

# 10. Monetary Targets and Economic Policy

## Control of Monetary Aggregates

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CONTROL OF THE MONETARY AGGREGATES

I attach some notes on the current debate about whether we should control M3 or M1 (or M5), assuming of course that the exchange rate is floating and thus we can hope to control any of them. The first two sections comment on issues raised in other internal papers on the subject and doubtless reflect my own lack of understanding as much as anything else. The third section raises what I think are some other relevant issues: the analysis is partial and crude and could be improved.

2. My own view is that the case for preferring M3 to M1 has not been demonstrated, although it appears now to be generally accepted in the Treasury. The a priori argument suggesting greater stability of the demand for M1 function, compared with that for M3, argues strongly for controlling M1. However even if one discounts this argument it seems to me to be an open question which aggregate is preferable as a control variable. Parameters in the demand for M1 and M3 functions are relevant along with the extent to which income and wealth changes are correlated. The method used to control M3 - for example whether or not relative interest rates are changed - is also relevant, as of course also is the nature of the transmission mechanism.

3. No doubt the answers to some of the issues raised here have already been given, in which case I would be glad if recipients would point me in the right direction.



C J RILEY

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(37/1)

Money Supply, the Transmission Mechanism and Disequilibrium

It has been asserted in various places (eg Joe Grice's minute of 13 October, para 8, and Peter Middleton's paper of 26 September, paras 51-3) that whereas the supply of M3 can be controlled by the monetary authorities this is not the case with M1. This supposedly implies that the authorities can cause disequilibrium in the market for M3, and hence influence output and prices as desired. By contrast the M1 market is always in equilibrium and so the major feature of the transmission mechanism between money and the economy (interest rate effects being hard to identify) is circumvented if M1 is the target variable.

My comments on this are twofold. First, I do not see how one can say that M3 is in practice supply determined rather than demand determined, even assuming a floating exchange rate, given the present methods of funding adopted by the Bank. If it adopted, for example, the auction system used in the US, or it determined to sell a particular volume of gilts in order to meet the M3 target and let the interest rate find its own level, I could understand the assertion, but I have always imagined that in practice it does not behave in this way. Does not the Bank set the sale price of new gilt issues with reference to market interest rates generally and accept the demand, for gilts and implicitly also for M3, which is forthcoming? To me this doesn't seem very different from controlling M1 by means of interest rate changes.

Further, although the demand functions for gilts and M3, (and for M1) may be affected by quantitative controls on bank lending it would still not be true to say that M3 is supply determined. The corset does not directly control M3, and many of its effects are cosmetic rather than real. I understand in any case, that the corset is not envisaged as a permanent control system for M3.

Second, I am not aware (and neither I gather is Joe Grice) of any empirical evidence to support the assertion that the market for M3 is less likely to clear than the market for M1. Even if there

was, and thus one had reason to believe that for given income and financial portfolio size (financial net worth) holdings of M3 in relation to holdings of other financial assets could differ from equilibrium values, one would have no clear theoretical reason for supposing that this would affect the goods market directly. Quite possibly the disequilibrium would cause either interest rates to change, perhaps affecting the goods market indirectly, or financial portfolios simply to be redistributed. Even if there are liquidity effects on expenditure it doesn't necessarily follow that disequilibrium in the M3 market directly affects expenditure because the disequilibrium may have as its counterpart an offsetting disequilibrium in the market for other liquid assets: the existence of liquidity effects on expenditure suggests that M5 is the relevant variable and definitely not M3. But insofar as it is wealth rather than liquidity that mainly affects expenditure, as I personally believe and as I understand Joe Grice believes, not to mention what is implied by the consumption sector of the unified model, then the crucial question is whether total financial net worth differs from its equilibrium value (given income, interest rates etc) and not whether the M3 - or M5 or M1 - market is in disequilibrium. Changes in the financial net worth of the private sector can be engineered by the authorities in two ways: first interest rates can be changed, thus changing the nominal value of existing fixed interest debt, and second, new financial assets, both liquid and illiquid, can be pumped into the economy by means of changes in the PSBR insofar as these are not offset by changes in the current balance.\* Both types of change may lead to actual private sector financial net worth differing from its equilibrium value, but neither relies on the existence or otherwise of disequilibrium in the M3 or M1 (or M5) markets.

One way in which disequilibrium in financial markets could feed through into the economy is of course via the exchange rate. Excess supply in the M3 market, for example because the authorities refused to supply all the gilts that were demanded at the given interest

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\*Another way in which real net worth can be changed directly is, of course, for the authorities to change indirect taxes and hence the price level.

rate, could lead to an incipient capital outflow which under a floating exchange rate would have to be offset by a fall in the exchange rate sufficient to improve the current account, and/or induce expectations of an appreciation and hence offset the initial tendency for capital to flow out. Prices and/or output would therefore gradually rise and interest rates fall, thus tending to restore equilibrium. The exchange rate dimension of the transmission mechanism does not, however, depend on the existence of disequilibrium in financial markets, and indeed present Treasury methodology stresses interest rate and exchange rate expectation effects.

### The Link between Fiscal Policy and the Monetary Aggregates

It seems to be common ground that the broader monetary aggregates such as M3 and M5 are better indicators of the stance of fiscal policy than is M1 (eg Charles Goodhart's paper of 14 September, para 35, and Peter Middleton's of 26 September, paras, 29, 35-6) thus enabling the conclusion to be drawn that an M1 target would not give as much soothing information about the general stance of government policy as, say, an M3 target. Looking at this from the demand side, however, it doesn't seem entirely clear to me why this should be so.

I don't think it would be entirely unfair to represent our present views about the demand functions for M1 and M3, appropriately linearised and ignoring lags, by the following equations :

$$M1 = a + bY - cr$$

$$M3 = M1 + \alpha + \beta(W - M1) + \delta(r_L - r_s)$$

$$= [a(1-\beta) + \alpha] + b(1-\beta)Y + \beta W - c(1-\beta)r - \delta(r_L - r_s)$$

where  $Y$  = nominal income

$r$  = "average" interest rate

$r_L$  = long rate including expected capital gains

$r_s$  = short rate

$W$  = private sector net worth.

Thus M1 is viewed essentially as a transactions demand related to income and average interest rates, and the non-M1 part of M3 is essentially an asset demand related to residual private sector net worth and relative interest rates. Assuming that both M1 and M3/<sup>markets</sup>clear, which of the two aggregates is proportionately most affected by fiscal policy changes depends on the relative effects on income and private sector net worth, and the relative size of the parameters  $b$  and  $\beta$ , assuming interest rates (including expected capital gains on gilts) are held fixed. This is clearly an empirical question which others are doubtless better informed about than I. The relative effects on Y and W could be extracted from model simulations - both will be positive in the short run for a fiscal expansion given unchanged interest rates - and the parameter assumptions are presumably implicit in the monetary model. Do we have simulations which justify the supposedly greater effect on M3?

It could I suppose be argued that unchanged monetary policy in this context should be defined as fixed interest rates excluding expected capital gains. In this case the relative effects in the "average" interest rate  $r$  and relative interest rates ( $r_L - r_S$ ) of the presumed adverse effect of an expansionary fiscal policy on expected capital gains becomes important, together with the relative size of the interest rate parameters  $c$  and  $\delta$ . Perhaps a particularly high value of  $\delta$  relative to  $c$  provides the reason for the greater effect on M3 on this interpretation?

#### Other issues in the choice between M1 and M3 targets

None of the arguments in the two previous sections suggest to me at first sight that M3 is to be preferred to M1 as the target variable. Furthermore the argument that the markets prefer M3 and therefore would react in a hostile fashion if a change was made to M1 is surely only a transitional problem which could be overcome if necessary by having target ranges for both for a time and explaining the good reasons (assuming there are some) for the change. By contrast the argument that the demand function for M1

is more stable than that for M3, which favours the choice of M1, cannot easily be dismissed. I accept fully Joe Grice's arguments that the Bank of England's research on the demand function for M1 does not provide conclusive evidence of stability of that function. But there is a strong a priori presumption of greater stability for M1 than for M3 based on the fact that M1 is a much more homogeneous aggregate, being mainly non-interest bearing, and that there are a variety of rather close substitutes for M3 outside it (LA and Building Society deposits for example).

There do seem to me, however, to be some other arguments which bear on the choice between M1 and M3 which do not feature in the papers I have seen on the subject (or I have missed them!). These centre mainly on the likely relative size of interest rate and private sector net worth movements likely to be required to control each aggregate in the face of deviation in income or prices from their desired levels and other disturbances. I would argue that the greater the required interest rate changes and induced changes in net worth the better, because it is by these means that monetary control has a stabilising impact on the economy. I implicitly rule out the possibility of instability. Also I do not consider the argument that interest rate instability is inherently bad - (if so why have a monetary target?).

Consider first a positive disturbance to nominal income, for example due to higher wage settlements and inflationary expectations, unaccompanied by an increase in private sector net worth. This would require the authorities to raise the average level of interest rates,  $r$ , to maintain unchanged M1 and to raise either  $r$  or the long rate relative to the short rate,  $(r_L - r_S)$ , to fix M3. If we assume for a moment unchange relative interest rates, the increase in  $r$  required to control M3 is less than that required to control M1 because an increase in  $r$  depresses nominal private sector net worth. In the notation of the equations above, fixing M1 in the face of an increase  $\overline{\Delta Y}$  in nominal income requires an interest rate change given by

$$\Delta r = \frac{b}{c} \cdot \overline{\Delta Y} > 0$$

and small wealth effects of  $r_L$  changes. Insofar as it is short rates that are important (as I think is increasingly believed in the Treasury?) then M1 control is obviously superior to this sort of M3 control.

It may of course be the case that disturbances to nominal income are accompanied by disturbances in the same direction to net worth,  $\overline{\Delta W}$ . This would be the case if, as is probable, disturbances to nominal income are not entirely spent in the short run. To the extent that this is so, M3 control becomes relatively more desirable. For example if M3 control is exercised with unchanged relative interest rates the required change in  $r$  is now

$$\Delta r = \left\{ \frac{\frac{b}{c} + \frac{\beta}{c(1-\beta)} \frac{\overline{\Delta W}}{\overline{\Delta Y}}}{1 - \frac{\beta}{c(1-\beta)} \frac{\Delta W}{\Delta r_L}} \right\} \cdot \overline{\Delta Y}$$

which may be greater than  $(b/c)\overline{\Delta Y}$  if  $\overline{\Delta W}/\overline{\Delta Y}$  is sufficiently large. The increase in net worth induces larger interest rate increases with M3 control, and hence larger offsetting effects via the transmission mechanism, but no extra effects in the case of M1 control. If M3 is controlled by changing relative interest rates, positive correlation of net worth and nominal income disturbances makes M3 control relatively more desirable except insofar as it is short rates which are important in the transmission mechanism.

Conversely if disturbances to nominal income are negatively correlated with disturbances in net worth, for example insofar as disturbances to income reflect unplanned changes in expenditure, M3 control would generally be relatively less desirable than with no net worth changes. In that case if net worth fell when income rose, for example, the additional net - worth - induced reduction in interest rates resulting from M3 control would offset the desirable tendency for income to fall back to the desired level. Also insofar as disturbances occur to net worth alone M1 control is arguably superior to M3 control because in the latter case



induced interest rate changes will prolong the adjustment process back to the equilibrium level of wealth.\*

Finally, it is perhaps worth noting that with both M1 control and M3 control, there are likely to be problems when shifts in the demand for money functions occur. Targets for either will have to be changed when the shifts occur. However M3 suffers from the further disadvantage that shifts in the demand function for net worth in relation to income affects the demand for M3, and thus assuming that we are interested in controlling nominal income (not wealth) the M3 target would have to be changed whereas an M1 target would not. Thus in the face of changes in the demand for wealth M1 control can be considered more robust than M3 control.

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\* I am not sure whether this argument is correct, because the induced interest rate changes also could be argued to make the wealth adjustment unnecessary.

whereas fixing M3 requires

$$\Delta r = \left[ \frac{b/c}{1 - \frac{\beta}{c(1-\beta)} \frac{\Delta w}{\Delta r}} \right] \cdot \bar{\Delta Y} < \frac{b}{c} \cdot \bar{\Delta Y}$$

Irrespective of the precise nature of the transmission mechanism - whether monetary changes affect the economy mainly via interest rate changes (and thus mainly the exchange rate) or via wealth effects on expenditure - this suggests that control of M1 is preferable because such control will induce more powerful effects offsetting the initial disturbance to nominal income than M3 control will.

If, on the other hand, M3 control is exercised by means of changes in relative interest rates the answer is less clear cut, however. In the extreme case in which the 'average' interest rate,  $r$ , is unchanged, the changes in  $r_L$  and  $r_S$  required to control M3 are now

$$\Delta r_L = \left\{ \frac{b(1-\theta)(1-\beta)}{\gamma - \beta(1-\theta) \frac{\Delta w}{\Delta r_L}} \right\} \cdot \bar{\Delta Y} > 0$$

$$\Delta r_S = - \left( \frac{\theta}{1-\theta} \right) \cdot \Delta r_L < 0$$

where  $\theta$  is the weight of long rates in the 'average' rate,  $r$ . In this case if one believes that wealth effects are the important part of the transmission mechanism, control of M3 in this way may be superior to M1 control if  $\gamma$  is sufficiently small (in contrast to the largeness of  $\gamma$  required to imply large fiscal policy effects on M3, incidentally). In the extreme case in which  $\gamma$  is zero, for example, M3 control is desirable if

$$\frac{\Delta w}{\Delta r_L} < \frac{c(1-\beta)}{\beta}$$

If on the other hand interest rate effects are believed to be the important part of the transmission mechanism the answer clearly depends on which interest rates one is talking about. If long rates are important the condition for M3 control to be superior to M1 control is the same as if wealth effects are important: small  $\gamma$

*In Reply*

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Mrs Lomax  
Mr Wiggins  
Mr Riley  
Mr Bell  
Mr Prust  
Mr King  
Mr Grice

CONTROL OF THE MONETARY AGGREGATES

There will be an "economists only" meeting at 2.30 pm Thursday 11 January in Mr Middleton's room to discuss Mr Riley's minute of 7 November on the subject and also Mr Grice's minute of 3 January. Mr Middleton may also be drafting something on the subject (in the form of an agenda?)

*E. A. Clarke*

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4 January 1979