

## 2. Monetary Base Control

Dr Perlman on Monetary Base  
Control

Copies: Mr. Middleton  
Mr. Burton  
Mr. Mouch.

cc Mr. Burns  
Mr. Walters  
Ms. 10.

MRS LOMAX

# DR PERLMAN ON MONETARY BASE CONTROL

I managed to contact Perlman at his home this morning. He told me that he has written a slight elaboration on his December 1979 paper (copy attached) and he will send me a copy. However, the only substantial change seems to be the inclusion of a criticism of the Green Paper. His proposals themselves are unchanged.

2. Perlman takes as his starting point the "negotiable entitlements" proposals of Duck and Sheppard (EJ March 1978). He notes, however, that as they stand the Duck and Sheppard proposals make control of the money supply sensitive to variations in the public's demand for notes and coin. An increase in the public's holding of currency by definition increases the money supply by the same amount. But it also leads to a contraction of the banks' reserve base and thus to a multiple contraction of the money supply. The aim of his proposal is to isolate the total money supply from changes in the public's holding of currency.

3. To achieve this aim, Perlman proposes that all banks have two accounts at the Bank of England:

- i. a reserve asset account ( $R^d$ )
- ii. a currency account ( $R^c$ ) in which all currency transactions between banks and public or banks and Bank of England will be reflected.

4. The control scheme is a mandatory one in which the banks have to hold a fraction  $p$  of their qualifying liabilities ( $D^e$ ) in the form of reserve assets. Qualifying liabilities are defined by

$$D^e = D - (C_v + R^c)$$

(1)

where

$D$  = deposits entering the money supply definition

$C_v$  = banks' till money

$R^c$  = banks' currency accounts balances with the Bank of England

By definition, we may divide total currency ( $C_u$ ) into that held by banks ( $C_v$ ) and that held by the public ( $C_p$ ). Adding  $R^c$  to both sides of the identity:

$$C_v + R^c = C_u + R^c - C_p \quad (2)$$

Let  $c (= C_p/D)$  be the public's desired cash/deposit ratio. Then using this definition and substituting (2) into (1):

$$\begin{aligned} D^e &= D - (C_u + R^c - cD) \\ &= D(1+c) - (C_u + R^c) \end{aligned} \quad (3)$$

But by the nature of the scheme:

$$D^e = \frac{1}{p} R^d \quad (4)$$

so  $D(1+c) = \frac{1}{p} R^d + (C_u + R^c)$

Since the money supply,  $M$ , is:

$$\begin{aligned} M &= D + C_p \\ \therefore M &= D(1+c) \end{aligned} \quad (5)$$

Clearly from (4) and (5):

$$M = \frac{1}{p} R^d + (C_u + R^c) \quad (6)$$

5. Equation (6) comprises the lynch-pin of the proposals. By operating suitably on  $R^c$  and  $R^d$ , the Bank of England can now control the money supply without distortion from the public's demand for notes and coin. Two cases are considered:-

a. a deliberate expansion in the money supply. Suppose it is desired to increase the money stock by an amount  $\Delta M^*$ . By open

market operations, the Bank now buy  $\Delta M^* (c + p(1 - c))$  securities. To pay for them, the Bank credit the reserve asset account with  $\Delta R^d = \Delta M^* p(1 - c)$  and also credit the currency account with  $\Delta R^c = \Delta M^* c$ . Substituting into (6) we obtain

$$\begin{aligned} M &= \Delta M^* (1 - c) + \Delta M^* c \\ &= \Delta M^* \quad , \text{ as desired} \end{aligned}$$

b. a shift in the public's deposit/currency ratio. Suppose that the authorities do not wish the money supply to change. As the public withdraw its currency, the banks'  $R^c$  accounts are run down. Since  $R^c$  does not contain reserve assets, this will not affect the money supply but it will leave banks dangerously exposed. If  $R^c$  falls low enough, banks may begin to suspend payment. To prevent this, the Bank of England must restore these accounts to their original level. If the currency drain has been  $\Delta R^c$ , the Bank buys  $\Delta R^c$  securities in the open market and credits the proceeds to the banks' currency accounts.

In both cases, the Bank has maintained monetary control in spite of the unpredictable public demand for notes and coin.

6. The first point to make about these proposals is that they are very mandatory in nature. Banks have to maintain  $pD^e$  deposits as reserve assets. The proposals have nothing to say about the general objections to mandatory schemes - in particular, the banks' incentives to circumvent the control by disintermediation, just as they did under the Corset. But, given this limitation, does the scheme have any advantage over other mandatory proposals? Certainly, most proponents now seem to have been persuaded that, in a mandatory scheme, it is more practicable to exclude notes and coin from the base asset definition. The object is then to control Bankers' balances at the Bank of England and the relevant counterparts are:

Change in bankers' balances at B/E	=	CGBR <u>plus</u> Foreign Exchange Intervention	-	Sales of Interest - Bearing Public Sector Debt	-	Increase in Notes and Coin in Circulation
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7. If the object were to control only eligible liabilities, then the automatic prescription from this would be that any variations in the note circulation should be offset by sales or purchases of public sector debt. But of course it is the money supply, not just eligible liabilities, we want to control and the public's holdings of notes and coin are part of this total. Consequently, increases in notes and coin held by the public rather than banks should not be fully offset in gilt purchases. The increased contribution of notes and coin to the money supply must be matched by reduced eligible liabilities and thus by a scaled reduction in Bankers' balances. To achieve this, purchases of gilts must be somewhat less than the increase in the currency circulation, giving the correct reduction in the reserve base.

8. The apparatus set up in Perlman's note would enable us to carry out the correct open market operations in public sector debt. But the operations could also be carried out easily without the cumbersome arrangements of double accounts at the Bank of England. Day-by-day, the authorities know the level of Bankers' balances and thus in a mandatory scheme the level of qualifying liabilities. They also have frequent information on the public's and banks' take-up of currency (with daily information on the total). They therefore have all the information they need to make the correct open market operations to achieve monetary control. Nothing is added by the separate currency and reserve accounts at the Bank of England.

9. Still less would these arrangements have any place in a non-mandatory scheme. The essence of such systems is that banks have a voluntary demand for base assets stemming from commercial and prudential requirements. There must be no compulsion on banks to hold reserve assets since it is just this which creates Corset-like distortions. Control of the base is then exercised via the following counterparts.

$$\begin{array}{rcl} \text{Change in} & = & \text{CGBR plus} \\ \text{Base} & & \text{Foreign Exchange} \\ & & \text{Intervention} \end{array} \quad - \quad \begin{array}{l} \text{Sales of Interest} \\ \text{Bearing Public Sector} \\ \text{Debt} \end{array}$$

10. Given the Exchequer financing needs, the authorities now merely

regularly gilt sales to achieve their base target. Again the double accounts at the Bank of England have no role to play.

*J W Grice*

J W GRICE

February 1981

MR MIDDLETON

cc Mr Burns  
Mr Monck  
Mrs Lomax  
Mr Pirie  
Mr Turnbull  
Mr Grice  
Mr H Davies  
Mr Shields  
  
Mr George )  
Mr Goodhart )  
Mr Coleby ) Bank of Engla  
Mr Foot )  
Mr Allen )

NON-MANDATORY MBC

1. I have seen Mrs Lomax's note for Professor Walters on non-mandatory MBC.

2. May I add a few thoughts of my own:

- (i) The method of control which she describes as "broadly quantitative methods" in paragraph 2 and amplifies in paragraphs 16-18 would not be recognised by the enthusiasts as "true" MBC. It is in fact much more a case of setting interest rates day-by-day with a view to their effect on the base. The Bank operators do not believe that day-by-day information on the base would be of much use to them; they would in practice necessarily conduct their tactics in terms of raising or lowering short rates. This is not just a point about the transition, it would be true even after the system had been running for years.
- (ii) We do not know how to set interest rates so as to achieve a given outcome for the base over a six-month period. The elasticity may be so small as to make the exercise impossible. In combination with (i) above, this means that it is (contrary to the usual presumptions) more difficult to control the base than, say, M1.
- (iii) So far as we can tell, it would also make better sense to control M1 in terms of its impact on inflation, but that is another story.

- (iv) Aiming to control the base by setting appropriate interest rates might indeed involve little institutional change beyond that already planned - although that of course depends on how volatile interest rate changes would in the event be. To be sure of controlling the base would involve much more fundamental change, and might indeed not be feasible by any means - short of limiting the note issue.
- (v) Some of the advantages claimed for MBC by its proponents depend on the presumption that desirable institutional changes would take place. If MBC is so easy, can it really be worth having?
- (vi) "True" MBC depends on the existence of a substantial spontaneous demand for bankers' balances. This, in turn, requires a real risk of insolvency (or other severe penalties) for a bank that runs out of cash. In discussion we encountered a real difficulty in reconciling this with the supervisory role of the Bank of England. This, again, suggests that "true" non-mandatory MBC may be impracticable. Hence the shift to quasi-MBC or base targetting.
- ✓

*Pauline Hogg*

pp A J C BRITTON  
3 February 1981

A Walters

① What base

② How control.



H M Treasury

Parliament Street London SW1P 3AG

Switchboard 01-233 3000

Direct Dialling 01-233 5627

P E Middleton

Deputy Secretary

3 February 1981

Professor A Walters  
10 Downing Street

*Dear Alan,*

Non-Mandatory Monetary Base Control

I attach a note on steps to non-mandatory monetary base control on the lines we discussed. It is very much a first shot at this stage.

I have not shown it to Treasury Ministers yet. I think it would be a good idea if we discussed it with you and the Bank first.

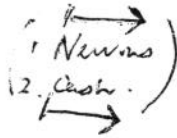
I will get in touch to arrange a meeting.

*Yours sincerely*

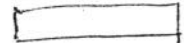
*P E*

P E MIDDLETON

Enc



1. flex in currency
2. for at all



## NON-MANDATORY MONETARY BASE CONTROL

### Summary

This note considers what might be involved in moving to a non-mandatory system of monetary base control within the next six to nine months. It reflects discussion at a technical level, with the operators at the Bank of England, but they are not committed to any of the judgements contained in it. There are a number of issues on which we would want to reflect further ourselves, before proffering firm advice.

2. Our preliminary conclusion is that the Bank could aim to meet targets for the wide monetary base over periods of about six months, by broadly quantitative methods, within the institutional framework that has been proposed following the November Statement. There would be implications for prudential control, and for the Bank's proposed call money ratio, but otherwise the main changes needed on the part of the authorities eg. to the reserve asset ratio, the cash ratio, the status of ✓ MLR are already in the pipeline. (but not to be accelerated.)

3. A sharp change in the terms on which the Bank provides cash to the banking system could be expected to change private sector behaviour in a number of ways, and would almost certainly create great, possibly intolerable, problems for the discount market. These changes may be disruptive, but a new system is likely to work better when they have taken place. The most effective contribution the authorities can make is to state clearly what they propose to do and when. There is a strong case for making any announcement before the Bank opens negotiations with the clearers on the cash ratio and related topics, and before detailed consultations on the new prudential arrangements are very far advanced. That points to the Budget or shortly afterwards. To be wholly credible, in the present

assess  
new idea

15/9/2

climate, such an announcement would need reinforcing by evidence that interest rates will be allowed to fluctuate in an upward as well as a downward direction. ✓

#### Defining a new system

4. Issues that would need deciding include:

(a) the definition of the base for target purposes: wide base, or bank cash reserves only?

(b) the time horizon over which the authorities try to meet the target;

(c) the nature of any safety valves, in the event of a system-wide cash shortage eg. unlimited provision of cash above some ceiling level of interest rates; ✓

(d) the role, if any, of targets for other monetary aggregates; ✓ *What is it?*

(e) the basis on which numerical targets (or ranges) for the base might be chosen; and the starting date for an ✓

✓ No target.

N. 4-5 up  
5. Initially it would be easiest to set a target for the wide base (notes and coins plus till money plus bankers' balances). We have some information about the demand for notes and coins, and there is no particular reason to expect a large shift in this demand in response to a move to MBC (though this cannot be ruled out). But changes in the Bank's operations could produce a sizeable shift in bankers' balances. Since these balances are about a third of total banks cash reserves, but only 5% of total Mo, very large changes in bankers' balances would have a relatively minor effect on the wider measure (eg. a doubling in bankers' balances would add only 5% to total Mo, but increase banks total cash holdings by more than a third).

6. The Bank would however find it easier to control the cash holdings of the banks alone. This is the magnitude that they would be operating on in their day to day transactions with the banking system. A wide Mo target would require the Bank to achieve a path for banks cash which would offset movements in the non-bank private sector's demand for cash (over some suitable period). One difficulty is the enormous disparity between the banks holdings of cash and the public's, which could make a simple policy of offsetting movements in one against the other impractical on occasion. It may also be unnecessary, if control is not sought in the very short term. What the Bank needs to do if, for example there is a surge in the public's cash demand, is to squeeze the supply of cash to the banks until they in turn bid notes and coins away from the non-banks to the extent needed to bring Mo back on track within (say) several months. Control of wide Mo would thus be based on judgements about the behaviour of the private sector (much as control of M1 or M3) and would therefore - inevitably - be fallible.

7. On (b), our preliminary view is that control over less than six months is not economically necessary, and should not therefore be attempted. On (c), a reasonably long time horizon for meeting the target, coupled with the possibility that the banks own demand for cash would prove fairly flexible, should reduce the need for safety valves. But there is always a chance that the system as a whole will find itself short of cash, for example when the demand for base is running well above target. A totally unaccommodating official response implies an ultimate willingness to allow individual institutions to go bankrupt. It is difficult to see how the supervisors could frame prudential rules which would discharge their statutory obligations in this world. A less drastic alternative would be for the authorities to provide cash, but at a price (eg. at a rate which was penal in relation to previous market rates). Note that the rate at which cash was freely supplied would effectively set a ceiling on market interest rates - though it would only become operative if there was a system wide cash shortage.

8. Should there be a published target from the outset (eg. the next Budget) or would it be better to allow for a period of more or less private experiment before announcing precise figures (say in the autumn)? Clearly it is difficult to choose a target range in ignorance of how the banks are likely to react, and before there is practical experience of the problems involved in controlling the base. That argues for delay. On the other hand, published targets would make a general announcement about MBC more credible (quite important in view of past hesitations) and could contain useful information about how the authorities were likely to behave. The banking system, with more to go on, might adjust more promptly and efficiently.

#### Institutional Changes

9. Compared with present arrangements, a move to non-mandatory MBC requires:

(a) abolition of the reserve assets ratio (RAR); ✓

(b) abolition of the cash ratio (in which case the Bank needs a new source of income) or (as a second best) changes to the existing ratio to make it a minimum (rather than an average) requirement, and to extend it to the whole banking system (so the ratio could be lower than  $1\frac{1}{2}\%$  thereby minimising the incentive to disintermediation); ✓

(c) agreement on new prudential arrangements (which do not involve across the board primary liquidity requirements). ✓

(d) abolition of MLR, and its replacement by an unannounced (and more penal) rate for last resort lending. (For legal purposes, it may be necessary for the Bank to publish an index of "representative" short term interest rates). ✓

*To some degree*

10. All these changes are due to be implemented, in the aftermath to the November Statement. It should be possible to announce abolition of the RAR in Budget speech. The ending of MLR as a posted rate only awaits confirmation that a representative index will suffice for legal purposes. The cash ratio has to be discussed with the banks in the next couple of months, together with other changes needed to facilitate the Bank's dealings in the bill market. Discussion of the detailed implementation of new prudential arrangements is planned to take place between the Bank supervisors and the commercial banks over the next six months or so. In the meantime the supervisors are asking the bank not to make major changes to the structure of their balance sheets without consultation (which is tantamount to turning the RAR from a requirement into a norm).

11. Abolishing the cash ratio would be desirable, but not absolutely essential. The problem with the present ratio is its flexibility. This would enable banks to obtain base, at no extra cost, by temporarily reducing their holdings below 11% of eligible liabilities. The solution is to make the ratio a minimum rather than an average requirement. This would not be ideal. A mandatory requirement to hold reserves in non-interest bearing form is always an incentive to disintermediation; and the authorities always have to stand ready to supply the cash to validate the ratio. However the lower the ratio, the more severe these problems are likely to be in practice.

12. A rapid move to MBC should be fully consistent with the main framework of the proposed new prudential arrangements as now envisaged. These centre on a rather complex assessment of the total liquidity needs of different institutions, taking account of maturity mismatch, foreign currency exposure etc. However, the way the Bank operates in the money markets - what paper it deals in, and on what terms - is relevant to a judgement about the appropriate quality of liquidity held by different kinds

of banks particularly those at the centre of the banking system. Without going back to first principles, the supervisors would want to rethink their ideas about the definition of adequate liquidity for different classes of institutions. A firm decision on MBC by the Budget should not significantly set back their detailed consultations with individual banks, since they have not yet resumed. A later decision would be more troublesome from their point of view.

13. The way in which the Bank organises its interventions in the money markets poses more difficult issues. The Bank have a strong preference for operating through the bill markets, relying on the discount houses to act as market makers. They would want to continue to do so for as long as possible. There is little doubt that a system in which cash was supplied at an unpredictable and often penal rate would create difficulties for the discount houses. Ninety percent of their borrowed funds are placed at call. Monetary base control would not be guaranteed to make call money unprofitable; but the risk of serious losses would be much increased. It is not a foregone conclusion that the discount houses would disappear - the houses might change their role, or survive by attracting longer term funds. The most likely outcome, however, is that the discount market would contract sharply, and probably disappear.

14. The Bank's money market operations would then have to centre on the interbank market. Since this is dominated by the four clearers, who act as lender of last resort to the rest of the system the Bank fear that interest rate determination would chiefly reflect eyeball-to-eyeball haggles between themselves and the clearers. There is some scope for arms-length dealings, provided the Bank can be largely indifferent to the rates that emerge at the end of the day. But since information on quantities is poor during the course of a day, there is a definite risk that informational errors will lead to unnecessary gyrations in short term interest rates. It might well be necessary to make more frequent use of last resort facilities in this situation.

15. If there is a move to MBC these problems will have to be confronted sooner or later. The Bank prefer it to be later, and would almost certainly press for the major banks to observe a call money ratio, of the sort they have already proposed. The argument for such a ratio is that it might give the discount houses time to adjust their books. On the other hand, it would look odd (to say the least) to take steps to prolong call money, while announcing a general intention towards the supply of cash which would effectively undermine the discount houses ability to accept money at call.

#### Operational Implications

16. Once the institutional arrangements discussed above were in place, further changes would depend on how much flexibility in interest rates the authorities allowed in practice, and on how the private sector reacted to increased interest rate volatility. Current proposals to allow rates to fluctuate within a narrow band ( $\pm 1\%$ ) would be one starting point. Rather than adopting a totally accommodating policy towards supplying cash (as now proposed) the Bank could run its operations so that interest rates rose, when the base was running above target and vice versa. Interest rate movements within the band would then reflect the Bank's attempt to meet the target for the base, not on a day-to-day or even week-to-week basis, but over about six months or so. If rates got "stuck" at one end of the band, there would be a presumption that the band ought to be moved. In this sense the position of the band would be the outcome of attempts to target the base.

17. At some stage, the Bank might cease to consult the Treasury about interest rates altogether. Discussions at the monthly meetings would centre of how rapidly it was desirable to eliminate any divergence from the target path for the base. Movements in interest rates would be entirely at the Bank's discretion. Whether the Bank operators themselves thought principally in terms of quantities or prices for their own

operational purposes would be entirely for them. The crucial point is that their monthly and six monthly instructions would be framed in quantitative terms. It would not be realistic to expect them to discharge these instructions as precisely as they currently achieve objectives for interest rates. The basic quantitative information (eg. about the CGBR) on which they have to base their operations is too unreliable. But in any one month they might be expected to correct some proportion of the past error, and offset estimated Exchequer flows to the extent required to meet the target for the base.

18. The main practical issue for the authorities is how rapidly to widen the band. As Professor Meltzer argued at last autumn's seminar, there is a good case at least for starting with some sort of band. Interest rates could provide useful information in the early days. Initially, the authorities will inevitably be uncertain about how to interpret changes in the demand for base, and there is a real chance that there will be shifts in the demand for base assets relative to nominal income. There is also major uncertainty about the time period over which it is realistic to attempt to meet targets for the base. If the demand for base is as interest inelastic in the short run as we now think\*, there may be a choice between allowing very wide fluctuations in interest rates, with possible risk of instrument instability, or only seeking to meet the target over a fairly long time period.

hand  
19. On the other/ more volatile short term interest rates will eventually require important adjustments from the private sector. There will need to be changes in the terms on which banks and other financial institutions (including building societies) lend eg. to the overdraft system, and the pricing of mortgages. The implications for the discount market have already been noted. The financial system is likely to adapt rapidly, once it recognises and accepts the need for change. But institutions will not make costly and disruptive changes to their operations unless they are convinced they are necessary. If an

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\*See Annex A to our recent paper on The Choice of Target Aggregate

evolutionary approach to MBC looked tentative as well, the private sector might delay making changes. This would carry a serious risk of distorting the wider monetary aggregates (through round tripping); and, without changes in the terms on which most mortgages are granted,\* more volatile short term rates would either create serious problems for the building societies (with possible implications for the housing market) and/or be a source of considerable political difficulty.

20. Interest rate bands aside, the other important issue for the authorities is funding policy. The base can, of course, be controlled by sales of any kind of debt (including Treasury bills) to banks or non-banks. The importance attached to selling long term debt to the non-banks would depend on whether there was also a target for  $\text{£M3}$  or some other broad aggregate, and if so, how short term it was. Under MBL, the Duke of York would no longer be possible, though whether this would leave a serious gap in the Bank's armoury of funding techniques is open to debate.

### Conclusions

21. This note is only a preliminary survey of the issues that would need to be resolved. Much more work would be needed on the precise specification of a new system were one to be introduced at all rapidly. At this stage, it is difficult to judge whether there is a real prospect of an improvement in monetary control that would be worth the disruption that would undoubtedly be caused (or even how seriously disruptive a rapid move to MBC would be). Some general considerations relevant to a move to an  $M_0$  target were set out in the paper on the choice of aggregate and in Annex A on the monetary base. Further work will need to bring this evidence, scant as it is, more explicitly into the picture.

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\* about a quarter of all UK households have fully variable rate mortgages: in the US mortgages were traditionally fixed rate, though this has been changing.

### 3. Monetary Base Control

Monetary Target & Monetary  
Control  
Feb 1981