Strategy and Tactics of Monetary Policy:

Examples from Europe and the Antipodes

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Examples from Europe and the Antipodes

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1. Introduction

While most Central Banks in Europe, and elsewhere, have been giving priority to the achievement of price stability for more than a decade, (see Table 1 for a report on the current institutional features of Central Banks in the European Union)[1], in recent years this has been reinforced by a marked trend towards giving Central Banks much more autonomy to pursue this goal. Both the objective of achieving price stability and such autonomy have, in a sizeable number of countries now been constitutionally incorporated in newly revised legislation. In countries where no such legislation has been enacted, such as UK and Australia[2], proposals to do so remain very much on the present political agenda.

Such legislative moves towards greater autonomy ("independence") have been so widespread and rapid that we thought it worthwhile to try to document the present position. We shall concentrate mostly on developments in Europe, since this is the region with which we are most familiar, but we shall also refer to similar progress in the Antipodes and Canada. The same trend towards the enactment of legislation for greater Central Bank autonomy is also evident in a number of South American countries, such as Chile and Mexico.

This move towards 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 (ie 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), though see Posen (1993) for a critique. All this has spawned a large literature, with which we assume our readers are familiar, so we do not pursue this further. This subject is further discussed in the accompanying paper by Debelle and Fischer.

Perhaps the most successful, and probably the most admired Central Bank in Europe, is the

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[1] 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 UK, 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 programme of the Liberal Party at the 1992 election, but this measure was not supported by the victorious Labour Party.

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

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 (ERM) 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 (ESCB), whose Protocols were established in the Maastricht Treaty, would have had its constitutional independence from government modelled on that of the Bundesbank in any case. Moreover, if the ESCB 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 in Section 5, in Western Europe the prospective advent of Economic and Monetary Union (EMU) has provided another impulse towards the revision of Central Bank legislation in the direction of a stronger and more explicit mandate towards 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 EMU 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, (see Hochreiter, 1993). Again we take all this as common knowledge.

What we shall concentrate on in the rest of this paper is the way in which the strategy and tactics of monetary policy are currently being articulated in this current context. We document in Section 2, 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' has most often not been defined, either legislatively or in practice. We shall discuss some possible alternative definitions, and the pros and cons of adopting them in this Section, eg the choice of index and whether the objective should be expressed in terms of a price level, or rate of inflation (eg zero).

Having thus discussed how the primary objective, price stability, may be defined, we review certain strategic decisions about how to set about achieving this in the course of Section 3. 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? If there is a numerical target, will this unduly constrain the ability of the Central Bank to react to shocks, either 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?

There are three main concerns 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, by itself, 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?

We then turn to tactical and operational issues in Section 4. In particular, should Central Banks 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, there have been two main alternatives, monetary aggregates and exchange rates. We discuss the relative advantages, and disadvantages, of both, and the operational difficulties of working with either intermediate target, or with none at all, (ie using monetary instruments directly for the

achievement of the final objective of price stability).

We go on to consider in Section 5 certain tactical and operational reforms and adjustments that are becoming 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 ESCB within EMU. 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 EMU. In particular we review prospective changes in the form of money market operations, and assess the likely role of reserve ratios in the context of EMU.

2. Price Stability Has Become The Overriding Objective For Central Banks

2.1 A Widespread and Rapid Shift of Focus

In the course of the last five years, since 1989, there have been a large number of revisions to Central Bank legislation (see Table 2). 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 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. For example, in the case of the Bank of England, the Act did not mention what its economic objectives should be at all, a lacuna which 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 it 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 there are many possible definitions of price stability, and some complex and fine technical issues, eg in deciding what index to use. So the question of definition has considerable substance, and has yet been largely ducked. Nevertheless, though not 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.

At present, only in a few cases, (eg New Zealand and proposed for the UK by the 1993 Roll Report), is the achievement of price stability (or some synonym) set out in the Act to be the sole macro-economic 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 National Central Bank Act revisions in Europe, and the Protocol of the ESCB 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 becomes important. The relevant clause in Article 105 (1) of the

Maastricht Treaty and in the Protocol for the ESCB and member national Central Banks in the ESCB (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, Central Banks also have, to some varying extent historically, assumed or been made responsible for the systemic stability, and the successful workings of some central parts of the financial system, eg 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, there are other countries in which 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 in that; Chiappori et al, 1991; and Folkerts-Laudau and Garber (1992). This division of views is reflected in the fact that in 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 it should have a single focus, to achieve price stability, has been quite remarkably widespread and rapid. It is not, perhaps, surprising that this change in viewpoint has been seized on quite enthusiastically by Central Bankers. A multiplicity of objectives implies trade-offs and choices which 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 favourable 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 ANC 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 UK.

2.2 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 there is a sizeable fraction of economists, especially various brands of neo-, or post, Keynesians who 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 for Canada). Post-Keynesians, and others, would deny either the possibility, or the practical relevance, of `rational expectations'. The suggested behaviour 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, see the Canadian Standing Committee on Finance, 1992 Report on 'The Mandate and Governance of the Bank of Canada', and as discussed in the subsequent Charlottetown Canadian

Economics Association Meeting, (Crow, 1992).

Nevertheless there has been, on the basis of casual empiricism, relatively little opposition 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 R Hall (1986) pointed out the (one to one) weighting is arbitrary, rather than based on considerations of welfare maximisation. Moreover, as Duguay (1994) notes, 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 favourable 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."

Yet, 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 among the considerations involved are: (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? Simply specifying that there is an error term, a stochastic variable, in the aggregate supply function is not much practical use to Central Bankers.

An argument that is often advanced in these instances is that there may be some price level changes, eg due to supply shocks, such as oil shocks, of uncertain duration, whose first-round effect the Central Banks may want to absorb, rather than reverse. However, several of those countries with quantified numerical targets for the RPI/CPI 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 UK a variety of price indices have been developed, eg 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 generalised deflation the direct, first round effect of large, specific adverse supply shocks. While the possibility of adverse supply shocks affecting raw materials, oil, wheat, etc, is generally acknowledged, 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. 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 these latter remain important issues. 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?

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, (see Table 1). The potential inconsistency between requiring both that the Central Bank achieves domestic price stability and also adheres 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 (eg the G3 under Louvre), should adjust their open market operations or interest rates for external, as contrasted with domestic, objectives.

The question of 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 remains a matter of both theoretical interest and practical concern. Even so, there must be some presumption that the constitutional shift to Central Bank autonomy reduces the likelihood of such fiscal irresponsibility (because it would be more surely and quickly penalised 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.

3. Strategy for Achieving Price Stability

3.1 Introduction

Given this concentration on `price stability' it is, as we have noted in Section 1, somewhat surprising that this term is rarely defined, at least in the relevant Acts (see Table 2). 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% 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% target for the RPI in New Zealand agreed between the Government and the Reserve Bank now extending to 1996, and the 1 to 4% target for the RPI in the UK set unilaterally by the Government over the period till 1997.

In Continental Europe, however, since its creation in 1979, the ERM 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 (to be discussed in Section 4), 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 Anglo-Saxon countries, Canada, New Zealand and UK who have adopted differing forms of such quantified inflation objectives.

3.2 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; horizon; and the identity of the target setter, ie government and/or Central Bank.

The first question, of 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 towards obtaining virtually zero inflation just seemed too daunting and deflationary. As discussed in several recent papers (Lebow, Roberts and Stockton, 1992; Scarth, 1993; Fillion and Tetlow, 1993; and Duguay, 1994), there are several 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, will make the system more self-stabilising.

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 there is a small, but positive, bias in estimates of price inflation, eg some 0.5/0.6% p.a. due, for example, to systematic improvements in goods quality (Crawford, 1993; New York Times, 11 January 1994), and 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, 1992; and Crawford and Dupasquier, 1993). 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, etc.

3.3 Band Width?

As already noted, the inflation target is expressed in terms of a band, typically of a 2% or 3% width. This is small relative to the historical standard deviation of inflation in most countries, and implies that targets could quite often be missed, irrespective of 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 UK, 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.

3.4 Horizon

Monetary policy, in the guise of changes in interest rates, first affects financial variables, asset prices and then after a short lag financial flows, next output and finally impinges on generalised 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 at least, or more, into the future. This has been the case in UK, NZ 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, as both in NZ 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, but not so far ahead that it ceases to seem immediately relevant to decision makers. 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 there is no need for the old target to 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, should regularly be assessed 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 results both in unduly deflationary policy and prevents the Central Bank from responding to (downwards) 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 potentially weakening the credibility and commitment of the Central Bank to beat inflation.

3.5 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, which is widely used and understood, promptly calculated and rarely revised. On all these counts it is preferred to the GDP deflator. Nevertheless concern with supply shocks, most likely to emerge in food and energy prices, indirect taxes and the effects on the index of changes in interest rates themselves, eg 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 in their Quarterly Bulletin). 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 only covers current goods and services flow prices; 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 lead, wages, and goods and services prices. But there was little support in that discussion for formally incorporating them 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.

3.6 Who Sets?

An important constitutional issue is who should be responsible for setting any quantified numerical target. For the government to do so unilaterally, as currently in the UK, underscores the dependent position of the Central Bank, and would, therefore, be inconsistent with a preference for a more autonomous and independent Bank. But there are some well balanced arguments between having the numerical target jointly agreed, as in New Zealand and Canada, and allocating that responsibility to the Central Bank alone. It was one of the key subjects of discussion in the Roll Committee Report in the UK, which finally came down in favour of having the Central Bank set its own targets unilaterally for itself, largely on the grounds of the potential time inconsistency of politicians; thus the Report states that

> *"… we 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 them 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, but the point is debatable. Again some may question whether the government, if party to the agreement, might not set it 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 Canadian newly victorious Liberal Party, who had had their reservations about 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 easily achievable, rather than too demanding.

3.7 Incentives and Structure

In any case, this discussion raises the question of what the incentive structure for the Governor, and/or 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 anyhow reaching retirement age. Moreover, the incentive/threat is not easily, or finely, calibrated; one would hardly dismiss for a miss of 0.1%, but then what extent of failure would justify refusal to reappoint; it would inevitably be both uncertain and arbitrary. Finally, this incentive is only applicable 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, eg 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 now be readily calibrated, and (bonus) payments provided accordingly. This straight-forward 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. Thus, as the authors state, "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 make $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 have been, expressly excluded from the contract, as has been already 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 there is a clear, calculable bottom line, 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 the 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, however, the structure

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

and design of incentive arrangements for Central Bankers in this new context need some careful thought.

3.8 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, especially if that is expressed in a quantified numerical target, wherein the target to be achieved, or at least the procedures involved, have the blessing of the government which enables accountability to be allied, as a complement rather than a contradiction, with 'independence'. In such a case choices between alternative objectives, which choices are inherently political, are minimised. 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 Parliament, 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 over-riding 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 favour of such autonomy. The true, underlying issue is rather whether the single, overriding focus on price stability is, indeed, optimal.

4. The Use of Intermediate Targets

A. Strategic Issues

4.A.1 Introduction

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 also 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, ie price stability, and the case for making the Bank into an independent agent. We shall, therefore, assume for these reasons that an independent Central Bank will want there to be established a publicly announced target for itself.

Such a target can either be for a final, or for an intermediate objective. We have already noted that the final target now, almost universally, chosen by Central Banks is for price stability, and how, for those Banks directly targeting on this final objective, this has mapped into specific numerical targets for the inflation rate of the RPI/CPI. Only a few Banks now target final objectives directly, with only one so far, Sweden, in Continental Europe. Instead the majority of other Central Banks in our sample use intermediate targets, mostly pegging their exchange rate within the ERM or prospectively so at some future date.

In the remainder of this Section we shall 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 our sample in Tables 2 and 3.

Next we shall look at the relative advantages, and disadvantages, among the possible intermediate targets, of which exchange rates and monetary aggregates have been the main, but not the only, candidates.

4.A.2 Final vs Intermediate Targets

In so far 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 directly. If this outcome is what we want Central Banks to achieve, then what should be done to set up a target system and an incentive structure that will maximise the chance of them doing so. Proponents of this approach would argue that concentrating, instead, on some intermediate variable, eg 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, for example, will be far less clear to the general public than the concept of inflation and price stability. Persson and Tabellini (1994, pp 14/15) express the same thought, in more formal and rigorous terms. Thus, "it 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 what we observe is relatively few, and mostly recent, direct inflation targets and a much larger number of Central Banks employing 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 this 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 this latter a more contentious matter.

A much more substantive argument in favour of intermediate targets, which Persson and Tabellini also note, is the much longer lags between policy action and inflation than between such action and effects in financial markets. Thus they ask (ibid): "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 technology

[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 miss more frequently". We doubt the validity of this argument. First, the intermediate targets, either monetary aggregates or exchange rates, are not, and have not proved, easily

available to the principal. The effect of policy actions on asset prices or the money supply is readily observable. [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 B. Friedman has pointed out in earlier classic papers (and in B. Friedman, 1990).

Given these long lags in the effects of monetary policy on the final objective, ie 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, 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.

4.A.3 Interest Rate Targets

This brings us to the next stage in the discussion. If an intermediate target is to be adopted, which might be best? We review three possibilities, an interest rate, an exchange rate, and (the best selection from a range of possible) monetary aggregate 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 are either measured very uncertainly, because of the problem of observing heterogeneous expectations, or are subject, as in the case of interest differentials, to structural change and their effect either on financial flows or final expenditures is uncertain and time-varying. There is here again a general consensus that estimates of real interest rates and of certain key interest differentials (eg the slope of the yield curve) should be important information variables for Central Bankers, but are not well suited to act as intermediate targets.

4.A.4 Exchange Rate Targets

The intermediate target variable that has been most commonly used in Europe has been the exchange rate. As shown in Table 3, most European countries have made this their sole or main target at present. The comparative success of the ERM, at least until 1992/93, 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 DM, have been responsible for the popularity of exchange rate intermediate targets.

They have many virtues as such. Exchange rates are accurately and immediately measured;

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controllable. Indeed, actual experience with hitting inflation targets, to date, has been much better than with monetary targets; and the ERM has also had its difficulties. Second we doubt whether Central Bankers, as a group, have withdrawn from accepting appropriate targets just because of the problems of hitting them.

respond instantaneously to changes in interest rates; are widely understood by the public; and 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 credibility transfer than trying 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, but in this case foreign rather than domestic.

The disadvantage, of course, as was clearly evident in Europe in 1992/93, 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, eg because of large real asymmetric shocks. The analysis of the problems of the ERM following German reunification is well known. Another example has been the need for Hong Kong to maintain low US-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 problems of 1992/93 for the ERM, most countries in Europe retain that as their main objective, and Hong Kong also remains determined to keep the "link" with the US $. 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.

Whereas there are circumstances and conditions conducive to the use of the exchange rate as an intermediate target, eg for smaller, open countries, with poorer reputations for price stability, and a desire for enhanced economic and political union with their neighbours, there will be other circumstances, eg larger, more closed economies, subject to asymmetric shocks, with no expectation or desire for greater union, where an exchange rate intermediate target would clearly be inappropriate. This leads us on to a brief consideration of the use of monetary targets, primarily within the European context.

4.A.5 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. While the best-known and paradigmatic example in using monetary targets is Germany, other countries such as France, Italy, Spain and the United Kingdom (until 1987) established and publically announced annual ranges for the growth of a selected monetary aggregate--typically a broad aggregate[6]. This practice of publically announcing monetary targets has continued up to the present in the first four countries,

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

including the periods where their currencies have formed part of the ERM (Germany and France: from 1979 to the present, Italy: from 1979 to September 1992; and Spain: from June 1989 to the present).

A common characteristic of these countries is that, by European standards, they are relatively large and not so open economies (see Table 4). In contrast, small open economies like Belgium, Luxembourg, Ireland, Netherlands and Denmark have relied primarily on the exchange rate as the intermediate target of monetary policy, and while Portugal set monetary targets in the 1987-92 period it has recently shifted to setting exclusively exchange rate targets following the entry of the escudo in the ERM in mid-1992. Table 3 summarises the monetary policy strategies presently adopted in the European Union.

But why did Germany, France, Spain and Italy adopt monetary targets in the first place?

In the mid-seventies, industrialised countries 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. At the time, Central Banks found that monetary targets provided a considerably simpler and more transparent way of formulating monetary policy which could limit the room for discretion within the year; favourably 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, 1993). In particular, these rest on the belief that monetary aggregates: are linked in a rather stable and predictable manner to the medium-term evolution of nominal variables; can be controlled by Central Banks within reasonable limits; are helpful to convey 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 allow a better division of responsibilities between the Central Bank and the government, and thus avoid 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 minimised. Furthermore, it is only under these circumstances that the potentially favourable game-theoretic and expectational effects listed above from setting monetary targets 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 unfavourable 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 ERM-membership could be an important way of fostering anti-inflationary credibility through the linking of their monetary policies to that of Germany, the country whose Central Bank

enjoyed the best anti-inflationary reputation. As a result, in some European countries, generally these 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 to ERM 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, the latter countries have set both exchange rate and monetary targets although, as will be discussed in the next section, with the increase in international capital mobility the exchange rate has become the central target of monetary policy.

B. Operational Issues for Targetry

4.B.1 The Operation of Direct Inflation Targets

The main problem in successfully managing such a system arises from the combination of long lags in the effect of monetary policy with uncertainty both about future shocks and, more importantly, about the structure of the economic system itself, especially of 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 à l'outrance 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 USA in 1979-81. Many, 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 she is also asked to forecast 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 Bank in meeting its mandate. Moreover the standard problems of inflation forecasting will be, almost certainly, 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 there has been, both in Canada and New Zealand, some apparent tendency 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 was more autonomous, it might wish to do the same. Whereas the hypothesis about the inflation 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.

4.B.2 The Operation of Exchange Rate Targets

The main problem, of course, with such 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, eg because of asymmetric shocks. Indeed, when this syndrome becomes particularly acute, as in the ERM in 1992/92, 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 this 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, Eichengreen and Wyplosz (1993), has been to revert to some version of exchange controls, to allow interest rates to be kept 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 re-imposition of exchange control 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 towards both the speed of achieving, and the optimal transition path towards, EMU.

4.B.3 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 favourable expectational effects, but, to be successful, this depends greatly on their prior reputation and credibility.

Important operational issues arise also when trying 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 there is close international financial market integration, ERM countries trying to reduce monetary growth through contractionary liquidity operations may easily see their attempts frustrated by inwards capital flows.

The economic effects of adopting monetary targets may thus depend significantly on how, in practice, they have been implemented. In order to assess how flexible has been the conduct of monetary targets in Europe, Table 5 contains information on the targeted and actual money growth rates of Germany, France, Italy and Spain. As it is clear from the Table, there have been elements of short-run flexibility in the management of monetary targets: targets have generally been expressed as ranges rather than as a single-value; in 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; there has been significant base drift; and the specific monetary aggregate playing the role of intermediate target has changed overtime as financial innovation as evolved.

While monetary aggregates have played, all in all, a useful role in the pursuit of anti-inflationary monetary policies in the above countries during many years, their interpretation has become increasingly more 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 made available by 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 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 of the Single Internal Market in 1993. 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 ERM. 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; there is perfect international capital mobility; and there is perfect substitutability 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. In this case, 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 only make sense 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 ERM 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 manoeuvre to their respective monetary authorities as regards monetary control. In contrast, in the period from 1987 to September 1992, the ERM did not experience any 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 experienced by the ERM 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 $\pm$ 15% after August 2nd, 1993.

As a result of the widening of the bands the participating countries have currently regained some margin of manoeuvre 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 ERM countries, the recent changes in the ERM may have allowed the monetary authorities of countries setting monetary targets 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 which have 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 ERM crisis, are all factors which, 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.

5. The Implications of EMU for Monetary Strategy and Tactics in Europe

The Treaty on European Union, enacted on November 1st 1993, contemplates the creation of a Monetary Union in Europe within the present decade. According to the Treaty, the European System of Central Banks (ESCB) 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 there will be a sort of "Big Bang" on the very day when the Union is created, with a sudden shift from the coexistence of 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 gives time to prepare the regulatory and logistical framework which is necessary for the ESCB effectively to carry out the single monetary policy from the very first day. This preparatory work is one of the major tasks of the European Monetary Institute, an institution born in January 1st, 1994 as precursor of the future European Central Bank.

In this section, we start by describing the present nature of monetary operations in European countries, then proceed to examine briefly the objectives and nature of the ESCB, and conclude with a discussion of the main operational reforms and adjustments needed to prepare the future single monetary policy.

5.1. How different at present is the implementation of monetary policy in the various European countries?

In previous sections of this paper we have already discussed a number of key issues concerning the final objective of monetary policy and the various strategies available for achieving these objectives. With regard to European countries, the information contained in Table 1 suggests that while price stability constitutes "de facto" the final objective of monetary policy in most countries, national Central Banks (NCBs) vary quite considerably as regards their degree of formal and effective autonomy. In addition, Table 3 indicates than there are also important differences in the monetary policy strategies followed in the various European countries to pursue the final objectives.

What we have 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 have been increasingly used to regulate liquidity conditions, which has made them the main monetary instrument in most countries. And second, money market interest rates have become established as the main operational target in the daily conduct of monetary policy.

In spite of this, there are still significant differences across countries concerning the use of other monetary policy instruments and procedures. Table 6 summarises the respective national roles played by reserve requirements, standing facilities and open market operations.

Reserve requirements are used to a very different extent in the various countries in the process of regulating liquidity conditions. Indeed, in spite of the trend towards lowering reserve requirements which has taken place in recent years in the European Union as a result of the desire to improve competition and efficiency in the banking industry, as can be seen in part A of the Table there are still important national differences regarding the level and remuneration of reserve requirements. 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 countries, the monetary authorities have traditionally 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 (ie. 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 the Table, 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, it is only in the United Kingdom, Denmark and Portugal that they are presently the main instrument. In addition, as shown in part C of the Table, there are significant differences in the ways in which these operations are conducted in the various European countries (e.g. types of assets used, frequency of operations, and procedures to auction liquidity).

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[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).

Finally, although not specifically part of monetary policy operations, it is important to mention that until recently a number of national Central Banks in Europe have been financing the public sector. However, with the enactment of the Treaty on European Union, Central Banks have been prohibited since January 1st, 1994 from giving overdrafts or other type 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 national situations, the impact of these recent legislative changes are likely to be felt rather differently across Europe.

5.2. The ESCB: objectives and autonomy

The Treaty of 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 as long as this does not conflict with price stability. While the aim is to avoid the potential conflicts which arise when all the objectives are at par, there is no specific definition in the Statute of what constitutes "price stability" nor 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% as consistent with price stability.

In addition to a clear mandate to fight inflation, the future ESCB 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 ESCB; and strict conditions on amending the Statute in any fundamental way. As concerns functional autonomy, the Statute gives the ESCB 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 ESCB 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 ESCB, 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 minimise this risk the Treaty states that exchange rate decisions will be taken only after consulting the ESCB in an attempt to reach a consensus consistent with the objective of price stability.

5.3. The single monetary policy

The Treaty establishes that by the end of 1996 at the latest, the European Monetary Institute (EMI) should have undertaken all the necessary preparations needed for the ESCB effectively to carry out the single monetary policy.

The scale and complexity of the task facing the EMI can be readily assessed from the following two considerations. On the one hand, the absence of any transfer of monetary power to the EMI makes it impossible to exercise, even in 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 EMI does not have any authority or instruments to influence the stance of European monetary policy -a task which is left for the ESCB. On the other hand, while the Statute defines the broad principles which should guide the formulation and execution of the single monetary policy, there are many strategic and tactical issues which are left fully open in the Statute and which 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 ESCB, as well as exploring which variable could best play this role. On the tactical side, the necessary infrastructure must be put in place to enable the proper execution of a single monetary policy. This means identifying the minimal requirements for guarantying the uniformity of monetary conditions throughout the Union, and exploring how to execute the single monetary policy with the optimal degree of decentralisation.

In what follows, we discuss in some greater detail the above issues, partly drawing on Monticelli and Viñals (1993) and Viñals (1994).

(a) Strategic aspects: policy formulation

As concerns the strategic aspects of formulating a single monetary policy, it is likely that European Central Banks will settle for a framework which exhibits considerable simplicity and transparency, and which enhances the anti-inflationary credibility of the ESCB. Although it is too early to tell which specific framework will be adopted, we think that 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 Section 4. This impression is reinforced by the fact that some of the most successful and important Central Banks in the European Union rely at present on intermediate monetary targets. Thus, the adoption of a similar monetary policy strategy by the ESCB would allow a certain degree of continuity with present practices and, possibly, also the transfer of certain degree of anti-inflationary credibility to the ESCB. 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, in so far 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 higher than it is at present at the national level for some countries as a result of the constraints imposed by the ERM. Finally, the empirical evidence provided by Kremers and Lane (1990), Artis (1991), Monticelli and Strauss-Kahn (1991), and Cassard et al. (1994) suggests that a stable demand for money may exist for the European Union as a whole.

However, even if it was decided in principle to adopt monetary targets, there could still be severe problems in selecting the monetary or financial aggregate most suited to this role. The reason is simple: the passage to Monetary Union constitutes by itself an unprecedent structural regime change with major consequences which may alter in unknown ways the underlying relationships between the evolution of economic and financial variables and that of final variables. For this reason, there is a lot to be said in favour of a pragmatic policy strategy in the first years after the creation of EMU. In particular, the ESCB might do best to rely on a number of selected economic and financial indicators, no doubt incluging 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.

(b) Tactical aspects: policy execution

While 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, there are two questions which nevertheless must now be addressed regarding preparations for future monetary policy in Stage Three. First, what are the

minimum requirements needed for the conduct of a single monetary policy? And second, what instruments can be used to execute monetary policy in a more or less decentralised setting?

These questions implicitly assume that monetary policy instruments and procedures will still differ across member countries when EMU is established, and that a non-negligible degree of decentralisation will characterise 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 can thus 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 non-fully centralised 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 recognises 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). Personally, we would expect these arguments to lose force with the passage of time, thus working towards greater centralisation ultimately in the execution of monetary policy.

What are the minimal requirements for the conduct of a single monetary policy?

Money market integration

The most important one is to achieve 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 the injection or subtraction of liquidity is made. For arbitrage to ensure the equalisation of interbank interest rates, credit institutions must be able to transfer their interbank positions across borders. This, however, does not require the centralisation 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.

Harmonisation

Is the harmonisation 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 ESCB to hit its intermediate or final target through appropiate movements of the instruments. Nevertheless, there are two microeconomic reasons which suggest that achieving a certain degree of harmonisation among national instruments and procedures might be very desirable when EMU 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 ESCB. 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 ESCB (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 penalised by regulation would tend to circumvent it, moving their activities to more favourable locations. This line of argument supports the harmonisation 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 NCBs. 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 ESCB would be exacerbated in a situation which will in any case be difficult as a result of the regime change involved by the start of EMU.

The second reason motivating a certain degree of harmonisation 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 ESCB 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 harmonisation would be desirable, it does not help to determine its specific terms.

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

Instruments and decentralisation

There are two final key issues which 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, there are still significant differences in the use made by countries of two other channels for regulating liquidity conditions: reserve requirements and standing facilities. Thus, an important question is what should be the importance of these two instruments vis-à-vis open market operations in the execution of the single monetary policy.

The Statute of the ESCB contemplates the use of reserve requirements in EMU since it states that "the ECB may require credit institutions established in Member States to hold minimum reserves on accounts with the ECB 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 EMU, since this can be achieved through open market operations. Furthermore, when

not fully remunerated, reserve requirements may encourage socially sub-optimal financial behaviour, since they constitute a distortionary tax on banking activities which 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 instrumented with averaging provisions, reserve requirements allows 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 presently useful 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 EMU so that they facilitate money market management without creating excessive distortions on financial behaviour. 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 there is a large enough overdraft facility at the Central Bank.

Another potential instrument at the disposal of the ESCB to regulate 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 similar role to that of reserve requirements; that is, to stabilise money market conditions and to lower short-term interest rate volatility. 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 to us, however, why this latter function cannot be exercised instead through open market operations.

Open market operations are the third instrument available to the ESCB to execute the single monetary policy. While 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, there are well-known efficiency reasons in favour of open market operations playing a central role in the execution of a single monetary policy.

Having briefly described the main available instruments, we now turn to discussing 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 EMU, however, the diversity of initial conditions as regards 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 decentralised way, at least in the early years.

If, as seems likely, the issue of decentralisation 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 decentralised to a much greater extent than open market operations. On the one hand, provided reserve requirements are the same throughout the Union, there are no difficulties in delegating the management of this instrument to national Central Banks. In turn, since reserve requirements permit a lower frequency of intervention of Central Banks in the money market, this makes it easier to decentralise the execution of the single monetary policy.

Similarly, the decentralisation 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 ECB 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 NCBs have accumulated over the years would be better exploited.

In contrast to the above, the decentralised 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 is chosen which, starting from a relatively higher degree of decentralisation, can evolve over time towards a more centralised 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 EMU.

6. 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, we have 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 EMU.

Admittedly, our paper has been primarily taxonomic and descriptive. This is, in large part, because the constitutional changes involved, more autonomous Central Banks and EMU, are either very recent or still on-going. So there is, as yet, little room for econometric testing, in so far as that is ever possible, whether such changes have improved the conduct of policy.

There have been some concerns whether these changes 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 UK, have so far been met. Sceptics would counter that neighbouring countries, without such direct inflation targets, eg Australia and the USA, have done broadly as well on this front.

So the jury is still out. Nevertheless there is a continuing strong

credibility of the overall macroeconomic policy. For this reason, it is of fundamental importance that the policies of both autonomous Central Banks and of the fiscal authorities be closely coordinated towards the pursuit of the overall goal of sustained non-inflationary growth. Finally, judging by experience, the favourable impact of improvements in national monetary constitutions has tended to be greater when such constitutional changes have reflected society's concern about inflation and awareness that high inflation is not conducive - but is actually detrimental - to economic growth.

We have also discussed at some length the alternative 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, 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, may increase flexibility concerning the adoption of specific monetary policy strategies and tactics. As has been recently pointed out (Crockett, 1993), this new institutional framework could provide a useful synthesis between rules and discretion which 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.

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TABLE 1
INSTITUTIONAL FEATURES OF CENTRAL BANKS IN THE EUROPEAN UNION

Item	NATIONAL BANK OF BELGIUM	DANMARKS NATIONAL BANK	DEUTSCHE BUNDESBANK	BANK OF GREECE	BANCO DE ESPAÑA	BANQUE DE FRANCE
PRINCIPAL STATUTORY OBJECTIVE	None, although safeguarding the currency implicit	To maintain a safe and secure currency system	To safeguard the currency	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	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	2 -Central Bank	2 -Central Bank	2 -Central Bank
3 -Changing key interest rates	3 -Central Bank	3 -Central Bank	3 -Central Bank	3 -Central Bank	3 -Central Bank	3 -Central Bank
RESPONSIBILITIES:						
1 -Execution of monetary and exchange rate policy	1 -Yes	1 -Yes	1 -Yes	1 -Yes	1 -Yes	1 -Yes
2 -Issue of currency	2 -Yes	2 -Yes	2 -Yes	2 -Yes	2 -Yes	2 -Yes
3 -Payment system services	3 -Yes	3 -Yes	3 -Yes	3 -Yes	3 -Yes	3 -Yes
4 -Bank of banks and government	4 -Yes	4 -Yes	4 -Yes	4 -Yes	4 -Yes	4 -Yes
5 -Supervision of financial institutions	5 -No	5 -No	5 -No	5 -Yes	5 -Yes	5 -Yes
6 -Safeguard financial stability	6 -Yes	6 -Yes	6 -Yes	6 -Yes	6 -Yes	6 -Yes
7 -Official reserve management	7 -Yes	7 -Yes	7 -Yes	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	- General Council	- Governor - Deputy Governor - Governing Council - Executive Commission	- Governor - Deputy-Governors (2) - General Council - Monetary Policy Council
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	- Government on proposal of General Council	- Crown on proposal of President of Government	- Council of Ministers
Term:	- 5 years (renewable)	- No fixed term	- Normally 8 years, minimum 2 years (renewable)	- 4 years (renewable)	- 6 years (non-renewable)	- 6 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	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 on December 1993.

TABLE 1 (cont.)

Item	CENTRAL BANK OF IRELAND	BANCA D'ITALIA	INSTITUT MONETAIRE LUXEMBOURGEOIS	NEDERLANDSCHE BANK	BANCO DE PORTUGAL	BANK OF ENGLAND
PRINCIPAL STATUTORY OBJECTIVE	To safeguard the integrity of the currency	None, although safeguarding the currency implicit	To promote the stability of the currency	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	1 - Government	1 - Government	1 - Government
2 - Setting targets for monetary growth	2 - Central bank (no target set al present)	2 - Joint with Government	2 - Not applicable	2 - Central Bank (no target set at present)	2 - Central Bank (no target set al present)	2 - Government
3 - Changing key interest rates	3 - Central Bank	3 - Central Bank	3 - Not applicable	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 (partly)	1 - Yes	1 - Yes	1 - Yes
2 - Issue of currency	2 - Yes	2 - Yes	2 - Yes	2 - Yes	2 - Yes	2 - Yes
3 - Payment system services	3 - Yes	3 - Yes	3 - No	3 - Yes	3 - Yes	3 - Yes
4 - Bank of banks and government	4 - Yes	4 - Yes	4 - No	4 - Yes	4 - Yes	4 - Yes
5 - Supervision of financial institutions	5 - Yes	5 - Yes	5 - Yes	5 - Yes	5 - Yes	5 - Yes
6 - Safeguard financial stability	6 - Yes	6 - Yes	6 - Yes	6 - Yes	6 - Yes	6 - Yes
7 - Official reserve management	7 - Yes	7 - Yes (together with the Italian Exchange Office)	7 - Yes	7 - Yes	7 - Yes	7 - Yes (as agent for the Government)
GOVERNING BODIES	- Board of Directors	- Governor, Director-General, 2 Deputy Director-Generals (Directorate)	- Management - Council	- Governing Board - Supervisory Board	- Governor - Board of Directors - Board of Auditors - Advisory Board	- Court of Directors
APPOINTMENT OF GOVERNOR						
By:	- President on proposal of Government	- Board of Directors with approval of Government	- Grand-Duke on proposal of Council of Ministers	- 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 Primer Minister
Term:	- 7 years (renewable)	- Life	- 6 years (renewable)	- 7 years (renewable)	- 5 years (renewable)	- 5 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	- Since november 1993, the Bank has the power to set the compulsory reserve ratio	A draft bill to effect the changes in legislation required by the Maastricht Treaty its in	-	Amendment to prohibit the underwriting of Treasury Bills. Institutional changes required to fulfil the	None. Changes will be need if UK participates in Stage Three.

	general function and duty. Other institutional changes are presently under discussion	- Other institutional changes required to fulfil the Maastricht Treaty are under examination	preparation at the IML		Maastricht Treaty currently discussed

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.

TABLE 2
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)
UK	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
Venezuela	December 1992	No	Stability of the currency, economic equilibrium and orderly economic development		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, UK Roll Report and Swedish White Paper.

TABLE 4
(a) ECONOMIC SIZE OF EUROPEAN COUNTRIES
(in increasing order, in percent of total GDP of European Union[1])

Luxembourg	0.1
Ireland	0.7
Greece	1.5
Portugal	1.6
Denmark	1.7
Belgium	3.2
Holand	4.7
Spain	9.0
United Kingdom	17.6
Italy	18.1
France	19.2
Germany[2]	22.7

Notes: 1. 1990 GDPs converted at PPP rates.
2. Before unification.

(b) DEGREE OF OPENNESS IN EUROPEAN COUNTRIES
(in decreasing order, in percent)

	Total[1]	Intra-European Union[2]
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

Notes: 1. (Imports + Exports/2)/GDP in 1990.
2. Intra-European Union exports/GDP in 1990.

Source: Eurostat

TABLE 3
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 1987-1992 broad money targets set. The exchange rate became the only intermediate target following the entry of the escudo in the ERM in mid 1992.
B. Exchange rate - ERM supplemented by broad money	
France (M3)	The exchange rate is the primary intermediate target since 1979 when the ERM was created.
Spain (ALP)	The exchange rate is the primary intermediate target since 1989 when the peseta entered into the ERM. Beforehand broad money was 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 policy indicators.

Source: Central banks' reports

TABLE 5: TARGETED AND ACTUAL MONEY GROWTH

GERMANY

Year	Variable	Target	Outcome	Comments
1975	Central Bank Money	8	10	M+
1976	↓	8	9.2	H
1977		8	9	H
1978		8	11.5	M+
1979		6-9	6.3	H
1980		5-8	5.0	H
1981		4-7	3.5	M-
1982		4-7	6.1	H
1983		4-7	6.8	H
1984		4-6	4.6	H
1985		3.5-4.5	4.5	H
1986		3.5-5.5	7.8	M+
1987	↓	3-6	8	M+
1988	M3	3-6	6.7	M+
1989	↓	5	4.7	H
1990		4-6	5.6	H
1991		3-5 (rev)	5.2	M+
1992		3.5-5.5	9.4	M+
1993		4.5-6.5	7.5	M+
1994	↓	4-6	.	

FRANCE

Year	Variable	Target	Outcome	Comments
1977	M2	12.5	13.9	H
1978	↓	12	12.2	H
1979		11	14.4	M+
1980		11	9.8	H
1981		12 (rev)	11.4	H
1982		12.5-13.5	11.5	M-
1983		9 (rev)	10.2	H
1984	↓	5.5-6.5	7.6	M+
1985	M2R	4-6	6.9	M+
1986	M3	3-5	4.6	H
1987	M2(new)	3-5	9.2	M+
1988	↓	4-6	4.0	H
1989		4-6	4.3	H
1990	↓	3.5-5.5	-0.5	M-
1991	M3(new)	5-7	3.8	M-
1992	↓	4-6	6	H
1993		4-6.5	-0.9	M-
1994	↓	5		

ITALY

Year	Variable	Target	Outcome	Comments
1975	Domestic Credit	13.9	12.5	H
1976	↓	16.7	18.8	M+
1977		16	17.8	M+
1978		19.5	20.8	H
1979		18.6	18.7	H
1980		17.7	18.5	H
1981		16.1	18.1	M+
1982		15.5	20.9	M+
1983		18.0	20.7	M+
1984		15.9	19.7	M+
1985	↓	16.1	18.1	M+
1986	M2	7-11	9.6	H
1987	↓	6-9	8.6	H
1988		6-9	8.9	H
1989		6-9	11.3	M+
1990		6-9	9.9	M+
1991		5-8	9.0	M+
1992		5-7	5.9	H
1993		5-7	7.8	M+
1994	↓	5-7	.	

SPAIN

Year	Variable	Target	Outcome	Comments
1978	M3	14.5-19.5	20.3	M+
1979	↓	15.5-19.5	19.4	H+
1980		16-20	16.1	H
1981		14.5-18.5	15.7	H
1982		13.5-17.5	15.3	H
1983	↓	11-15	12.8	H
1984	ALP	11.5	14.5	H
1985	↓	11.5-14.5	14.3	H
1986		9.5-12.5	12.4	H
1987		6.5-9.5	13.1	M+
1988		8-11	13.4	M+
1989		6.5-9.5	12.8	M+
1990		6.5-9.5	11.4	M+
1991		7-11	10.9	H
1992		8-11	5.2	M-
1993		4.5-7.5	8.6	M+
1994	↓	3-7	.	

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

Source: Central Banks' reports.

TABLE 6
MONETARY POLICY INSTRUMENTS AND PROCEDURES IN THE EUROPEAN UNION

Item	Belgium	Denmark	Germany	Greece	Spain	France	Ireland	Italy	Netherlands	Portugal	UK
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	0.1	1.8	8.0	-	16.1	-
- Remuneration	-	-	No	Partly	No	No	Below market rates	Partly	-	Partly	-
STANDING FACILITIES (b)											
- Lending facilities at below or close to market rates (rate)	□ (below market)	-	♦	-	-	-	-	♦ (close to market)	■ (below market)	-	-
- Deposit facilities	□	□	-	-	-	-	♦	-	-	-	-
- Marginal refinancing	□	-	□	♦	□	□	♦	♦	□	□	♦
OPEN MARKET OPERARATIONS											
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	□	-	■	□	■	■	■	■	-	♦	■

Notes: - 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.