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RECENT DEVELOPMENTS IN MONETARY CONTROL IN THE UNITED KINGDOM

by

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* I should like to acknowledge the comments of my colleagues in the Bank of England on earlier drafts of this paper. The interpretations and opinions expressed are mine alone.

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RECENT DEVELOPMENTS IN MONETARY CONTROL IN THE UNITED KINGDOM

The monetary authorities in the United Kingdom have since mid-1976 made a practice of announcing in advance target ranges for the growth of the money stock. This paper discusses some of the issues that have arisen in the practice of money stock targeting, including the question of the central bank's operational techniques. In particular the recent changes in the Bank of England's open market operations are described and explained.

I Choice of target aggregate

One of the most important decisions that has to be made in setting a monetary target is which aggregate is to be used for targeting purposes

In principle the decision is straight-forward. The use of money supply targets rather than interest rate targets as guidelines for monetary policy is based on the supposition that the relationship between money and income is more stable than the relationship between real autonomous expenditures and nominal income. Accordingly, it makes sense to target that monetary aggregate which has the most stable statistical relationship with income(1).

The main monetary and liquidity aggregates are defined in table 1. In practice, in the UK, it has proved difficult to establish as a matter of fact which of the monetary aggregates has the most stable relationship with income. The existence of a relationship between money and income is normally interpreted as a consequence of the public having a determinate demand for money balances; and consequently the focus of research on the relationship between the monetary aggregates and nominal incomes has been the demand functions for the various monetary aggregates.

The demand for M3 [which differs from sterling M3 in that it includes foreign currency deposits with banks in the UK(2)] has been the subject

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(1) Poole's analysis (see "Optimal choice of monetary policy instrument in a simple stochastic macro model", Quarterly Journal of Economics vol LXXXIV no 2, May 1970) shows that an exception might be made if, in the IS-LM framework, the correlation coefficients between the shifts in the LM curves based on the various aggregates and the shifts in the IS curve were markedly different; but there is no evidence that this is the case in the UK.

(2) Until the abolition of Exchange Control in October 1979, residents' holdings of foreign currency deposits were severely restricted by law.

TABLE 1

DEFINITIONS OF THE MONETARY AMD LIQUIDITY AGGREGATES

Aggregate	Definition	Size (mid-June 1981) (£ billions)	
Monetary base (M0)	There are various definitions. The most commonly used one - the "wide monetary base" - consists of bankers' balances at the Bank of England, notes and coin held by the banks, and notes and coin in circulation with the public.	Bankers' balances	.5
		Notes and coin held by the banks	.9
		Notes and coin in circulation with the public	10.3
		"Wide monetary base"	11.7
M1	Notes and coin in circulation with the public plus private sector sterling sight deposits with banks in the UK.	Notes and coin in circulation with the public	10.3
		Private sector sterling sight deposits	20.8
		M1	31.1
M2	Notes and coin in circulation with the public plus "retail deposits" held by the private and overseas sectors. Please see Section III for full definition.	Figures not yet available.	
Sterling M3	Notes and coin in circulation with the public plus all resident sterling deposits with banks in the UK (including certificates of deposit).	M1	31.1
		Private sector time deposits	38.3
		Public sector deposits	1.3
		Sterling M3	70.7
M3	Sterling M3 plus resident foreign currency deposits with banks in the UK (including certificates of deposit)	Sterling M3	70.7
		Foreign currency deposits	9.6
		M3	80.2
PSL1	Private sector holdings of sterling M3 but excluding deposits with an original maturity of over two years, plus private sector holdings of Treasury and commercial bills, private sector deposits with local authorities and finance houses and holdings of certificates of tax deposit, less finance houses' holdings of sterling M3 and other instruments included in PSL1.	Private sector holdings of sterling M3	68.5
		Private sector holdings of Treasury and commercial bills	.9
		Private sector deposits with local authorities and finance houses	0.6
		Certificates of tax deposit	4.0
		less finance houses' holdings of sterling M3 and other instruments	1.2
		PSL1	-0.1
			74.2
PSL2	PSL1 plus private sector savings deposits and securities with non-banks (mainly building societies) less savings institutions' holdings of instruments included in PSL2 but not PSL1.	PSL1	74.2
		Private sector savings deposits and securities with non-banks	56.8
		less savings institutions' holdings of instruments included in PSL2 but not PSL1	-3.6
		PSL2	127.4

of extensive research in the Bank of England(3). The conclusion has been that the demand for £M3, regarded as a function of income or some other measure of transactions, and interest rates, appeared to shift sharply upwards by as much as 25% in 1972-73, and down again in 1974-75. This shift is thought to have been the result of two main influences.

The first of these influences arose from the fact that the package of reforms to the financial system implemented in 1971 ("Competition and Credit Control") freed the banks from ceilings on their lending. The desire of the banks immediately following these reforms to increase their lending rapidly led them to bid aggressively for deposits, and this in turn led to changes in the differentials between the yields on bank deposits and on other liquid assets. Much of the extra lending was to property (real estate) companies; and the rapid fall in property prices in 1974-75 caused some banks to suffer serious losses. These losses led an abrupt shift towards greater conservatism in the banks' lending policies and thus reduced the banks' need to bid aggressively for deposits.

The second influence was that it was frequently possible in 1972-73 for companies to make a profit by borrowing from banks on fixed rate overdraft and depositing the proceeds of the borrowing in the wholesale money markets. This was known as "round-tripping". It occurred in particular when the authorities were using their open-market operations to reduce the amount of reserve assets (2) outstanding; the banks reacted to reserve asset squeezes by bidding

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(3) See C A E Goodhart and A D Crockett, "The importance of money", Bank of England Quarterly Bulletin, June 1970; L D D Price, "The demand for money in the United Kingdom: a further investigation", Bank of England Quarterly Bulletin, March 1972; G Hacche, "The demand for money in the United Kingdom: experience since 1971", Bank of England Quarterly Bulletin, September 1974.

(2) Under "Competition and Credit Control", the banks were required to hold "reserve assets" in amounts not less than a fixed percentage of their eligible liabilities (broadly, their total sterling liabilities plus net liabilities in foreign currencies). For most of its life, the fixed percentage was 12 1/2%, but latterly it was reduced to 10% and at times 8%. "Reserve assets" consisted of call money deposits with the discount houses and listed brokers, Treasury and local authority bills, commercial bills (subject to the limitation that commercial bills held in excess of 2% of eligible liabilities would not qualify as reserve assets) and government securities with less than a year to maturity.

for additional deposits to finance purchases of reserve assets from non-banks ("liability management") rather than by selling assets, as in the text-book case. This practice led to money market rates rising well above the rather inflexible rates charged by banks for overdrafts, so that round-tripping became profitable.

In practice, neither of these influences can be adequately captured in the specification of demand-for-money functions. The interest rate differentials which made switching between bank deposits and other short-term assets profitable, as well as those which made round-tripping profitable, existed for so short a time in many cases that they were not recorded, and neither are reliable estimates of the amount of round-tripping available.

More recently there appeared to be another upward shift in the demand for sterling M3. During the financial year 1980/81 sterling M3 increased by nearly 18%, whilst nominal GDP rose by only 11 1/2%. In some degree the fall in the income velocity of £M3 was the result of the ending of the Supplementary Special Deposits scheme in June 1980 (see section II below). That scheme had created an incentive for banking business to be disintermediated from the banking system in a purely cosmetic way - ie, for it to be carried on much as before, but in such a way as to prevent its appearing in the banks' balance sheets. When the scheme was ended the business was re-intermediated into the banks' balance sheets and sterling M3 increased accordingly.

However this rather artificial development did not explain by any means all of the reduction in velocity in 1980/81. The perhaps more fundamental cause was that the severe recession of that year put an acute strain on corporate finances, and forced many companies to look for external finance in order to be able to sustain operations. Borrowing by means of debenture (long-term fixed-interest debt) issues was unattractive because the possibility of a sharp reduction in the rate of inflation implied the risk of a crippling increase in the real cost of servicing the debt. And poor profit prospects made equity (common stock) issues unattractive. The most attractive form of borrowing was from banks.

At the same time, personal incomes were booming, and the savings rati was unusually high. The banks thus found themselves recycling a lar volume of savings from the surplus personal sector to the deficit corporate sector, and one result of this was that sterling M3 grew very rapidly. It was clear that the demand for sterling M3 was not being determined simply by nominal national income and interest rates, but also by the financial imbalances between different sectors of the economy.

To conclude, the experience of the last decade does not provide strong grounds for belief in a stable short-term relationship between movemer in M3 or sterling M3 and contemporaneous movements in nominal incomes.

The demand for M1 has also been extensively researched, and in 1978 it appeared that a stable demand function for M1 had been identified (1). However more recently M1 has tended to wander away from the prediction of the equation. This is illustrated in table 2 below, which compare actual growth in M1 over financial years since 1976/77 with the growth rates that the best equations available at the beginning of each financial year would have forecast, given perfect foreknowledge of all the explanatory variables in the demand equation(2). It seems that there have been shifts in the demand for M1 function, which have at ti been much larger than the 2% margin between the middle and the outside of the target ranges for money supply growth. Of course, the band could be widened to accommodate possible shifts in the demand for mone function, but the figures in the table suggest that a margin of as muc as 7 1/2% either side of the middle of the target range might be needed.

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(1) See R T Coghlan, "A transactions demand for money", Bank of Englan Quarterly Bulletin, March 1978.

(2) More information on demand for M1 equations is to be found in Appendix 1 by J M Trundle.

TABLE 2

SHIFTS IN THE DEMAND FOR M1 FUNCTION

Financial year	Predicted growth in M1 (% during year	Actual growth in M1 (% during year	Difference
1976/77	16.7	8.9	-7.8
1977/78	20.1	24.6	4.5
1978/79	12.2	13.3	1.1
1979/80	7.5	6.5	-1.0
1980/81	4.8	8.4	3.6

In addition, the data for M1 are less reliable than those for monetary base and £M3 in a number of respects. The figures depend more heavily in percentage terms than those for £M3 on an arbitrary allocation of cheques in the course of collection between deposits and loans; they are particularly subject to temporary effects arising from the timing of new issues on the capital market; and the seasonal adjustments are prone to larger revisions in percentage terms.

Finally, there remains the problem that the demand for M1 is liable to be affected in the future by two unpredictable developments - the spreading practice of paying interest on M1 balances (which tends to increase the demand for M1 at given levels of income and interest rates), and the development of new payments techniques (which tends to reduce the demand for M1, other things being equal, if the balances out of which payments can be made under the new techniques are not included in M1).

More recently, the monetary base has been suggested as a possible target variable. The most commonly used definition of the monetary base - the "wide monetary base" - consists of bankers' balances at the Bank of England, notes and coin held by the banks, and notes and coin in circulation with the public (1). Roughly 85% of the wide monetary base is accounted for by the third item, notes and coin in circulation with the public, so the stability of the demand for wide base depends largely on the stability of the demand for notes and coins. The control of the monetary base on alternative definitions is discussed in section III below.

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(1) See Bank of England Quarterly Bulletin March 1981 for a fuller description of the monetary base and for statistics.

Research conducted in the Bank has shown that the estimated interest elasticity of demand for notes and coin has appeared to increase as the estimation period has lengthened. This is documented in Appendix 1 on the public's demand for notes and coin, by P V Temperton. Equations estimated over the period 1964-1979 show no significant interest elasticity, but when the estimation period is extended to include 1980, an interest elasticity which is statistically significant at the 95% level appears. The statistical explanation of this fact is that high interest rates coincided with slow growth of the public's currency holdings in 1980, but it is not certain that the latter was caused by the former rather than by other factors - eg increased use of credit cards and cheques for payment purposes.

It would, in principle, be possible to include the use of non-currency media of payment as an explanatory variable in the demand equation. However, if targets were to be set for the monetary base, they would have to be constructed using assumptions about the future values of this variable.

Table 3, which is analogous to table 2, shows shifts in the public's demand for currency over financial years since 1976/77.

TABLE 3
SHIFTS IN THE DEMAND FOR NOTES AND COIN

Financial years	Predicted growth in notes and coin (% during year)	Actual growth in notes and coin (% during year)	Differenc
1976/77	9.9	11.3	1.4
1977/78	11.1	16.4	5.3
1978/79	12.5	16.4	3.9
1979/80	12.6	6.9	-5.7
1980/81	10.8	5.9	-4.9

As in the case of M1, it appears that the shifts in the demand function have been too great to be accommodated within a target band with a margin of 2% either side of the mid-point of the range.

Because these demand for money studies have not given a clear answer to the "which aggregate?" question, a slightly different approach to the question has been adopted. This, inspired by the work of Tinsley et al (1), is to investigate the degree to which shifts in the various monetary aggregates and their components contain information about future inflation and nominal income growth. The results of this work, reported by Mills (2), indicate that the broader aggregates contain more information about future prices and nominal incomes than the narrow ones. Chart 1 shows that there was indeed in 1971-75 a very close relationship between movements in the growth rate of £M3 and movements in the rate of inflation two years later. No similar lead relationship existed in the case of M1, or notes and coin in circulation with the public, as is shown by chart 2. The dramatic nature of the events of 1971-75 and the closeness of the correlation between £M3 and future inflation were important influences, though not the only influences, in the decision that M3 or £M3 should be the target monetary aggregate. However, the events of 1971-75 appear to have been unique: there is no other episode in UK monetary history in the last century in which broad money gave so accurate a prediction of future inflation (see chart 3).

One theoretical basis of this alternative approach may be regarded as a generalisation of that of the demand for money approach. If it is assumed that money acts as a buffer stock, and that agents do not react immediately to excesses or deficiencies in their actual money holdings in relation to demand, then it will not necessarily be possible to estimate a demand for money function in the normal way. However, in spite of this, if it is assumed that the demand for money reasserts itself in the longer run, then changes in money balances may nevertheless be expected to have a delayed effect on nominal incomes.(3)

Given the lack of any clear indication either from demand for money functions or from the relationships between the growth rates of the various aggregates and subsequent inflation, the factor that turned the decision about the target aggregate in favour of a broad aggregate

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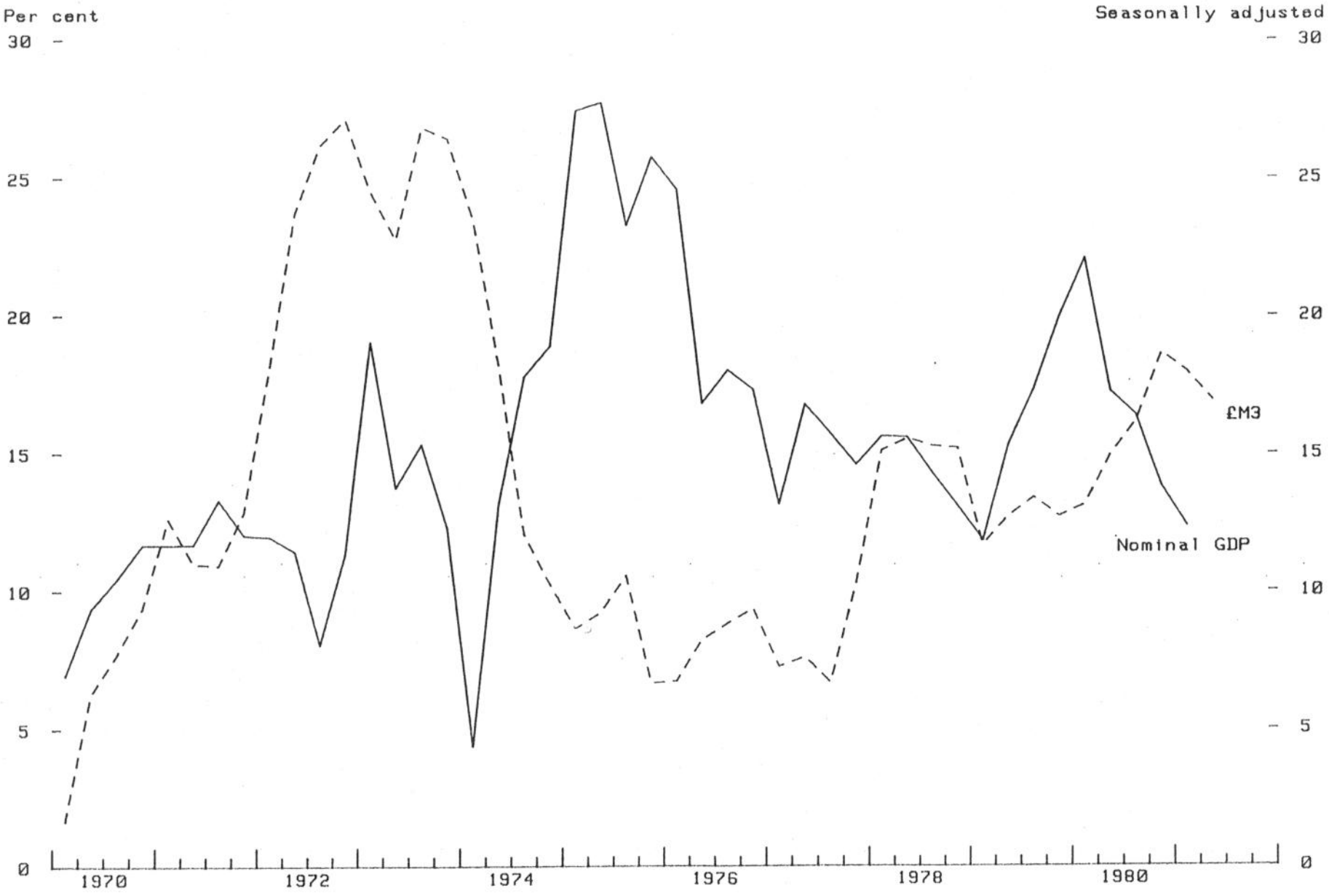
(1) P A Tinsley, P A Spindt and M E Friar, "Indicator and filter attributes of monetary aggregates", Journal of Econometrics vol 14, 1980.

(2) T C Mills: "The informational content of monetary aggregates in the UK". Unpublished Bank of England document, 1981.

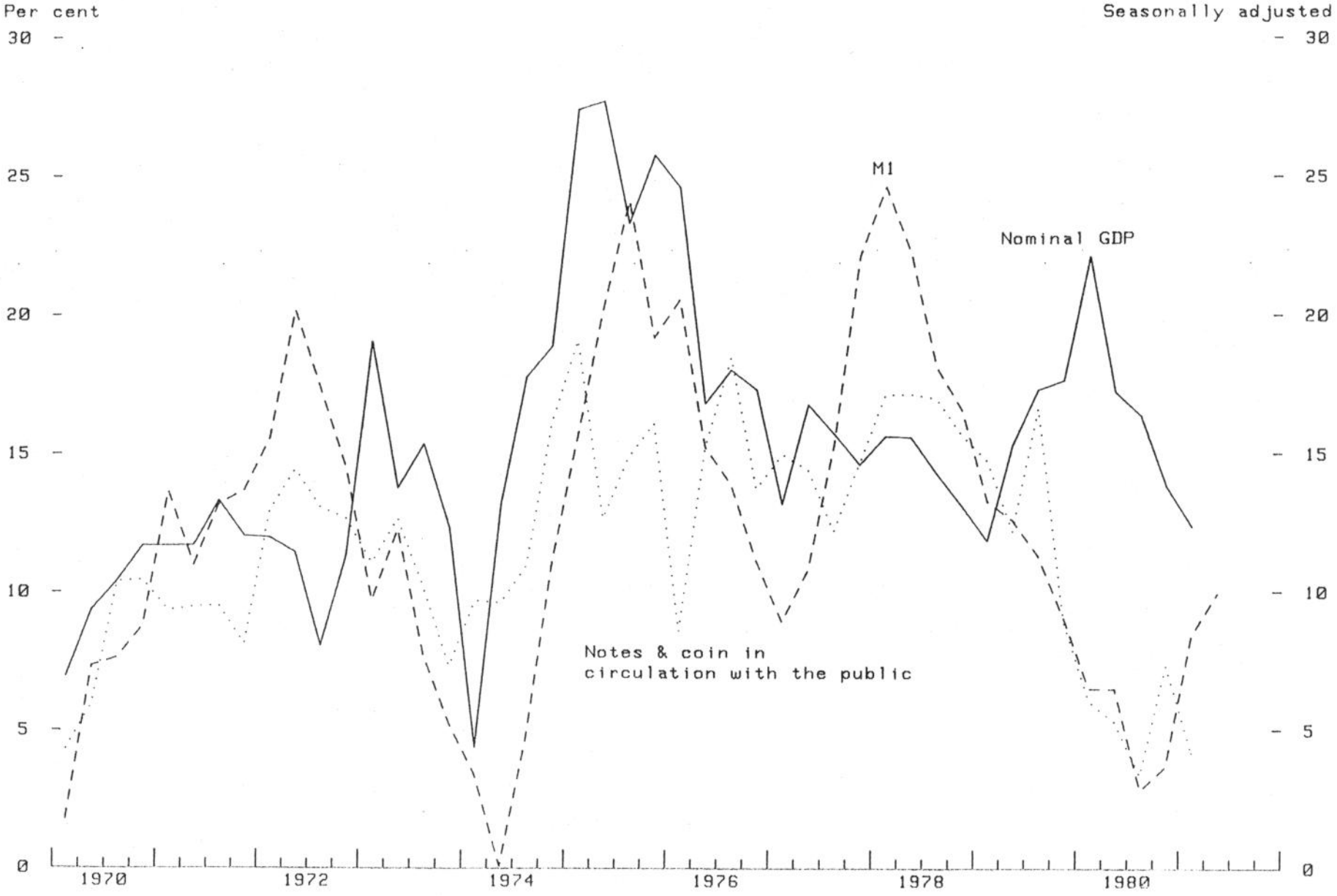
(3) This approach was first suggested as an explanation of the apparent instability of the demand for £M3 in the early 1970s by M J Artis and M K Lewis. See "The demand for money in the United Kingdom 1963-1973", Manchester School vol XLIV no 2, June 1976.

ANNUAL PERCENTAGE CHANGES OF £M3 & GDP

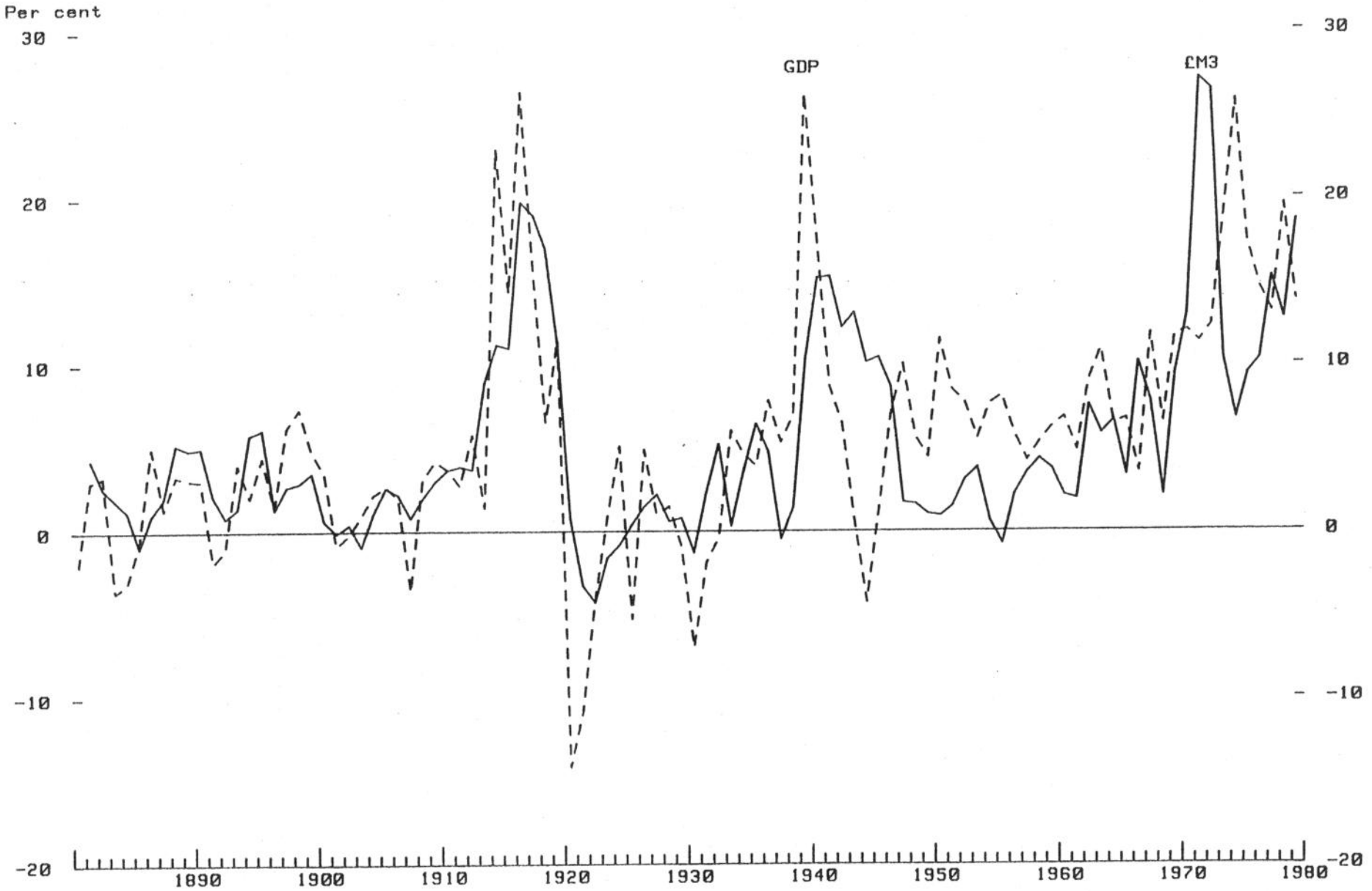
CHART 1



ANNUAL PERCENTAGE CHANGES OF M1, NOTES AND COIN IN CIRCULATION WITH THE PUBLIC AND GDP



ANNUAL PERCENTAGE CHANGE OF BROAD MONEY AND NATIONAL INCOME 1880-1980



Notes to chart 3

Money:	1880-1962	Notes and coin in circulation with the public, plus total bank deposits (annual averages). Source: D K Sheppard (1971), The Growth and Role of UK Financial Institutions, 1880-1962, Methuen, table 3.3
	End-1962 - End 1980	Sterling M3 (end-year figures, seasonally adjusted). Source: Statistics published by Bank of England.
GDP (at market prices)	1880-1955	Source: C H Feinstein (1972), Statistical Tables of National Income, Expenditure and Output of the UK, 1855-1965, Cambridge University Press, table 3 (annual figures).
	1955-1962	Source: Central Statistical Office: National Income and Expenditure (annual figures).
	1962-1980	Source: Central Statistical Office: Economic Trends (fourth quarter figures, seasonally adjusted).

Note: Southern Ireland excluded from both series from the beginning of 1921.

was that it is possible to account for changes in sterling M3 - t total domestic sterling deposit liabilities of the banking system - in terms of changes in the various categories of assets of the banking system and of non-deposit liabilities - the latter item generally being small and stable. The accounting framework is set out in table 4. Monetary growth has as its counterpart on the assets side of the banks' balance sheets three main elements: that part of the budget deficit not financed by sales of public sector debt to the non-bank private sector (lines 1 and 2), sterling lending by the banking sector to the private sector (line 3) and the influence of external transactions (line 4).

This description does not, of course, imply that the three main elements are independent influences on sterling M3. Indeed, it is quite clear that they are interdependent. Nevertheless it can in some circumstances indicate what policy measures are most appropriate if the growth of £M3 is off target. For example, if there is a large unfunded budget deficit, and £M3 is overshooting, then in the short run it is natural to try to find ways of funding more of the deficit, perhaps by issuing new kinds of government debt. Moreover, the evolution of the counterparts can give an early impression of general economic developments - in particular the financial position of the private sector, and the balance of payments.(1)

II Techniques of control

The classic weapon that central banks have at their disposal is the discount rate, and, until recently, announced variations in the Bank o England's Minimum Lending Rate (MLR) had a central role in monetary policy. After the adoption of monetary targets, the authorities aimed to set MLR in such a way as to be consistent with the achievement of t monetary target. When judgments made at the beginning of the financial year were proved wrong by unexpected developments, the authorities wer ready to change MLR in response to the unexpected developments (2).

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(1) It is, of course, possible to account equally neatly for changes in the wide monetary base in terms of changes in the various categories of assets held by the monetary authorities. At the time the decision was taken, in the mid-1970s, the idea of controlling the monetary base for its own sake had not been widely advocated in the UK. To target monetary base would have seemed like a retreat to the doctrines of the currency school, which had long been out of favour.

(2) The exception to this was in 1980/81, when MLR was reduced despite an overshooting of the target for £M3. The reason for the decisi to overrule the monetary target was that the authorities believed that both the supply and the demand functions for £M3 had shifted, as mentioned above, and that consequently the rate of growth of £M was giving a misleading impression of the tightness of monetary poli

Table 4

COUNTERPARTS TO GROWTH IN STERLING M3

Figures in £ billions

		Financial year 1980/81
1	Public sector borrowing requirement (budget deficit)	13.2
2	Sales of public sector debt to non-bank private sector (increase -)	-10.9
3	Sterling lending by banking sector to private sector	9.3
4	External influences*	0.4
5	Non-deposit liabilities (increase -)	- 1.3
6	Total = increase in £M3	10.7

* Equals the sum of the following items:

Change in reserves (increase +)
Public sector foreign currency borrowing (increase -)
Overseas purchases of public sector debt (increase -)
Overseas residents' sterling deposits (increase -)
Banks' sterling lending overseas (increase +)
Banks' foreign currency deposits, net of foreign currency loans (increase -)

However, the effects of changes in interest rates on £M3 have proved slow and uncertain. Some 60% of £M3 is interest-bearing, and that part of £M3 which is non-interest-bearing is most easily switched into interest-bearing £M3 when interest rates rise. Rather, the effects of interest rate changes on £M3 have to work indirectly. If increase in interest rates reduce loan demand, then the banks may bid less aggressively for deposits - so that the interest differential between wholesale bank liabilities and other short-term assets moves against bank deposits - and the growth rate of £M3 will be dampened. And if increases in interest rates stimulate government debt sales, the banks will lose deposits. If the banks have spare liquidity, they may accept this loss of deposits - ie they may not attempt to replace the lost deposits through the wholesale money-markets. However, it is not clear that increases in interest rates do succeed in reducing loan demand in all circumstances, and in any case the effect is slow.

In addition to this, the announced MLR attracted a degree of public attention that had become detrimental to monetary control. Declared changes in MLR tended to be political events of considerable significance for the government. This carried the risk that the actual timing and amount of changes in MLR would not be the ones most appropriate to the needs of the monetary situation. Of course it was possible for the authorities, without changing MLR, to exert some influence, through open-market operations, on market interest rates, but there were difficulties with this, as follows. First, MLR was taken by the markets as a benchmark for interest rates at maturiti much longer than the longest maturity (7 days) at which it was customa for the Bank to lend at MLR to the discount houses. Second, the banks relate their overdraft charges to their base rates, which, in general, they changed only when MLR changed, so that changes in money market rates with MLR left unchanged had no effect on overdraft borrowers (overdrafts account for about a third of bank loans). Finally, if money market rates rise above base rates by enough, the round-tripping operations described in section 1 become profitable - companies borrow on overdraft and re-deposit the proceeds in the wholesale markets. In these circumstances, a rise in interest rates may have the effect of increasing sterling M3, at least for a while. As is explained in section IV below, it is hoped that the suspension of MLR will lead to a greater market influence on the determination of the term structure of interest rates, and specifically that it will cause the banks to charge more flexible rates for overdraft borrowing.

The object of the Supplementary Special Deposits scheme (the "corset") introduced for the first time in December 1973, was to eliminate the scope for liability management and round-tripping by imposing harsh penalties on the banks if their interest-bearing eligible liabilities grew at more than a certain rate. The scheme was withdrawn in January 1975, but was reimplemented in December 1976 (until June 1977) and in June 1978 (until June 1980). In practice, though the scheme probably had certain favourable announcement effects on the first two occasions, it represented a severe constraint on the normal activities of the banks only in the third of these episodes. Even then, the banks were able to circumvent the constraint quite easily, for example by persuading borrowers to issue commercial bills, accepting (ie guaranteeing) the bills, and offering them to depositors.

It would, of course, have been fairly simple for the authorities to close some of the loopholes in the scheme - for example, by making acceptances part of the aggregate subject to control. But, after the removal of exchange controls in October 1979, it would not have been possible to prevent disintermediation via the euro-sterling market. In other words, there would have been no way of preventing banking business whose conduct was inhibited in London by the corset scheme from being done in financial centres in continental Europe. Bearing in mind that, in the absence of exchange control, nothing could be done to close this loophole permanently, the authorities saw no point in closing the other loopholes. The commercial bill loophole at least had the virtue that the extent of its use was regularly measured.

III Possible new techniques

In November 1979 the Chancellor of the Exchequer in the new Conservative government, which had been elected in May 1979, announced that he had set in hand a review of methods of controlling the money supply. Accordingly, in March 1980, a consultation paper entitled "Monetary Control" was issued by the Bank of England and the Treasury. The debate which followed the publication of the consultation paper was mainly focussed on the issue of monetary base control. The debate ended in the autumn of 1980 and was followed by the announcement of certain changes in the Bank's methods of operation in the short-term money markets.

The purpose of the remainder of this section is to draw some conclusions from the debate on monetary base control; the next section explains the changes in methods of operation.

Monetary base control means the use of open-market operations to aim at a target for some subset of the liabilities of the central bank. One possible form of monetary base control involves setting a target for the wide monetary base, as described in section I. The discussion in this section, however, is about forms of monetary base control in which variations in the monetary base are intended to exert their influence mainly by affecting the behaviour of the banks. In other words it relates to forms of monetary base control in which the base is defined in such a way that the reserves held by the banking system represent a quantitatively important part of it.

The case for monetary base control assumes that the demand for monetary base is related predictably to the size of the banks' liabilities, or to nominal incomes, or to both. This requires that the yield of these liabilities (or, if there is a minimum reserve requirement, the yield of excess reserve holdings) be markedly lower than the market rate of return, because, if it were not, the demand for monetary base would become highly sensitive to the interest rate differential between monetary base and other short-term assets, and there would be no predictable relationship between the size of the monetary base and the banks' liabilities and/or nominal incomes.

The mechanism of control is as follows. The size of the monetary base indicates the tightness or ease of monetary policy. A reduction in the supply of monetary base can be achieved only through sales of securities by the monetary authorities. These sales will drive up interest rates, both nominal and real, by some finite amount, and that in turn will exert contractionary effects on bank deposits and on the economy generally. In addition to this, some advocates of monetary base control have suggested that there is a second mechanism, which works through the effect of the announcement of targets for the monetary base on the behaviour of the banks. The suggestion is that the knowledge that the quantity of monetary base will be strictly limited, and that the cost of borrowing will therefore rise if the demand for monetary base increases, will induce the banks to adjust their lending strategies in such a way that they conform more nearly with the official targets for money and inflation. Only experience can tell whether or not this mechanism is effective, though most of those consulted on this in the UK have expressed scepticism about it.

Considered in its pure form, monetary base control is a polar opposite to interest-rate targeting, in that it involves attaching no weight to interest rate changes in conducting open-market operations whilst pure interest rate targetting involves attaching no weight to the monetary base. Any move towards monetary base control must therefore be a move away from interest-rate smoothing. An important question for policy-makers is how much interest-rate volatility is likely to be induced by moves towards monetary base control.

It is perhaps worth reviewing briefly the reasons why this question is important. The most general reason is that interest rates are prices, and the function of prices in market economies is to give signals to the economy which can influence behaviour in a socially desirable way. Other things being equal, more volatile prices give less clear signals than less volatile prices. Second, more volatile interest rates increase the risks involved in maturity transformation. This may mean either more severe stress on in financial institutions - something undesirable in itself since the smooth running of the financial system depends on depositors' faith in the soundness of financial institutions - or else a curtailment of the supply of financial services involving maturity transformation offered to the economy. Both these alternatives, considered by themselves, involve some reduction in welfare. In other words, the authorities are obliged to regard interest-rate volatility as a cost, to be set against the benefits that may accrue from monetary base control. Finally, recent experience has been that exchange rate movements have tended to follow nominal interest rate differentials. If this were to continue, it might be feared that monetary base control would induce exchange rate volatility as well as interest-rate volatility. Insofar as interest-rate volatility is regarded as having adverse consequences, the second mechanism described above through which monetary base control might work - ie by affecting the behaviour of the banks - is potentially very important. However, as already mentioned, only experience can tell whether it is effective.

The points made in the preceding paragraphs apply to monetary base control in general. However, as the consultation paper pointed out, monetary base control can be either mandatory or non-mandatory. The two forms raise different issues, which are discussed in turn in the following two sub-sections.