Strategy and Tactics of Monetary Policy: Examples from Europe and the Antipodes

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Most central banks in Europe and elsewhere have been giving priority to the achievement of price stability for more than a decade.[1] In recent years, this effort has been reinforced by a marked trend toward giving central banks much more autonomy to pursue this goal. Both the objective of achieving price stability and such autonomy have, in a sizable number of countries, now been constitutionally incorporated in newly revised legislation. In countries where no such legislation has been enacted, such as the United Kingdom and Australia, proposals to do so remain very much on the present political agenda.[2]

Such legislative moves towards greater autonomy ("independence") have been so widespread and rapid that it appears worthwhile to try to document the present position. This paper will concentrate mostly on developments in Europe, since this is the region with which

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[1] See Appendix Table 1 at the end of this paper for a report on the current institutional features of central banks in the European Union. The *Annual Report* of the Committee of Governors of European Central Banks (1993) contains a detailed comparison of the institutional features of the central banks of the European Union.

[2] In the United Kingdom, proposals to introduce legislation for central bank independence were advocated in the Roll Committee Report (1993) and in the House of Commons Select Committee Report (1993); a private member's bill to that effect was introduced by Mr. N. Budgen in February 1994, but the government prevented it from becoming law. In Australia such independence for the Reserve Bank was part of the electoral program of the Liberal Party at the 1992 election, but this measure was not supported by the victorious Labour Party.

the authors are most familiar, but it will also refer to similar progress in the Antipodes and Canada. The same trend toward the enactment of legislation for greater central bank autonomy is also evident in a number of South American countries, such as Chile and Mexico.

The move toward granting greater central bank autonomy reflects to some considerable extent the power of academic ideas whose time has come. The time inconsistency hypothesis posits that governments with a high rate of time discount, particularly as elections approach,[3] and a natural concern about unemployment, are likely to have a bias towards generating a stable, expected rate of inflation, without any beneficial effect on *real* equilibrium (that is, medium- and longer-term) values. The implication is that more politically subservient central banks will have less credibility, and that in such countries average inflation will be higher. Such theoretical hypotheses have received some empirical support from studies of the correlations between central bank independence and both inflation (negative) and output (zero) (Alesina and Summers 1993; Cukierman 1992; see Posen 1993 for a critique). All this has spawned a large literature, with which it is assumed the reader is familiar, so this is not pursued further. The subject is also discussed in the paper in this volume by Debelle and Fischer.

Perhaps the most successful and probably the most admired central bank in Europe is the Deutsche Bundesbank. The Bundesbank has acted as role model for other aspiring European banks and has acted as the leader and contra-inflationary anchor in the Exchange Rate Mechanism of the European Monetary System. Even without academic analytical support for autonomous central banks, it is quite possible that the prospective European System of Central Banks, whose Protocols were established in the Maastricht Treaty, would have had its constitutional independence from government modeled on that of the Bundesbank in any case. Moreover, if the European System of Central Banks is to be thus independent, consistency and logic require that the member national central banks of the System should adopt the same constitutional structure. So, as will be discussed in more detail below, in Western Europe the prospective advent of economic and monetary union has provided another impulse toward the revision of central bank legislation in the direction of a stronger and more explicit mandate toward price stability, and greater autonomy and independence from government in the operation of monetary policy to that end. In Eastern Europe the expected date of accession to the European Union, and to

[3] The suggestion that governments would positively seek, and central banks acquiesce in, a conscious expansion in monetary growth, for example, prior to elections, is unduly cynical. Instead, the focus of political pressure will usually be to defer upward increases in interest rates, or to accelerate their downward movements, to some extent at all times, but especially at moments of political sensitivity.

economic and monetary union within it, is rather more distant, but the processes of economic reform that have followed the collapse of Communism provide both an occasion and a need for updating and revising their central bank legislation (Hochreiter 1994). Again, all this is assumed to be common knowledge.

The rest of this paper will concentrate on the way in which the strategy and tactics of monetary policy are now being articulated in this context. The next section documents the common adoption of price stability as the overriding priority. This does not, however, prevent the adoption of subsidiary objectives. While price stability has now been generally accepted as the dominant objective for central banks' monetary policy, the term "price stability" most often has *not* been defined, either legislatively or in practice. Some possible alternative definitions will be discussed along with the pros and cons of adopting them, including the choice of index and whether the objective should be expressed in terms of a price level or a specific rate of inflation (for example, zero).

Having thus discussed how the primary objective, price stability, may be defined, the paper then reviews certain strategic decisions about how to set about achieving this. Should there be a quantified, numerical target for price stability? If so, who should set it, the government alone, the central bank alone, or the two in conjunction? Should the government have the ability, unilaterally, to override that prior decision and, if so, through what processes? How long should the target period be? Should there be a point target or a band and, if the latter, how wide? Will a numerical target unduly constrain the ability of the central bank to react to unforeseen demand or supply shocks? What incentives are there, or should there be, for a central bank to achieve its announced targets? More broadly, what arrangements have been established to make an "independent" central bank accountable within the context of a democratic society?

Three main concerns are frequently expressed about the current penchant for mandating independent central banks to have overriding concern for the single objective of price stability. First, is this focus and mandate too narrow? Second, is the delegation of such powers to an 'independent' agent consistent with the obligations of government in a democratic society (another facet of the accountability question)? Third, is the transfer of power over monetary policy to a separate body consistent with the optimal coordination of macro-policy instruments, comprising fiscal policy, trade policy, exchange rate policy, and even incomes policy, as well as monetary policy?

The discussion then turns to tactical and operational issues. In particular, should a central bank use *intermediate* targets in its pursuit of price stability, whether or not the latter objective has also been quantified? If so, what intermediate targets are the main candidates for

adoption? In practice, monetary aggregates and exchange rates have been the two main alternatives. The relative advantages and disadvantages of both are discussed, as well as the operational difficulties of working either with intermediate targets or with none at all (that is, using monetary instruments directly for the achievement of the final objective of price stability).

The paper goes on to consider certain tactical and operational reforms and adjustments that will be required in the European Union in order to prepare for the advent of a single monetary policy, which will be carried out by the prospective European System of Central Banks within the economic and monetary union. While such reforms are, perhaps, not strictly a necessary adjunct of the move to central bank independence and enhanced autonomy as such, this latter step within Europe is going hand in hand with preparation for economic and monetary union. In particular, the paper reviews prospective changes in the form of money market operations and assesses the likely role of reserve ratios in the context of economic and monetary union.

Price Stability: The Overriding Objective for Central Banks

Since 1989, a large number of revisions have been made to central bank legislation (Table 1). Such revisions in most cases place price stability as the primary objective of monetary policy; indeed, having the opportunity to specify that requirement in legislation often was one of the main reasons for its enactment in the first place. This emphasis on price stability contrasts with earlier practice. Only in a few cases, such as the Bundesbank and the Swiss National Bank, was such legislative emphasis previously placed on price stability. In many cases multiple economic objectives were set down, and in others no explicit objectives were set. In the case of the Bank of England, for example, the Act did not mention what its economic objectives should be at all, a lacuna that Governor Towers at the time pointed out might represent a weakness for the Bank in arguing policy issues with the government, as turned out to be the case (Fforde 1992).

Given this emphasis on price stability as the overriding, primary, or in some cases sole objective of monetary policy, as laid down in (most) recent legislation, it is perhaps remarkable that only in a few cases (New Zealand and Canada, and the 1993 Swedish White Paper) is any definition given of what might be meant by that central concept. If the objective is not clearly defined, then it could be argued that it is more difficult to assess how well, or badly, the central bank is doing in achieving its objective. Moreover, many possible definitions of price stability exist, and some complex and fine technical issues are involved,

Table 1
Recent Central Bank Legislation: Actual or Prospective

Country	Date of Legislation	Objective Revised?	Primary Objective	Numerical target set for price objective?	Increase in institutional autonomy?	Increase in operational autonomy?
France	December 1993	Yes	Price stability	No	Yes	Yes
Spain	June 1994	Yes	Price stability	No	Yes	Yes
Italy	November 1993	No	Safeguarding the currency implicit	No	No	Yes (now can set reserve requirements up to a ceiling)
United Kingdom	Roll Report, 1993—Select Committee, 1993—Advocated, not accepted by Government	(Roll) Yes	(Roll) Price stability	Retail Price Index (1 to 4%)	(Roll) Yes: though slight	(Roll) Yes
Sweden	Act of 1989 and 1993 White Paper proposals (W.P.)	(W.P.) Yes	(W.P.) Price stability	Consumer Prices 2% ± 1% for 1995	(W.P.) Yes	(W.P.) Yes
New Zealand	1989	Yes	Price stability	Retail Price Index (0 to 2%)	Yes: though slight	Yes
Chile	October 1990	Yes	Internal and external stability of the currency system	—	Yes	Yes
Mexico	November 1993	Yes	Price stability	—	Yes	Yes
Czech Republic	December 1992	Yes	Stability of the currency	—	Yes	Yes
Hungary	October 1991	Yes	Safeguard internal and external value of the currency	—	Yes	Yes

Source: Central bank laws, present official proposals, U.K. Roll Report and Swedish White Paper.

for example, in deciding what index to use. So the question of definition has considerable substance, yet has been largely ducked. Nevertheless, though it has not been quantitatively defined, most central bankers reckon that they can tell *qualitatively* when such stability holds, and they frequently quote Alan Greenspan's well-known definition with approval and affirmation.

The Focus on Price Stability

At present, in only a few cases (for example, New Zealand and a proposal for the United Kingdom by the 1993 Roll Report) is the achievement of price stability (or some synonym) set out in central bank

legislation to be the sole macroeconomic objective for monetary policy. Usually the requirement is taken to be primary, or overriding, in the lexicographic sense that only when this objective is achieved can the central bank turn to its secondary objective(s). Most recent revisions of national central bank acts in Europe, and the Protocol of the European System of Central Banks, express this latter objective in a rather general fashion, "to support" and carry out its "duties within the framework of the government's overall economic policy." Since the requirement to support the overall economic policy of the current government might, taken by itself, be held to make the central bank subservient, the precise terms of the conditionality whereby price stability *must* have *first* priority, and be achieved before this secondary objective can be attempted, become important. The relevant clause in Article 105 (1) of the Maastricht Treaty and in the Protocol for the European System Central Banks and member national central banks (Article 2) reads as follows:

> Without prejudice to the objective of price stability, it shall support the general economic policies in the Community . . .

Besides their macro-objective of maintaining price stability, historically central banks also have, to some varying extent, assumed or been made responsible for the systemic stability and the successful workings of some central parts of the financial system, such as the payments system and the commercial banks that operate that system. While in some countries it is arguable that these micro-level objectives had historical and functional priority relative to the macro-level objective of maintaining price stability, in other countries supervisory powers over banks (and payments systems) are divided between the central bank and a separate agency for bank supervision, or even concentrated in the latter. The general question of whether such a split of responsibilities was beneficial or not has recently received much attention in the literature (see Bruni 1993, especially the paper by Goodhart and Schoenmaker; Chiappori and others 1991; and Folkerts-Laudau and Garber 1992). The division of views is reflected in the fact that, as shown in Appendix Table 1, three of the central banks do not have specific responsibility for the supervision of financial institutions, whereas nine do have such a responsibility.

The shift from the view that monetary policy was but one facet of general demand management whose objectives included real as well as nominal variables, to the view that monetary policy should have a single focus, to achieve price stability, has been quite remarkably widespread and rapid. It is perhaps not surprising that this change in viewpoint has been seized on quite enthusiastically by central bankers. A multiplicity of objectives implies trade-offs and choices that must be inherently political, while a single focus, or unambiguous bottom line, facilitates

central banks becoming independent, but accountable, agents of government.

But the ideas involved have also been quite widely accepted by governments and political parties of all tendencies. Right-wing parties tend to approve of the concept of an independent central bank in principle, particularly when the alternative is a central bank subservient to an opposition left-wing government. Left-wing parties are less keen on the concept itself, but recognize that the credibility gain in financial markets is important (more so than for right-wing parties). Accordingly, the most favorable condition for enacting central bank independence is when this is proposed by a left-wing government and supported by a right-wing opposition, as in New Zealand and Spain. Perhaps the most telling example is South Africa, where the African National Congress were keen to incorporate central bank independence in the interim constitution. Right-wing politicians in opposition tend to support central bank independence but often become less keen on the idea when in office, as in the case of Mrs. Thatcher in the United Kingdom.

A Variety of Objections

Much of the intellectual, academic basis for the case for an independent central bank has come from economists, building on the concepts of a vertical long-run Phillips curve, rational expectations, and time inconsistency. Yet a sizable fraction of economists, especially various brands of neo- or post-Keynesians, remain unhappy and unconvinced about such analytical concepts. Trying to provide an empirical fix for the NAIRU is often a very difficult task (see Côté and Hostland 1994 for Canada). Post-Keynesians, and others, would deny either the possibility or the practical relevance of rational expectations. The suggested behavior of governments, according to the time inconsistency argument, has only some rather limited empirical backing (Alesina 1989). Consequently, proposals for mandating central banks to focus solely on price stability have run into some opposition from economists, as was, for example, evidenced in Canada (Canadian Standing Committee on Finance 1992) and discussed in the subsequent Charlottetown Canadian Economic Association Meeting (Crow 1992).

Nevertheless, on the basis of casual empiricism, relatively little opposition has been raised to this general shift to a focus on price stability alone. One alternative frequently canvassed in the economic literature has been to target nominal incomes rather than price stability (see, for example, Hall and Mankiw 1993). This has several possible advantages. It gives some weight to deviations of output from its trend, though as Hall (1986) pointed out, the (one-to-one) weighting is arbitrary, rather than based on considerations of welfare maximization. Moreover, as Duguay notes (1994, p. 22):

There is an extensive pre-Keynesian literature arguing in effect that stabilization of nominal income would be preferred to price stability (Selgin 1990). That literature emphasized the two arguments of equity and efficiency. It pointed out that the transfer of resources between lenders and borrowers or between retired and active workers that is associated with cushioning supply shocks with price level shifts has the effect of spreading the shock more equally across individuals. A price level norm, in contrast, would shelter lenders and retired workers from adverse supply shocks, thus increasing the burden borne by debtors and active workers; it would also deny the former the benefits of favorable supply shocks. The efficiency argument stressed the short-run disruptions in economic activity associated with the nominal disturbance involved in maintaining a stable price level.

Nominal spending targets have been studied extensively in the last 10 to 15 years. Studies have shown that their adoption could have led to a considerable reduction in the variances of output and inflation from historical values; they have also consistently fared very well relative to other nominal anchors in terms of weighted average of the variances of output and inflation.

Despite these arguments for an objective defined in terms of nominal incomes rather than price stability alone, the revealed preference of most central bankers and legislators has been to specify a target purely in terms of price stability. Possibly these factors are among the considerations involved: (i) the difficulty of estimating potential trend output, and hence of deviations from that; (ii) the problems caused by the delays in, and revisions to, data on GDP and its real and deflator components; and (iii) the desire to emphasize that monetary policy and central banks are, or should be, responsible solely for nominal price variables, and not for real variables. Nevertheless, in the short run, in which contracts are fixed and expectations set, monetary policy actions do have real consequences. How far does this focus on price stability complicate and limit the short-run response of central banks to shocks of various kinds?

An argument often advanced in these instances is that some price level changes may occur whose first-round effect the central banks may want to absorb rather than reverse, for example, those caused by supply shocks of uncertain duration such as oil shocks. However, several of those countries with quantified numerical targets for retail and consumer price indices have escape clauses in the small print allowing them to disregard certain (supply) shocks such as oil/energy/food/terms-of-trade shocks (Canada and New Zealand), indirect taxes, and the direct effects on the price index of interest changes themselves. In the United Kingdom, a variety of price indices have been developed, such as RPIX and RPIY, which by construction exclude those items most subject to supply shocks. Thus, through qualifying clauses in the small print, the countries with numerical targets will usually escape any self-imposed requirement to offset through generalized deflation the direct, first-

round effect of large, specific adverse supply shocks. The possibility of adverse supply shocks affecting raw materials, oil, wheat, and the like is generally acknowledged, while the likelihood of severe adverse supply shocks to productivity in the secondary and tertiary sectors of the economy remains more contentious.

In addition, the relatively long time horizons of the inflation targets so far established give some leeway for the central banks involved to adjust their response to unforeseen supply shocks in the early years of the target period. Important issues remain: whether these factors, the small print in the contract and the long horizon, give too little or too much room to adjust to unforeseen supply shocks, and what might be the expected probability, size, and form of the shocks. We all know about oil shocks and harvest failures (and can guard against them in devising the precise form of the rule/target), but what form might adverse supply shocks take in the manufacturing or services sector? Simply specifying that there is an error term, a stochastic variable, in the aggregate supply function is not much practical use to central bankers.

Perhaps of more immediate concern, both to central banks and to politicians, is the question of coordination between policies; specifically, between the operation of monetary policy, increasingly to be delegated to autonomous central banks, and the conduct of exchange rate and fiscal policies. The political authorities have almost invariably, and certainly so in the European Union (Article 109 of the Maastricht Treaty), kept responsibility for strategic decisions about the exchange rate regime in their own hands, although tactical operations are usually delegated to the central banks (Appendix Table 1). The potential inconsistency of requiring that the central bank both achieve domestic price stability and also adhere to a *fixed* exchange rate is, however, widely understood. What is less clear is how far the central bank from the anchor country in a pegged exchange rate system, for example the Bundesbank, or the various central banks in a system of fuzzy exchange rate target bands (such as the G3 under Louvre), should adjust their open market operations or interest rates for external, as contrasted with domestic, objectives.

It remains a matter of both theoretical interest and practical concern whether central banks *can* achieve domestic price stability (even if granted complete independence from political control and autonomy over interest rate setting), should the government exhibit fiscal irresponsibility. Even so, the constitutional shift to central bank autonomy must be presumed to reduce somewhat the likelihood of such fiscal irresponsibility, because it would be more surely and quickly penalized by offsetting interest rate increases, thereby reducing the political temptation. If this is so, then while central bank independence may not be sufficient for price stability, given an irresponsible government, it must be a move in the right direction.

Strategy for Achieving Price Stability

Given this concentration on "price stability," it is somewhat surprising that this term is rarely defined, at least in the relevant Acts (Table 1). In practice, however, central banks appear to have a clearly revealed preference for the form of target for price stability that they adopt. In most cases where a numerical target has been set, whether jointly or unilaterally by government or central bank, this has been defined in terms of a band for the rate of inflation of the retail or consumer price index: for instance, the 1 to 3 percent objective for the CPI agreed between the government and the Bank of Canada and reaffirmed in 1994 for the period 1995–98 (see Freedman 1994); the 0 to 2 percent target for the RPI in New Zealand agreed between the government and the Reserve Bank, now extending to 1996; and the 1 to 4 percent target for the RPI in the United Kingdom set unilaterally by the government over the period till 1997.

In Continental Europe, however, the Exchange Rate Mechanism since its creation in 1979 has provided the main framework for the pursuit of price stability. Also, the central bank in charge of the anchor currency of the system, the Deutsche Bundesbank, has had a satisfactory experience with intermediate monetary targets, at least until very recently, sticking with these while they were being progressively abandoned or downgraded elsewhere. Consequently there has been little experience on the Continent with specific numerical targets for inflation, apart from Sweden in the 1930s and now prospectively since 1993 (Persson and Tabellini 1994). Thus, most of this section discusses issues, lessons, and questions arising from the experience of Canada, New Zealand, and the United Kingdom, countries that have adopted differing forms of such quantified inflation objectives.

Level or Rate of Change?

This revealed choice raises questions about why the target was set in terms of rates of change, rather than the price *level;* the use, and width, of bands rather than points; the choice of index; the horizon; and the identity of the target setter, government, and/or central bank. The first question, whether to set a target for rates of change rather than for levels, was probably largely decided in terms of the initial context of continuing, though falling, inflation. The objective of achieving a given price *level* during the transition toward obtaining virtually zero inflation just seemed too daunting and deflationary. Several recent papers (Lebow, Roberts, and Stockton 1992; Scarth 1994; Fillion and Tetlow 1994; Duguay 1994) present academic arguments for preferring a target in terms of levels rather than rates of change, as an equilibrium condition after the transition to approximately zero inflation has been

reached. Since bygones are bygones under the latter, the longer-term variance, and hence uncertainty, about prices is greater. The expectation that an unforeseen price change shock will be reversed in due course, once credibility in the regime of price level stability has been attained, would make the system more self-stabilizing.

Apart from the decisive argument about one step at a time in transition, arguments against moving to a constant price level target include the belief/argument that a small, but positive, bias exists in estimates of price inflation, perhaps some 0.5 to 0.6 percent per year, owing, for example, to systematic improvements in goods' quality (Crawford 1993; Hershey 1994). It is also argued that it may be better to err on the side of a small positive inflation, rather than an equally small deflation. This may be because of some extra rigidity over reducing *nominal* wages, or because the zero lower bound to nominal interest rates makes it more difficult to lower real interest rates at zero, or negative, inflation rates (see Lebow, Stockton, and Wascher 1994; Crawford and Dupasquier 1994). None of these arguments, however, really provides a good case for preferring *inflation* to price *level* targets, since the latter could be set in terms of a constant positive upward trend (with bands, perhaps) to take account of any argument about bias, lubricant, and the like.

Band Width?

As already noted, the inflation target is expressed in terms of a band, typically of a 2 or 3 percent width. This is small relative to the historical standard deviation of inflation in most countries, and it implies that targets could quite often be missed despite the central bank's commitment and best efforts. Of course, a disadvantage of a point target is that it is virtually certain to be missed, and the finer details of the extent of that miss may not be readily communicable to the wider public. Whether by luck or good management, numerical targets in the United Kingdom, New Zealand, and Canada have so far been met; it may be that changing the constitutional regime for monetary policy may also change the performance of the system. Be that as it may, the selection of band width involves a trade-off between the credibility-enhancing effects of choosing a quite demanding target and the credibility-damaging effects of failing to adhere to it.

Horizon

Monetary policy, in the guise of changes in interest rates, first affects financial variables and asset prices, then after a short lag financial flows, and next, output; finally it impinges on generalized current goods and services inflation, with this last link involving long and variable

lags, perhaps some six to eight quarters. Given such lags, a numerical target for price inflation, relevant to current monetary policy, has to be set some two years or more into the future. This has been the case in the United Kingdom, New Zealand, and Canada, with the additional twist that the target has been revised (extended in time, but not to date raised) by a newly elected government, in New Zealand with the election of the National Party in 1991 and in Canada with the election of the Liberals in 1993. Again, there is a trade-off between not having the target so close that monetary policy hardly has time, given the lags, to affect prices, and not having the target so far ahead that it ceases to seem immediately relevant to decision-makers. And again, the consensus seems to be that the minimum initial horizon should be at least two years, and the maximum some four or five years hence.

Given the lags involved, the central bank will need to know what its next target will be before the first expires. So a successor target needs to be set for the subsequent period at least a year before the first is completed. Nevertheless, the old target need not be dropped altogether, once the next target is set. It is desirable, in order to maintain accountability, that a central bank's success, or otherwise, be assessed regularly in terms of the outcome against the completed, full target objective. The relatively long length of the target period allows the central bank some flexibility to respond to unforeseen shocks in the early years, but the need to meet the final deadline target becomes increasingly constraining over time. Remember, however, that the small print in many cases allows central banks to avoid having to offset the direct effect of major adverse *supply* shocks (beneficial supply shocks being an uncovenanted benefit), while *unforeseen demand* shocks should be offset. Some of those who criticize this policy approach of giving overriding priority to price stability do so because they believe that it both results in unduly deflationary policy and prevents the central bank from responding to (downward) deviations of output from trend. Neither extending the target horizon nor rolling the target forward each year (so it is never completed) would much assuage their concerns, however, while it would potentially weaken the credibility and commitment of the central bank to beat inflation.

Which Index?

One of the technically more complex questions is which price index to use. Revealed preference to date indicates that this will be the RPI or CPI, both widely used and understood, promptly calculated, and rarely revised. On all these counts either is preferred to the GDP deflator. Nevertheless, concern with supply shocks, most likely to emerge in food and energy prices, and with indirect taxes and the effects on the index of changes in interest rates themselves (for example via mortgage

payments on housing), have led to a variety of alternative versions of the RPI being deployed (see the Bank of England "Inflation Report"). One concern, raised by Alchian and Klein (1973) and taken on by Shibuya (1992), Shigehara (1990), Schinasi and Hargraves (1994) and Goodhart (1993), is that the RPI/CPI covers only prices of the current flow of goods and services; it excludes any coverage of present changes in the prices of future goods and services. When housing and property prices, for example, went through their recent cycle of boom and bust, should not central banks have taken such asset price movement into account in their assessment of the underlying rate of inflation? At the Bank of Japan Conference (October 1993) when this subject was discussed, the consensus was that central banks *should* take asset price movements into account, but in a discretionary, qualitative manner, if only because asset prices tended to be more flexible than, and hence to lead, wages and prices of goods and services. But little support was voiced in that discussion for formally incorporating asset prices into an extended price index, in some cases because of theoretical objections, but more generally because such asset prices were so volatile and noisy, being subject to sharp shifts in tastes and preferences.

Who Sets the Target?

An important constitutional issue is who should be responsible for setting any quantified numerical target. For the government to do so unilaterally, as occurs currently in the United Kingdom, underscores the dependent position of the central bank and would, therefore, be inconsistent with a preference for a more autonomous and independent bank. But some well-balanced arguments have been presented both for having the numerical target jointly agreed, as in New Zealand and Canada, and for allocating that responsibility to the central bank alone. It was one of the key subjects of discussion in the Roll Committee Report in the United Kingdom, which finally came down in favor of having the central bank set its own targets unilaterally, largely on the grounds of the potential time inconsistency of politicians; thus, the Report states (1993, p. 32):

> [W]e believe that UK monetary policy needs greater independence than can be achieved through any system in which ministers have operational responsibility for framing targets. Our design attempts to achieve this by assigning ultimate responsibility for choice of targets to the Bank alone (though of course it would discuss, and normally agree, those with ministers), and by leaning as heavily as we can on transparency in two ways. First, although the government and Bank could announce that they believed different target ranges for inflation appropriate at any particular time, itself a signal likely to place government policy under close public scrutiny, the only recourse to a government determined to have its way would be the highly visible step of

suspending the Bank's sole objective; the Bank could not be undermined simply by the government's persistent challenge of its target settings.

In response it may be argued that, were the government in a position to query or criticize the bank's choice of target, it would seriously undermine the latter's credibility, since it would lead people to wonder whether the central bank's independence might be abrogated by a future revision to the law. What one government enacts, another can repeal. Having, instead, the government and central bank jointly set the target commits the former to the stated objective, and makes it harder for the government to criticize the means whereby the bank achieves the agreed end. So the joint nature of the target-setting process may enhance its credibility.

It is, however, arguable that, since an opposition party's task is to oppose, it may be *more* likely to commit itself against continuation of a policy of price stability if the latter is represented by the government's target than if it is the responsibility of the bank alone to set it. The point is debatable. Again, some may question whether the government, if party to the agreement, might not set the target too lax, on political time inconsistency grounds. On the other hand it would be difficult for a government publicly to raise the target inflation rate; even the newly victorious Canadian Liberal Party, who had had their reservations about Governor John Crow's policies, stuck to the same target rate when extending the period forward to 1998. Moreover, if the payment to senior bank officials, or their reappointment, were to rest on achieving their inflation target, they too could have an incentive to set numbers that were too easily achievable, rather than too demanding.

Incentives and Structure

In any case, this discussion raises the question of what the incentive structure for the governor and the board of the central bank should be. Under the Reserve Bank of New Zealand Act, it is implied that failure to achieve the agreed target would result in the Governor not being reappointed. While this may have some considerable incentive effect, it will be less so if the Governor is reaching retirement age. Moreover, the incentive/threat is not easily, or finely, calibrated; one would hardly dismiss for a miss of 0.1 percent, but then what extent of failure would justify refusal to reappoint? It would inevitably be both uncertain and arbitrary. Finally, this incentive is applicable only if final responsibility for central bank outcomes rests in the sole person of the governor. While this concentration of responsibility on one person has the benefit of transparency, it does make that individual the focus for personal and political pressure.

Such pressure can be much more easily deflected if responsibility

for decisions lies with a larger directorate, committee, or board. When the Banque de France was made independent (1993), responsibility for monetary policy-making was transferred from the Governor to a Monetary Policy Council. On the other hand, one can hardly sack a whole board. One could, perhaps, have the votes and decisions of individual board members publicly recorded, and then not reappoint those who had, ex post, been judged to have voted too often the "wrong" way. But that too would be an arbitrary and messy exercise.

A simpler alternative would appear to be to set the payment for those responsible for policy, for example the board members, dependent on their success in achieving the target. With the single focus on price stability, and its transformation into a numerical target, success and failure can be readily calibrated and (bonus) payments provided accordingly. This straightforward idea has now been granted academic support in several papers by Walsh (1993 and 1994a and b) and by Persson and Tabellini (1993 and 1994). The last two authors state (1994, p. 11) that "the optimal contract can be interpreted as a mandate to achieve price stability. The central bank is punished . . . for any percentage point of inflation. Essentially, by punishing *ex post* the central bank for realized inflation, this contract adds a cost that the central bank has "forgotten": the cost of higher expected inflation. . . . the inflation bias [of the central bank] . . . can be corrected simply by adding the correct marginal cost of inflation to the central bank's *ex post* social welfare function." Indeed, the authors castigate researchers in this field for not having seen this contractual approach before now, stating, "We find it remarkable that the contractual solution to the problem is so simple and that researchers, including ourselves, working in the field have failed to see it."

One of us, in 1989, when acting as an adviser to the Reserve Bank of New Zealand, had indeed advocated such a system of payment for the Governor, depending on results. For a time it was quite widely believed that such a bonus payment system had actually been adopted there, but it was in fact rejected during the preliminary discussions. The reason was primarily presentational. There was worry, especially at the Treasury, about the possibility of headlines representing that "Governor makes $500,000 by throwing 500,000 out of work." Perhaps, once again, this is an issue that may be reconsidered when the transition to (almost) zero inflation has been achieved, so that the balance of policy need not be quite so deflationary as during the transition.

An argument often given against central bankers being paid by their results is that the final outcome, and hence their payment, would be affected by various (short-term) shocks over which they have no control. Indeed so, but the impact of some supply shocks can be, and has been, expressly excluded from the contract, as has already been described. More generally, businessmen and company profits are similarly buffeted

by unforeseen and uncontrollable shocks, and no one suggests that this is a valid reason for dispensing with profit-related compensation for business leaders. Once the bottom line is clear and calculable, remuneration can be related to its achievement.

One possible concern, however, is that the inducement to hit the final numerical target is already so great, and the uncertainty of being able to achieve it so large, that central bankers may try to get inflation down to the target level in advance of the terminal year, to give themselves the best chance of a relatively easy run in the final year.[4] Thus, the incentives for central bankers may already be to shorten and tighten the transition period, possibly excessively so, once numerical targets are introduced, even without the bait of a bonus payment. Certainly the structure and design of incentive arrangements for central bankers in this new context need careful thought.

Accountability

This leads on to the rather wider question of how an independent central bank can remain democratically accountable. Once again it is the focus on a primary single objective, price stability, that enables accountability to be allied, as a complement rather than a contradiction, with "independence," especially if that price stability objective is expressed in a quantified numerical target, and the target to be achieved, or at least the procedures involved, have the blessing of the government. In such a case, choices between alternative objectives, which are inherently political choices, are minimized. Society, acting through its elected bodies, has specified quite closely what its agent, the central bank, is to aim to perform. All that remains is to report, usually to the legislative body, how well the bank has carried out this task.

In truth the democratic accountability of an "independent" central bank, mandated to the achievement of price stability as its overriding objective, is both far greater and much more transparent than that of a subservient central bank, charged with trying to make trade-off compromises between a variety of objectives under the tutelage of a political master. It is odd that the issue of accountability has been raised as an argument against such central bank "independence," whereas properly seen it is an argument in favor of such autonomy. The true, underlying issue is rather whether the single, overriding focus on price stability is, indeed, optimal.

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[4] Both Governor Don Brash of New Zealand and Governor John Crow of Canada brought inflation down rapidly to, or below, the rate specified in the agreement a year before that was required.

Strategic Issues in the Use of Targets

A subservient central bank does not need a target, at least on its own accord, since it will be carrying out the wishes of its political masters, who may or may not establish targets for themselves. An independent and autonomous central bank, on the other hand, has a greater need for some, preferably quantified, target objective, to provide both greater transparency and a basis for accounting for its actions as agent. Once again, we emphasize the close linkage between having a single main focus for monetary policy, price stability, and the case for making the bank into an independent agent. It is, therefore, assumed that an independent central bank will want a publicly announced target to be established for itself.

Such a target can be either for a final or for an intermediate objective. The final target now almost universally chosen by central banks is price stability and, for those banks directly targeting on this final objective, this has mapped into specific numerical targets for the inflation rate of the RPI/CPI. Few banks now target final objectives directly, with only one so far, Sweden, in Continental Europe. Instead, the majority of other central banks in this study's sample use intermediate targets, mostly pegging their exchange rate within the Exchange Rate Mechanism or prospectively so at some future date.

This section will first consider the comparative advantages and disadvantages of having a publicly announced target for the final objective rather than for an intermediate variable. Of course, central banks targeting directly on inflation, via the RPI or CPI, may also have subsidiary targets for intermediate variables such as exchange rates (New Zealand is an example), which may or may not be announced or otherwise publicly known. Equally, countries mainly targeting on intermediate variables, such as Germany or Switzerland, will adjust their response to the outcomes of those targets by their perceptions of the concurrent and future course of inflation itself. Nevertheless, it is usually clear enough which is the main target, and this is set out for the countries in this sample in Table 1 and in Table 2 (below). Next, the relative advantages and disadvantages among the possible intermediate targets will be considered, of which exchange rates and monetary aggregates have been the main, but not the only, candidates.

Final versus Intermediate Targets

Insofar as the final objective of almost all central banks is to achieve price stability, and this concept is capable of reasonable measurement, then the simplest and most obvious route would seem to be to target that objective directly. If this outcome is what we want central banks to achieve, then what can be done to set up a target system and an

incentive structure that will maximize the chance of them doing so? Proponents of this approach would argue that concentrating instead on some intermediate variable, such as the money stock, introduces complexity, since the links between monetary changes and price inflation are variable, and reduces transparency and understanding, since the relevance and significance of somewhat arbitrary monetary aggregates will be far less clear to the general public than the concept of inflation and price stability. Persson and Tabellini express the same thought, in more formal and rigorous terms (1994, pp. 14–15):

> [I]t is clear that the inflation contract is more direct and simpler to enforce [than an intermediate target]. . . . Hence, a contract based on an intermediate monetary target is much more demanding on the principal's information compared to an inflation contract. . . . Generally, the principal finds it easier to monitor the outcome rather than the policy instrument, because the optimal instrument choice depends on detailed information which may not be available to the principal. We are thus led to a general conclusion. An inflation contract . . . minimizes the informational requirement of the principal and thus generally dominates contracts based on intermediate monetary targets or directly on the policy instrument.

Yet despite such arguments, relatively few central banks employ direct inflation targets, and those, mostly recently. A much larger number of central banks employ intermediate targets, as Persson and Tabellini recognize. One reason for this may have been historical accident, depending on the actual temporal evolution of ideas and operations in the field. Thus, the widespread consensus on focusing on the single objective of price stability is quite recent. The adoption of such a single intermediate target, for the exchange rate or for monetary aggregates, may have allowed the central bank to work to a single target—and hence enhance its independence and autonomy—at an earlier date when the views of the general public, or of politicians, on the choice of final objectives made autonomy a more contentious matter.

A much more substantive argument in favor of intermediate targets, which Persson and Tabellini also note, is the much longer lag between policy action and inflation than between such action and effects in financial markets. Thus they ask (1994, p. 15):

> Why do we see exchange rate targets or monetary targets often imposed (or self imposed) on central bankers, but rarely see central bankers accountable for the rate of inflation? One reason[5] may have to do with the commitment

[5] They also propose a second reason. They suggest that the central bank may be risk averse, and therefore "clearly prefers a contract contingent on the money supply or some other easily [sic!] controllable nominal anchor, rather than an inflation target, which it will

> technology available to the principal. The effect of policy actions on asset prices or the money supply is readily observable. [This is an assertion that we would dispute, ourselves.] The effect on prices is observable only with substantial delay. It may thus be harder for society to commit to "punishing" a central bank for actions undertaken six months or a year ago. [Again, we regard this as an underestimate of the problem; the lag may be twice as long.] If the central bank deviates from a financial target the penalty is more immediately related to the policy actions. It may therefore be easier to sustain such penalties than in the case of inflation targets.

Such long lags between action and inflation outcome undoubtedly complicate the working of a direct inflation target. The case for an intermediate target is that this could provide a much earlier signal whether policy is being appropriately applied, as Benjamin Friedman has pointed out in earlier classic papers (and in Friedman 1990).

Given these long lags in the effects of monetary policy on the final objective, price stability, and the uncertainties thereby involved, central banks are bound to pay attention to the development of key intermediate variables such as monetary aggregates. But how much attention should be paid to each variable, and whether one or more should be elevated to the level of target, as contrasted with the rather more flexible concept of informational variable, will generally depend on the perceived constancy and reliability of the relationships involved. Such perceptions have varied over time, and between countries.

If an intermediate target is to be adopted, which might be best? Three possibilities will be reviewed: an interest rate target, an exchange rate target, and the best selection from a range of possible monetary aggregate targets.

Interest Rate Targets

The short-term interest rate has the advantage that it is the main policy instrument used by the central bank; changes in it are the result of policy decisions (primarily) and are instantaneously and accurately measured in nominal terms. But the problem is that the relevant measures for affecting the economy are real interest rates and some interest differentials. These either are measured very uncertainly because of the problem of observing heterogeneous expectations, or are subject, as in the case of interest differentials, to structural change; their

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miss more frequently." The validity of this argument is doubtful. First, the intermediate targets, either monetary aggregates or exchange rates, are not, and have not proved to be easily controllable. Indeed, actual experience with hitting inflation targets, to date, has been much better than with monetary targets; the Exchange Rate Mechanism has also had its difficulties. Second, it is doubtful whether central bankers, as a group, have withdrawn from accepting appropriate targets just because of the problems of hitting them.

effect on either financial flows or final expenditures is uncertain and time-varying. Here again, there is a general consensus that estimates of real interest rates and of certain key interest differentials (such as the slope of the yield curve) should be important information variables for central bankers, but that they are not well suited to act as intermediate targets.

Exchange Rate Targets

The intermediate target variable most commonly used in Europe has been the exchange rate. As shown in Table 2, most European countries have made this their sole or main target. The comparative success of the Exchange Rate Mechanism, at least until 1992 and 1993, and the aspirations of other European countries outside the Community to become full members in due course and in the meantime to peg their currencies to the ECU or the deutsche mark, have been responsible for the popularity of exchange rate intermediate targets.

They have many virtues as such. Exchange rates are accurately and immediately measured; they respond instantaneously to changes in interest rates; they are widely understood by the public; and they have a general and broad impact on the economy, depending on the degree of openness. By pegging to the currency of another country/central bank with credibility in the pursuit of price stability, the international commitment involved can lead to a quicker and greater transfer of anti-inflationary credibility than attempts to establish a domestic reputation singlehandedly. Even where a country has determined to follow a domestic price/inflation target directly, it may still, as in the case of New Zealand, regard the exchange rate as such an important determinant and signal of future inflationary pressures that it will establish an (informal) operational target for the exchange rate: Thus the Reserve Bank of New Zealand will vary interest rates up (or down) if a trigger point (which they decide for themselves) is reached. Such trigger points, one way or another, usually become known in markets.

Some versions of such intermediate targets, notably currency board systems, as in Argentina (since 1991), Estonia (since 1992), and Hong Kong (since 1983), may have the added advantage of distancing the determination of monetary policy from domestic political control. Such currency boards may be viewed as a way of transferring monetary policy to an independent central bank, in this case foreign rather than domestic.

The disadvantage, of course, as was clearly evident in Europe in 1992 and 1993, is that the monetary policy best suited to the leading, anchor country may not be appropriate, at any rate in the short run, to the countries pegging to it, for example, because of large real asymmetric shocks. The problems of the Exchange Rate Mechanism following

Table 2
Monetary Policy Strategies in the European Union

Present Intermediate Target	Comments and Recent Changes
A. Exchange rate–ERM	
Belgium/Luxembourg	—
Denmark	Supplemented by domestic credit target in 1991 and 1992.
Ireland	—
Netherlands	Supplemented by domestic credit targets in 1990–1992.
Portugal	Between 1987 and 1992 broad money targets set. The exchange rate became the only intermediate target following the entry of the escudo into the ERM in mid 1992.
B. Exchange rate–ERM supplemented by broad money	
France (M3)	The exchange rate has been the primary intermediate target since 1979 when the ERM was created.
Spain (ALP)	The exchange rate has been the primary intermediate target since 1989 when the peseta entered into the ERM. Before that, broad money had been the monetary target since 1977.
C. Broad money	
Germany (M3)	Monetary targets set since 1974. The exchange rate is an important policy indicator.
Italy (M2)	The exchange rate ceased to be the primary intermediate target following the exit of the lira from the ERM in September 1992.
Greece (M3)	The exchange rate is an important policy indicator.
D. None	
United Kingdom (Inflation targeted directly)	The exchange rate was the main intermediate target while the pound was in the ERM between October 1990 and September 1992. At present, monetary aggregates and the exchange rate are only used as information variables.

Source: Central banks' reports.

German reunification are well known. Another example has been the need for Hong Kong to keep low, U.S.-level nominal interest rates in order to maintain "the link," at a time when its participation in the surging economy of Southern China has led to a booming economy and moderate inflation.

Yet, as these examples also indicate, the advantages of an exchange rate link to a stable central economy are so considerable that, despite the manifold 1992–93 problems for the Exchange Rate Mechanism, most

countries in Europe retain that link as their main objective. Hong Kong also remains determined to keep the link with the U.S. dollar. And, of course, the advantages of proceeding from stably linked currencies to monetary union within Europe are still seen as a prize to be achieved as soon as practicable.

Some circumstances and conditions are conducive to the use of the exchange rate as an intermediate target (for example, for smaller, open countries with poorer reputations for price stability) and a desire for enhanced economic and political union with their neighbors. In other circumstances (such as larger, more closed economies subject to asymmetric shocks, with no expectation or desire for greater union) an exchange-rate intermediate target would clearly be inappropriate. This leads to a brief consideration of the use of monetary targets, primarily within the European context.

Monetary Targets

In line with what happened in other parts of the world, since the mid seventies a number of European countries have relied heavily on monetary aggregates to formulate their monetary policy. Monetary aggregates thus became the intermediate target of monetary policy. The best-known and paradigmatic example in using monetary targets is Germany, but other countries such as France, Italy, Spain, and the United Kingdom (until 1987) established and publicly announced annual ranges for the growth of a selected monetary aggregate—typically a broad aggregate.[6] The practice of publicly announcing monetary targets has continued to the present in the first four countries, including the periods when their currencies have formed part of the Exchange Rate Mechanism (Germany and France since 1979; Italy from 1979 to September 1992; and Spain since June 1989).

By European standards, these countries have relatively large and not so open economies (Table 3). In contrast, small open economies like those of Belgium, Luxembourg, Ireland, the Netherlands, and Denmark have relied primarily on the exchange rate as the intermediate target of monetary policy. Portugal set monetary targets in the 1987–92 period, but it has recently shifted exclusively to setting exchange rate targets, following the entry of the escudo into the Exchange Rate Mechanism in mid 1992. (Table 2 summarizes the monetary policy strategies currently adopted in the European Union.)

But why did Germany, France, Spain, and Italy adopt monetary targets in the first place? In the mid seventies, industrialized countries

[6] In addition to these countries, Greece has been setting monetary targets uninterruptedly since the mid eighties.

Table 3
(A) Economic Size of European Countries
in order of increasing percent of total GDP of European Union[a]

Luxembourg	.1
Ireland	.7
Greece	1.5
Portugal	1.6
Denmark	1.7
Belgium	3.2
Holland	4.7
Spain	9.0
United Kingdom	17.6
Italy	18.1
France	19.2
Germany[b]	22.7

[a] 1990 GDPs converted at PPP rates.
[b] Before unification.

(B) Degree of Openness in European Countries
in order of decreasing percent of openness

	Total[a]	Intra-European Union[b]
Belgium/Luxembourg	60	50
Ireland	52	50
Netherlands	49	40
Portugal	34	20
Denmark	26	14
Germany	25	16
Greece	21	12
United Kingdom	20	10
France	20	13
Italy	16	9
Spain	14	7

[a] (Imports + Exports/2)/GDP in 1990.
[b] Intra-European Union exports/GDP in 1990.
Source: Eurostat.

were going through a period of high inflation and inflationary expectations, following the occurrence of supply-side shocks. At the same time as inflation worries mounted, shifting inflationary expectations made nominal interest rates less useful as policy guides, and thus the attention of central banks turned to monetary aggregates. Central banks found that monetary targets provided a considerably simpler and more transparent way of formulating monetary policy, one that could limit the room for discretion within the year, favorably influence the inflationary expectations of the public by providing a medium-term reference, and permit the central bank a higher degree of de facto autonomy in pursuing the final goals of monetary policy.

More precisely, when reading through the many central bank reports and speeches given by officials over the years to explain this strategic choice, one comes up with several reasons why some European central banks have been using monetary aggregates as intermediate targets (see also Bernanke and Mishkin 1992). In particular, these rest on the following beliefs: Monetary aggregates are linked in a rather stable and predictable manner to the medium-term evolution of nominal variables. They can be controlled by central banks within reasonable limits, and they are helpful in conveying information to the public about the medium-term orientation of monetary policy. Since they are within the scope of monetary policy, they facilitate monitoring by the public, and they allow a better division of responsibilities between the central bank and the government, thus avoiding external political pressures on monetary policy.

From the above description, it is clear that the reasons behind the choice of monetary targets square well with those given by the models of optimal monetary policy in the tradition of Poole (1970). That is, monetary targets are suitable when the shocks affecting the economy come mainly from the demand for goods. In these cases, the evolution of monetary aggregates is more closely connected to that of the final variables, and by controlling money the deviations of final variables from their targeted values are minimized. Furthermore, it is only under these circumstances that the potentially favorable game-theoretic and expectational effects from setting monetary targets, described above, are also obtained. In particular, as Englander (1990) suggests, when the monetary aggregate chosen is not linked in a stable and predictable way to the final variables—as a result of unforeseen velocity shocks—this has very unfavorable effects on the public's expectations. In particular, a strategy of refusing to accommodate velocity shocks in order to earn anti-inflationary credibility would result in misses regarding the final objective; and full accommodation would run the risk of undermining the usefulness of monetary targets in the first place as a device to influence the public's expectations.

Over the years, and as economic integration progressed, many European central banks came to the view that membership in the Exchange Rate Mechanism could be an important way of fostering anti-inflationary credibility through the linking of their monetary policies to that of Germany, whose central bank enjoyed the best anti-inflationary reputation. As a result, in some European countries, generally those with smaller and more open economies, the exchange rate became the intermediate target for monetary policy. In larger, relatively less open economies like France, Italy, and Spain, while the institutional constraints associated with Exchange Rate Mechanism membership clearly placed the exchange rate at the center stage of monetary policy, thus becoming the primary intermediate target, monetary authorities

continued to set monetary targets. Therefore, it can be said that, in practice, these latter countries have set both exchange rate and monetary targets, although with the increase in international capital mobility the exchange rate has become the central target of monetary policy, as will be discussed in the next section.

Operational Issues for Targetry

The Operation of Direct Inflation Targets

The main problem in successfully managing a system of direct inflation targets arises from the combination of long lags in the effect of monetary policy and uncertainty, both about future shocks and, more importantly, about the structure of the economic system itself, especially the precise effects of changes in monetary policy instruments on the economy. Without such uncertainty, policy could be set now to deliver an expected future rate of inflation with some degree of confidence. Without the lags, policy could be varied, despite the uncertainty, until the designated inflation rate was achieved. Given such lags, the attempt to use monetary policy to the extreme to force a given change in inflation in the shorter run might prove impossible and would cause instrument instability whereby interest rates could become explosively unstable, as almost seemed at one time to be happening in the United States in the 1979–81 period. Many, and perhaps the most severe, of the problems of operating monetary policy are caused by such lags, especially in the case of direct price inflation objectives.

In these circumstances, an enormous weight of responsibility rests on the shoulders of the chief economic forecaster in the central bank, charged with the duty of forecasting what inflation rate could be expected, on an unchanged policy assumption. This responsibility will be even more onerous if the forecaster is also asked to project what policy change now will be needed to drive future inflation into line with the target. The accuracy of those forecasts will be crucial to the success of the central bank in meeting its mandate. Moreover, the standard problems of inflation forecasting almost certainly will be exacerbated by the Lucas critique in this case. The wage/price decisions of agents will be affected, in ways that are difficult to predict in advance, by their perceptions of how the new regime may itself operate. The role of chief economic forecaster in central banks adopting this regime is not enviable.

Perhaps because of these problems, some tendency has been apparent in both Canada and New Zealand for the central bank to press ahead with getting inflation down to, or below, the target level rather in advance of the agreed horizon. If the Bank of England were more autonomous, it might wish to do the same. Whereas the hypothesis

about the inflationary bias of the monetary authorities is well known from the time consistency literature, we would tentatively suggest that an independent central bank with an overriding priority to achieve a numerical target for inflation might have a transitional deflationary bias.

The Operation of Exchange Rate Targets

The main problem, of course, with exchange rate targets is that the nominal interest rates needed to maintain the exchange rate link may represent a real interest rate unsuited to the peripheral country, for example, because of asymmetric shocks. Indeed, when this syndrome becomes particularly acute, as in the Exchange Rate Mechanism in 1992 and 1993, adjustments in nominal interest rates may even become ineffective in influencing capital flows and maintaining the exchange rate, because the resulting real interest rate is perceived by markets as domestically unsustainable. There were even occasions during that prolonged crisis when increases (decreases) in interest rates had a perverse effect in causing depreciation (appreciation) in the exchange rate, for this reason.

The normal response in such cases, where one instrument, the interest rate, is asked to achieve two mutually inconsistent objectives, is to try to find another instrument. One proposal, by Eichengreen and Wyplosz (1993), has been to revert to some version of exchange controls in order to keep interest rates at levels more appropriate domestically. Another alternative is to try to offset the deleterious domestic effects of inappropriate real interest rates by other measures and instruments. However, the attempt to find alternative instruments to ease the policy strains has not been markedly successful. The conceptual and practical shortcomings of any attempted reimposition of exchange controls are well-known, and the attempt to offset inappropriate interest rate levels by an adjustment in fiscal policy (or by variations in direct credit controls) runs into other, again well-known, problems. It is such difficulties that make many commentators skeptical that a pegged, but adjustable, exchange rate regime can represent a stable equilibrium in a world of free capital movements, in the absence of close policy coordination. Such considerations are influencing views and attitudes toward both the speed of achieving, and the optimal transition path to, economic and monetary union.

The Operation of Monetary Targets

In practice, the main operational issues surrounding the implementation of monetary targets concern the choice of monetary aggregate; the reference period over which it is set; the speed with which deviations from target are corrected, if at all, during the year; and whether base

drift should be allowed. In order to guide their decisions concerning the above issues, central banks normally make use of the information contained in other monetary, financial, and economic variables. This tends to blur, in practice, the difference between the "one-step" and "two-step" approaches to monetary policy. In particular, by letting the growth of monetary aggregates differ from mid-point target ranges in response to well-identified disturbances, central banks can hope to conduct policy with few informational inefficiencies and nevertheless still benefit from favorable expectational effects but, to be successful, this depends greatly on their prior reputation and credibility.

Important operational issues also arise when central banks try to influence the course of monetary growth in the desired direction. For instance, the remuneration at market rates of certain components of the targeted monetary aggregate may make it difficult to reduce monetary growth, say, by increasing official interest rates, and may, at times, actually have the opposite effect. In addition, when international financial markets are closely integrated, countries in the Exchange Rate Mechanism trying to reduce monetary growth through contractionary liquidity operations may easily see their attempts frustrated by inward capital flows.

The economic effects of adopting monetary targets may thus depend significantly on how they have been implemented in practice. In order to assess how flexible the conduct of monetary targets has been in Europe, information on the targeted and actual money growth rates of Germany, France, Italy, and Spain is shown in Table 4. As is clear from the table, elements of short-run flexibility have been present in the management of monetary targets: Targets have generally been expressed as ranges rather than as a single value; on many occasions, the recorded monetary growth has been within the range but not close to the mid-point; at times, targets have been undershot or overshot; base drift has been significant; and the specific monetary aggregate playing the role of intermediate target has changed over time as financial innovation has evolved.

All in all, monetary aggregates have played a useful role in the pursuit of anti-inflationary monetary policies in the above countries during many years. However, their interpretation has become increasingly complex as a result of the ongoing processes of financial innovation and deregulation, and their controllability more precarious in an environment of exchange rate stability and free capital mobility.

As regards financial innovation, the new cash management techniques used by firms adapting to the possibilities of an increasingly sophisticated and deregulated financial environment, and the shift of household financial holdings towards remunerated liquid assets, have provoked important changes in the sectoral composition of monetary holdings. This has led to an increasing difficulty in interpreting the

Table 4
Targeted and Actual Money Growth

Germany					France				
Year	Variable	Target	Outcome	Comments	Year	Variable	Target	Outcome	Comments
1975	Central Bank Money	8	10.0	M+					
1976		8	9.2	H					
1977		8	9.0	H	1977	M2	12.5	13.9	H
1978		8	11.5	M+	1978		12	12.2	H
1979		6–9	6.3	H	1979		11	14.4	M+
1980		5–8	5.0	H	1980		11	9.8	H
1981		4–7	3.5	M−	1981		12 (rev)	11.4	H
1982		4–7	6.1	H	1982		12.5–13.5	11.5	M−
1983		4–7	6.8	H	1983		9 (rev)	10.2	H
1984		4–6	4.6	H	1984		5.5–6.5	7.6	M+
1985		3.5–4.5	4.5	H	1985	M2R	4–6	6.9	M+
1986		3.5–5.5	7.8	M+	1986	M3	3–5	4.6	H
1987		3–6	8.0	M+	1987	M2 (new)	3–5	9.2	M+
1988	M3	3–6	6.7	M+	1988		4–6	4.0	H
1989		5	4.7	H	1989		4–6	4.3	H
1990		4–6	5.6	H	1990		3.5–5.5	−.5	M−
1991		3–5 (rev)	5.2	M+	1991	M3 (new)	5–7	3.8	M−
1992		3.5–5.5	9.4	M+	1992		4–6	6.0	H
1993		4.5–6.5	7.5	M+	1993		4–6.5	−.9	M−
1994		4–6			1994		5		

Italy					Spain				
Year	Variable	Target	Outcome	Comments	Year	Variable	Target	Outcome	Comments
1975	Domestic Credit	13.9	12.5	H					
1976		16.7	18.8	M+					
1977		16.0	17.8	M+					
1978		19.5	20.8	H	1978	M3	14.5–19.5	20.3	M+
1979		18.6	18.7	H	1979		15.5–19.5	19.4	H+
1980		17.7	18.5	H	1980		16–20	16.1	H
1981		16.1	18.1	M+	1981		14.5–18.5	15.7	H
1982		15.5	20.9	M+	1982		13.5–17.5	15.3	H
1983		18.0	20.7	M+	1983		11–15	12.8	H
1984		15.9	19.7	M+	1984	ALP	11.5	14.5	H
1985		16.1	18.1	M+	1985		11.5–14.5	14.3	H
1986	M2	7–11	9.6	H	1986		9.5–12.5	12.4	H
1987		6–9	8.6	H	1987		6.5–9.5	13.1	M+
1988		6–9	8.9	H	1988		8–11	13.4	M+
1989		6–9	11.3	M+	1989		6.5–9.5	12.8	M+
1990		6–9	9.9	M+	1990		6.5–9.5	11.4	M+
1991		5–8	9.0	M+	1991		7–11	10.9	H
1992		5–7	5.9	H	1992		8–11	5.2	M−
1993		5–7	7.8	M+	1993		4.5–7.5	8.6	M+
1994		5–7			1994		3–7		

Notes: H/M: target hit/missed. When single-value target, it is assumed an implicit range of ± 1.5%; +/−: monetary above/below target; rev: target revised during the year.

Source: Central banks' reports.

evolution of monetary aggregates, as testified by the reduced stability of demand for money functions (see Fase 1993). Finally, in Europe, the process of financial innovation has been accelerated, most recently through the introduction of financial legislation associated with the establishment in 1992 of the Single Internal Market. In particular, banks from member states have been allowed to do business without restrictions throughout the European Union.

The other major development affecting the implementation of monetary targets in European countries has to do with the constraints imposed by the Exchange Rate Mechanism. As mentioned earlier on, Germany has traditionally played the anchor role in the System; that is, the Bundesbank has freely set German monetary policy, and the other countries have adapted their domestic monetary conditions so as to maintain exchange rate stability. But how much monetary autonomy has been left to those non-anchor countries like France, Italy, or Spain, which set monetary targets?

It is well known that when a country adopts a fixed exchange rate, the money supply becomes fully endogenous when the following conditions are simultaneously satisfied: The country does not exert a significant influence on the level of international interest rates; international capital mobility is perfect; and perfect substitutability exists between domestic and foreign bonds. In these circumstances, the domestic monetary authorities can only influence the breakdown of monetary growth between its domestic and external sources, but lose control of the total. And while the rate of monetary growth can be set ex ante so as to be compatible with the maintenance of exchange rate stability, the presence of shocks will, in general, make actual money growth differ ex post from the targeted value, if exchange rate stability is indeed preserved.

It is clear from the above that, other things equal, setting monetary targets outside Germany would make sense only if some of the previous conditions do not hold. In particular, the room for domestic monetary autonomy on the part of the non-anchor countries will tend to be larger when there is a band within which exchange rates can move, when central parities can be adjusted, when capital mobility is not perfect, and when domestic and foreign assets are imperfect substitutes.

From its creation in 1979 until 1987, the Exchange Rate Mechanism experienced frequent realignments which, coupled with the presence of exchange controls in the countries with relatively weak currencies, France and Italy, gave some room for maneuver to their respective monetary authorities as regards monetary control. In contrast, in the period from 1987 to September 1992, the Exchange Rate Mechanism experienced no general realignment and capital controls were eliminated in most member countries with a view to the establishment of the Single Internal Market. This made it increasingly difficult for non-anchor

countries to meet monetary targets while preserving exchange rate stability. Subsequently, the crisis from September 1992 to July 1993 led to the exit of the British pound and the Italian lira from the Mechanism; to the devaluation of the peseta, the escudo, and the Irish pound; and to the widening of the bilateral fluctuation bands to ± 15 percent after August 2, 1993.

As a result of the widening of the bands, the participating countries have now regained some margin of maneuver for adapting monetary developments to domestic conditions. In other words, while the exchange rate remains the fundamental variable as far as monetary policy is concerned, at least for most of the remaining Exchange Rate Mechanism countries, the recent changes in the Mechanism may have allowed the monetary authorities of countries setting monetary targets some room to improve their control over their national moneys.

All in all, however, even if at present it can be claimed that central banks have a better control over monetary targets than a couple of years ago, the ongoing process of financial innovation continues to pose serious problems regarding the effectiveness of such strategy. It is for this reason that we consider that those European central banks with a long tradition in setting monetary targets are becoming, with the passage of time, more pragmatic in the implementation of their monetary strategies, given the prevalence of the exchange rate target. Even in Germany, where the only target is the growth of M3, monetary growth has recently been allowed to be well in excess of the target range. The structural changes derived from unification, the processes of financial innovation and deregulation, and the foreign exchange interventions of the Bundesbank on behalf of other currencies during the Exchange Rate Mechanism crisis, are all factors that at least partly account for the excessive monetary growth recorded in Germany in past years and also at present. In spite of this, the Bundesbank has continued to pursue a cautious policy of interest rate reductions in the light of the diminishing inflationary pressures observed in the German economy, which suggests that monetary targets are being implemented in a pragmatic manner.

The Implications of Economic and Monetary Union for Monetary Strategy and Tactics in Europe

The Treaty on European Union, enacted on November 1, 1993, contemplates the creation of a Monetary Union in Europe within the present decade. According to the Treaty, the European System of Central Banks will formulate and implement the single monetary policy

in the Union. However, the Treaty does not allow for any gradual transfer of monetary sovereignty from national authorities towards the central institutions before the establishment of the Monetary Union. This means that a sort of "Big Bang" will occur on the very day when the Union is created, with a sudden shift from coexisting national monetary policies, formulated in the pursuit of national objectives and implemented through different procedures, to a single monetary policy, set by a supranational institution with Union-wide objectives and operated in a consistent way throughout the area.

While the future creation of the Monetary Union represents a shock of unprecedented magnitude, the anticipation of that shock gives time to prepare the regulatory and logistical framework necessary for the European System of Central Banks effectively to carry out the single monetary policy from the very first day. This preparatory work is a major task of the European Monetary Institute, an institution created January 1, 1994 as precursor of the future European Central Bank.

This section will describe the present nature of monetary operations in European countries, then proceed to examine briefly the objectives and nature of the European System of Central Banks, and conclude with a discussion of the main operational reforms and adjustments needed to prepare the future single monetary policy.

How Different at Present Is the Implementation of Monetary Policy in the Various European Countries?

Previous sections of this paper have already discussed a number of key issues concerning the final objectives of monetary policy and the various strategies available for achieving these objectives. With regard to European countries, the information contained in Appendix Table 1 suggests that while price stability constitutes de facto the final objective of monetary policy in most countries, national central banks vary quite considerably as regards their degree of formal and effective autonomy. In addition, Table 2 has indicated important differences in the monetary policy strategies followed in the various European countries to pursue the final objectives.

Not tackled yet are the more technical and operational issues concerning the execution of monetary policy in the various countries.[7] Recently, methods of executing monetary policy in European countries have converged in two main respects. First, open market operations increasingly have been used to regulate liquidity conditions, which has made them the main monetary instrument in most countries. And

[7] Consult the 1993 *Annual Report* of the Committee of Governors of European Central Banks for a clear description of national monetary policy instruments and procedures in the European Union. See also Padoa-Schioppa and Saccomanni (1992).

second, money market interest rates have become established as the main operational target in the daily conduct of monetary policy.

In spite of this, significant differences remain across countries concerning the use of other monetary policy instruments and procedures. Table 5 summarizes the respective national roles played by reserve requirements, standing facilities, and open market operations.

Reserve requirements are used to very different extents in the various countries in the process of regulating liquidity conditions. Indeed, in spite of the trend in recent years in the European Union toward lowering reserve requirements, which has taken place as a result of the desire to improve competition and efficiency in the banking industry, important national differences remain regarding the level and remuneration of reserve requirements, as can be seen in part A of Table 5. For example, while such requirements are not used for monetary policy purposes at present in countries like Belgium, Denmark, the Netherlands, and the United Kingdom, they are still used in the other countries, and in particular in Portugal and Italy. In the latter two countries, monetary authorities traditionally have employed reserve requirements to induce or enlarge the demand for bank reserves and, when coupled with averaging provisions, to allow the banking system to cope better with situations of excess or insufficient liquidity, thus reducing the need for direct central bank intervention in the market.

Standing facilities offered by central banks to financial institutions on a bilateral basis (discount window, other direct credit and deposit lines) constitute another instrument at the disposal of central banks to regulate liquidity conditions. As seen in part B of Table 5, while these facilities play little or no role in the majority of European countries, they are quite important in Italy and Germany and most important in the Netherlands, where they account for a significant part of the supply of liquidity.

In spite of the increasingly important role of *open market operations* in regulating liquidity conditions in all countries, only in the United Kingdom, Denmark, and Portugal are they the main instrument. In addition, part C of Table 5 shows the significant differences in the ways in which these operations are conducted in the various European countries (for example, types of assets used, frequency of operations, and procedures to auction liquidity).

Finally, it is important to mention that until recently a number of national central banks in Europe have been *financing the public sector*, although this is not specifically a part of monetary policy operations. However, with the enactment of the Treaty on European Union, central banks have been prohibited since January 1, 1994 from giving overdrafts or other types of credit facilities to the public sector and from purchasing public debt directly in the primary market. The purchasing of public debt in the secondary market is also forbidden for purposes other than regulating monetary conditions. As suggested by the various initial

Table 5
Monetary Policy Instruments and Procedures in the European Union

Item	Belgium	Denmark	Germany	Greece	Spain	France	Ireland	Italy	Netherlands	Portugal	U.K.
A. Permanent Reserve Requirements for Monetary Policy Purposes	No	No	Yes	Yes	Yes	Yes	Yes	Yes	No	Yes	No
—Size (% of GDP)[a]	—	—	2.7	3.9	2.0	.1	1.8	8.0	—	16.1	—
—Remuneration	—	—	No	Partly	No	No	Below market rates	Partly	—	Partly	—
B. Standing Facilities[b]											
—Lending facilities at below or close to market rate(s)	□ (below market)	—	◆	—	—	—	—	◆ (close to market)	■ (below market)	—	—
—Deposit facilities	□	□	—	—	—	—	◆	—	—	—	—
—Marginal refinancing	□	—	□	◆	□	□	◆	◆	□	□	◆
C. Open Market Operations											
1. Types[b]											
—Outright transactions[c]	□	■	□	◆	—	◆	—	◆	□	■	■
—Reserved transactions in domestic securities	■	■	■	□	■	■	■	■	■	◆	◆
—Foreign currency swap transactions	◆	□	□	□	□	—	■	◆	□	□	—
2. Frequency of operations[d]	■	◆	□	◆	◆	◆	■	◆	□	◆	■
3. Auction procedures[b]											
—volume tender	■	■	□	—	□	—	—	—	■	◆	—
—interest rate tender	□	—	■	□	■	■	■	■	—	◆	■

— = Not applicable or not used.

[a] Amount outstanding at the end of 1992.
[b] Importance in providing (or withdrawing) liquidity to (or from) the market: □ Low; ◆ Intermediate; ■ High.
[c] These include issues of certificates of deposit by the central bank in the cases of Denmark and Portugal, and unsecured overnight loans in the case of Greece.
[d] □ About once a week; ◆ Several times a week; ■ More than once a day.

Source: Annual Report of the Committee of Governors of European Central Banks, 1993.

national situations, the impacts of these recent legislative changes are likely to be felt rather differently across Europe.

The European System of Central Banks: Objectives and Autonomy

The Treaty on Economic and Monetary Union concluded at Maastricht sets *price stability* as the primary objective of the European System of Central Banks and establishes that the general economic policies in the European Union shall be supported only so long as this does not conflict with price stability. While the aim is to avoid the potential conflicts that arise when all the objectives are at par, no specific definition is given in the Statute of what constitutes price stability or of the criteria to assess when price stability enters into conflict with other policies. In practice, however, many central bankers would regard a rate of inflation between 0 and 2 or 3 percent as consistent with price stability.

In addition to a clear mandate to fight inflation, the future European System of Central Banks is equipped with a significant degree of *institutional and functional autonomy*. As concerns institutional autonomy, the Statute tries to ensure that governments will not interfere in the monetary decision-making process. The following statutory provisions are related to this goal: prohibition of seeking or receiving instructions from government bodies; the requirement that the statutes of the member central banks guarantee their respective institutional and functional autonomy; assured tenure for the members of the governing bodies of the System; and strict conditions on amending the Statute in any fundamental way. As concerns functional autonomy, the Statute gives the System full powers to use monetary policy instruments, subject to the constraint that they be compatible with market principles.

As indicated by the comparative analysis of Alesina and Grilli (1992), the European System of Central Banks will enjoy a very high degree of formal autonomy in monetary policy-making. Nevertheless, since the Treaty places decisions on exchange rate policy outside the System, the effective autonomy of the new institution might be compromised, as the monetary stance required to maintain price stability may conflict with exchange rate objectives. To minimize this risk, the Treaty states that exchange rate decisions will be taken only after consulting the System in an attempt to reach a consensus consistent with the objective of price stability.

The Single Monetary Policy

The Maastricht Treaty establishes that by the end of 1996 at the latest, the European Monetary Institute should have undertaken all the

necessary preparations needed for the European System of Central Banks effectively to carry out the single monetary policy. The scale and complexity of the task facing the Institute can be readily assessed from the following two considerations: On the one hand, the absence of any transfer of monetary power to the Institute makes it impossible to exercise, even on a small scale, the running of the future single monetary policy before the establishment of Monetary Union. Contrary to the spirit of some of the proposals made during the preparation of the Delors Report, the European Monetary Institute does not have *any* authority or instruments to influence the stance of European monetary policy—a task left for the System of Central Banks. On the other hand, while the Statute defines the broad principles that should guide the formulation and execution of the single monetary policy, many strategic and tactical issues are left fully open in the Statute and have yet to be addressed.

On the strategic side, an adequate framework must be developed for formulating monetary policy. This involves considering whether intermediate targets in general, and monetary targets in particular, might be useful in the conduct of the future monetary policy of the European System of Central Banks, as well as exploring which variable could best play this role. On the tactical side, the necessary infrastructure must be put in place to allow the proper execution of a single monetary policy. This means identifying the minimal requirements for guaranteeing the uniformity of monetary conditions throughout the Union, and exploring how to execute the single monetary policy with the optimal degree of decentralization. In what follows, the above issues are discussed in some greater detail, drawing in part on Monticelli and Viñals (1993) and Viñals (1994).

Strategic aspects: policy formulation. Concerning the strategic aspects of formulating a single monetary policy, it is likely that European central banks will settle for a framework that exhibits considerable simplicity and transparency and enhances the anti-inflationary credibility of the System. Although it is too early to tell which specific framework will be adopted, it is reasonable to assume that intermediate targets may be assigned an important role in the conduct of monetary policy, on the basis of the reasons discussed in the previous section. This impression is reinforced by the fact that some of the most successful and important central banks in the European Union now rely on intermediate monetary targets. Thus, the adoption of a similar monetary policy strategy by the System would allow a certain degree of continuity with present practices and, possibly, also the transfer of a certain degree of anti-inflationary credibility to the System. Nevertheless, the recent surge in M3 in Germany, at a time of declining growth in nominal incomes there, has led to some greater doubts about the value of intermediate monetary targeting.

On the other hand, insofar as the European Union follows a floating exchange rate policy vis-à-vis third currencies, the controllability of the money supply at the area level could be greater than some countries enjoy now at the national level because of the constraints imposed by the Exchange Rate Mechanism. Finally, the empirical evidence provided by Kremers and Lane (1990), Artis (1991), Monticelli and Strauss-Kahn (1991), and Cassard, Lane, and Masson (1994) suggests that a stable demand for money may exist for the European Union as a whole.

However, even if it were decided in principle to adopt monetary targets, severe problems still could arise in selecting the monetary or financial aggregate most suited to this role. The reason is simple: The passage to Monetary Union constitutes an unprecedented structural regime change, with major consequences that may alter in unknown ways the underlying relationships between the evolution of economic and financial variables and that of final variables. For this reason, much can be said in favor of a pragmatic policy strategy in the first years after the creation of the European Monetary Union. In particular, the System of Central Banks might do best to rely on a number of selected economic and financial indicators, no doubt including monetary and financial aggregates, in order to achieve its price stability objective during the first few years of Monetary Union. Only after things had settled down might it be possible to assess whether monetary targets were the best way of formulating the single monetary policy.

Tactical aspects: policy execution. It is not possible to predict with any great degree of accuracy what will be the full effect of the recent creation of the Single Internal Market on the future shape of the economic and financial framework of the European Union. Nevertheless, two questions must now be addressed regarding preparations for future monetary policy in Stage Three. First, what are the minimum requirements for the conduct of a single monetary policy? And second, what instruments can be used to execute monetary policy in a more or less decentralized setting?

These questions implicitly assume that monetary policy instruments and procedures will still differ across member countries when European Monetary Union is established, and that a non-negligible degree of decentralization will characterize the execution of the European monetary policy, at least in the early years. The first assumption is justified because differences in national policy instruments and procedures tend to be persistent and are unlikely to disappear in the next few years, despite the market forces towards greater competition unleashed by the Single Internal Market. Moreover, central banks feel comfortable with their own way of executing monetary policy, and thus they can be expected to maintain their customary practices, which reflect specific market and institutional features.

The second assumption rests on the fact that it is probably more

efficient to execute monetary policy in a somewhat decentralized way, so as to make use of the considerable human capital accumulated by central banks in terms of knowledge of national financial institutions. It also recognizes that the Treaty states that "to the extent deemed possible and appropriate . . . , the European Central Bank shall have recourse to the national central banks to carry out operations" (Article 12.1). These arguments can be expected to lose force with the passage of time, ultimately working towards greater centralization in the execution of monetary policy.

The Minimal Requirements for the Conduct of a Single Monetary Policy

Money market integration. The most important requirement is the integration of national interbank markets, so as to ensure that interest rate arbitrage brings about a single monetary stance throughout the Union, regardless of where any injection or subtraction of liquidity is made. For arbitrage to ensure the equalization of interbank interest rates, credit institutions must be able to transfer their interbank positions across borders. This, however, does not require the centralization of payment and settlement systems at the Union level. Instead, all that is required is that national payment systems are adequately linked to ensure that interbank funds can be transferred across borders and, once transferred, can be used for final settlements within the same day.

While these measures are sufficient to create an integrated interbank market and thus permit the conduct of a single monetary policy, unfortunately they do not ensure the safety of the interbank payment and settlement system. This requires specific measures to reduce risks, notably liquidity, credit, and systemic risks, as well as common legal provisions regulating the finality of payments and the revocability of payment instructions.

Harmonization. Is the harmonization of monetary policy instruments and procedures necessary for the achievement of a single monetary stance through the Union? At a macroeconomic level, this is not really required since, in theory, for any set of instruments it is always possible for the European System of Central Banks to hit its intermediate or final target through appropriate movements of the instruments. Nevertheless, two microeconomic reasons suggest that achieving a certain degree of harmonization among national instruments and procedures might be very desirable when the European Monetary Union is set up.

The first reason relates to the concern that regulatory arbitrage on the part of financial institutions could lead to major shifts in the location of financial activity within the Union, if differences in monetary policy instruments and procedures implied differences in the cost-subsidy mix involved in banking with the various members of the System. The case

of reserve requirements is the most obvious example. The conduct of a single monetary policy could be perfectly compatible with different reserve requirement provisions within the System (the "European" money multiplier would be given by a weighted average of "national" multipliers), as interest rate arbitrage would in any case lead to a single monetary stance throughout the Community. However, not all financial institutions would be on the same competitive footing, at least initially, and the ones penalized by regulation would tend to circumvent it, moving their activities to more favorable locations.

This line of argument supports the harmonization of reserve requirements (not excluding the zero option) and of the conditions on the standing facilities offered on a bilateral basis to financial institutions. Otherwise, the result would be regulatory arbitrage, which would entail inefficiencies and could lead to a perverse competition between national central banks. Furthermore, shifts in the location of financial activity could complicate the conduct of monetary policy, as they would increase the noise associated with monetary and financial developments. The signal extraction problem faced by the System of Central Banks would be exacerbated in a situation that will in any case be difficult, as a result of the regime change involved by the start of the European Monetary Union.

The second reason motivating a certain degree of harmonization in instruments and procedures is that it would facilitate the understanding of policy signals on the part of the market participants. Particular conventions (not always corresponding to the use of a specific set of instruments) have been established to clarify whether central bank operations are meant to maintain the prevailing policy stance in the face of shocks or whether a change in policy orientation is intended. The coexistence of several conventions would prove confusing. Appropriate actions on the part of the System, together with market trading and arbitrage, would eventually bring about the desired liquidity stance, but this process could give rise to misunderstandings, undesired volatility in interest rates, and other inefficiencies in the management of liquidity conditions. Once again, while this argument also suggests that harmonization would be desirable, it does not help to determine its specific terms.

These arguments suggest that a close harmonization of monetary policy instruments and procedures would be desirable in order to allow the European System of Central Banks to signal its policy intentions efficiently, and it would be necessary to avoid major shifts in the location of financial activities. Nevertheless, this line of reasoning only points to the benefits of harmonization on its own merits and leaves the terms of harmonization indeterminate.

Instruments and decentralization. Two final key issues need to be tackled in preparing the technical infrastructure for future monetary

policy: the choice of instruments (reserve requirements, standing facilities, and open market operations) and the degree to which policy execution can be delegated to national central banks.

Regarding the *choice of instruments*, as mentioned earlier, over the past years open market operations have generally become the main channel through which monetary conditions are influenced in European countries, and money market interest rates the principal operational target in the daily conduct of national monetary policies. Nevertheless, significant differences still exist in the use made by countries of two other channels for regulating liquidity conditions: reserve requirements and standing facilities. Thus, what should be the importance of these two instruments vis-à-vis open market operations in the execution of the single monetary policy is an important question.

The Statute of the European System of Central Banks contemplates the use of *reserve requirements* in the European Monetary Union, since it states that "the European Central Banks may require credit institutions established in Member States to hold minimum reserves on accounts with the European Central Bank and national central banks in pursuance of monetary policy objectives" (Article 19.1).

As is well known, reserve requirements are not necessary to control the evolution of monetary variables in the European Monetary Union, since this can be achieved through open market operations. Furthermore, when not fully remunerated, reserve requirements may encourage socially suboptimal financial behavior, since they constitute a distortionary tax on banking activities that drives a wedge between deposit and lending rates. Where reserve requirements could be useful is in facilitating the management of the money market (see Hardy 1993). In particular, when executed with averaging provisions, reserve requirements allow the banking system to "cope with temporary liquidity shortages or surpluses in the market without central bank intervention" (Committee of Governors 1993). This is found useful now by many central banks, because it gives them the freedom to choose how frequently they should be in the market to steer money market interest rates in the appropriate direction.

In principle, reserve requirements could be set in the European Monetary Union so that they facilitate money market management without creating excessive distortions on financial behavior. Specifically, a uniform zero average reserve requirement in the Union would accomplish these goals, provided banks find it costly not to meet the requirement and provided a large enough overdraft facility is available at the central bank.

Another potential instrument at the disposal of the System for use in regulating liquidity conditions are *standing facilities*. These are offered on a bilateral basis by the central bank to specific financial institutions to cushion their liquidity shortages or surpluses. In general, these facilities

play a role similar to that of reserve requirements; that is, to stabilize money market conditions and to lower the volatility of short-term interest rates. Thus, in this regard, their usefulness is to some extent contingent on the specific arrangements made regarding reserve requirements. In addition to the above, the pre-announced rates at which standing facilities are offered can be used—as is the case now in several European countries—to signal changes in the policy intentions of the monetary authorities. It is not obvious, however, why this latter function could not be exercised instead through open market operations.

Open market operations are the third instrument available to the System to execute the single monetary policy. Well-known efficiency reasons favor open market operations playing a central role in the execution of a single monetary policy, even though a number of important decisions will have to be made regarding the nature and frequency of operation, the eligible underlying assets, the number of counterparties, and the auction procedures.

Also to be considered is the potential role of open market operations vis-à-vis those of reserve requirements and standing facilities in the execution of future monetary policy. In practice, the choice of instruments should be made on grounds of economic and operational efficiency and, once a specific decision has been taken, the selected instruments should be varied over time to achieve the desired objectives. In the case of the European Monetary Union, however, the initial diversity of national monetary instruments and procedures and the provisions in the Statute are likely to imply that the centrally decided single monetary policy will be executed in a rather decentralized way, at least in the early years.

If, as seems likely, the issue of *decentralization* plays an important role in deciding how to execute future monetary policy, this could be crucial in determining the relative importance of the various instruments. The reason is that the management of both reserve requirements and standing facilities can be decentralized to a much greater extent than open market operations. On the one hand, provided reserve requirements are the same throughout the Union, management of this instrument can be delegated to national central banks without difficulty. In turn, since reserve requirements permit a lower frequency of intervention of central banks in the money market, this makes it easier to decentralize the execution of the single monetary policy.

Similarly, the decentralization of standing facilities has some operational advantages and would not seem difficult to reconcile with an overall control of central bank money injected or withdrawn through this channel. The European Central Bank would be relieved from the burden of maintaining accounts with all banks operating in the Union, while the human capital of knowledge on specific credit institutions that

national central banks have accumulated over the years would be better exploited.

In contrast to the above, the decentralized execution of open market operations is much more difficult to contemplate in practice. Indeed, as with foreign exchange operations, open market operations must be executed in a timely and flexible fashion to offset liquidity shocks. This suggests that such operations should be carried out in a centralized fashion, with their monetary effects nonetheless being uniformly spread through the Union.

To conclude, although complex technical issues are involved in comparing the merits of alternative models for the execution of future monetary policy, it is not unreasonable to expect that an evolutionary model will be chosen which, starting from a relatively higher degree of decentralization, can evolve over time towards a more centralized system. While open market operations are likely to be the main instrument for regulating liquidity conditions, as is now the case in most European countries, reserve requirements cum standing facilities could play a more important role in the early, rather than the later, stages of economic and monetary union.

Conclusions

This paper has examined a number of issues regarding recent developments in the formulation and implementation of monetary policy, with a strong, although not exclusive, European focus. In particular, it has concentrated, on the one hand, on describing recent constitutional changes as regards the objectives of monetary policy and the degree of political and functional autonomy of central banks; and, on the other, on exploring several key strategic and tactical questions concerning the implementation of monetary policy. While these issues are of importance in many countries, they are crucial in the European Union, where major changes in monetary policy are envisaged to take place following the establishment of European Monetary Union.

Admittedly, the paper has been primarily taxonomic and descriptive. This is, in large part, because the constitutional changes involved, more autonomous central banks and European Monetary Union, are either very recent or still ongoing. So there is, as yet, little room for econometric testing, insofar as that is ever possible, of whether such changes have improved the conduct of policy.

Some concerns have been voiced about whether similar changes have made policies in New Zealand and Canada too deflationary, initially. Yet it is remarkable how well the inflation targets in those countries, and in the United Kingdom, have so far been met. Skeptics would counter that neighboring countries without such direct inflation

targets, for example, Australia and the United States, have done broadly as well on this front.

So the jury is still out. Nevertheless, a strong ground swell of support continues for moving both to more autonomous central banks and, within the European Union, to European Monetary Union. The case for such autonomy is greatly enhanced if it is accepted that central banks have a single medium-term objective, price stability. Such an objective facilitates delegation and enhances accountability.

This notwithstanding, it must be acknowledged that the economically beneficial effects of clarifying the objectives of monetary policy and granting greater central bank autonomy will be all the greater, if fiscal policy is not at odds with monetary policy. Indeed, as established by economic principles and confirmed by experience, the anti-inflationary credibility of monetary policy depends not only on the autonomy of the central bank but also on the coherence and credibility of overall macroeconomic policy. For this reason, it is of fundamental importance that the policies of both the autonomous central banks and the fiscal authorities be closely coordinated, toward the pursuit of the overall goal of sustained, non-inflationary growth. Finally, judging by experience, the favorable impact of improvements in national monetary institutions has tended to be greater when such institutional changes have reflected society's concern about inflation and its awareness that high inflation is not conducive—but is actually detrimental—to economic growth.

Also discussed at some length are the alternatives between having as the primary target a direct inflation objective or an intermediate (monetary) target. We would not, however, want to leave the impression that the alternatives are either sharp or mutually exclusive. Indeed, any country pursuing a quantified objective will keep a close eye on a range of intermediate information variables: Any country choosing an intermediate target will be greatly concerned about the (time-varying) relationships between that target and the outcome for the final (inflation) objective.

Finally, we would like to mention that recent constitutional changes may increase flexibility concerning the adoption of specific monetary policy strategies and tactics, by providing a more solid and transparent medium-term framework for monetary policy where price stability is clearly established as its primary objective and where the ability of central banks to pursue this objective without political interference is enhanced. As has been pointed out recently (Crockett 1993), this new institutional framework could provide a useful synthesis between rules and discretion, and this could reinforce the medium-term, anti-inflationary credibility of monetary policy while allowing for the appropriate degree of flexibility in the shorter-term setting of targets and instruments.

Appendix Table 1
Institutional Features of Central Banks in the European Union

Item	National Bank of Belgium	Danmarks National Bank	Deutsche Bundesbank
Principal Statutory Objective	None, although safeguarding the currency implicit	To maintain a safe and secure currency system	To safeguard the currency
Legal Authority for:			
1. Exchange Rate Regime	1. Government	1. Government	1. Government
2. Setting targets for monetary growth	2. Central Bank (no target set at present)	2. Central Bank (no target set at present)	2. Central Bank
3. Changing key interest rates	3. Central Bank	3. Central Bank	3. Central Bank
Responsibilities:			
1. Execution of monetary and exchange rate policy	1. Yes	1. Yes	1. Yes
2. Issuance of currency	2. Yes	2. Yes	2. Yes
3. Payment system services	3. Yes	3. Yes	3. Yes
4. Bank of banks and government	4. Yes	4. Yes	4. Yes
5. Supervision of financial institutions	5. No	5. No	5. No
6. Safeguard financial stability	6. Yes	6. Yes	6. Yes
7. Official reserve management	7. Yes	7. Yes	7. Yes
Governing Bodies	–Governor –Board of Directors –Council of Regency –Board of Censors –General Council	–Board of Governors –Board of Directors –Committee of Directors –Royal Bank Commissioner	–Central Bank Council –Directorate –Managing Board of Land Central Banks
Appointment of Governor by:	–Crown on proposal of the Government	–Crown on proposal of the Government	–Federal president on proposal of Federal Government after consultation of Central Bank Council
Term:	–5 years (renewable)	–No fixed term	–Normally 8 years, minimum 2 years (renewable)
Recent and/or Planned Changes	Since March 1993, abolition of the previous "power of suspension and right to oppose" by the Government with respect to central bank's decisions and operations concerning its basic tasks	None	None

Appendix Table 1 (continued)
Institutional Features of Central Banks in the European Union

Item	Bank of Greece	Banco de España	Banque de France
Principal Statutory Objective	To control currency in circulation and credit	To achieve price stability	To assure price stability
Legal Authority for:			
1. Exchange Rate Regime	1. Government	1. Government	1. Government
2. Setting targets for monetary growth	2. Central Bank	2. Central Bank	2. Central Bank
3. Changing key interest rates	3. Central Bank	3. Central Bank	3. Central Bank
Responsibilities:			
1. Execution of monetary and exchange rate policy	1. Yes	1. Yes	1. Yes
2. Issuance of currency	2. Yes	2. Yes	2. Yes
3. Payment system services	3. Yes	3. Yes	3. Yes
4. Bank of banks and government	4. Yes	4. Yes	4. Yes
5. Supervision of financial institutions	5. Yes	5. Yes	5. Yes
6. Safeguard financial stability	6. Yes	6. Yes	6. Yes
7. Official reserve management	7. Yes	7. Yes	7. Yes
Governing Bodies	–General Council	–Governor –Deputy Governor –Governing Council –Executive Commission	–Governor –Deputy-Governors (2) –General Council –Monetary Policy Council
Appointment of Governor by:	–Government on proposal of General Council	–Crown on proposal of President of Government	–Council of Ministers
Term:	–4 years (renewable)	–6 years (non-renewable)	–6 years (renewable)
Recent and/or Planned Changes	Consideration of proposals to increase the independence of the central bank in the future and to make the Statute more compatible with the Maastricht Treaty	Autonomy Law of 1 June 1994, introducing all the provisions of the Maastricht Treaty relating to central banks	Law introducing all the provisions of the Maastricht Treaty relating to central banks enacted in December 1993

Appendix Table 1 (continued)
Institutional Features of Central Banks in the European Union

Item	Central Bank of Ireland	Banca d'Italia	Institut Monetaire Luxembourgeois
Principal Statutory Objective	To safegard integrity of the currency	None, although safeguarding the currency implicit	To promote the stability of the currency
Legal Authority for:			
1. Exchange Rate Regime	1. Government	1. Government	1. Government
2. Setting targets for monetary growth	2. Central bank (no target set at present)	2. Joint with Government	2. Not applicable
3. Changing key interest rates	3. Central Bank	3. Central Bank	3. Not applicable
Responsibilities:			
1. Execution of monetary and exchange rate policy	1. Yes	1. Yes	1. Yes (partly)
2. Issuance of currency	2. Yes	2. Yes	2. Yes
3. Payment system services	3. Yes	3. Yes	3. No
4. Bank of banks and government	4. Yes	4. Yes	4. No
5. Supervision of financial institutions	5. Yes	5. Yes	5. Yes
6. Safeguard financial stability	6. Yes	6. Yes	6. Yes
7. Official reserve management	7. Yes	7. Yes (together with the Italian Exchange Office)	7. Yes
Governing Bodies	–Board of Directors	–Governor, Director-General, 2 Deputy Director-Generals (Directorate)	–Management –Council
Appointment of Governor by:	President on proposal of Government	Board of Directors with approval of Government	Grand-Duke on proposal of Council of Ministers
Term:	7 Years (renewable)	–Life	–6 years (renewable)
Recent and/or Planned Changes	Prospective bill to suppress the power of the Government to be consulted by the Bank regarding the latter's general function and duty. Other institutional changes are now under discussion	–Since November 1993, the Bank has had the power to set the compulsory reserve ratio –Other institutional changes required to fulfill the Maastricht Treaty are under examination	–A draft bill to effect the changes in legislation required by the Maastricht Treaty is in preparation at the IML

Appendix Table 1 (continued)
Institutional Features of Central Banks in the European Union

Item	Nederlandsche Bank	Banco de Portugal	Bank of England
Principal Statutory Objective	To safeguard the value of the currency	To maintain internal monetary stability and the external solvency of currency	None, although safeguarding the currency implicit
Legal Authority for:			
1. Exchange Rate Regime	1. Government	1. Government	1. Government
2. Setting targets for monetary growth	2. Central Bank (no target set at present)	2. Central Bank (no target set at present)	2. Government
3. Changing key interest rates	3. Central Bank	3. Central Bank	3. Joint with Government
Responsibilities:			
1. Execution of monetary and exchange rate policy	1. Yes	1. Yes	1. Yes
2. Issuance of currency	2. Yes	2. Yes	2. Yes
3. Payment system services	3. Yes	3. Yes	3. Yes
4. Bank of banks and government	4. Yes	4. Yes	4. Yes
5. Supervision of financial institutions	5. Yes	5. Yes	5. Yes
6. Safeguard financial stability	6. Yes	6. Yes	6. Yes
7. Official reserve management	7. Yes	7. Yes	7. Yes (as agent for the Government)
Governing Bodies	–Government Board –Supervisory Board	–Governor –Board of Directors –Board of Auditors –Advisory Board	–Court of Directors
Appointment of Governor by:	Nominated by joint meeting of Governing Board and Supervisory Board and appointed by Crown on proposal of Council of Ministers	–Council of Ministers on proposal of Minister of Finance	–Crown on proposal of Prime Minister
Term:	–7 years (renewable)	–5 years (renewable)	–5 years (renewable)
Recent and/or Planned Changes		Amendment to prohibit the underwriting of Treasury Bills. Institutional changes required to fulfill the Maastricht Treaty currently discussed	None. Changes will be needed if U.K. participates in Stage Three

Note: All the national legislations that so required were changed in 1993 to be consistent with the Maastricht Treaty prohibition of public sector financing by the central bank.

Source: *Annual Report* of the Committee of Governors of European Central Banks 1993, central bank reports, and recent legislative proposals and laws.

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Discussion

*Richard N. Cooper**

Charles Goodhart and José Viñals have written a comprehensive and informative paper on central bank independence and the pursuit of price stability as the prime target of monetary policy, covering both recent developments and the arguments surrounding them. They typically exercise good judgment in their preferences among the arguments, or remain agnostic. But taken as a whole the paper left me distinctly uncomfortable, more for what it does not say than for what it does. I will try to explain why, under four headings.

Limited Coverage of the Study

First, it is a pity that the authors' coverage is limited to Europe with a few side comments on other countries, and in particular that they did not include Japan and the United States in their discussion. Had they done so, they would have discovered in the United States an independent central bank without quantitative targets (I do not count the obligation to report under Humphrey–Hawkins as serious targets) or even a primary objective, yet with a record of performance that is not obviously worse than that of most European countries; and they would have discovered in Japan a central bank subservient to the Ministry of Finance with an outstanding recent record measured by the consumer price index. These two examples suggest that the generality of some of their conclusions is not warranted: for example, the close link between independence and a primary target, or between independence and good anti-inflation performance.

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They also fail to include developing countries except for an occasional reference. To include them would have led to much greater skepticism regarding intermediate monetary targets and, indeed, might have led them to question the desirability of the primacy of price stability as the objective of monetary policy, a point to which I return below.

On the first point, part of the process of development is evolution of the financial system and increasing monetization of the economy, that is, a downward trend in velocity on any given conventional measure of the money supply, but on paths that are not always regular or easily predictable. One recent study of developing countries has shown that against this downward trend, annual velocity actually increased by more than 5 percent—a substantial increase—20 percent of the time; some velocity increases clearly were associated with identifiable external supply shocks such as the two major increases in world oil prices (1974 and 1979–80), but the origins of many increases were not so readily identifiable or predictable (see Little and others 1993, pp. 328–32).

On the second point, moderate inflation in a country with poorly developed financial and tax institutions may be not only a very effective source of seigniorage revenue through the "inflation tax" on money balances, but also a relatively efficient tax, in the sense of giving rise to fewer distortions than alternative sources of revenue and reaching parts of the population otherwise difficult to tax. That fact makes the currency board experiments in Argentina and Estonia all the more remarkable, but they must be understood in the context of establishing a credible change in monetary regime rather than optimal management of a given monetary regime. Goodhart and Viñals might also have mentioned that Colombia in 1991 adopted an independent central bank, in that it cannot be instructed by the government (although the minister of finance chairs the independent monetary board, as he did in the early days of the U.S. Federal Reserve System) and it cannot lend to the government.

Price Stability as a Primary Target

My second unease about the Goodhart and Viñals paper is its implicit and uncritical acceptance of price stability as the primary objective of central bank action, with little discussion of when this target should be overridden (for example, in their brief discussion about whether to target the price level or the rate of inflation, or in their brief allusion to the possible need for modification in the presence of large supply shocks—possible modifications that incidentally greatly cloud the lack of ambiguity they prize for establishing accountability). In particular, they devote too little attention to assuring the smooth functioning of the financial system. All modern economies rest on an

extensive network of credit, and this network in some respects is a house of cards, resting on diverse expectations and on confidence by each agent in continuity. The financial system is therefore vulnerable to unexpected, large real or financial shocks. A lender of last resort is required to underpin the system. But to function properly, a lender of last resort for prudential reasons should also have some supervisory role—or very close liaison with those who have that responsibility—over the institutions with potential access to the lender of last resort.

Moreover, Goodhart and Viñals fail to consider the economic role that changes in price levels sometimes play in modern economies, for example in introducing a degree of real wage flexibility when for many reasons nominal wages are difficult to reduce. In the context of countries attempting to integrate, and therefore attempting to fix their exchange rates, national movements in price levels may be an essential element in adjusting to regional shocks. Concretely, unification of Germany on the terms on which it occurred called for a relative rise in prices in Germany relative to its neighbors. If, for whatever reason, the deutsche mark was not allowed to appreciate, attempting to prevent the German price level from rising relative to that of its major trading partners would then have thwarted an important mechanism of adjustment.

Coordination of Monetary and Fiscal Policy

Third, without developing the point, Goodhart and Viñals seem to accept the conventional European wisdom that having price stability as the prime objective *for central banks* will require close coordination of fiscal policy as well. This proposition has generated extensive discussion inappropriate to rehearse here, except to record my view that it would be undesirable to have too close coordination (through rules) of fiscal policy in a monetary union. More to the point of the paper, if price stability is to become the prime objective of governments, as a call for close coordination of monetary and fiscal policies suggests, it leaves the reader puzzled about why the independence of central banks is so important. But if price stability is not to be the primary objective of macroeconomic policy, why should fiscal policy be *coordinated* with monetary policy, as distinguished from taking into account the central bank's likely actions in pursuit of its primary objective, price stability?

Political Accountability of the Central Bank

Finally, the authors suggest that the arrangements in the Maastricht Treaty for the forthcoming European System of Central Banks are modeled on the German Bundesbank, and indeed are necessary in the

interests of central bank independence and pursuit of price stability after the formation of the Economic and Monetary Union. I strongly disagree with this formulation. It plays on an ambiguity in the word "independence." The German Bundesbank and the U.S. Federal Reserve System are independent of government in a meaningful sense of that term, one that contrasts with central banks, for example, in Britain, Japan, and France until recently. But they are not independent of the political process. The Maastricht Treaty comes as close as it can to making the European System of Central Banks independent of the political process, and that in my view is highly undesirable.

The central tenet of democratic government, the ultimate basis for its legitimacy, is accountability to the public by all officials who make policy decisions affecting public welfare. Democracies differ greatly in their detailed institutional arrangements for providing accountability, but all share that fundamental principle.

The Maastricht Treaty fails to satisfy this fundamental principle. It creates a body of Platonic monetary guardians, accountable to no one, to frame and execute one of the most important aspects of policy in modern economies, affecting tens or even hundreds of millions of people. This was done in the name of insulating monetary policy, and its primary objective of price stability, from political pressure, of endowing the new European central bank with political independence, as the German Bundesbank apparently has.

But Maastricht has taken the notion of central bank independence much too far. It is true that the central banks of Germany and the United States are independent of the sitting government, in that they cannot be given orders with respect to monetary policy. In particular, they cannot be required to finance government deficits. But they are certainly not independent of the political *process* in those countries, as any of their central bankers would testify. Both are created by simple statute, and a change in the statute could sweep away the independence. That is not so easy to accomplish under the separation of powers in the United States: Both houses of the Congress as well as the President would have to agree. Even so, members of the Board of Governors of the Federal Reserve System pay close attention to congressional sentiment, although they rarely yield to it.

Under Germany's parliamentary system, a Chancellor who felt thwarted by the Bundesbank could, with his parliamentary majority, simply change the central bank statute. Any Chancellor that tried to do so in recent years, however, would find himself fighting for his political life. It is laudatory German public opinion, not formal legal devices, that protects the independence of the Bundesbank. That is as it should be in a democratic society, the essence of which is full accountability of government to the general public.

Being embedded in the political process, even though independent of the sitting government, creates invisible but effective limits to the arbitrary exercise of power by these independent central banks; protecting their independence requires that their actions continue to command support, even if only grumbling support, by a majority of the public. And members of the governing bodies of these central banks are conscious of that important condition.

The Maastricht treaty ignores this fundamental point. Once the European Monetary Union is in place, only revision of the treaty, requiring ratification by all member country parliaments, could alter the decisions of the European System of Central Banks.

How could the European System of Central Banks be made politically accountable, yet retain its operating independence for monetary policy? One approach would be to give additional powers to the European Parliament to alter the statute of the European Central Bank; that is, by analogy with independent national central banks, make the statute subject to legislation (perhaps by special majority), rather than the much more arduous (and unanimous) process of treaty amendment. But that would imply a strong move toward a federal Europe, which Europeans do not seem ready to commit to now.

An alternative would be to permit the European Council by special majority to override actions by the European System of Central Banks, but only after debate in national parliaments. Alternatively, the European Parliament could be designated as the venue for the debate. The analogy here is the arrangement in the Netherlands, whereby in the final analysis the Minister of Finance can dictate policy to the Dutch central bank, but the Governor of the bank can insist on a parliamentary debate on the override.

Or the two possibilities could be combined, with the European Parliament having authority to initiate a change in the statute of the European System of Central Banks, but the change taking effect only with the approval of the European Council. Any of these arrangements would provide some measure of accountability, and would put the European System of Central Banks on notice that its actions must remain within the bounds of public acceptability.

Why did Maastricht go as far as it did to assure a very strong form of central bank independence and the primacy of price stability? The answer partly reflects the strong and sometimes helpful working hypothesis of the economics profession that, in the medium to long run, money supplies affect only price levels, not the real side of economies, so that central bank actions can only influence prices in the long run. This working hypothesis through repetition and use has come to be accepted as fact, as a structural characteristic of actual economies. It is a dangerous assumption, largely because it is rarely questioned. The

evidence is ample that it is false in a short run that runs for several years. The best that can be said about the empirical evidence over longer periods is that with sufficient imagination by the estimators, the hypothesis cannot be rejected—a very weak test on which to base important policy decisions.

An alternative interpretation that has come into favor among central bankers is that price stability facilitates increases in real income. That does not stand close empirical inspection, either. Successful attempts to find that inflation is costly in terms of growth in total output or in productivity derive their power from a few outlying observations. In cross-section analysis, Argentina plays this role. It is not difficult to agree that high rates of inflation—several hundred percent a year or more—are disruptive of society, including resource allocation in the economy. But that observation hardly applies, without independent supporting evidence, to differences between 4 and 2 percent a year, or between 2 and zero percent. In time series analysis, the two oil shocks play the role of the outliers, depressing output and raising prices at the same time. Big supply shocks indeed pose serious problems for macroeconomic management, but targeting price stability will not help solve those problems. And generalizations from such events should not be applied to other periods.

The other answer as to why Maastricht contains the provisions it does of course lies in a deep dissatisfaction with inflation in the 1970s and early 1980s, and a desire to ensure that the new European central bank can pursue a policy of price stability without political interference. That may be a legitimate reflection of the preferences of today's Europeans, and certainly of their political leaders. But that expression of preference should be subject to public review from time to time, since both people and circumstances change over time. In particular, an overwhelming preoccupation of European leaders with inflation today has the flavor of a general staff planning its force structure and operational doctrine to fight the last war. Inflation is not likely to be the principal problem of the world, or the European, economy during the next decade. On the contrary, the next decade may well be dominated by deflationary tendencies, owing to weak balance sheets in Japan and Europe, and residually in the United States, and to the extreme caution in lenders that events of the past five years have engendered. And, not least, to the deflationary convergence requirements of the Maastricht Treaty itself.

In my view, Maastricht would increase the democratic gap in the Community beyond the point of tolerability. Some modification of the arrangements for political accountability are almost certain to be made before the European Monetary Union comes into existence. Whether such modification marks a further step toward a unified Europe,

achieving accountability by enlarging the powers of the European Parliament, or whether it reverts to a community of nations, by giving the Council of Ministers some political override on the European System of Central Banks' decisions, is the critical question that Europeans must decide in the coming years.

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