RESERVE BANK OF INDIA

SEVENTH L. K. JHA MEMORIAL LECTURE

TARGETS, INSTRUMENTS AND INSTITUTIONAL ARRANGEMENTS FOR AN EFFECTIVE MONETARY AUTHORITY*

Title of the Lecture

Targets, Instruments and Institutional Arrangements for an Effective Monetary Authority

* Seventh L. K. Jha Memorial Lecture, as delivered by Willem H. Buiter, in Mumbai on October 16, 2000. The Lecture was jointly prepared by Willem H. Buiter and Anne C. Sibert. Willem Buiter is Chief Economist at the European Bank for Reconstruction and Development. Anne Sibert is Professor of Economics at Birkbeck College, University of London. The views and opinions expressed are those of the authors only. They do not necessarily reflect the views and opinions of the European Bank for Reconstruction and Development.

I. Introduction

It is a great honour to have been invited by Dr. Bimal Jalan, Governor of the Reserve Bank of India, to give the Seventh L.K. Jha Memorial Lecture here in Mumbai. It is also a pleasure to be able to visit India with my wife, who is also the co-author of this lecture, as guests of the Reserve Bank of India. I look forward very much to see first hand the vast changes that have occurred in the Indian economy since my last visit here in 1993. Given continued structural reform and a willingness to face the challenges posed by globalisation, India can face any competitive challenge in foreign and domestic markets and can become one of the global economic powerhouses of the 21st century.

This lecture considers some of the conceptual and practical issues involved in the design and conduct of monetary policy by an independent monetary authority. The two authors bring complementary perspectives to this joint venture. One of us served on the Monetary Policy Committee of the Bank of England from its inception in June 1997 until June 2000. The other was a member of the Shadow Monetary Policy Committee and also of the 'Maude Commission', set up in 1999 by the then Shadow Chancellor of the Exchequer, The Rt. Hon. Francis Maude MP,... "to conduct an investigation into the workings, advantages and deficiencies of the current monetary policy regime...". [1]

[1] Bank of England Commission [2000], p. 1.

The literature on the subject is vast and growing, and no attempt is made here to provide comprehensive coverage of the subject. We restrict ourselves to issues on which we hope to be able to contribute something that is both new and potentially important.

In Section II, we discuss the central but complex concept of central bank independence. Section III contains some reflections on the relationship between accountability and independence. The objectives of monetary policy are reviewed in Section IV. Section V considers the pros and cons of different exchange rate regimes. Section VI deals with the problems of monetary and fiscal policy coordination.

II. Independence

Why have an independent monetary authority? The monetary authority or central bank is an agency of the state.[2] Delegating monetary policy to a collective of appointed technocrats means opening the door to a principal-agent problem between the government (the principal) and the agent (the independent central bank). To rationalise such a delegated mechanism from a normative perspective, one must recognize that the state itself is an agent of the ultimate principals, the public, that is, the citizens of the polity. In a second-best world, a two-stage or two-tier principal-agent

[2]We use monetary authority and central bank interchangeably, although a central bank can have functions other than the conduct of monetary policy. It can be the government's banker, manage the national debt and act as a financial regulator and supervisor.

configuration may produce superior outcomes to the one-stage principal-agent configuration between the citizens and the state.

To make sense of an independent central bank, it must be the case that institutions matter. By imposing a system of laws and of formal and informal rules on one of its own agencies, the state must be able to induce behaviour by that agency that it cannot commit itself to deliver otherwise. Why would a sovereign be able to commit itself credibly to a certain structure of delegation, and through that to a particular set of rules or actions that will be implemented by the agent, when the sovereign is not able to commit itself directly to that set of rules or actions? It seems that there are occasional, infrequent interludes of 'extraordinary politics' or windows of constitutional opportunity, during which otherwise opportunistic actors can commit themselves to enact certain broad, quasi-constitutional principles or rules, embodied in institutions. They make this commitment, despite knowing that, once the constitution and associated institutions have been established, the authors of the constitution will, in the course of 'ordinary politics', regret their earlier commitment.

Granted then that it may be possible to implement a credible delegation of certain government functions, like monetary policy, for some considerable period of time, the question arises as to precisely which aspects of the monetary policy process should be delegated. The literature makes a distinction between *operational* and *target* independence.

Operational independence is present when no-one can tell the central bank what to do. The objective or objectives pursued by the central bank could either be its own, in which case there also is target independence, or those of the government.[3]

There are two grounds for arguing that it is useful for a central bank to have operational independence even if it does not have target independence. Assume for the moment that, if the central bank does not have target independence, it will pursue the objectives set by the government to the best of its ability. This could either be because the central bank shares the objectives of the government or because the government can, somehow, induce the central bank to behave as if it had internalised the government's objectives.

The first argument in support of operational independence without target independence, is superior technical competence of the central bank in the conduct of monetary policy. The second argument applies even if the central bank and the government share a common level of competence as well as common objectives. According to this argument, the central bank is considered less likely to act opportunistically (that is, in a time-consistent but sub-optimal manner) than the government. In other words, the central bank can more easily make a credible commitment about its future actions or decision rules than the government.

[3]We do not consider the case where the central bank adopts the objectives of a third party.

The ability to make credible commitments, that is, the ability to foreswear opportunistic behaviour, is valuable. A well-known example of the cost of the inability to make a credible commitment as regards future policy is the inflation bias that characterises a rational expectations equilibrium in the models of Kydland and Prescott and of Barro. There is a Lucas supply function, which has the actual unemployment rate falling relative to the natural rate of unemployment when the gap between current inflation and last period's expectation of current inflation increases. The policy maker has a period loss function that increases with the square of the deviation of actual inflation from target inflation and with the square of the deviation of the actual rate of unemployment from the target. The policy maker aims to minimize the discounted sum of current and future period loss functions. The target rate of unemployment is below the natural rate. The inflation rate is the instrument. In the absence of stochastic shocks, the policy maker's optimal policy is to set inflation equal to zero in each period. The unemployment rate will equal the natural rate in each period. Without precommitment and considering only memoryless 'strategies' for the private agents whose inflation expectations drive the model, the policy maker will pursue a policy of positive inflation. Unemployment will again be at its natural level. If private agents were to expect zero inflation, and incorporated these expectations in, say, nominal wage contracts, the policy maker would have an incentive to boost actual inflation above the zero expected inflation rate. Because the policy maker's target unemployment rate is below the natural rate (which is also the equilibrium rate in any rational

expectations equilibrium), it will be the case that, at low expected rates of inflation, a small increase in inflation above its expected level reduces the value of the loss function. In a rational expectations equilibrium, agents will be aware of the opportunity for opportunistic behaviour provided to the policy maker by pre-determined expectations and pre-existing money wage contracts. The equilibrium rate of inflation (actual and expected) will be just high enough to balance the gains from inflicting an inflation surprise on the private sector against the loss of higher inflation.

There are other, possibly more convincing, stories about why there might be an inflation bias when the policy maker cannot commit itself not to act opportunistically in the future. Unexpected inflation could be valuable from a public finance point of view because, in the presence of non-index linked fixed rate government debt, it reduces the real value of the public debt.

If strategies with recall or memory are permitted, it may be possible, either through the use of 'punishment strategies' by the private sector or because of a desire by the policy maker, to invest in a reputation for anti-inflationary rectitude when there is asymmetric information about the true objectives of the policy maker, to support efficient outcomes despite the lure of opportunistic behaviour. The use of punishment strategies based on the past behaviour of the government involves in our view improper treatment of individual private expectations as *instruments* in a non-cooperative game. Reputation considerations tend to mitigate rather than eliminate the inflation bias.

Whatever the reason(s) for a positive inflation bias, this literature has nothing to say about the identity or institutional affiliation of the policy maker. It could equally well be the central bank as the government. If central banks are capable of commitment and governments are not, what accounts for the difference? Is this due to differences in constraints or differences in objectives or tastes?

Rogoff's conservative central banker solves the inflation bias problem by assigning monetary policy to someone whose preferences are such that the optimal and the time-consistent solutions coincide. In the Kydland and Prescott example, this can be achieved by giving a zero weight to unemployment in the objective function. Inflation surprises that reduce unemployment then hold no attractions for this conservative central banker. A more interesting example would be a central banker who has the same objective function as the government, but who, unlike the government, has access to a 'commitment technology' that rules out opportunistic behaviour. Just what such a technology would consist of is unclear.

Regardless of whether it is taste or technology that makes the central bank capable of commitment, the question arises as to why a government that is incapable of commitment would be capable of appointing a central banker who is capable of commitment. It may be possible, even for a normally opportunistic government, to engage in a once-and-for-all act of delegating monetary policy to an independent central bank, to take advantage of the infrequent opening

of the 'window of constitutional opportunity' referred to earlier. Such a quasi-constitutional decision could solve the inflation bias problem, if this delegation of authority were indeed irrevocable. If it were to require periodic reconfirmation or periodic supplementary actions at the discretion of the government to keep it effective, the problem of opportunistic government behaviour is not solved. In practice, even the most independent central bank is financially at the mercy of the Treasury, which could, should it choose to do so, tax the central bank into oblivion.

Another proposed solution to the time-inconsistency and inflation bias problem, the design of optimal contracts for central bankers, along the lines explored by Walsh, also begs a key question. It is certainly possible to design contracts which, were they to be enforced, would eliminate any inflation bias. In the presence of uncertainty, this optimal contract will be an innovation-contingent rule. The rewards and penalties may be pecuniary or non-pecuniary. The problem with such 'solutions' to the principal-agent problem between the government and the central bank, is that enforcement of the contract may not be incentive-compatible for an opportunistic government.

There is no neat solution to the problem of ensuring the irreversibility or irrevocability of the delegation of monetary policy by the government to an independent central bank. Sovereignty, the defining attribute of the state, translates loosely as absolute power, the ability to do what you want. The sovereign therefore is virtually

condemned to discretionary, opportunistic behaviour and cannot, in normal circumstances, make a credible, irreversible commitment. Today's sovereign cannot credibly commit tomorrow's sovereign, even if tomorrow's sovereign is today's sovereign aged by 24 hours.

Assume that the government cannot make regular credible commitments but that the central bank can. Assume also that the government can make a once-and-for all irrevocable delegation of monetary policy authority to an independent central bank. Should the government give target independence to the central bank as well as operational independence?

Consider the case where the central bank only gets operational independence. The problem with this 'solution' is that it seems paradoxical that a government incapable of making credible commitments about its future use of the monetary instrument, can nevertheless make a credible commitment not just to give instrument independence to the central bank, but also not to manipulate its assignment of future monetary policy targets to the central bank in an opportunistic manner.

The UK monetary arrangements appear to be based on the belief that this paradox is indeed a paradox rather than an anomaly or internal contradiction. The UK Chancellor of the Exchequer retains the power to set the numerical inflation target for the Monetary Policy Committee (MPC) of the Bank of England. This target has been unchanged at 2.5 percent per annum (for the RPIX) since the start of

operational central bank independence in June 1997. Were the Chancellor to change the target frequently and opportunistically (and were the central bank to respect the government's changing inflation directives), the benefits from operational independence would vanish. The arrangement rests on the implicit assumption that the inflation target will not be changed, except under exceptional circumstances, such as a decision to make the UK a member of EMU.

Even operational independence is qualified in the case of the Bank of England. Under the Bank of England Act 1998, the Treasury retains reserve powers permitting it to take back the monetary management role from the MPC, at the discretion of the Chancellor, albeit subject to ex-post Parliamentary ratification. There has never been any sign or hint that the exercise of these reserve powers has ever been contemplated during the past three years. Nevertheless, with different sets of players in the Treasury and the MPC, and under different circumstances, the repatriation option might be tempting to the government of the day. Any form of pressure by the government on the MPC to change its behaviour, other than a public, and properly enacted, change in its mandate, would violate both the spirit and the letter of operational independence. There has not been a single instance of such pressure in the first three years of the MPC's existence.

In contrast, the European Central Bank (ECB) has de-facto target independence. The objectives laid down in the Maastricht Treaty

(price stability) is not operational. The operational expression of this target has been left to the ECB. There also is no counterpart in the Treaty to the Treasury's reserve powers. A change in the Treaty (which requires unanimity) is required to change the legal framework within which the ECB operates.

The conditions of appointment and removal of the members of a monetary policy authority, and the criteria for their selection, have a bearing on the substantive independence of the monetary authority. A single, non-renewable term of office is widely considered to be conducive to independence of the appointed members from the political authority making the appointments. The reason is that the wish to be reappointed might lead a member to vote in such as way as to ingratiate himself or herself with those endowed with the power of reappointment. This argument is of course only persuasive if the political authorities can identify the policy choices of individual members. In the UK, with its structure of individual accountability of the MPC members, its practice of taking a formal vote at each rate setting meeting and its legal requirement that the votes be published, the 'ingratiation argument' against reappointment would seem to carry some weight. Nevertheless, the four external members have renewable 3 year terms of office, and the five internal members have their tenure associated with their appointment to specific positions in the executive structure of the Bank of England. These appointments too are renewable.

The ECB has non-renewable appointments for the six Executive Board members, although votes are seldom if ever taken, and the votes, if taken, would not be in the public domain. The eleven national governors that make up the rest of the ECB's Council can, however, be reappointed.

Not being eligible for reappointment is of course not sufficient (nor, one might hope, necessary) for independence. The political authorities have the capacity to influence the career prospects of former members of the monetary policy authority, and could, should they wish to do so, dangle a variety of non-pecuniary incentives to try and influence members' voting behaviour even during a non-renewable term of office.

The only criteria supposed by which potential MPC members in the UK are to be judged is professional competence and independence. They are not viewed as regional, industrial or sectoral delegates or representatives. Only the nationwide inflation objective and the nationwide subsidiary objectives are to be taken into account by the Chancellor in their appointment and by the MPC members themselves in their voting behaviour.

For the ECB also, Council members are assumed not to serve sectional, national or regional interests. Only the EMU wide price stability objective is to be served. Of course this clear legal mandate is an uncomfortable bedfellow with the legal requirement that the eleven non-executive ECB Council members are selected because

they are *national* central bank governors. The appointment of the six Executive Board members is also the subject of intensive (and at times distasteful) national arm-twisting. The contrast with the Bank of England's MPC is quite stark here. Not only is there no regional representation requirement for the MPC, two of the original nine MPC members were not British citizens. The ECB statutes prohibit non-EMU citizens from serving on the ECB Council. The day the Executive Board of the ECB is appointed without reference to the national identities of the candidates, and the governors of the former Central Banks are permitted to enjoy their well-earned retirement, will be the day that European monetary policy will have a real chance of being conducted in a substantively independent manner.

III. Independence and accountability

In a number of ways, the ECB has, *formally*, greater operational and target independence than the Bank of England. The main exception is the national designations of the ECB Council members. As regards substantive operational independence, there can be no doubt, in our view, that during its first three years of operation, the MPC has been, and is indeed perceived to have been, fully independent of the elected political authorities. This outcome did, however, depend on a quite enlightened policy environment, where the authorities expected, and wanted, the MPC to make its decisions without fear or favour. As this happy state of affairs is not fully enshrined in law, it is, however, vulnerable to changes in the

prevailing political climate. It is true that even laws can be revoked, amended or subverted. If there is no effective political constituency for central bank independence, the mere letter of the law will not make or keep the central bank independent.

As regards accountability to the citizens and their elected representatives, the Bank of England's MPC is significantly ahead of the ECB. Accountability presupposes transparent objectives and procedures. This requires openness. Substantive openness requires that the collective and the individual decision makers be held responsible for their decisions. The ECB Council does not normally take a formal vote to reach its policy decisions. Even were it to take a vote, it would not reveal the individual voting pattern to the public. The MPC always votes and publishes the individual voting record within two weeks of the vote being taken.

By not requiring a vote and by not putting the individual votes in the public domain, the ECB risks undermining the substantive independence of its members. The reason is that the contributions of the individual ECB Council members to the 'consensus' that emerges eventually (and the individual votes should they ever be taken) will be *observable* to the political authorities, but not verifiable by the European Parliamentary subcommittee to whom the ECB is nominally answerable. The Ruritanian minister of Finance will within five minutes of the ECB Council meeting coming to an end, know which way the Ruritanian Governor argued or voted. National political pressure can therefore be brought to bear. When faced

with a Parliamentary demand to justify his position during the Council meeting, the Ruritanian Governor can hide behind the formal fig leaf of confidentiality. Leaky confidentiality is the worst possible arrangement from the point of view of accountability. Another feature of the ECB's arrangements that contributes to the opaqueness of its procedures is its refusal to release minutes. The publication by the ECB of an often extensive report on the issues and considerations that supposedly informed the discussions of the ECB Council, is not a substitute for real minutes. The release of this report immediately following the Council meeting is proof that it was prepared before the meeting.

IV. The targets of monetary policy

The formal mandate of the central bank differs significantly across countries. The UK has, since 1992, an inflation target as the primary objective of monetary policy. The ECB has price stability as its overriding objective. The Federal Reserve Board formally has three objectives: maximal employment, price stability and interest rate stability. De facto, though, central banks across the world increasingly appear to be pursuing a single nominal target. By and large, this single nominal target tends to be an inflation target.

The ordering of the inflation target and the subsidiary targets in the UK prima facie appears to be lexicographic. The MPC is to pursue an inflation target, set by the Chancellor at 2.5% per annum on the RPIX definition. The inflation target is symmetric. Subject to the

inflation target being met (in the 1997 language the wording was "without prejudice to the inflation target"), the MPC is to support the government's other objectives, two of which are mentioned specifically, growth and employment. The lexicographic ordering of the targets is somewhat undermined, however, by the so-called 'open letter procedure'. Should the 12 month rate of inflation depart from the target by more that one percent in either direction, the Governor, on behalf of the MPC, is required to write an open letter to the Chancellor. In this letter he explains why the overshoot or undershoot happened, what the MPC will do about it, over what horizon the MPC expects to return to the target and how all this is consistent with our mandate. Note that the open letter procedure, like the target itself, is symmetric.

The open letter procedure, and the amplification of the target provided by the Chancellor at the same time the target was embodied in law, indicate that there are indeed circumstances under which the pursuit a l'outrance of the inflation target would impose unacceptable and unnecessary costs on the real economy. The examples given in the supplementary documents involve supply shocks. An exogenous increase in the world price of oil can have a significant effect on the domestic price level. This will show up in the data as a large (temporary) increase in the rate of inflation. To suppress this price level increase completely, even in the very short run, interest rates would have to be hiked to levels that could do serious damage to the real economy. The open letter procedure might rationalize a policy that does not try to offset the impact effect of the oil price

increase on the general price level, but does tighten only enough to stop second-round and further propagation of this price level increase through the wage-price spiral.

It is important to note that an inflation target is qualitatively different from a price level target. Even an inflation target of zero is different from a constant price level target, because the inflation target forgives past inflation target undershoots or overshoots, while a price level target requires past inflation overshoots or undershoots to be compensated. From a conventional welfare point of view, a price level target has very little to recommend it, because one price level is as good as another: welfare and efficiency gains and losses (be they due to shoe leather or to menu cost considerations) are associated with expected inflation. If the monetary policy rule is not derived from a full dynamic optimization programme, but instead follows some ad-hoc rule (like a Taylor rule for the short nominal interest rate or the McCallum rule for the growth rate of the nominal monetary base), it is of course quite possible that the economy performs better, even with respect to an inflation target, if the authorities follow an ad-hoc price level rule than if they follow an ad-hoc inflation rule.

We consider it essential, for transparency and for anchoring private sector expectations, that the overriding objective of monetary policy be a single nominal target. The two obvious candidates are an inflation target for a closed system or an open economy with a market-determined exchange rate, or an exchange rate target for an open economy. Multiple nominal targets, such as an inflation target

and an exchange rate target, amount to a real target. It is desirable for monetary policy to target something it can actually hope to deliver, on average and over time. Stabilizing the real economy should, at most, be a subsidiary target, and should be specified sufficiently vaguely that there is no risk that the monetary authorities will be pressed to try to achieve a precise numerical target for unemployment, real GDP growth or the real exchange rate. Such objectives will not be achievable, even an average and over time, except by chance. The futile pursuit of real targets is a time-honoured recipe for producing bouts of excessive inflation.

V. Feasible and desirable exchange rate regimes

The choice of exchange rate regime is largely a corollary of the choice of nominal anchor for the national economy. If the price level, the inflation rate, nominal income (or its rate of growth) or some nominal monetary aggregate (or its rate of growth) is chosen to be the nominal anchor (that is, the target of monetary policy), the exchange rate regime is determined residually or endogenously. With any of these nominal anchors, a floating exchange rate is the only feasible exchange rate regime in the medium or long term. If there is unrestricted international mobility of financial capital, a floating exchange rate is the only feasible exchange rate regime in the short run as well.

A managed exchange rate, which includes a fixed exchange rate, a currency board and a crawling peg as special cases can, for a single

open economy provide an alternative nominal anchor. The global economy as a whole does not have that option. According to conventional optimal currency area theory, the optimal choice of exchange rate regime, managed or market-determined or floating, depends on country size, on economic structure, including openness and degree of economic and financial development, on the degree of cross-border mobility of labour, real capital and other productive resources and on the importance and persistence of *nominal* price and cost rigidities. In this lecture I want to emphasize that in judging alternative exchange rate arrangements, more important than the traditional optimal currency considerations are one's views on the efficiency of the international financial markets and on the feasibility and desirability of controls on the international movement of financial capital.

I will not waste much time on the consideration of multiple exchange rate regimes. I can think of no circumstances under which efficiency, stability or fairness are well-served by a multiple exchange rate regime. When the same commodity is bought and sold at wildly different prices, bad things happen. Multiple exchange rates distort the allocation of resources. They corrupt, invite patronage, cronyism and favouritism. They create incentives for costly rent-seeking. They are likely to lead to serious quasi-fiscal deficits for the central bank charged with managing the multiple exchange rate regime, and often forced to engage in sell low/buy high strategies. There is no excuse for operating this worst of all possible regimes.

As regards the managed vs. floating exchange rate regimes, let's see whether we can learn something from the experience during the past couple of decades of the advanced industrial countries. For the advanced industrial countries, all of which are by now fully integrated into the international financial system, two clear trends are emerging. First, there are only two viable currency regimes, located at the extreme ends of the spectrum. These are free floating and a common currency, that is, monetary union. Second, there are going to be fewer and fewer currencies. Within a decade or two, the advanced industrial countries will have 2.5 currencies among them: the Euro, the US$ and something around the Yen or the Yuan.

Second, under unrestricted international mobility of financial capital, all intermediate regimes, fixed-but-adjustable exchange rates, crawling pegs, actively managed floats etc. are accidents waiting to happen and cannot survive for long. Only credible fixed exchange rate regimes are viable. I believe that, in the long run, the only credible and viable fixed exchange rate regime is a common currency. This can be either a (formally symmetric) monetary union, or the unilateral adoption of another country's currency as the only form of legal tender by another country, that is, dollarisation or euroisation. A currency board is the poor man's monetary union or a fixed exchange rate regime that 'tries harder'. It may survive for a while, as a half-way house to full monetary union. The same may hold for conventional fixed exchange rates regimes, provided the defence of the external parity is given a higher priority than the pursuit of domestic objectives such as price stability or the elimination of the domestic output gap. The Netherlands and Austria during the two

decades before they joined EMU are examples of such credible fixed rates vis-a-vis the DM. It is no accident that both examples involve small open economies maintaining a currency peg with their large main trading partner.

As a rule, unrestricted financial capital mobility makes short work of the intermediate exchange rate regimes. A free float is viable, that is, survivable, but dominated, economically, by a common currency. Under a regime of unrestricted financial capital mobility, the exchange rate is not so much an effective shock absorber, which buffers the real economy from fundamental shocks arising at home or abroad, but rather a source of shocks, instability, persistent real exchange rate misalignment and excess volatility. Monetary union, the logical economic implication of full financial integration, requires a significant degree of political integration and political union, however.

The decision of the UK government not to join EMU on January 1, 1999, was, in my view, a grave mistake - a historic error of judgement. The Pound Sterling is now uncomfortably lodged between the two currency elephants, the US dollar and the Euro. The view of a floating exchange rate as an effective buffer or shock absorber has proven particularly untenable for the UK. With an operationally independent central bank and a government-mandated inflation target, the exchange rate has proved to be a bit like a rogue elephant. The effective exchange rate of the Pound Sterling has appreciated spectacularly since 1995/6, causing a painful imbalance between the internationally exposed sectors and the internationally

sheltered sectors. Any attempt to drive the pound down significantly through monetary policy actions would, if it were successful, undermine the inflation target. If the UK stays outside EMU, it is bound to see before too long an episode with a spectacularly undervalued Pound Sterling.

The main proximate source of trouble, and the main contributor to the seriously overvalued effective exchange rate of Sterling has been the strength of Sterling vis-a-vis the Euro. Euroland accounts for 50% of UK exports and imports. If the nations shadowing the Euro are added, this share gets up to close to 60%. To have large, asset-market induced swings in the nominal and real exchange rate vis-a-vis one's main trading partner is not a recipe for a comfortable life. Joining EMU, at a significantly more competitive exchange rate than the current one, would be a far superior option for Britain. It is a real option, because the EU (just about) provides the minimum supranational institutional and governance structures necessary to make a monetary union with Euroland a politically viable arrangement. Stronger supra-national, Federal institutions would, however, strengthen the authority of the ECB.

What lessons are there in this experience for India? First, India is much less open to international trade in goods and services than any of the current or likely future EMU members, the legacy of decades of inward-looking, import-substituting development strategies, that have only begun to be effectively challenged and partly reversed since the early to mid-nineties. Second, India has

severe, even if not completely effective, restricted international mobility of financial capital. These restrictions on international capital mobility explain why India, like China, was little affected by the Asian and Russian crises. Disorderly international financial markets can inflict severe damage on countries exposed to them, especially if the national banking and financial systems, including the regulatory and supervisory structure, are weak or underdeveloped.

Against these undoubted benefits of restrictions on the international mobility of financial capital when international financial markets behave pathologically and domestic financial supervision and regulation are weak, must be set the benefits from international financial integration. Open capital accounts permit national saving to be de-coupled, at least temporarily, from domestic capital formation. Orderly international financial markets (which are the norm) permit risk sharing and offer insurance opportunities not available at home. The threat of capital flight are a welcome constraint on fiscally irresponsible national governments and on national governments whose policies harm the domestic investment climate. Finally, restrictions on financial capital mobility create rents and invite bribery, corruption and costly rent-seeking behaviour. The administrative capacity for an impartial and effective enforcement of capital controls simply does not exist in any emerging market, transition economy or developing country we are familiar with.

What are the exchange rate regime options open to a country like India? Clearly, monetary union with one of the 'super currencies' is not an option for India. The political and constitutional pre-conditions for monetary union are not satisfied. One needs at least a confederal and preferably a federal political structure to make a monetary union work.

It is clear that, if capital controls can be made effective, a number of options, ranging from a currency board (probably vis-a-vis a basket of currencies), via a fixed-but-adjustable peg or a crawling peg, with or without a band, to a managed float and a free float are sustainable, given a supportive fiscal and monetary regime. If capital controls cannot be made effective, or are deemed undesirable, there are only two options, a credible fixed exchange rate regime or a free float. A currency board is probably the most credible fixed exchange rate regime, although anything that has been created politically can also be unmade politically.

The balance sheet and budget constraint of a stylized currency board are given in Table 1 and Equations 1 and 2 below.

Table 1

Stylized Currency Board Balance Sheet

Assets	**Liabilities**
ER^* (Foreign exchange reserves)	C (Currency)
	R (Commercial bank reserves with currency board)
	N (Currency board net worth)

Here E is the nominal spot exchange rate. H, the monetary base, is the sum of currency and commercial bank reserves with the currency board, that is, $H \equiv C + R$. The balance sheet identity can be written as

$$H \equiv ER^* - N \qquad (1)$$

The value of the increase in the currency board's liabilities minus the value of the increase in its assets equals the financial deficit of the currency board.

$$\Delta H - E \Delta R^* \equiv i^R R - Ei^* R^* + T + O \qquad (2)$$

This is the excess of its outlays (current and capital expenditures, O, plus taxes paid to the government, T, plus interest paid on bank reserves, $i^R R$) minus interest received on its foreign exchange reserves, $Ei^* R^*$. The interest rate paid on bank reserves is i^R, that paid on foreign exchange reserves is i^*. Currency is assumed not to bear interest.

The conventional assumption is that the government taxes away all operating profits of the currency board, that is, $T = Ei^* R^* - i^R R - O$. Given that assumption, the change in the monetary base under a currency board is indeed equal to the value of the increase in the stock of official foreign exchange reserves held by the currency board, that is,

$$\Delta H = E\Delta R^* \qquad (3)$$

Note that (3) is only implied by the balance sheet identity (1), if we assume that

$$\Delta N \equiv R^* \Delta E + \Delta E \Delta R^* \quad (4)$$

This means that capital gains and losses on foreign exchange reserves are not monetised but absorbed in the net worth of the currency board.

A currency board has two key features: an irrevocably fixed exchange rate and the prohibition of domestic credit expansion by the central bank. The entire monetary base is backed by international reserves. Effectively, the foreign currency, let's call it the Global, becomes legal tender domestically. There are several advantages, all of which depend on the currency board arrangement being perceived as credible and permanent.

The first advantage is that you will save some real resources, because you don't need a central bank in its capacity as the monetary authority. Banking supervision and regulation is of course still required. The role of domestic monetary policy is so circumscribed, that only the most rudimentary central bank is required. You need a chap at the foreign exchange window, exchanging domestic currency on demand for the Global, and that's about it. Of course, domestic interest rates must be kept at the same level as Global rates, after allowing for a default risk premium, but in all but the most underdeveloped financial systems, markets will take care of that.

The second advantage is that you throw away the key to the drawer labelled 'monetary financing of government budget deficits'. In a well-run economy, that would actually be a drawback. Seigniorage can be an important source of revenue for cash-strapped governments. There is no reason to believe that the inflation rate generated under a currency board is anywhere near the optimal rate from a neoclassical public finance point of view.

However, political economy considerations, distilled from the raw lessons of history, suggest that the printing press is a great seducer, and that the freedom to issue monetary liabilities at will is likely to be abused. An independent central bank, either an instinctively conservative one with both operational and target independence, or a central bank with just operational independence, but dedicated to an externally imposed mandate of price stability, would, in principle, prevent such abuses. This, however, begs a number of key questions. Can the political realities support an operationally and target-independent central bank? Would price stability be the overriding target of a target-independent central bank? How would an operationally independent central bank internalise an externally imposed price stability mandate? And who would impose such a mandate on the central bank?

In many transition countries, the central bank is not even nominally independent. Where it is nominally independent, it is often not effectively independent. This problem is compounded by the fact that the central bank in a number of transition economies does not

limit itself to conventional central banking roles (monetary policy and supervision and regulation of the banking and financial systems), but also acts as a development bank and performs commercial roles. That way lies the road to disaster. Central banking functions and development banking functions should be institutionally separated. Both are important, but the two don't mix. A central bank that engages in commercial financial activities is in even deeper water. There is clear conflict of interest between the central bank as regulator and supervisor and the central bank as a commercial market player.

The balance sheets and budget constraints of a combined full-fledged central bank and development bank are given below.

Table 2

Stylized Central Bank/Development Bank Balance Sheet

Assets	**Liabilities**
ER^* (Foreign exchange reserves)	C (Currency)
D^G (Credit to the government)	R (Commercial bank reserves with currency board)
D^P (Credit to the private sector)	L (Central bank interest-bearing debt)
	N (Currency board net worth)

The central bank/development bank has as assets not only foreign exchange reserves, but also government debt, D^G, which bears an interest rate i, and private debt (or loans to the private sector), D^P, which bears an interest rate i^P. In addition to the monetary base, its liabilities now also include central bank interest-bearing debt, L,

which bears an interest rate i^L. All assets and liabilities are entered at their face value, and all interest rates are contractual interest rates.

$$H \equiv ER^* + D^G + D^P - L - N \tag{5}$$

$$\Delta H - E\,\Delta R^* - (\Delta D^G + \Delta D^P - \Delta L) \equiv i^R R - Ei^* R^* + i^L L - i D^G - i^P D^P + T + O \tag{6}$$

If the government taxes (or makes transfer payments to) the central bank the exact amount required to balance the central bank's budget, that is, if

$$T \equiv -i^R R + Ei^* R^* - i^L L + i D^G + i^P D^P - O \tag{7}$$

then

$$\Delta H \equiv E\,\Delta R^* + (\Delta D^G + \Delta D^P - \Delta L) \tag{8}$$

One can rewrite the net tax receipts the government gets from the central bank as follows. The shadow cost of funds to the central bank is denoted $\tilde{i}$:

$$T = -O + \tilde{i}\,(D^G + D^P + ER^* - R - L) - (\tilde{i} - i)\,D^G - (\tilde{i} - i^P)\,D^P + (\tilde{i} - i^R)\,R - (\tilde{i} - i^*)\,ER^* + (\tilde{i} - i^L)\,L \tag{9}$$

The second line of (9) represents the (cash-flow measure[4] of the) quasi-fiscal operations of this overblown central bank. This consists of the *de facto* tax imposed on the commercial banks, $(i - i^R)\,R$, the

[4]A better measure would allow for capital gains and losses on foreign exchange due to changes in the exchange rate.

implicit subsidy on its lending to the private sector, $(\tilde{i} - i^P)\ D^P$, the implicit subsidy on its lending to the government $(\tilde{i} - i)\ D^G$, and the implicit taxation or subsidization involved in its foreign exchange holdings, $(\tilde{i} - i^*)\ ER^*$ and in its interest-bearing debt issuance $-(\tilde{i} - i^L)\ L$. These quasi-fiscal activities can be significant. In some of the EBRD's countries of operations, they have amounted to more than 6% of GDP. In practice, uncovering the magnitude of the quasi-fiscal activities is difficult, as contractual interest rates need bear no relationship to interest actually paid. Marked-to-market values of claims on the private and/or public sectors can also be significantly less than their face or notional values.

Central banks should, under normal economic conditions, only provide credit to the general government, and possibly only to the central government. Central banks do not have the knowledge or operational capacity to make do the cost-benefit analyses that are central to development banking, nor do they have any special talent for making commercial banking or investment decisions. If the government wishes, for whatever reason, to extend credit, on market or below-market terms, to the private sector or the state enterprise sector, it should do this through a separate institution, funded by the government (through the Treasury). This 'development' bank should not be able to call on the central bank for financial support, through capital grants disguised as loans. Transparency and accountability are served by shifting all quasi-fiscal operations of the central bank into the central government budget, where they belong. In terms of equations (5) through (9), our proposal would therefore be to

set $D^P \equiv 0$ (no lending to the private sector by the central bank), $i^R = \tilde{i}$ *or* $R \equiv 0$ (no taxation of banks by the central bank), $i = \tilde{i}$ (no subsidisation of government borrowing from the central bank) and $i^L = \tilde{i}$ (the central bank borrows at the appropriate marginal opportunity cost of funds).

Of course, a central bank has a lender of last resort function in times of financial crises that pose a serious systemic risk to financial and macroeconomic stability. Under such circumstances the central bank should lend freely, against the best available collateral, and at punitive rates. If a liquidity crisis becomes a solvency crisis, the central bank does not have the resources to act effectively. Only the state, through the Treasury and its power to tax, has the resources to recapitalize insolvent financial institutions.

One obvious drawback of a currency board is that there can be no lender of last resort, since domestic credit expansion is ruled out. There may be ways of partially privatising the lender of last resort function by arranging contingent credit lines, but the scope for that is inevitably limited in the countries under consideration.

If a country opts for a currency board, it should peg to a currency or to a basket of currencies that accounts for the lion's share of its external trade. For most transition countries, the Euro or a basket with a large Euro share, will be the natural choice. Pegging to the US dollar or even to the SDR, is an open invitation for trouble.

A currency board makes the most sense for small, highly open

countries whose external trade is highly concentrated in a particular hard currency.

Unlike a currency board, a floating exchange rate regime cannot break down. That does not mean it will contribute much to macroeconomic stability. Under conditions of free capital mobility, the exchange rate is a source of shocks and instability more than it is a mechanism for adjusting more effectively to internal or external shocks. Despite this, it may well be the only viable option for the larger and less open transition economies that are still a very long way from accession.

VI. The co-ordination of monetary and fiscal policy

Lack of monetary-fiscal policy co-ordination is a common criticism of the current UK arrangements, and indeed of any arrangement involving an operationally independent monetary authority. Under the *ancien régime* in the UK, both monetary policy and fiscal policy were the sole province of the Chancellor of the Exchequer and the Treasury. The critics of the new operationally independent Bank of England argue that while the new arrangements may have bestowed greater credibility on the monetary authority, they have reduced the ability to co-ordinate fiscal and monetary policy and created scope for conflict.

This criticism is mistaken. It confuses *centralisation* with *co-ordination*. In the late and unlamented Soviet Union, all economic management was centralised. It was also very badly co- ordinated.

In the UK today, there cannot be a conflict between the targets of monetary and fiscal policy. The key point is that the MPC only has operational independence. It does not set the objectives of monetary policy. There can be no conflict between the targets of monetary and fiscal policy, because the Chancellor sets them both.

Even if there is no conflict of objectives, lack of co-ordination could result from the MPC and the Treasury not knowing what the other party is doing and thinking. This potential lack of information has two dimensions: uncertainty about how the other party views the exogenous environment within which both parties operate, and *strategic uncertainty* about how one party will respond to the actions of the other party.

There is, in fact, a very effective flow of information between the MPC and the Treasury. A Treasury Representative attends the meetings of the MPC in a non-voting capacity. The Treasury Representative speaks and listens. He does not attempt to exercise pressure or twist arms. We receive regular briefings and other updates on budgetary issues and prospects that are relevant to the monetary policy decision. The Governor meets regularly with the Chancellor. The notion that either party is unaware of what the other party knows and thinks, is wrong.

It is true that, even if there is no conflict of objectives, and even if there is no uncertainty about what the other party knows or believes about the common policy environment, there may be 'strategic

uncertainty' about how one party would respond to an action of the other party. The analogy here is with a rugby team. All players in the team have the same objective: to annihilate the opposition. They all share the same information about playing conditions and the opposition.[5] The players on each team must, however, play co-operatively in order to be effective. They must make binding commitments to make certain joint contingent moves, if they are to achieve the shared team objective.

There is no formal mechanism that allows the MPC and the Treasury to act 'co-operatively' in the way game theorists use that concept, that is, to make binding commitments about current and future policy actions or decision rules. The policy game, however, is a repeated game. Our monthly interest rate round has, thus far, been repeated 30 times. For practical purposes, we can view the interaction of the Treasury and the MPC as an 'infinitely repeated game'. As time passes, repetition and reputation make it possible to achieve outcomes very close to what can be achieved in a formal co-operative arrangement. Lack of co-ordination of monetary and fiscal policy simply is not an issue in the UK.

For the ECB, the problem of lack of co-ordination between monetary and fiscal policy is a real issue. First, the ECB itself defines its operational target. This target need not correspond to the (weighted average) of the targets preferred by the political authorities in

[5]Of course, the game with their opponents is (meant to be) non-co-operative; no binding agreements can (should?) be made.

Euroland. Conflict of interest between the monetary and fiscal authorities is a potential consequence of target independence. Second, the logistics of coordination and cooperation become very complex when the central bank faces eleven national fiscal authorities. There is no evidence that the fiscal authorities in Euroland coordinate policy among themselves. The Stability and Growth Pact is a set of constraints on national general government budget deficits. Even when these constraints bind (or influence the conduct of national fiscal policies because they might bind in the future), this does not amount to a coordination device for the eleven national monetary policies. A fortiori, there is no mechanism or framework for jointly coordinating the eleven national fiscal policies and the Euroland-wide monetary policy. Communication between the national fiscal authorities and the ECB appears to be restricted largely to disapproving public lectures by the fiscal and monetary protagonists.

VII. Conclusion

The institutions and practices of monetary policy continue to be in flux. The widespread adoption of legal and institutional arrangements for the conduct of monetary policy that emphasize operational independence and, occasionally, also a significant measure of target independence has coincided with a marked improvement in macroeconomic performance in the industrial world. Greater price stability during the 1990s has not been at the cost of greater real instability. This coincidence of institutional reform and an improved

inflation record may suggest a causal connection running from the former to the latter. We recognise the potential importance of rules and institutions. One should beware of overly simplistic interpretations, however. The fundamental change that produced both the superior inflation record and institutional reforms favouring operationally independent monetary authorities with a clear price stability mandate was a changing political consensus. A greater awareness of the costs of inflation and the widespread acceptance of the proposition that there is no long-run exploitable inflation-unemployment trade-off are responsible for both the institutional reforms and the enhanced stabilisation track record. Central banks can only retain their independence, and inflation will only remain subdued, for as long as this new consensus endures. We believe that this conclusion is applicable not only in the advanced industrial countries, but also in emerging markets, transition economies and developing countries.

Reference

Bank of England Commission [2000], *Final Report*, Published by the Conservative Party, London.