government debt to GDP and many have also suffered accelerating inflation, debt ratios have fallen in Malaysia, Mexico, New Zealand and Zimbabwe and have stabilised in Jamaica, India and Sri Lanka, where real interest rates have been positive since 1992.(1) However, in Jamaica and Sri Lanka debt ratios appear excessive at just under and just over 100% of GDP, respectively. Positive real interest rates in 1993 and 1994 did not prevent and may even have stimulated the decline in Jamaica's debt ratio since 1991.

Perhaps the most dramatic change produced by the development of domestic markets for government debt is the decline in the government's share of total net credit given by the banking system in all eight countries: from 82% to 68% in Ghana, from 62% to 48% in India, from 59% to -30% in Jamaica, from 11% to 3% in Malaysia, from 60% to -6% in Mexico, from 38% to 5% in New Zealand, from 46% to 26% in Sri Lanka and from 45% to 23% in Zimbabwe. Such large declines are difficult to reconcile with any claims that government borrowing has crowded out the private sector, even in Zimbabwe.

As suggested earlier, higher interest rates under a liberalised system elicit more saving in financial form, so increasing the aggregate supply of credit in real terms. If the government does not increase the amount it expropriates from this aggregate, there must be more, albeit at a higher interest rate than formerly charged to some previously privileged and favoured borrowers, for the private sector as a whole. In this country group, there is no evidence of Ponzi-type government behaviour or of any debt explosion.

Once governments are persuaded that cheap finance from their central banks or through financial repression and inflation-unemployment tradeoffs are mere illusions, central banks can then pursue unimpeded their primary monetary policy objective of price stability. Emancipating the banking system in the process of developing markets for government debt should enable every country's financial system to perform its two basic functions—administering the country's payments mechanism and intermediating between savers and investors—effectively and efficiently. The end results should be lower inflation, higher saving ratios and higher growth.(2)

(1) Jamaica is the sole exception in that it posted a strongly negative real interest rate in 1992.
(2) In addition to substantiating this conclusion, Fry (1997) also contains chapters on the players, market microstructure and roles that central banks can play in the process of developing voluntary domestic markets for government debt.

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