

Monetary Control: Detailed Arrangements
Consequent on the Publication of the Green
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TABLES AND CHARTS

Tables

- I Balance Sheets of "the Monetary Authorities" and Commercial Banks
- II The Monetary Aggregates: definitions
- III Illustrative MBC Scheme: main features

Charts

- 1. Monetary Base
- 2. Ratio of Money to Base (M1 and £M3)
- 3. Prices and Monetary Base
- 4. Prices and Money (M1 and £M3)
- 5. Monetary Base: Velocity
- 6. Money Velocity (M1 and £M3)

Table I: Balance Sheets

A. Consolidated Accounts of "the Monetary Authorities" (ie. relevant parts of the balance sheets of the Bank of England, the Royal Mint and the Exchange Equalisation Account)

Assets	Liabilities
1. Foreign exchange reserves (net)	1. Notes and coins held by banks and non-banks
2. Lending to central Government [note: changes in lending= CGBR less <u>all</u> sales of public sector debt to banks and non-banks]	2. Bankers balances
3. Lending to bank and non-bank private sector (including lending at last resort)	

B. Commercial Banks

Assets	Liabilities
1. Lending to public sector: ie bankers balances, notes and coins, public sector debt. [note: changes in lending <u>equal</u> PSBR <u>less</u> sales of public sector debt to non-banks, <u>less</u> non-bank holdings of notes and coins]	1. Residents' £ deposits
2. Lending in £ to private and overseas sectors	2. Overseas £ deposits
3. Lending in foreign currency	3. Foreign currency deposits
	4. Non-deposit liabilities

Table II: The Monetary Aggregates: definitions

MONETARY BASE

Defined as some or all of the liabilities of the monetary authorities.

Widest definition

M^1_0 = notes and coins held by banks and non-banks + bankers balances with the Bank of England.

Counterparts:-

changes in M^1_0 = CGBR less sales of public sector debt to banks and non-banks plus net official intervention in the foreign exchange market.

Narrow definition

M^3_0 = bankers balances with Bank of England.

Counterparts:-

changes in M^3_0 = CGBR less sales of P.S. debt to banks and non-banks less notes and coins plus net official intervention in foreign exchange markets.

MONEY SUPPLY

M_1 = notes and coins + £ sight deposits.

M_2 = M_1 + 7 day time deposits of retail banks: defunct since 1972. New definition would comprise all retail deposits eg. deposits under £50,000. 7

£M3 = M_1 + private sector £ time deposits + public sector £ sight and time deposits.

Counterparts:-

changes in £M3 = PSBR less sales of public sector debt to non-banks plus bank lending less external finance of public and banking sectors less non deposit liabilities.

M_3 = £M3 + residents foreign current deposits.

PSL1 = Notes and coins plus £ bank deposits with original maturity under 2 years, CD's, plus money market instruments (ie. Treasury bills, bank bills, local authority deposits, deposits with finance houses) plus CTD's.

PSL2 = PSL1 plus savings deposits and securities (ie. shares and deposits with building societies, deposits with TSB's, deposits with National Savings Bank, Premium Bonds, British Savings Bonds, National Savings Stamps and gift tokens).

M_1 , PSL1 and PSL2 relate to non-bank private sector holdings; public sector deposits are excluded.

ILLUSTRATIVE SCHEME: MAIN FEATURES

TABLE III

Feature	Purpose
<p>1. <u>Mandatory</u>: Banks must hold a specified proportion (eg. 8%) of their qualifying liabilities in base assets.</p>	<p>To ensure changes in the base affect growth of wider monetary aggregates.</p>
<p>2. <u>Base assets</u>: consist of bankers balances at the Bank of England.</p>	<p>Bankers balances entirely under the control of the authorities. Supply of base to banks insulated from swings in non-bank private sector's demand for notes and coins.</p>
<p>3. <u>Qualifying liabilities</u>: consist of banks' retail sterling deposits.</p>	<p>The control total is M2 (total retail deposits), not £M3, to minimise scope for disintermediation through euro markets.</p>
<p>4. <u>Interest</u>: to be paid on required reserves at market rates.</p>	<p>To minimise incentive for disintermediation.</p>
<p>5. <u>Lagged accounting</u>: ratio computed from qualifying liabilities at each make up day and base assets averaged over the next 4 weeks.</p>	<p>To smooth out erratic fluctuations; to minimise incentive to disintermediation.</p>
<p>6. <u>Financial penalties</u>: breaches of the required ratio carry prohibitive penalties.</p>	<p>To enforce minimum reserve requirements; to encourage holding of excess reserves (for greater flexibility)</p>
<p>7. <u>Lender of last resort</u>: Bank of England to cease acting as day-to-day lender of last resort. <u>BUT</u> it will lend to the market without <u>limit</u>:-</p>	<p>To allow the authorities to control the base.</p>
<p>(i) to prevent financial crisis. (ii) to cap excessive rises in short term rates.</p>	<p>To guarantee the stability of the financial system. To provide a safety valve in the case of unintended base asset shortage.</p>
<p>8. <u>Transition</u>: Bank of England to increase gradually the amount by which interest rates have to rise before lender of last resort facilities are made available to relieve base asset shortages.</p>	<p>To allow the financial system time to adjust.</p>

VARIABLE	MINIMUM	MEAN	MAXIMUM	INTERVAL
1 MB1	2472.	4755.	1.0009+04	94.0
2 MB2	674.0	1154.	1930.	
3 MB3	164.0	286.8	490.0	

160. 0.1110+04 0.204+04 0.298+04 0.392+04 0.486+04 0.580+04 0.674+04 0.768+04 0.862+04 0.956+04 0.110+05

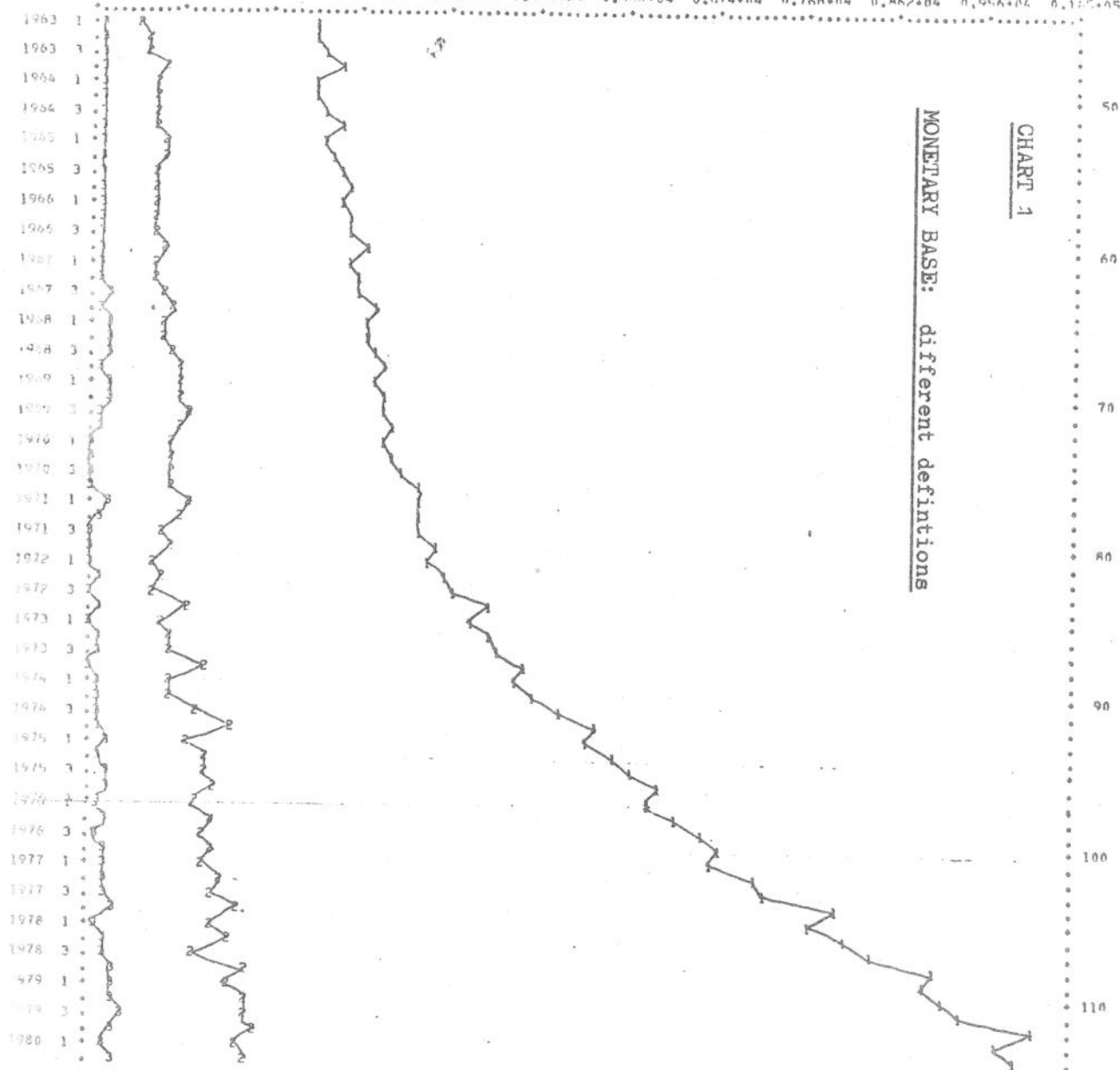


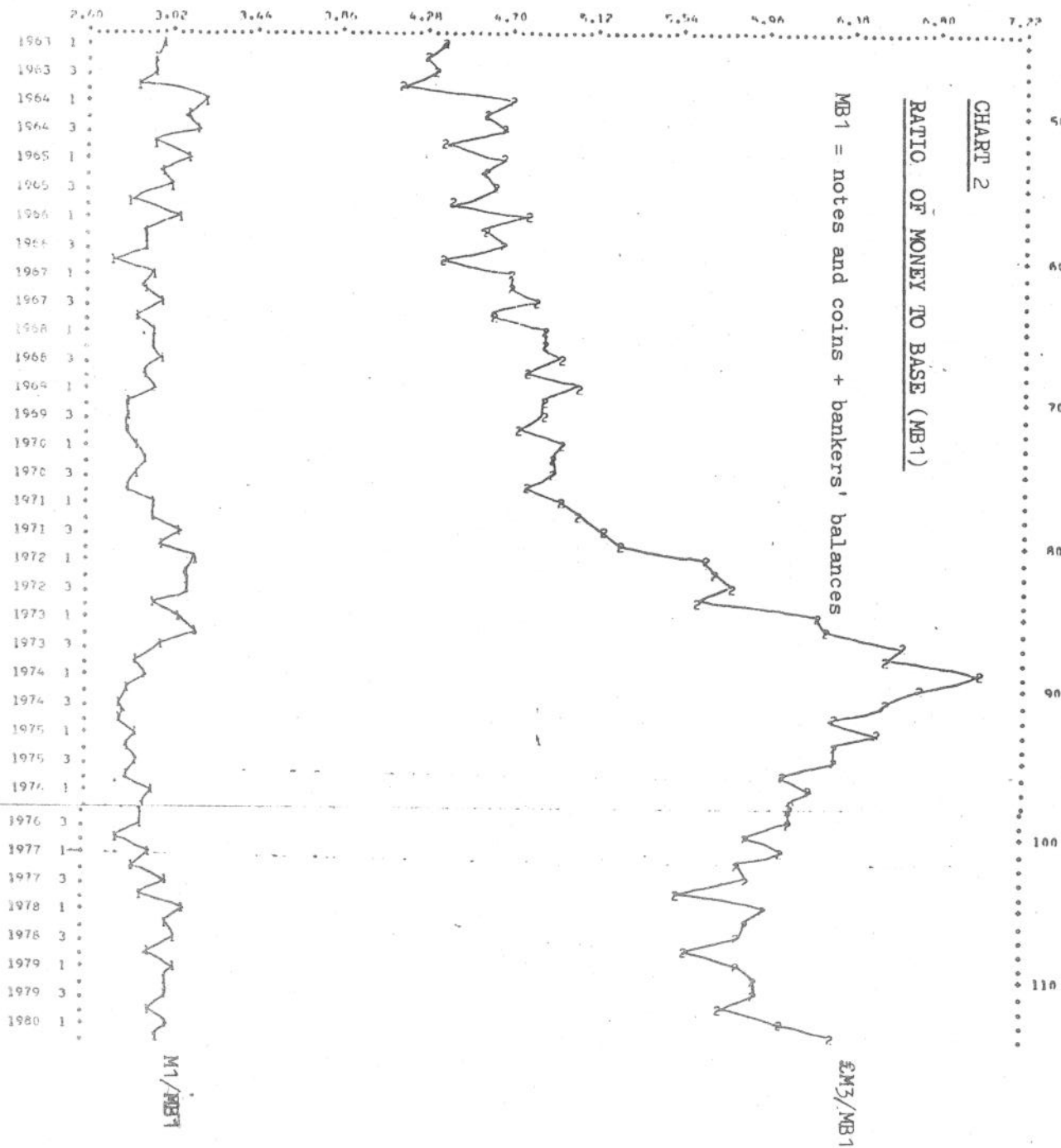
CHART 1
MONETARY BASE: different definitions

MB1 = Bankers' balances + total cash

MB2 = Bankers' balances + till money

MB3 = Bankers' balances

VARIABLE	MINIMUM	MEAN	MAXIMUM	INTERVAL
1 19 M1/R	2.724	2.940	3.200	4.200-02
2 41 EM3/R	4.144	5.377	7.614	



STATISTICS
 27 APR
 20 6881

MINIMUM	MEAN	MAXIMUM	INTERVAL
1.797	9.531	30.50	0.290
0.0000	8.505	17.07	

0.000 2.90 5.80 8.70 11.6 14.5 17.4 20.3 23.2 26.1 29.0 31.9

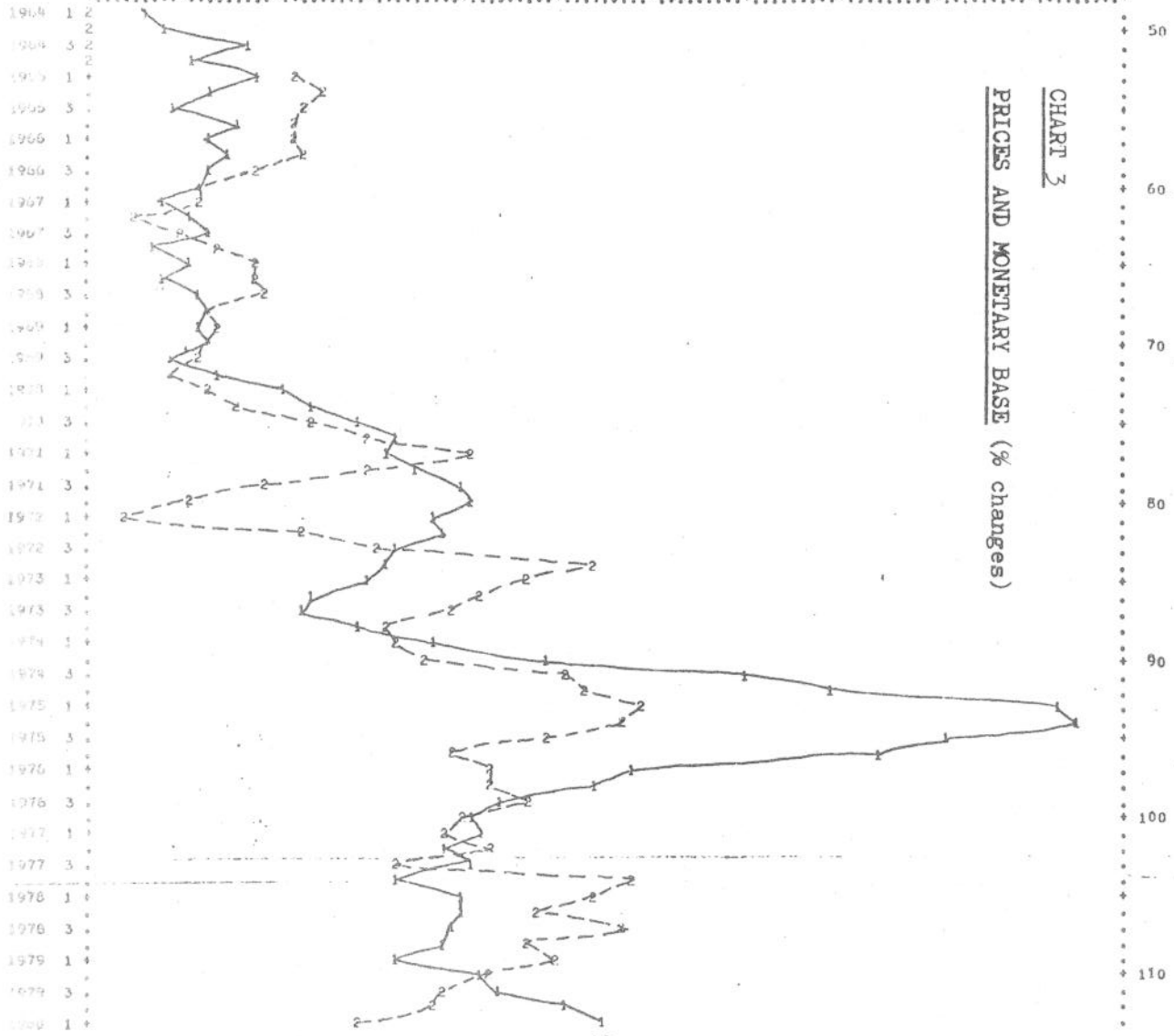


CHART 2
 PRICES AND MONETARY BASE (% changes)

% change prices

% change monetary base (notes and coins and bankers' balances)

VARIABLE	MINIMUM	MEAN	MAXIMUM
1 27 2p	1.797	9.531	30.50
2 33 2M1	-1.820	8.753	23.05
3 35 2EM3	1.631	10.75	27.61

INTERVAL 0.310

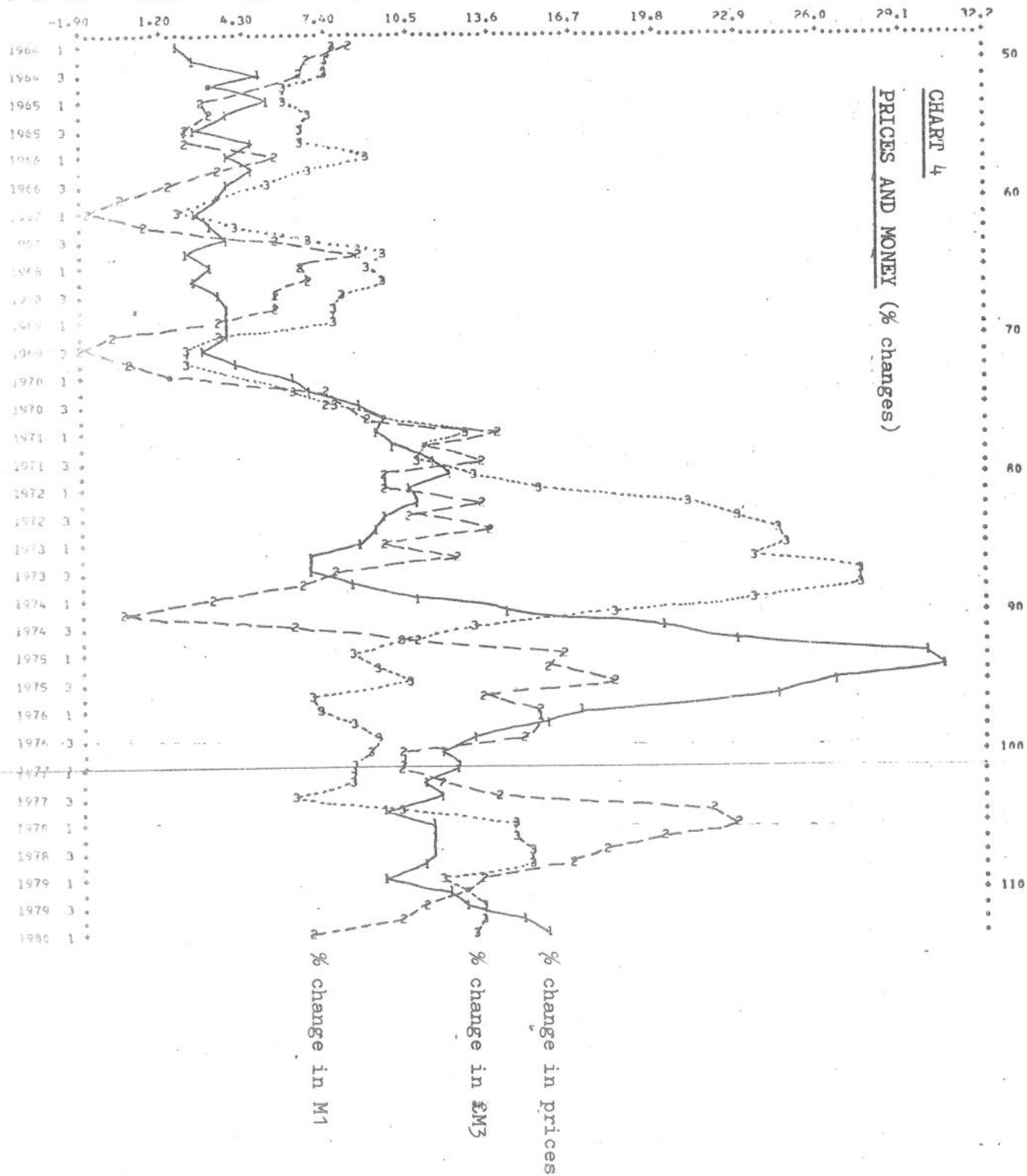
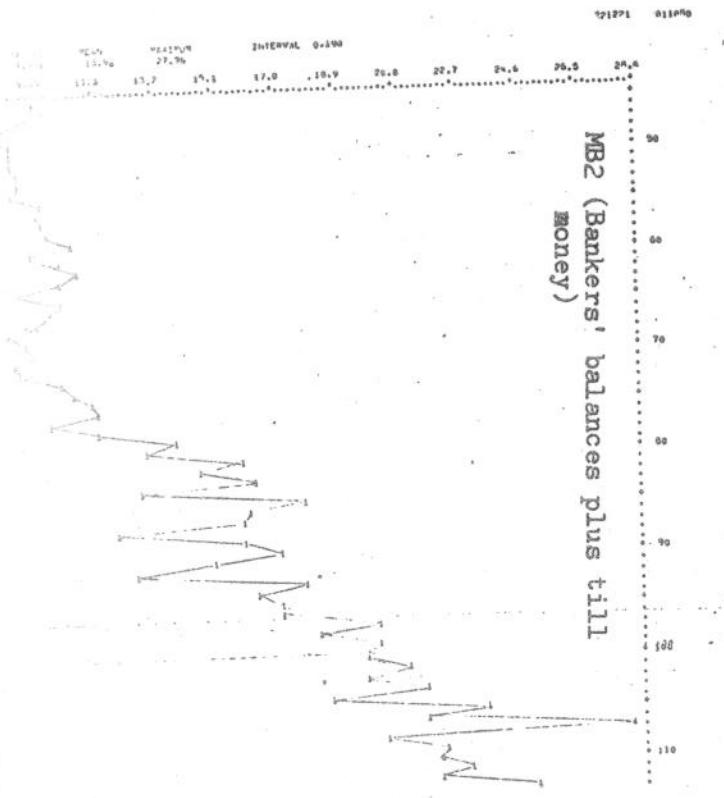
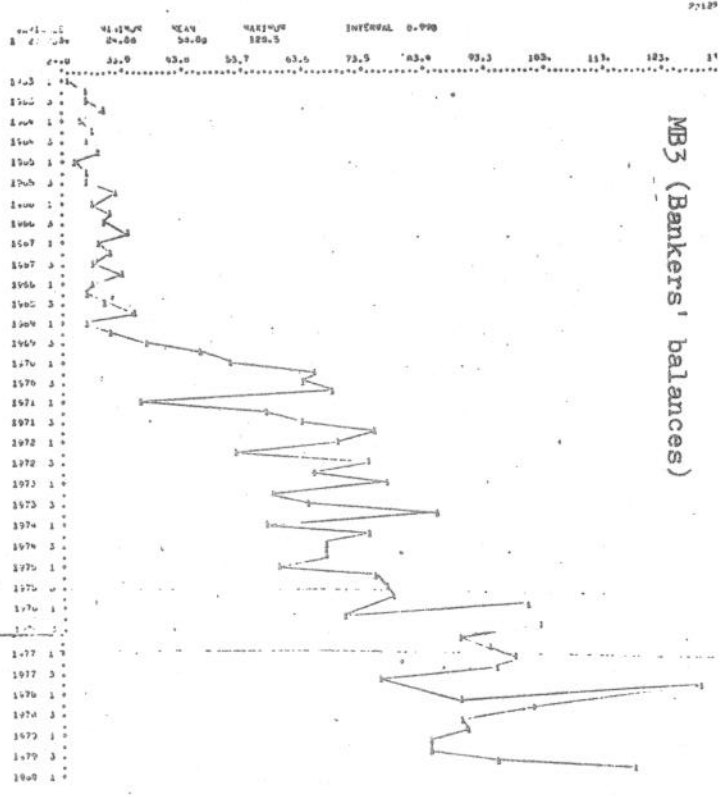
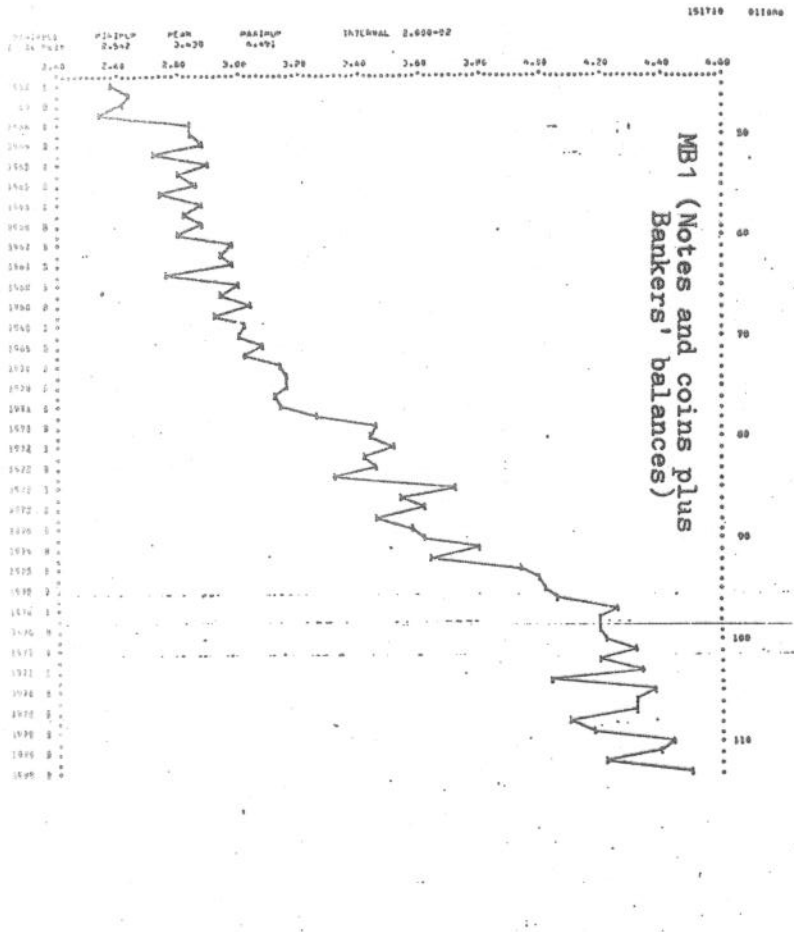
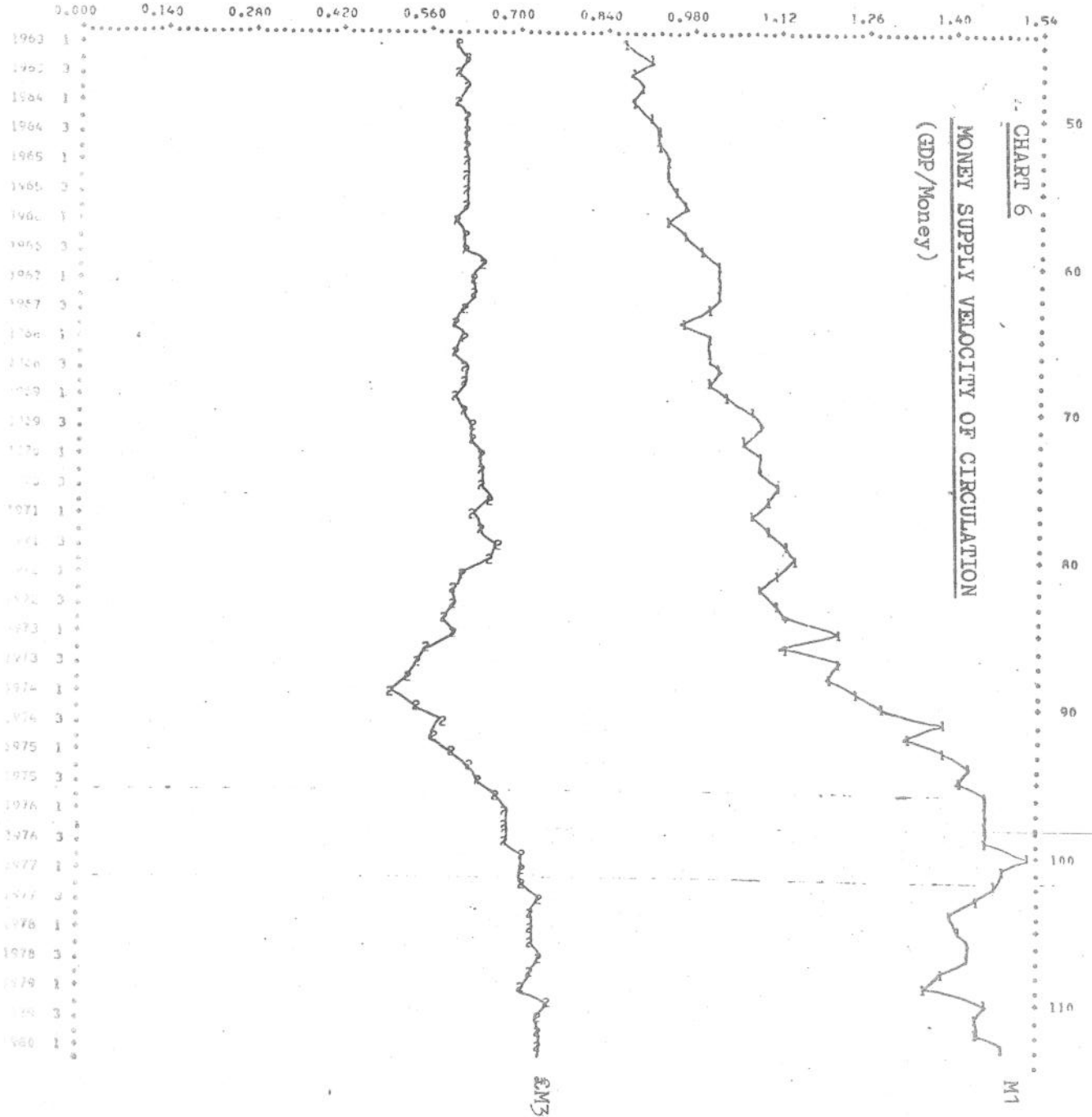


CHART 5
MONETARY BASE VELOCITY OF CIRCULATION



VARIABLE	MINIMUM	MEAN	MAXIMUM	INTERVAL
1 23 M1V	0.9746	1.154	1.527	1.400-02
2 25 M3V	0.5095	0.6311	0.7491	



0.000 0.140 0.280 0.420 0.560 0.700 0.840 0.980 1.12 1.26 1.40 1.54

1963 1
1963 3
1964 1
1964 3
1965 1
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1966 1
1966 3
1967 1
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1968 1
1968 3
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1969 3
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1973 1
1973 3
1974 1
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1975 1
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1976 1
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1977 1
1977 3
1978 1
1978 3
1979 1
1979 3
1980 1

M3

M1

- (e) For a simple but ascertainable measure of the average qualifying liabilities ratio, the Bank would require banks to report its qualifying liabilities on the last day of each day, as required, and this would form the denominator of the ratio. The numerator would be based on the bank's minimum weekly average holding of base assets over the period of the preceding banking month.
- (f) From that outset, there would be heavy and indeed prohibitive financial penalties on individual banks for breaches of the required base/qualifying liabilities ratio. These would be designed so that it never paid banks to respond to the control by breaching the requirement.
- (g) the Bank of England would announce its intention of ceasing to operate as an automatic day-by-day lender of last resort. Instead, the Bank would stand ready to lend without limit to the market on either of two conditions applying:-
- (i) at times of financial crisis, when the Bank would act as genuine lender of last resort; and
 - (ii) when inter-bank rates had risen to a level considered excessive. The level at which the Bank would lend would not be announced in advance.

(ii) How The Control Scheme Would Work

4. The Initial Situation: To illustrate the workings of the scheme, suppose that at the make-up day of the January banking month, the banks reported qualifying liabilities of \$50,000 million. In the first instance, the scheme provides for a mandatory base/deposits ratio of 8 per cent (point (a)). This is backed up by penalties for non-compliance (point (f)). Banks, therefore, need to hold at least \$4,000 million in base assets. Moreover, each individual bank may continue to hold excess base even though the excess does not pay interest (point (c)). This is to guard against the possibility that other banks may bid base assets away from it, thus leaving the first bank below the prescribed ratio and liable to heavy penalties. In order to ensure that banks collectively add sufficient excess reserves to make the system workable, it is important that the penalties for breaches of the prescribed ratio be severe. Otherwise, the banks might be prepared to incur such penalties for time to time rather than holding excess.

expressed as no interest. Given sufficiently stiff penalties, these excess holdings might be of the order of 2 per cent so that banks would, in fact, wish to hold £5,000 million of the base.

5. At the outset, the authorities are taken to be content with the growth of banks' qualifying liabilities which they believed to be consistent with the monetary target. In January, the supply of base will be close to the demand. But suppose that the monetary growth inherent in the reported January figures is too high to be acceptable. The authorities' reaction must be to restrict the base.

6. The Authorities' Behaviour: In order to tighten the base, the authorities have to operate on the following identity:

Change in Bankers Balances at the Bank of England (ie Change in the Base)	=	Central Government Borrowing Requirement	+	Net Official Intervention in the Foreign Exchange Market	-	All Sales of Public Sector Debt (including Notes and Coin)
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7. Of the three items on the right-hand side of the base identity, the central government borrowing requirement will normally be outside the control of the monetary authorities in the short run. Moreover, the size of the foreign exchange market intervention will be fixed by exchange rate policy. The authorities must then sell sufficient public sector debt over the February banking month so that, taking account of the CGBR and changes in the foreign exchange reserves, the base is small enough to put the banks under pressure. Because of their January qualifying liabilities, the banks must hold £4,000 million and would like to hold £5,000 million in base. Public debt sales must then be such as to reduce the base to below £5,000 million. This would represent a disequilibrium situation for the banks, who may be expected to take steps to try to restore their desired base/deposit ratio. As debt sales are increased so that the base falls towards £4,000 million the pressure on the banks to do so is stepped up. Indeed, if the authorities were to reduce the base below £4,000 million, the disequilibrium would have become so great that the banks were quite unable to meet the required base/qualifying liabilities ratio and would be forced to incur the penalties for default. It should be noted that from the point of view of controlling the base alone, it does not matter what public sector debt is sold or indeed to whom. On the other hand, these factors may affect the behaviour of non-bank private sector. Sales of Treasury Bills to the non-bank private sector, for example, will increase PSBR whereas sales of gilts will not.

... the point of view of monetary control, the direct effects of a rise in the rate of interest will be to reduce the attractiveness of bank deposits. In consequence all the other things being equal to maintain the base, the interest rate on public sector debt will have to rise and the demand for bank deposits will be reduced. This effect will occur whenever the rate of interest rises.

4. Restoring the base: But as well as the direct effects of the authorities' actions, there will be further effects of monetary growth stemming from the fact that the banks are now in disequilibrium. There are a number of ways in which individual banks can try to restore their base/deposit ratios, and they will resort to some or all of these:-

- (i) They may try to borrow base assets from each other by bidding for funds in the inter-bank market. This will lead to a rise in inter-bank rates of interest and cause such marginal deposits to become expensive.
- (ii) Each bank can increase its own holdings of base assets by selling its holdings of public sector debt either to another bank or to the customer of another bank. In itself, this action will not increase the base: only if the authorities intervene and repurchase public sector debt will it expand. But, assuming that this does not occur, as the banks collectively sell public sector debt to the non-banks, its rate of interest will rise and the attractiveness of bank deposits will be reduced.
- (iii) They can attempt to switch their qualifying liabilities into forms which are just outside the scope of the control. Since in the above scheme qualifying deposits embrace all retail sterling deposits, the main possibilities would be for the banks to raise the premium they pay to depositors for large quantities or, alternatively, to shift liabilities and assets off their books entirely. Acceptance credits and the Euro-markets present a number of possibilities of this latter kind.
- (iv) They can raise their lending to the private sector, using the proceeds to reduce their qualifying liabilities. This reduction in bank lending would reduce the resources available to the private sector and hence would reduce the demand for bank deposits. Banks could, in fact, accomplish

this reduction in lending in several ways. First, they could raise their base rates on lending and rely on the reduced demand for lending to bring about the reduction. They would indeed have an incentive to do just this in order to prevent the possibility of round-tripping arising from the raised rates in the inter-bank market. Second, they could ration credit without raising its price, merely turning away non-preferred potential borrowers. Third, as an alternative to outright credit rationing, the banks could make changes to the terms on which they lent - for example, lending on less flexible terms or encouraging customers to borrow from non-bank sources.

10. Not all of these alternatives will aid monetary control. Possibilities (ii) and (iv) may be said to constitute asset management by the banks and, if followed, will lead to a reduction in monetary growth. Possibility (i), however, constitutes liability management. Ultimately, this course cannot succeed in meeting the banks' desire to reduce their base asset pressure. But over any period that it is practised by the banks collectively, it could have perverse effects. Since the effect is to raise at least some deposit rates, the non-banks may find bank deposits enhanced in attraction and thus tend to increase monetary growth. On the other hand, possibility (iii) includes disintermediation; the banks would succeed in relieving their base asset pressure, but in a way which would have little genuine monetary consequence for the economy. It could also result in action which reduced the narrow aggregates such as M2 but which had no impact at all on the wider aggregates such as PSL1 or PSL2.

11. It is not easy to tell which of these paths the banks would follow in advance of imposing the scheme. But three points in particular seem to be relevant:-

- (i) Over a reasonable period of time, the banks would probably act in ways which maximised their profits or at least minimised the loss of profits due to the control.
- (ii) But banks would not necessarily act as profit maximisers over very short intervals of time. They are sensitive to sharp short run increases in their profits which may lead to hostile public comment. Thus, at times when their profits are especially high, banks may not be averse to making losses on some of their operations.

(iii) The potential perverse response of monetary growth from liability management by the banks can only arise if one or more short-term interest rates moves inflexibly.

In particular, a perverse response is likely to occur if the Treasury Bill rate is not allowed to move upwards in line with the rate on the banks' liabilities or if the banks do not move their lending rates in line with the rates they pay on their marginal deposits.

12. From the point of view of operating monetary control, there are four implications. First, to the extent it is possible at low cost, in general the banks will resort to disintermediation to relieve their base asset pressure. It is this course which will have least effect on their profits: other routes are only likely to be followed if methods of disintermediation are either not available or at high cost. Second, in the longer term and if disintermediation is not possible, asset management will take place and monetary growth will be reduced. This will be so because, for the banks as a whole, liability management will not relieve the base asset pressure but will lead to lower profits as bidding for liabilities becomes increasingly expensive relative to the rates obtainable on earning assets. But thirdly, in the short run, liability management may well occur and lead to perverse responses in monetary growth. There are two reasons for this. Disturbing their asset portfolios is likely to be an expensive business for the banks. Contraction of private sector lending may lead to long-term loss of good will amongst the banks' customers, while sales of public sector assets may force realisation of capital losses as interest rates are rising. At the same time, at times when base asset pressure is severe, interest rates in general are likely to be high. It is in these circumstances that banks' profits are also likely to be unusually high because of the endowment income the banks receive on their low interest current accounts. Particularly if the base pressure is expected to be short-lived, loss-making liability management operations may provide a useful device for the banks to dissipate their unwanted short-term profits bulge. Fourth, so far as the authorities are concerned, they must behave in ways which minimise this incentive to liability management rather than asset management. One point is that they must not restrict the Treasury Bill rate at times when base asset pressure is created. A further point is that they must allow the banks time to adjust their own rates. For this reason, sustained moderate base asset pressure is likely to be more successful than sharp but short-lived pressure.

13. The Combined Effects of the Authorities' and the Banks' Actions:

As the authorities took action to restrict the base, the rate on public sector debt will have risen. Provided they have not been able to react entirely by disintermediation, the banks will have had to begin to sell assets to relieve the base asset pressure resulting from the authorities' actions. This will have tended to raise public debt rates further as well as reduce bank lending. All of these effects will reduce monetary growth and by the time of the make-up day in the February banking month, the banks' base asset requirements for the March banking month will have become easier. These processes will continue until the banks are once again holding their preferred excess holdings of base assets.

14. Effectively, the base control has allowed the authorities to control the money stock directly via the (nearly) fixed ratio between the base and the money stock. In the process, the interest rates necessary to control have been generated automatically. The more base asset pressure the authorities cause, the greater will be the interest rate changes generated and the greater the incentives for the banks to reduce their liabilities.

15. But at the same time, it may not be possible for the authorities to control the level of the base with exactitude. Unanticipated short-run movements in the CGBR, for example, could lead to greater base asset pressure than the authorities intended. Moreover, it is likely that as the base is restricted to levels close to the required minimum, small changes in base pressure would lead to large swings in interest rates. For this reason, it is desirable that a safety-valve be built into the system. Point (g) of the scheme thus provides for some high level of interest rates at which the Bank of England should lend base assets to the system to prevent further rises. Why this facility would assume the exact form proposed in the illustrative scheme is discussed further in the next section.

(iii) The Transition to the Illustrative Scheme

16. Under monetary base control, the authorities aim to control quantities and allow the interest rates to be determined by the market. This is a very different world from that of the present monetary control system where the authorities essentially operate on short-run interest rates in order to influence monetary quantities. Neither the authorities nor the banks have experience of this new environment and there is bound to be a learning period of some duration while the controllers and those controlled determine how to operate in it. It is therefore desirable that there should be a period of transition from the existing to the new regime rather than an abrupt and probably disruptive change-over.

17. This transition is most easily accomplished by a gradual change in the role of the Bank of England as lender of last resort. Currently, short-run interest rates are largely administered by the market, and the lender of last resort function is used to help enforce the authorities' policy. The market is normally able to borrow from the Bank on demand at rates only a little above prevailing market rates. Interest rates cannot move for this reason far above the Bank's lending rate. As the first step in the transition, the Bank would announce that it would no longer lend on demand but only when interest rates had risen by a considerable extent from their original levels. This extent would not be announced, but the effect would be that the market would have a chance to clear at rates over that range, without the authorities intervening. On the other hand, should base pressure be such as to raise rates above the Bank's intervention point, then the Bank would lend at that rate, automatically relieving the base asset pressure and preventing further rises in rates.

18. As the second stage in the transition, the margin between the Bank's intervention point and the initial level of interest rates would be progressively widened. In the first stages, the range over which interest rates could move would be fairly small, the market would borrow from the Bank frequently and base pressure would correspondingly often be relieved. As the range widened, interest rates could move more freely, lender of last resort facilities would be granted less often and base asset pressure thus more completely controlled. Ultimately, the intervention point would be set so high above prevailing rates that the Bank would rarely lend to the market. Normally it would do so only when mistakes by the authorities or the banks had created unintended severe base-asset pressure. In this sense, the lender of last resort function would be serving the role purely of the safety-valve, discussed in the last section, and the transition to base control would then be complete.

19. In order for the market to take advantage of these transitional arrangements, the authorities would announce at the outset that the system would be developed in this way. But the intervention point or its projected path should not be made public. If it were, there is a danger the markets would treat it, like MBR, as a discretionary device for administering interest rates. It is important rather, that the markets understand that the intervention rate does not have this function. It is instead only a means of transition to the base control system and then, finally, the safety-valve of the fully-evolved regime.

(iv) The Rationale of the Illustrative Scheme

20. In order to be workable, any scheme of monetary base control has to be specific on the following seven points:-

- (i) Should there be a mandatory base asset/bank liabilities ratio?
- (ii) How is the lender of last resort facility to be used?
- (iii) What assets are to comprise the base?
If there is to be a mandatory ratio:
 - (iv) How big is the ratio to be?
 - (v) What bank liabilities are to be included in its scope?
 - (vi) On what accounting basis is the ratio to be measured?
 - (vii) What are the penalties to be for breach of the ratio requirement?

21. In the illustrative scheme, these points have been answered in a particular way. The main paper has discussed why a mandatory ratio has been included and the previous sections have considered what form lending of last resort should take. In this section, the reasoning underlying the rest of the choices is outlined.

(a) What Assets are to Comprise the Base?

22. As the main paper notes (paragraph 36), in a mandatory scheme, it is control of the supply of base assets to the banks which is important. The question is then whether the base should include bankers' balances at the Bank of England, banks' holdings of notes and coin - till money, or both. This issue must turn on which base definition the authorities would find the easiest to control.

23. In control terms, there is a clear case for not including till money in the base. Unlike bankers' balances at the Bank of England, notes and coin are held by non-banks. If they were included in the base, the banks would have to compete with the non-banks for the available base assets. Because we do not fully understand the demand for cash by the non-banks, neither the banks nor the authorities would know how much of the total base would finish in the hands of the banks and thus be available to support deposit creation. This would create unnecessary uncertainty.

24. Against this, under present arrangements, the banks would be able to vary their base beyond the control of the authorities by surrendering spare till money for credit as bankers' balances at the end of the day.

This would be a nuisance but administrative means might be found to limit it. For example, an arrangement whereby till money surrendered to the Bank of England one day did not count in bankers' balances until the next day would remove most of this problem.

(D) How High is the Required Ratio to be?

25. Three separate points bear on this issue and underly the proposals of the illustrative scheme. First, the required ratio must not be such as to penalise the banks, since to do so would give rise to disintermediation even before the control was made effective. To avoid this occurring, the banks must be remunerated for any loss incurred in being forced to hold required base assets. The obvious way to do this is to make required base holdings interest-bearing at market rates.

26. Secondly, from the point of view of making the authorities' intentions clear to the market, it is desirable that the base should be as large as possible. Not all of the counterparts of the base are under the control of the authorities in the short run. Unforecast swings in the CGBR alone, for example, can be as much as £500 million in a single day and this would feed directly into the base. Clearly the higher the normal level of the base, the less important these fluctuations will be. For example, assuming qualifying liabilities of £50,000 million as in the earlier example, a base/deposit ratio of 1 per cent would imply a normal base level of only £500 million and the fluctuations would have a major impact. The banks would not know whether a sudden sharp contraction of the base represented a deliberate change in the authorities' policy, requiring action on their part, or whether it was entirely unintentional. But a ratio of 15 per cent would be consistent with a normal base of £7,500 million and the CGBR swings would have less impact. Another way in which the effects of CGBR fluctuations can be ironed out is to average the base over a period, say a month, in calculating the numerator of the required ratio. Because we can forecast the CGBR with more confidence over a month than on any single day within the month, this provision would make it easier for the authorities to generate the desired degree of base asset pressure.

27. But, thirdly, too high a ratio would militate against the power of control. Clearly the higher the ratio, the greater the contraction in base assets required to achieve a given contraction in the target aggregate. Hence the greater the amount of public sector debt which