

Eleventh C. D. Deshmukh Memorial Lecture

Summary of the Welcome Remarks by Dr. Bimal Jalan, Governor, at the 11th C.D. Deshmukh Memorial Lecture 7-12-2000

On behalf of the Reserve Bank of India and myself, I am very happy to welcome Professor Charles Goodhart to Mumbai to deliver the Eleventh C.D. Deshmukh Memorial Lecture. Prof. Goodhart's work, both as a Central Banker and as an economic thinker, is well known and he hardly needs any introduction before this audience. Educated at Cambridge and Harvard Universities, he has held several high academic positions, and is at present the Norman Sosnow Professor of Banking and Finance at the London School of Economics. He was appointed as one of the first four independent outside Members of the Bank of England Monetary Committee in 1997.

Prof. Goodhart has also written extensively on monetary history, monetary economics and monetary policy. What I have admired most in Prof. Goodhart's writings, and what you are going to hear, is his ability to take the unconventional and open-minded views on most intricate technical as well as policy issues. With perhaps one or two exceptions, I can think of no one else who has brought so much practical experience to his academic work and vice versa.

We are indeed fortunate in having persuaded him to deliver this Lecture in honour of one of India's most distinguished thinkers and policy makers - Shri Chintaman Dwarakanath Deshmukh.

I do not wish to stand between you and Prof. Goodhart for very long. The subject of his lecture "Whither Central Banking?" is both timely and interesting since the last few years have seen the most significant changes in redefining central banking. Central banks themselves are, of course, very old institutions – I think, Bank of England was founded by an Act of Parliament as long ago as 1694, and Bank of France recently celebrated its 200th Anniversary. The Federal Reserve was set up in 1913. The Reserve Bank of India – although a toddler or at most a young adult by these standards – was set up in 1935, but is one of the oldest central banks in the developing world. For a very very long time, all Central Banks performed more or less similar functions as bankers to Government, issuers of currency, lenders of last resort, supervisors of banks, and so on.

However, in the last few years, several Central Banks around the globe have assumed newly defined roles and identity and are now concentrating on a single monetary policy objective of inflation control with the use of a single instrument. Some have also given up their role as supervisors of banks or as Government debt managers, and concentrate solely on monetary policy. The year 1998 was a landmark year – Bank of England gained independence, Bank of Japan was given operational independence, and the European Central Bank was set up. Their operational styles and methodologies are still evolving, and we in India are also watching current developments with considerable

interest. I would like to take advantage of Prof. Goodhart's presence to raise a couple of issues on which Reserve Bank is working and on which there are some unsettled questions. These issues, I understand, will also figure in his lecture.

As I mentioned, there is a growing consensus now – in theory as well as practice – that Central Bank should have instrumental independence, and concentrate on a single target of inflation control with the use of a single instrument. The position, no doubt, is theoretically sound, but as I look at the history of economic thought and changing fashions in economic policy making, I must confess to a sense of some discomfort on whether the current dominant view on “one target, one instrument” will survive the test of time.

Ultimately, Governments and Central Banks have to respond to the primary concern of the people, and the principal economic problem facing their countries during particular periods of time. When growth is good, productivity and wages are rising in step, external conditions are favourable and inflation is low – there is obviously no problem or conflict, and everyone involved in policy making can concentrate on the objective of keeping things going as they are. Central Banks can do what they know best – inflation control; Government can keep fiscal deficit under control; and businesses can go about doing their business in expanding markets.

But what happens when things are not so good, or there is a conflict between the goal of preventing inflation from going up in future, say, 18 months later by half a percentage point over a low target of 2 or 2.5 per cent, and a sharp down turn in industry here and now? This is when the real problem arises – partly because of transmission lags in the effect of monetary policy and uncertain projections about future outcomes. Under such circumstances, I feel that reliance on mechanistic, simple and narrow rules, designed to restrict Central Banks or Government's discretion or judgement to the maximum possible degree, may not survive the test of time. Already, there are some signs of discomfort emerging in different parts of the world about the pitfalls of too narrow and “pre-set” approach to policy. For example:

- There is some evidence or a fairly respectable view in at least one country, which was a pioneer in introducing the independence of central bank and where an inflation target was prescribed under legislation, that growth was held back and recessionary conditions intensified in the past, because of excessive caution on the part of the central bank.
- The issue is also being debated in a couple of major industrial countries, including one in our region. The recent small increase in interest rate in anticipation of recovery has raised some questions as deflationary conditions have persisted and recovery has been much weaker than forecast.

In developing countries, this whole question of trade-off – particularly at the margin – and during periods of external or domestic uncertainties, becomes even more relevant because of a large non-monetised and agricultural economy.

It is also a fact that one of the most respected Central Banks in the world, the Federal Reserve, does not have a unitary narrow target or a mechanistic rule. It is enjoined to look after both price stability and employment, and does not have a declared inflation target.

It seems to me that a certain amount of target flexibility and balancing of conflicting objectives are unavoidable, particularly when things are not so rosy and there are multiple choices to be made and reconciled.

A related issue, which acquires particular significance in developing countries is the definitional issue. Granting that inflation should be the primary or exclusive target, how should it be defined? Most countries, which have adopted a quantitative target, define inflation in terms of “core inflation” which excludes certain items such as food or oil, and not the so-called “headline” inflation rate. In developing countries, where food can account for more than half the weight in CPI, and where cooking oil can constitute a further significant weight, defining inflation in terms of “core inflation”, after excluding these items, may not be very meaningful. In India also, we have gone through periods where core inflation was 2 or 3 per cent but headline inflation was 9 or 10 per cent. People are naturally more concerned about the latter. Reserve Bank is doing some research on this and we are tracking inflation rates on different definitions. However, we have yet to arrive at a firm conclusion. I hope this question will also receive greater attention of academic researchers here as well as abroad.

Another issue concerns the question of importance that should be given to the exchange rates objectives in the operations of the central bank. This issue is particularly crucial for developing countries where foreign exchange markets are generally thin, which do not have automatic access to reserves of other central banks, and where large volatility in exchange markets can have significant real effect. There are three features of the exchange market, which deserve attention:

- i. First, capital flows in “gross” terms, which affect exchange rates from day to day, are several times higher than “net” flows on any day – and these are also much more sensitive to what everybody else is saying or doing rather than to changes in economic fundamentals;
- ii. During periods of large volatility in “gross” flows, herding becomes unavoidable. “Daily Earnings At Risk” minimisation models necessarily give rise to “herd” behaviour, since everyone prefers to be wrong with everyone else rather than being wrong alone! Herding further accentuates movements in one direction in relation to a currency.
- iii. Unlike equity markets, where investors have a choice of holding a large number of scrips, and diversifying their portfolio, such a possibility is limited in foreign exchange markets, as holdings are largely in one or two currencies. In this situation, volatility is unavoidable as there is a scramble to get out of Euro or

dollars from Euro or Yen and vice versa on the slightest uncertainty or “news”. Expectations are generally self-fulfilling and speculation is likely to be “one way” particularly during periods when stabilisation is most needed. In such situations, the theory about the presence of so called “stabilising speculation” becomes highly obtuse.

Most Central Banks which have adopted the ‘single target, single instrument’ rule claim not to be concerned about exchange rate unless it affects domestic inflation. Theoretically also, there is a strong case for the so-called “corner solution” – Currency Boards or Free floats – when there is capital account convertibility. Yet, with few exceptions, most Central Banks find themselves compelled to intervene in the forex markets in pursuit of some exchange rate objective, however, ill-defined. We have seen this happening in Australia, ECB, Japan – even Fed in favour of Yen or Euro from time to time. Most East Asian or Latin American countries also follow intermediate regimes. One country with a corner solution – that of Currency Board - in Latin America is currently in trouble.

So theory says ‘corner solution’, but the real experience says the opposite, and most Central Banks are somewhere between the corners. How do we reconcile the right theory with actual practice?

I am sorry to have taken a bit of your time, but I hope I have sufficiently stimulated Prof. Goodhart to include some of these issues, from the developing countries perspective, in his future research agenda.

I now invite him to deliver the Eleventh C.D.Deshmukh Memorial Lecture.

Whither Central Banking ?

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Reserve Bank of India

I. Introduction

Governor, I am most extremely honoured to have been asked to give the eleventh Chintaman Deshmukh lecture. As you, and I, will both be fully aware, it is hardly possible to live up to his achievements, brilliance and range of interests. Chintaman Deshmukh had many careers, and even more potential careers. He could, for example, have been a world-leading botanist, had he continued with the career that he graced at Cambridge, (my own University). But he decided to enter the Civil Service, where he

became a specialist in financial matters. From there the move to Governor of the Reserve Bank was almost a natural progression for so talented a man. From Governor, he was appointed to be a member of the planning Commission, and then in 1950 Finance Minister in Nehru's cabinet. He played a major role as a senior statesman in constructing the international financial architecture of the post-war world. He then moved on to become Vice Chancellor of Delhi University. Meanwhile he seemed to be Founder, President, Chairman or Life President of almost every important Institute or Trust around.

About the only attribute which I can claim to share, though to a limited and lesser degree, with Chintaman Deshmukh, lies in having had a varied career. Most of the previous Lecturers on these occasions have either been professional academic economists, or career officials and Central Bankers. It has been my good fortune to have spanned both.

It was not always easy to do so. My first role at the Bank of England in 1968 was to try to explain the works of Milton Friedman and the Monetarists to the Bank, and the Bank of England's approach and viewpoint to the Monetarists. That was not so simple. One of the greater pleasures of the last decade has been that this gap, initially a chasm, between academic monetary economists and Bank economists has virtually disappeared.

The arguments and analyses of the best academic monetary economist, for example Svensson, Tabellini, Taylor and Woodford, are closely in tune with those of the best internal Central Bank economists, notably Issing, King and Kohn. Indeed many of the best monetary economists now work at Central Banks, for example Goodfriend, Okina and Rudebusch.

Three of the key tenets around which this coalition of academics and practitioners has formed has been, first that the monetary authorities primary objective should be price stability, second that the Central Bank should have sufficient independence to vary its operational instrument without fear or favour to the political party in power, and third that its main, almost its only such instrument, is its control over short term interest rates.

Indeed the success of delegating the achievement of price stability to an operationally independent Central Bank has been regarded as so manifest, in the various OECD countries where this regime has been adopted, that the question is now often posed, "Why not also delegate fiscal policy to an independent fiscal authority?", [see Blinder, (1998), p 59, for example]. The answer that I give to this question is that almost every fiscal decision involves choices between priorities and objectives, amongst them macro-stability, micro-efficiency and distributional effects, to name but three. The essence of politics is to make such difficult choices, and that should not, in my view, be delegated to an unelected, and primarily technical, body.

The most crucial change that has occurred in my own lifetime about our way of thinking about the working of the macro-economic system was the shift from a belief that the Phillips curve remained downward sloping, even in the longer term, to the belief that it would become vertical (Friedman (1968) and Phelps (1970)). Given the former downwards sloping Phillips curve, there remained choices to be made, essentially political choices, about the 'best' combination of inflation and output. With a vertical Phillips curve, all that monetary policy could deliver in the medium and longer term was price stability. Moreover, periods of price instability, whether of high and variable

inflation or of deflation, were inimical to growth. So the best that the monetary authorities could do in the medium and longer term for real growth is to achieve such stability; for the rest, issues relating to growth were not primarily in their province.

Such a single objective, price stability, meant that its achievement could now properly be delegated to an independent Central Bank, which could use its single instrument, control over the short-term interest rate, to achieve that objective. There remain some, somewhat second-order, questions whether, having mandated the achievement of price stability to the Central Bank, the political authorities should go further and quantify more exactly in numerical terms what they mean by that, e.g. to hold the headline CPI number between 0 and 3% annual growth, or some such. My own belief is that reserving the exact definition of the inflation target to the political authorities is desirable; it enhances the democratic legitimacy, and the accountability and transparency of the exercise. It has the side-effect of committing the political authorities to support the process and helps to protect the Monetary Policy Committee from political (as contrasted with technical) attack. All that said, I doubt if this question, of which constitutional body should quantify the generally agreed objective of price stability, will make a critical difference between outcomes in countries with such politically-set targets, as in the UK, and without them, as in the ECB and in Japan.

This one objective/one instrument context does simplify and clarify the conduct of monetary policy enormously. But, of course, it does not remove all the remaining difficult choices and problems. Otherwise I would not be here.

One of the key remaining questions is what exactly does one mean by price stability? One issue, which I discuss in my paper, but will not have time to present this evening, is whether some account should be taken of asset prices, such as real estate, housing and property, as well as equities and other financial assets, in the measurement and interpretation of the rate of inflation. For example, as measured purely by the steady and slow rate of growth of the RPI and CPI, Japan has experienced the most successful outcome in the world; whereas in contrast if you look at the time path of asset prices, its experience has been most unfortunate.

Another remaining question is how to respond to supply shocks. This is often posed in another guise, whether we should target actual inflation or core inflation. For example in the euro-zone recently, under the influence of a combination of exchange rate weakness and oil price increases, both of which we all hope will prove temporary, actual inflation has moved clearly over the 2% upper limit, whereas core inflation has remained well within the permitted band. How then should they best respond?

In a country as dependent on agriculture, and thus on variable weather conditions as your own, Mr. Governor, the resultant difficulties are even greater. One of my other capacities is to help my wife run a sheep farm in the UK. We now feel as buffeted by weather, floods, and by other disasters, such as mad cow disease, as farmers elsewhere. Be that as it may, the difficulties of steering the most appropriate path between headline and core inflation, (that is once again how best to respond to supply shocks), are sufficiently complicated and difficult, particularly in primarily primary producing countries, that a degree of discretion needs to be retained in the pursuit of price stability.

I shall not deal further with this question, of how to respond to supply shocks, this evening, partly because it has not been uppermost in my own recent experience and analysis, and partly because I am happy to pass it back into the expert hands of your Governor, Dr. Jalan. Instead I want to focus on three shorter-run problems of choice, between stabilising inflation around its target following shocks and stabilising output around its sustainable growth path; in an open economy between stabilising the internal and external value of the currency, and in deciding what weight to give to the path of asset prices, as well as to those of goods and services, in the achievement of the inflation target, though I doubt if I will have time to cover the final topic.

Following my own departure from the Bank of England's Monetary Policy Committee last May, I have sought to use this occasion to provide a synoptic view of the future direction of Central Banking. This covers several issues that I regard as important, such as the rationale for the delegation of operational independence to Central Banks, and on the role of Central Banks in regulation and supervision, which are in my paper, but too long for tonight's presentation.

II. Why Delegate?

The one objective/one instrument context of monetary policy allows for the delegation of monetary policy without any major infringement of democratic sovereignty. But equally it does not require it. Ministers of Finance and Chancellors of the Exchequer are (in most cases) fully aware of the doctrine of the vertical Phillips curve. Why can they not themselves just continue to fix interest rates so as to achieve price stability?

The answer to that is that delegating the achievement of price stability to an independent Central Bank, with that objective specified in public and preferably in quantitative terms, is, as I shall argue, a commitment device. Why might we need a commitment mechanism? The standard answer to this is time inconsistency. A politician will promise to achieve price stability when he first comes into office, but as the next elections come near, will be tempted to renege and generate a pre-election boom. It is a clever story, and appeals to the cynicism with which most people view politicians. But I am doubtful whether it is a true story. First, the lags in the transmission mechanism of monetary policy are so long, and the conduct of monetary policy, i.e. cutting interest rates, so obvious and transparent, that few would be fooled. People would see the forthcoming inflation, and so the exercise would be largely futile for the government anyhow. Second, the evidence, as collected by Alesina (1989) and others, does not confirm the existence of systematic, monetarily-driven, pre-election booms.

My own view is that the cause of the politician's inflation bias is much more mundane. Because of the long lags in the monetary transmission process, interest rates should be set today in the light of the forecast balance of inflationary pressures some six, or more, quarters hence, when the effect of interest rates on inflation will be greatest. But future forecasts of inflation, output, etc., one or two years ahead are horribly uncertain and imprecise. No one knows with any certainty what should be done today to have an optimal effect on the economy a year, or two, in the future.

Meanwhile interest rate increases, and reductions in credit availability, are currently painful. Asset prices fall. Exchange rates appreciate. The pain is felt most by certain concentrated, and politically powerful, groups, e.g. manufacturers, construction and property companies, home-buyers who have taken out mortgages. With uncertain forecasts, but the known political unpopularity of monetary tightening, politicians are likely to wait until there is present incontrovertible evidence of worsening inflation before they act; and because of those very same lags in the transmission mechanism, by the time they are prepared to act, it will be too late. With political control of monetary policy, 'too little and too late' is likely to be the order of the day.

But Central Bankers are likely to be subject to many of the same problems and pressures, notably uncertain forecasts. Why then should delegation be a good commitment device? There are several reasons. First a Minister can more credibly commit to sacking a Central Banker for failing, than to disciplining himself. Second, the resulting single focus on achieving the inflation target will concentrate the mind of the monetary authority. Third the Central Bank, especially if operationally independent, is likely to become most technically proficient in forecasting and judging the effects of monetary measures. Fourth, a Monetary Policy Authority is likely to be somewhat more removed from direct lobbying than the politicians. I have also advocated paying Central Bankers by results, what is known in economics as a Walsh-type contract, but this has hitherto been rejected on PR (public relations) grounds; I hope to explain on another occasion how these objections can be overcome.

In some countries, such as New Zealand and Canada, responsibility for the interest rate decision has been delegated to the individual Central Bank governor, whereas in others such as the UK, Japan, USA and ECB, it has been vested in a Committee. In view of the importance of getting the technical issues right, i.e. the significance of the forecast, and the assessment of future risks, and of the need to provide some protection for those making the decision from lobbying and outside pressures, there is, I believe, a strong case for the Policy Committee approach. But in practice most Governors would surround themselves with an advisory Committee anyhow, so the question is not of the first importance.

Let me now turn to the main part of the paper, concerning those issues where decisions and trade-offs remain to be taken, despite the vertical medium-term Phillips curve.

III. Choices and Trade-Offs

(a) The Short-Run Balance between Inflation and Output

At any time nominal magnitudes are anchored by existing (wage) contracts, the cost of revising prices, current expectations, etc., and such rigidities provide both the real leverage that monetary policy can exert in the short run and a downward sloping short-run Phillips curve. But this means that the effects of monetary policy will initially be mediated through changes to real output before coming to affect inflation. If inflation is perceived as likely to go off-course, an attempt to return it to target quickly, will, especially because of the lags in the transmission mechanism, tend to cause marked deviations in output from its sustainable trend. On the other hand attempts to smoothen the course of output are likely, depending on the stochastic shocks hitting the economy,

so to limit the extent to which monetary policy is aggressively used that inflation is not driven back to target for rather a long time.

There are several alternative ways of expressing and resolving this tradeoff. One is by deciding the time-horizons, the length of time, for returning inflation to target after some deviation. Another is to decide on the optimal trade-off between the deviation of output from its natural rate and of inflation from target, see Batini and Haldane (1999). The commonest, and most popular expression of this trade off is, however, encapsulated in the Taylor rule, where an interest rate reaction function is presented as a combination of deviations of inflation from target and output from its sustainable rate:-

$$R_t = a + b_1(\pi_t - \pi)^2 + b_2(y_t - y^*)^2 + b_3R_{t-1}$$

Note that, so long as the coefficient b_1 is high enough to ensure that the target is eventually met, then the coefficients in this equation (and in the IS curve) determine both how long it takes for inflation to return to target and the relative variance of output and inflation along the way.

In theory, if one could identify the shocks hitting the economy, were confident in one's model and forecast of the economy, and could specify a clear loss function, then one could use optimal control theory to minimise losses.¹ The problems are that, except on quite rare occasions, the current shocks are not easily identifiable, few people who have had actually to take decisions based on model forecasts are actually confident about such models and forecasts, and for a variety of good, practical reasons neither politicians nor Central Bankers are keen to pin themselves down by offering, even introspectively, to set a formal loss function for themselves. "It all depends on circumstances."

So such optimal control methods have not been much used, if at all. In particular they seem very sensitive to the structure of the model and the precise form of the shock, neither of which is generally obvious (see Batini/ Nelson, Bank of England Working Paper 119).

One important element in (the model of) the economy is whether (inflation) expectations are forward, or backward, looking. If expectations are forward looking, and the monetary authorities are credible, then a price level target is better than an inflation target, since the forward-looking expectations help with stabilisation, see Gaspar and Smets, (2000). My own judgment is that under normal circumstances most ordinary people base their expectations on developments in the (recent) past. If so, with such backwards-looking expectations, it is safer to stick with inflation targets, as Central Banks have all chosen to do.²

So, there are several potential approaches to reconciling the question of balancing the (short-run) volatility of output against that of deviations of inflation around its target. But, on examination, they all amount to much the same thing.

(b) Open Economy Issues

Most of the time a floating exchange rate works with the grain of monetary policy to support the work of the monetary authorities. When the economy is growing above trend, and incipient inflationary pressure are seen to mount, investors see an enticing combination of rising profitability and rising relative interest rates. Capital flows in and the exchange rate rises. That increase in exchange rates helps to limit the boom and the inflationary upsurge, and hence reduces the rise in domestic interest rates necessary to restore price stability. And vice versa, of course, when the economy weakens. Those who seek to peg their exchange rate close off a highly desirable safety valve, and introduce a serious danger that monetary policy would frequently find that the needs of domestic stabilisation and the aim to maintain the external peg would run counter to each other.

If the exchange rate would have varied as the proponents of floating had imagined and expected, movements in nominal exchange rates would have offset, virtually one for one, movements in relative inflation rates. This would have meant that real exchange rates would and should only have responded to relative real shocks, such as changes in productivity; and the (academic) expectation (at least back in the 1960s before generalised floating was adopted) was that such movements in real rates would have been relatively modest. So the achievement of comparable low inflation rates in two currency zones with floating exchange rates between them should, according to such theories, tend to leave both nominal and real exchange rates unaffected. If that had been the case in practice, as it was in theory, the arguments for combining the objective of domestic price stability at home with externally floating nominal exchange rates would have been even stronger, indeed usually overwhelming.

As you well know, however, the movements of nominal and real exchange rates have not corresponded well with the initial, overly hopeful, theory. Why that may have been is still not clear; in my own view one of the reasons for this is the virtual absence of long-term speculators prepared to take a bet on the exchange rate reverting over time to some (fundamental) equilibrium. Just as there are good bacteria, as well as bad bacteria, so there can be good speculators as well as bad speculators, and one has to worry whether measures to prevent speculation may worsen rather than improve market volatility.

Instead, in reality, both nominal and real exchange rates have been disturbingly, and unpredictably, volatile. Let me take an example. Between the beginning of 1999 and May 2000, inflation in the euro-zone was marginally higher than in the UK and lower than in the USA. But the euro lost some 20%, or so, in value against both currencies, with equivalent changes, more or less, in real exchange rates as well. And this, alas, is not an isolated example. Over the 1980 the dollar first appreciated and then declined by even more in real terms. The fluctuations of the yen have been equally dramatic. Movements in real exchange rates amongst all countries, at all stages of development, have been much larger than could be accounted for by economic fundamentals.

This then causes something of a problem for those focussing on domestic price stabilisation, while at the same time maintaining a floating exchange rate. If real exchange rates do massively overshoot their equilibrium, then concentrating on domestic price stability in aggregate may result in price deflation in the tradeable goods sector

being balanced by (excessive) inflation in the non-tradeable (service) sector, if the real exchange has appreciated too much, and vice versa if the opposite has occurred. Of course, in large, relatively closed, economies external trade is so small relative to internal that the complications and problems arising from volatile real exchange rates can be largely ignored. Even in the case of the euro, however, the political desiderata of wanting the new currency to appear to be reasonably strong in the public eye meant that concern about its depreciation transcended simple calculations about its effect on the future impact on the Euro-Stats Harmonised Index of Consumer Prices (HICP).

But in smaller, more open, economies can one afford to concentrate just on the domestic price level in aggregate, ignoring the potential wrenching effects of movements in (real) exchange rates on exposed parts of the economy?

Dick Cooper has argued that, just as much of the adverse effects of domestic inflation arise from a deterioration in the allocative efficiency of the price mechanism, so disturbances to both nominal and real exchange rate can reduce the efficiency of the price mechanism in an open economy. Note, however, that, unless the greater part of one's trade is done with a single partner country, then linking one's currency to one other single currency will not resolve the problem, because there is then the risk of variations in the real value of that currency. In the UK's case, however, more than 50% of trade is now done with the euro-zone which is one reason why most of the tradeable good sector is keen on euro-entry; if that proportion had been below, say, 30%, then the opposition to euro-entry would have been even more widespread.

There is, still, the possibility of trying to peg, or link, one's own currency to a trade-weighted basket of currencies, as was attempted for a time in Australia for example. But one problem with that is that it does not have the simplicity or transparency that a good nominal anchor should possess. People will be cynical about the weighting process, and find it difficult to predict or understand the reasons for interest rate changes or other monetary policy measures. It will hardly serve to anchor expectations or to allow a simple, straightforward explanation of monetary policy measures.

The next problem that currency-linking involves is that the pegger has to accept whatever interest rates are set at the centre, and depending on constitutional circumstances the pegger may, or may not, have any part to play in setting such rates. As the saying goes, 'One size has to fit all', but of course rarely does. But asymmetric shocks occur almost as much within countries as well as between countries. What is the glue that holds a within-country monetary union together, while making between-country monetary unions somewhat fragile? My own answer to this is that countries normally enjoy both an internal political union and comity, augmented by a fiscal, or other, burden-sharing mechanism, that have been traditionally absent between countries (but is in the process of construction, somewhat slowly and painfully, in Europe).

Essentially, if the maintenance of a pegged or linked currency involves domestic economic and political pain greater than the will of the people and of the politicians who represent them to bear, then that link will snap. Such a break-point depends on a host of circumstances, political as well as economic, including the extent of domestic wage/price flexibility, the other options for monetary policy regimes that are available, etc. If the

pain-barrier, or break-point, is perceived as low, then a currency peg will not be very credible. Moreover, standard measures to protect a currency, such as raising interest rates or raising taxes, may even turn out to be counter-productive beyond some, unknown, level since they will only make outside observers feel that the political break-point has been brought that much closer.

Circumstances - often as much political and historical as economic - lead to currency pegs, and links of various kinds, (ranging from complete unification, through currency boards down to pegged, but adjustable, exchange rates), facing differing intensities of pain with varying breakpoints. I have at various times in my own career strongly advocated fixed currency links in a few cases³; in other cases I have been doubtful whether the necessary political and economic infrastructure has been in place, as with the euro; and in other cases it is patently obvious that such infrastructure is not in place, as with relationships across the Atlantic between the Euro and the dollar. It all depends, of course, on political, historical and economic circumstances.

I am no expert on such circumstances in most of Asia, including your own case. But my limited knowledge suggests to me that any attempt by yourselves at currency pegging would be fragile, and the break-point perceived as relatively low. Hence I doubt whether an attempt to stabilize the external value of the currency by some renewed form of currency pegging would be a sensible policy.

That suggests to me that your nominal anchor should be an internal inflation target, but, if so, what should be done, if anything, about potential overshoots in the exchange rate? There are a range of options. The first, and minimalist, is just to take account of the exchange rate in so far as it is expected to affect domestic inflation. The second is to give a somewhat larger weight to the exchange rate in the implicit Central Bank reaction (or loss) function. This could be formalised in a Monetary Conditions Index (or MCI) which gives a higher weight to the exchange rate than its (normal) effect on domestic inflation would justify. But in all these approaches there is the inherent difficulty that the exchange rate can vary for a range of reasons, caused by home or foreign shocks, portfolio or real shifts. Because of such diversity, the directly measured (reduced form) effects of exchange rate changes on domestic variables, e.g. inflation, output and exports, are very heterogeneous. So, any formalisation of response to exchange rate fluctuations, e.g. as attempted in Canada and New Zealand, is likely to, and did, go awry. There is no substitute for (discretionary) judgment in an open economy.

The next option then is to make a judgment as to when (real) exchange rates have overshoot, and then aim off on interest rates in response, at least temporarily. Given an ultimate tendency for the exchange rate to revert to equilibrium, this can even be interpreted as fully consistent with longer-run inflation (price level) targeting (see Cecchetti, et al, 2000). Problems lie in assessing the extent of overshoot, the appearance of some favouritism to one (tradeable goods) sector of the economy, and a perception of some willingness to compromise with domestic targets. But at least one member of the UK's MPC has argued for such an approach.

If there are two, separate objectives, i.e. domestic price stability, and stable real exchange rates, (and I have argued that, while this should not have been so in theory, it often is in

practice), then that naturally leads to a hunt for a second instrument. In this field two come to mind, sterilised intervention and exchange controls. Sterilised intervention is a relatively weak mechanism. The signal is obscure at best, (often indicating a desire for a different exchange rate but an unwillingness to take real actions to achieve that, i.e. it signals weakness, not strength), and the scale of portfolio adjustment usually tiny relative to the market. Even so, if the scale of exchange rate disequilibrium is so large that the Central Bank is convinced that it can reap medium-term profits, then why should the authorities not themselves act as a profit-making long-term stabilising speculator? Too few other such speculators exist, and I cannot see why a Central Bank should sign a self-denying ordinance to abjure potential profitable and stabilising opportunities. The danger, instead, comes when a Central Bank is required to defend a (probably indefensible) pegged rate; not when it tries to intervene as a well-informed long-term speculator on an essentially floating rate.

That leaves exchange controls. Some kinds of capital flows have exhibited great volatility, especially short term flows between developed and developing countries. Such volatility can place great pressures on the stability of the internal financial structure of an emerging country. There is a quite widespread agreement now that countries that have sheltered behind exchange controls, such as China and also yourselves, should not be pressured to remove these barriers until in the Chinese case, for example, their banking structure is reformed and commercial bank balance sheet strength regained, and until their system of banking regulation and supervision has really become efficient. In the sequential program for financial liberalisation and reform, exchange control removal comes right towards the end.

The issues are, however, rather different when the question is not one of long-term structural change, but of the intermittent use of time-varying exchange controls as an instrument to stabilize the exchange rate, while monetary policy is used for internal, domestic stabilisation. As you know, the (Washington) consensus was violently opposed to such use of exchange controls. More recently there has been some softening of attitudes with a willingness to contemplate controls on certain capital inflows, with the aim of lessening the otherwise unpalatable alternatives, for the more successful emerging countries, of either facing rapidly appreciating exchange rates or an unduly lax domestic monetary policy. But note my comment at the outset of this Section that some appreciation in such circumstances serves to support the aims of monetary policy. Trying to hold exchange rates below their fundamental equilibrium will not only be ultimately unavailing, but will also distort the economy in the meantime. But how does one assess what that equilibrium may be; a good, but largely unanswerable, question?

How about the reintroduction of outward exchange controls in a crisis? If they can be effectively administered (without corruption), (sometimes a big If), and in certain circumstances (e.g. where further capital inflows are not necessary to sustain the exchange rate), they may prove successful, as I believe may well have been in your own case. One problem is that the more that such an exercise is perceived as successful, the more others may be tempted to emulate; and the more widespread becomes the resort to exchange controls, especially if done at the first whiff of trouble, the greater will be the disintegration of the international capital market. There is a global time inconsistency

problem, perhaps especially so the more successful reintroduction of exchange controls in countries, such as Malaysia, which had previously dropped them, are perceived as being.

Against that it could be argued that Malaysia's example during the Asian crisis had no apparent knock-on effect on other countries' policies, perhaps because of the role of the IMF. Moreover historical experience suggests that memories in international capital markets are (blessedly) short, so that the adverse effects on such markets of previous waves of controls, defaults, etc., have been quite limited in time. But this is an issue where I should be particularly keen to learn of your own experience and thought.

(c) Other Asset Prices

Just as there may be structural, and other, reasons for giving more weight (in monetary decisions) to movements in the exchange rate than can be justified by its directly measured effect on future inflation, so the same argument can be used for a variety of other asset prices; two sets of assets are commonly considered in this respect, first housing and property, and second equity.

There are several arguments that can be used in this respect. The first is that the standard, sticky-price extended Keynesian model perhaps, for a variety of reasons, may underestimate the effect of asset prices on future output and inflation. For example, simpler reduced-form VARs often give a higher weight to housing than the larger Keynesian models (Goodhart and Hofmann, 2000). But this is a weak argument, since the correct response to such a discrepancy is to analyse why the two modelling approaches give different answers, and to try to improve the models themselves.

The second argument is that asset prices should be included in a correct measurement of inflation. For example, Japan's CPI has remained extremely steady since 1985. By this measure, Japan's monetary policy has been one of the most successful in the world over the last two decades. But few believe that! Alchian and Klein (1973) give theoretical reasons for including asset prices in any index of the cost of living. If taken literally, their preferred measure so overweights asset prices that the resulting index becomes too volatile to use. But in an economy in which people use a significant share of their income to buy housing, and in those economies where people are now using much of their income to buy equities (e.g. to provide for their retirement), excluding the prices of these purchases altogether from the price index (relevant for the measurement of inflation) seems misguided. The fact that the question of the best way to measure housing inflation is quite contentious is not a satisfactory excuse for not doing so at all.

The third argument, and perhaps the strongest, is that the extension of credit by financial intermediaries, and the profitability and stability of those same intermediaries, is intimately linked (e.g. via collateralisation) with the valuation of property, (and, but to a much lesser extent, with equities). The credit channel, analysed by Kiyotaki and Moore, Bernanke and Gertler, Minsky, and many others, depends largely on property valuation. So, a rise (fall) in property prices will have effects on expenditures, output and inflation that may not be exactly correlated with, or well measured by, the pure interest rate channel. Again, however, if the argument is that the workings of the credit channel is not adequately measured in standard forecasting models, then the first best solution is to improve the models.

But even if the models are improved to take appropriate account of the credit channel, (not an easy exercise), fluctuations in housing and property prices will cause similar fluctuations in financial conditions, notably in the stability of the banking system. One of the objectives/functions of a Central Bank is to maintain the systemic stability of the banking system. This is partly because of the linkages between financial development and output and growth (Levine et al, 2000), and partly for its own sake. Volatility in asset, especially property, prices endangers that stability. Examples are numerous and obvious.

The question is how to respond, especially when an asset price boom coincides with stable current goods and services prices. Bernanke and Gertler (2000) advocate doing so only in so far as asset price movements now will affect future forecast goods and services prices; Cecchetti et al (2000) would have monetary policy aim off by more. We already rehearsed this when discussing exchange rates.

One point that needs further consideration in this context is the potential availability of other instruments; here I am thinking of prudential requirements. In practice, however, such prudential requirements usually have the effect of amplifying, rather than restraining, macro-economic cycles. Capital adequacy is rarely a problem when an asset boom expands profitability and balance sheet values, while limiting bad debts. Falls in asset values weaken (bank) balance sheets, so prudential requirements tend to reinforce bank reluctance to lend during deflationary downturns.

Can anything be done about this, especially during the preceding asset boom? One of the problems, (as with exchange rates), is identifying the (unsustainable) deviation from fundamental equilibrium. Given the difficulty of doing so, and the strength of special interest lobbying, it is hard to raise the level of prudential requirements, e.g. capital adequacy ratios, minimum loan margins, etc., when asset prices are high. One proposal, which I think has some merit, is to tie changes in prudential requirements to the change in (some index of) asset prices over some preceding period. For example, suppose that housing and property prices grow normally by 2% more than retail prices; then each quarter one could change the required margin on housing loans by X, where

$$X = 1.2 (Y - (2+\pi))$$

where Y is the annualised growth in housing prices, and π is the rate of growth of RPI.

What that brings me on towards, rather neatly, is the putative role of the Central Bank in supervision and regulation.

IV. The Role of the Central Bank in Regulation and Supervision

It is not possible to maintain macro-stability if the financial system becomes seriously unstable; nor is it possible to maintain financial stability with any confidence if macro-stability is lost, especially if (asset) prices become unstable and go through a boom/bust sequence. Accordingly pursuit of the objectives of macro/price and financial stability have always been seen as complementary. The history of Central Banks reveals how such objectives were jointly pursued. The earliest great texts on Central Banking, Thornton 1802 and Bagehot 1873, described how the authorities should respond in conditions when a liquidity crisis threatened. Even though such domestic crises typically

arose when there was also an external currency drain, (which by itself would seem to require more restrictive monetary policies), the proposed remedy was liberal domestic lending (Lender of Last Resort), albeit with safeguards, (collateral, high interest rates and concern with reputation).

Given the complementarity of objectives and of information, e.g. supervisory information on banks can help to influence macro-policies and the Central Bank's role in running payments systems and operating in markets can help to inform the supervisors, there would seem to be a strong case for having the supervision of commercial banks undertaken within the same institution, the Central Bank, charged with also maintaining macro/price stability. To some extent this was what was done historically. But it must also be noted that, over the period 1930-70, a combination of direct controls on commercial bank credit extensions, and on their freedom to compete in pricing, and on new entry, led to a cartelised structure. In this system there was a largely guaranteed oligopolistic profit margin and a sizeable franchise value. Little supervision was required, and was often largely self-regulation.

Liberalisation of the financial system has led in all countries to competition, the removal of automatic franchise values and greater risk. The need for banking supervision has increased sharply. Nevertheless despite historical precedents, and the complementarity of financial and macro/price stability, in many developed OECD countries, the trend has been recently running strongly for hiving off bank supervision from the Central Bank and vesting it in a separate unified financial supervisory authority.

Perhaps the main reason for this trend amongst developed OECD countries is that this same liberalisation, allied with technological innovation, notably in IT and now in e-finance, has been breaking down the dividing lines between differing kinds of financial intermediaries. The old separations between commercial banking, investment banking, insurance companies, fund management, etc., have become irreversibly blurred. Developments in e-finance will complicate the picture further.

In a financial system without clear boundaries the maintenance of institutionally-organized separate supervisors was not efficient, involving over-laps and/or gaps. There is a clear argument that a single, though amorphous, financial system needs to be matched by a single, comprehensive regulator, (n.b. the argument that competition in regulation is also desirable can be met by noting that the effective competition in most cases is international).

But if supervision needs to be undertaken in a unified authority across the whole financial spectrum, it would take Central Banks beyond their normal area of expertise. In any case much, probably most, supervision in several of these other areas, e.g. fund management, mortgages and pensions, is essentially concerned with customer protection, not with systemic stability. Is this a field which a Central Bank would want to enter?

Moreover, if a Central Bank were to be made responsible for supervision of the whole financial system, it would become a huge power centre, even more so if it was at the same time given more operational independence for determining the conduct of macro monetary policy.

There are questions whether an (unelected) body, such as a Central Bank, should be delegated quite so much power within a democratic system.

Then there are the perennial issues of potential conflicts of interest between the functions of supervision/regulation on the one hand and of macro monetary management on the other. At the most mundane level, there is competition for senior managerial attention. Management time is limited, and handling financial crises can be extremely time-consuming. Again the purpose of supervision/regulation is to prevent bad things happening; so it usually only gets noticed when such disasters occur. To be blunt, financial supervisors are either largely invisible to the wider public (no disaster) or get a very bad Press (disaster). Does a Central Bank which seeks credibility and a good reputation for its macro/monetary policy really want to face the potential opprobrium of also being responsible for financial supervision?

But the main plank of the conflict of interest argument is that responsibility for supervision may adversely influence monetary policy. I believe that the main concern in this case is that the monetary authorities will, on occasions, make monetary policy too lax in order to support fragile financial institutions. There have been cases when Central Banks have argued against pushing interest rates sky-high in order to maintain a pegged exchange rate, partly, but not only, out of concern for domestic financial stability. But was this necessarily wrong in itself? For the rest, the evidence of conflicts of interest of this genre adversely affecting macro monetary policy seem somewhat sparse, but I would be keen to hear of the experiences of others in this respect.

Against such arguments, there is the point that separation would be likely to weaken the flow of information, primarily from supervisor to Central Bank, but also possibly in the reverse direction, given the Bank's involvement in the payments system and financial markets. The focus and professional skills of a separate unified supervisor are likely to diverge from those of a Central Bank, (tending towards lawyers and customer protection and away from economists and systemic stability). One can pose this point in terms of the question, 'Can a financial crisis be run as well by a Committee as by the Central Bank on its own?' Since the trend towards establishing a unified, specialist, financial supervisor is quite recent, we are unlikely to learn the answer to this question until many years have passed.

I doubt whether the pressures to establish a unified, specialist, supervisory agency are quite so strong in most developing countries. The financial system is less complex, and dividing lines less blurred. Commercial banks remain the key players. Moreover, the Central Bank in most developing countries is relatively well placed for funding, is a centre of technical excellence, and can maintain greater independence from the lobbying of commercial and political interests on behalf of certain favoured institutions. If the supervisory agency is placed under the aegis of the Central Bank, it should share in these benefits of better funding, technical skills and independence. There are too many cases of supervisory bodies, outside Central Banks, failing in such respects.

For such reasons I do not believe that the case for separation, which has become stronger in developed countries, should be transposed also to developing countries.

V. Conclusions: Where will Central Banks be in ten years' time?

There are numerous other aspects of a Central Bank's activities worthy of attention, notably its role in developing payment and settlement systems and in encouraging the establishment of financial markets. In particular there are too few bond markets in Asia, for both sovereign and corporate debt. This leads to an undue reliance of (private sector) borrowers on short-term borrowing from banks, and tends to force Central Banks to hold most of their reserves in non-Asian assets. A good question, which will not be answered here, is what can the authorities do to promote local bond markets?

But this paper is already quite long enough without trespassing into such areas, which, moreover, demand considerable local knowledge, so let me conclude with a peek into the future:-

(a) Can the monetary authorities control domestic inflation and maintain price stability?

Here I am cautiously optimistic. So long as the politicians allow, or require, the Central Bank to focus on this objective, then, with operational independence, we know enough to stop any inflationary bias. The main danger, as always, will come from a breakdown of good governance, e.g. war or civil unrest, especially if that involves an escalating fiscal deficit.

Because of the lags in the transmission mechanism, the appropriate target is an inflation forecast. Because forecasts are always uncertain and subject to unforeseen shocks, inflation can never be controlled perfectly. But it can be held at the desired rate of average.

(b) Can the Central Bank, consistent with its role of stabilising goods and services prices, also tame large fluctuations in asset prices?

This seems much more doubtful. Asset price fluctuations, whether of exchange rates, property prices and equities, do not seem to have diminished in recent years, (though equally there is no evidence of them getting worse, especially in comparison with the turbulent 1970s). There is rarely agreement on where the fundamental equilibrium may be, and little evidence of much longer term speculation to drive asset prices back to their equilibrium. Given this uncertainty, Central Banks are always liable to criticism for intervening to affect asset prices. Although it is agreed that Central Banks should respond in so far as asset price fluctuations are assessed in the forecasting models as affecting future inflation, such effects are not confidently modelled. More important, there is disagreement on whether, and how much, a Central Bank should shade policy to take account of the important connections between the housing/ property market and financial stability, and between the exchange rate and the health of the tradeable goods sector.

(c) Can we simultaneously achieve, and maintain, internal and external price stability?

The extraordinary volatility of real exchange rates has been, perhaps, the greatest macro-economic puzzle of our age. There are no good theoretical reasons, nor empirical explanations, of why it has occurred. So long as it continues, it will present a problem to

all but the largest economies. Whatever the argument for capital controls in times of crisis, they would be neither feasible nor desirable as a longer run solution to this problem. I have argued that a major cause of such volatility is an unfortunate absence of stabilising speculators; so any measure that further penalises speculators could just as easily worsen volatility.

A combination of continuing volatility in real exchange rates, combined with a growing ease of undertaking e-commerce in any currency at any time with any counter-party, could lead to a growing pressure for the greater use of a regional currency. South America, as well as North, may become even more explicitly a dollar area, while Europe and Africa adopt the euro. Asia presents more of a problem in this respect. One superpower temporarily fallen on hard times, and two emerging giants, can neither fall in behind a single hegemon, as in the Americas, nor benefit from a rapprochement, such as achieved by France and Germany. The future of international monetary policy in Asia looks, at least from a distance, particularly opaque.

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¹ This ignores some remaining somewhat abstruse concerns about manipulating expectations in a time-consistent fashion [Woodford 1999], but I am happy to do just that.

² Note that the choice of price level, or inflation, targets is largely, but not entirely, independent of the issue of whether the inflation target should incorporate a margin above zero. A price level target can also be rising over time.

³ As in Hong Kong where I advised on the link in 1983 and have remained involved much of the time since then.